

EL FUEGO DESTRUYE EL BOSQUE  
EVITA INCENDIO FORESTAL

Reducing wildfire risks and  
impacts through inclusive  
landscape governance





# Reducing wildfire risks and impacts through inclusive landscape governance

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The Tropenbos International Fire-smart Landscape Governance Programme is co-creating and demonstrating locally owned solutions in five countries to reduce wildfire risk for more sustainable use of forests and trees in climate smart landscapes.

The devastating human, social, and environmental impacts of extreme wildfires have received international attention in recent years, and for good reason. Wildfires are increasing in intensity, frequency and scale of impact due to a complex interplay of factors, including climate change creating more favourable conditions. At the same time, wildfires are a significant source of GHGs (Tyukavina et al. 2022).

Numerous underlying and direct factors influence wildfires in tropical landscapes (Goldammer 2016), including agricultural and cattle ranching expansion. However, it is important to recognize that many ecosystems have evolved to depend on fire, and some plants require fire to reproduce and thrive. Therefore, it is not a matter of simply eliminating all fires but managing them in a way that supports ecosystem health while minimizing risks to human life and property. Fire is also widely used in traditional land management by indigenous communities, and later by settlers.

Effective fire management requires a thorough understanding of fire and its relationships, and of the varied roles that fire plays in different environments and cultures. Also, fire management is not just about suppression, with more emphasis urgently needed for prevention and alternative practices that reduce wildfire risks and impacts. It is also crucial to strengthen fire management capacity at national and local level (Goldammer 2016).



## In a fire-smart landscape...



Land users and different levels of government should work together to achieve agreed-upon objectives for sustainable land use and management, which includes reducing the risk of wildfires and ensuring the equitable sharing of benefits.



Effective and truly inclusive dialogue is encouraged, and improving the enabling environment for adopting inclusive fire management in policies and actions.



Locally appropriate and inclusive fire-smart strategies are effectively implemented by national and local authorities in collaboration with local stakeholders.

*This programme aims for such landscapes where TBI network partners operate.*

## Applying a landscape approach to fire management

Responding to raging wildfires in 2019, the [Fire-Smart Landscape Governance programme](#) managed by Tropenbos International set out to reduce the wildfire risks and improve sustainable use of forests and trees in climate-smart landscapes. This is being achieved using an integrated landscape framework of approaches that simultaneously support climate, development and conservation objectives (Chavez-Tafur and Zagt 2014).

The programme was initially launched in Bolivia and Indonesia, where partners had prior experience in fire management. In Bolivia, Instituto Boliviano de Investigación Forestal (IBIF) implemented a rapid-fire response project in 2019-2020 that laid the groundwork for inclusive, appropriate, and effective fire-smart strategies with local partners to minimize wildfire impacts on forest-based livelihoods. Similarly, Tropenbos Indonesia has a long history of fire research and helped to design a district-level fire response plan in 2020, with local stakeholders rewetting peatlands to reduce wildfire incidences. In 2022, the program expanded to Ethiopia, Ghana and Uganda (see pages 4-5).

# Where we work...

## Bolivia



In Bolivia, [IBIF](#) will develop effective, locally appropriate and inclusive fire-smart strategies with local and Indigenous communities in the landscapes of Guarayos and Chiquitania. As approaches they will promote and facilitate multi-stakeholder dialogues to define policies and strategies, provide knowledge for an informed decision making and adoption of risk reduction measures in agricultural production systems, strengthen governmental and indigenous communities in fire management, and promote financial mechanism that encourage the adoption of sustainable production practices.

## Netherlands / Global



The Fire Smart Landscape Governance Programme started in August 2021 and is coordinated from the Netherlands. Focus is on strengthening civil society, including the TBI network, by enhancing capacity and increasing knowledge on a landscape approach for fire management, by generating evidence-based information and sharing experiences from the landscapes. Secondly, the secretariat actively shares this knowledge on (inter)national level fora, promoting the importance of a landscape approach for fire management and its relation with climate change mitigation and adaptation in the tropics.

## Indonesia



[Tropenbos Indonesia](#) will reduce the risks of peatland fires in west Kalimantan through the promotion of peatland restoration approaches, alternative land-use options, and well-coordinated fire prevention policies at district and landscape level. Central is a collaborative process involving multiple stakeholders working towards a shared vision. Tropenbos Indonesia works in close collaboration with district governments to develop and adopt a fire prevention plan and design and implementation of canal blocking systems together with the national peatland restoration agency. Lastly, Tropenbos Indonesia works on the protection of remaining peat swamp forest through strengthening community forestry and connecting them with responsible finance mechanism.

## Ghana



[Tropenbos Ghana](#) will ensure that forest and agricultural landscapes have reduced wildfire risk, resulting in resilient cocoa-forest landscapes in the high forest zone, and the drier northern transition zone. Approaches include stakeholder and institutional strengthening on effective use and management of fire in charcoaling, hunting, herding and farming. On national, sub-regional and global level they share knowledge and experiences from the field on integrated fire management.

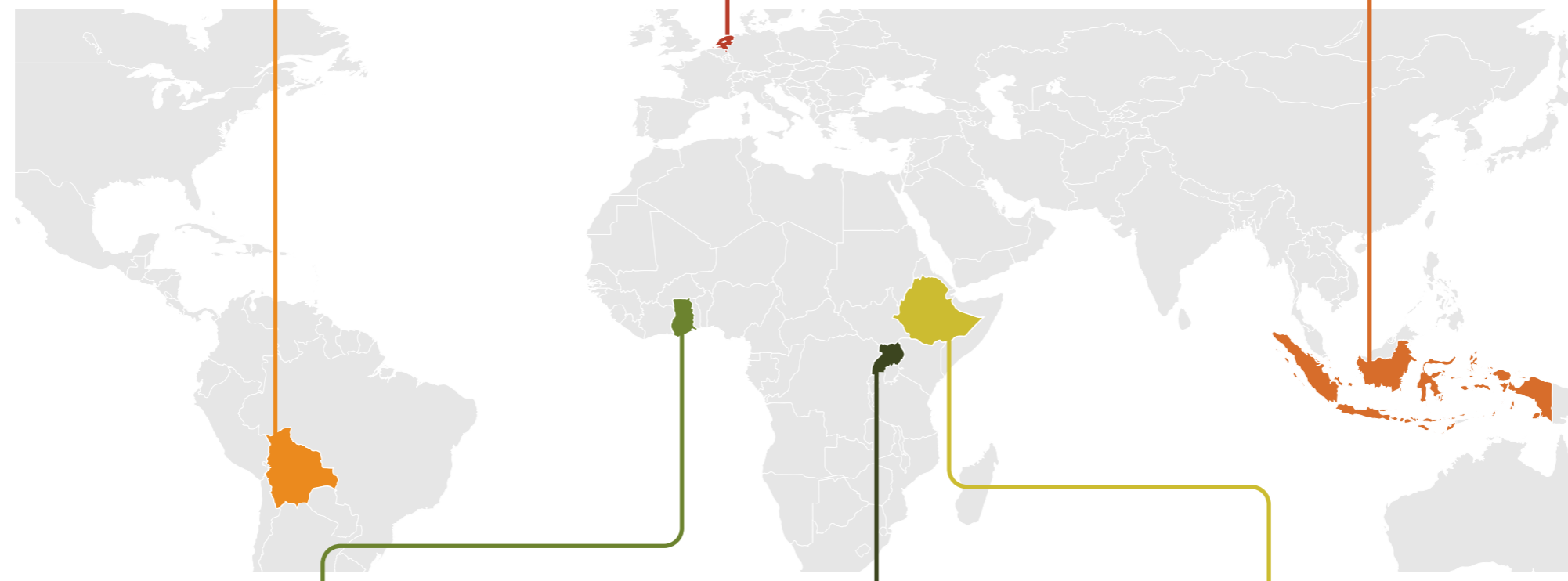
## Uganda



Ecological Trends Alliance (ETA) will facilitate development of a landscape fire strategy for Bugoma landscape in the Albertine Rift Valley. Collective learning and facilitating multistakeholder dialogue are instrumental in this process, reviving a landscape stakeholder platform and doing studies to understand fire dynamics in the landscape. ETA empowers communities to apply fire smart practices and adapt new methodologies, as they are key implementers of any fire strategy to be developed. Work will progress towards development of a national fire management strategy.

## Ethiopia

[PENHA](#) will facilitate the development of a national fire management strategy, based on rigorous data and analysis. The strategy recognizes controlled use of fire as a resource management tool; integrates fire management in landscape-level planning; ensures multi-stakeholder, multi-level governance and assesses capacity gaps to develop a capacity building agenda, among others. PENHA facilitates in depth analytical review of fire drivers and dynamics, stakeholder mapping, and analysis of fire trends. These will inform the development of a national fire management strategy with the participation of relevant actors.



## The TBI approach for improved fire management

Effective fire management requires a collaborative effort from all stakeholders involved in land and fire management. This can be achieved through fire-smart landscape governance where different approaches are understood, recognized and applied, and that addresses the multiple needs of different stakeholders. The interrelations and complexity of factors that contribute to the use of fires are considered, underlying factors and actors involved, and relationships between fire and society. To achieve effective fire-smart landscape governance for reducing wildfire risk, approaches should acknowledge: (i) collaborative learning; (ii) empowering communities; (iii) improving policies and practices; and (iv) inclusive governance.

Expanding global knowledge on inclusive and integrated fire management is crucial to achieving a future with fewer and less destructive wildfires. By combining fire science, traditional knowledge, supportive policies, community inclusion, landscape governance, and capacity strengthening, the wise use of more benign fire can be encouraged to reduce wildfire risks. This approach also presents an opportunity to learn from and preserve cultural heritage and diversity and its potential for addressing climate change mitigation and adaptation. Fire management globally can benefit by learning from experiences in tropical countries.



## The theory of change

TBI envisions that through the implementation of this programme, risks of wildfire events in the tropics are reduced or eliminated for the benefit of sustainable use of forests and trees in climate-smart landscapes. The programme pursues three interconnected pathways of change towards a more comprehensive and effective fire management approach (see next page).

- 1. Structural changes in fire-prone landscapes.** Landscape stakeholders support and implement an inclusive and participatory fire risk management approach, taking the different needs and interests of men, women and youth into account. At landscape level, the aim is to implement agreed integrated fire management practices, harmonizing approaches among different institutions, and including education, fire preparedness, response and post-fire recovery. At the level of government and governance, activities aim to improve policies and regulations related to land use planning, agriculture and forestry, to create an enabling environment for implementing effective practices on the ground. Stakeholders support and implement an inclusive landscape approach to reduce wildfire risks and impacts, considering the different needs and interests of all. Currently, this pathway is implemented in Bolivia, Ghana, Indonesia, Uganda and Ethiopia.
- 2. Strengthened civil society.** Central to the fire smart landscape governance programme is learning, capacity building and coordination, both within and outside the TBI network. Working towards increased network capacity and development of a knowledge engagement system will enable: (i) network partners to address wildfire problems in their country by implementing a landscape approach for fire management; and (ii) generate evidence-based information about landscape approach for fire management in climate smart landscapes in the tropics.
- 3. Visibility and networking.** Practitioners and policy makers need to recognize the importance of inclusion of effective, integrated fire management, also in the context of climate change mitigation and adaptation. Policies must also align with the nationally determined contributions (NDCs), that are designed to improve policy coherence related to climate change mitigation and adaptation.



# Reduced risk of wildfire events for more sustainable use of forests and trees in climate smart landscapes

## Sphere of interest

Stakeholders support and implement a landscape approach for fire management

Practitioners and policy makers recognize the importance of a landscape approach for fire management, and links with climate change mitigation and adaptation in the tropics

## Sphere of influence

**in the landscape**

- Private sector participates in landscape governance and invest in practices that comply with fire-smart approaches
- Local people (including IPLCs and SMEs) adopt fire-smart practices and management
- Local governments (including local customary bodies) support and adopt a landscape approach for fire management
- Producer organisations support fire-smart management and practices by facilitating access to technical support, market and finances

**enabling environment**

- Financial sector includes fire management in their ESG standards that build on landscape approaches
- National governments support a landscape approach for fire management and incorporate them into their NDCs
- CSOs support implementation of a landscape approach for fire management and monitor the impact

Civil society has adequately addressed fire problems by implementing a landscape approach for fire management

- UNFCCC and UNDRR include principles and components of a landscape approach for fire management in the tropics to address climate change mitigation and adaptation
- Relevant practitioners and policy makers demand and make use of products and resources
- CSOs influence governments and private sector to adopt a landscape approach for fire management
- The Dutch government promotes and supports uptake of a landscape approach for fire management in national and international agendas

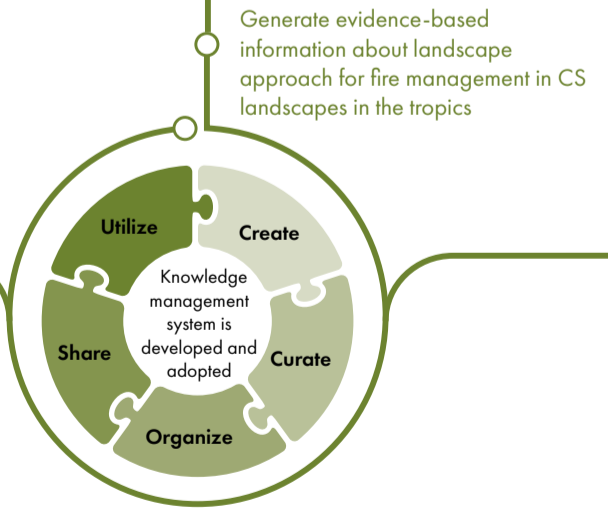
## Sphere of control

- Support national governments to develop fire management policies and action plans
- Implement a landscape approach for fire management
- Facilitate multistakeholder dialogues to develop landscape fire management strategies and action plans

Civil society has enhanced capacity, knowledge and tools for decision making and implementing a landscape approach for fire management

- Learning community in place
- Informed dialogue facilitated
- Individual and organisational capacity on inclusive and participatory fire management
- Participating in and supporting the Global Wildland Fire Network
- Promote inclusion of the concept in national and international policy and research agendas

Actively pursue and develop new opportunities in other countries



Lobby and advocacy, engagement, facilitation and technical support

Learning and Coordination

Outreaching, sharing and scaling



## Sharing knowledge and facilitating learning

It is important to understand the underlying and direct causes of wildfires in tropical forested landscapes to develop effective fire management strategies. Tropenbos International is therefore committed to generating evidence-based information on fire management approaches and facilitate learning and exchange on different levels. Therefore findings and best practices are actively shared with networks and platforms, for collaboration, sharing knowledge and enhancing cooperation to promote inclusive and effective fire management practices on a global scale.



In 2022, a new edition of Tropical Forest Issues was published entitled 'Towards Fire-smart Landscapes' (see box). Tropenbos International organized a session on '[Fire-smart landscapes as a promising approach for effective adaptation and mitigation](#)' at the Global Landscapes Forum on the sidelines of COP27 in Egypt. Integrated and context-specific fire management and fire risk reduction approaches that combine restoration and regeneration practices and traditional knowledge, and how successes can be scaled up to become part of nationally determined contributions (NDCs) where shared during the session, also captured in a [white paper](#).

In January 2023, representatives from Bolivia, Ghana, Ethiopia, Uganda and the secretariat gathered in West Kalimantan, Indonesia, for a joint learning, reflection and planning workshop, and field visits ([watch video impression](#)).

During the 8th International [Wildland Fire Conference](#) in Portugal in 2023, all five countries and the secretariat of the programmes participated, which allowing us to engage with a diverse range of stakeholders and showcase the programme's impacts.



'Towards fire-smart landscapes' includes 25 articles from 100 contributors in 15 countries across tropical America, Asia and Africa. These show a paradigm shift is needed towards locally owned, integrated fire management focusing on risk mitigation, prevention and post-fire recovery, and not just fire suppression. Negative impacts of 'no fire' policies are highlighted, and many emphasize the need to learn from indigenous and traditional knowledge, and the key role of community participation in the design and implementation of fire management. Capacity is also needed at all levels, from national and sub-national coordination, to community volunteers – and not just for dedicated fire brigades. And where lacking, national integrated fire management strategies and actions plans must be developed, with cross-sectoral collaboration, clear roles and responsibilities, and adequate human and technical resources as a basis for concerted and effective fire prevention and suppression.



## Impact so far...

By the end of 2023 our work to reduce wildfire risks already had significant results, with improved fire-smart practices implemented on more than **9.7 million hectares** of land, benefitting over **21.3 thousand people**.

In 2023 we made strides towards safer and more fire-resilient landscapes through collective action to fire management, by focussing on collaborative learning, empowering communities, inclusive governance, and improving policies and practices.



**Collaborative learning** — To better understand wildfire management in Ethiopia PENHA reviewed the challenges surrounding wildfire management and laid the groundwork for a national fire management strategy.



**Empowering communities** — Community involvement is key to successful wildfire management, as demonstrated in Ghana and Uganda. In Ghana the programme's community awareness and education initiatives have led to a significant reduction in wildfire incidents in the landscapes of Juaboso-Bia, Sefwi-Wiawso, Atebubu and Kintampo. Programme staff trained around 400 community fire volunteers, and district and regional fire management committees were formed. Through these training programmes and public campaigns, community fire volunteers were able to educate and empower local communities. This resulted in a notable decrease in reported fires, from 1,050 in 2022 to 513 in 2023. In Uganda, a private sugar company engaged with local communities to create firebreaks, showcasing a positive outcome of collaborative action.



**Inclusive governance** — Shared governance and collaboration are essential to mitigate wildfire risks on a broader scale. Collaborative efforts by our partner IBIF with Indigenous organizations in the Guarayos and Chiquitania landscapes in Bolivia led to the implementation of inclusive fire-smart strategies and community monitoring systems. This has resulted in the control of at least 67 fire outbreaks. In the Bugoma landscape, Uganda, ongoing efforts between Ecological Trends Alliance (ETA), local authorities, private companies and communities have culminated in the development of a comprehensive fire management strategy. This strategy is now being scaled up to the national level, with key authorities taking the lead in implementing effective fire prevention measures.



**Improving policies** — Policy development is crucial in shaping wildfire management practices. In Ethiopia, a National Fire Management Strategy was implemented. This was a significant milestone, with federal and regional authorities working together to endorse and implement the strategy. Similarly, in Ghana, the fire-smart programme's influence on national policies has formalized the involvement of community fire volunteers, solidifying their role in national fire management efforts. In Indonesia the national peatland and mangrove restoration agency, together with Tropenbos Indonesia, built on the results of the programme's interventions and developed a regional master plan on fire prevention in peatlands for Ketapang District.

## Scaling successes

The forecasted 50% increase in the number of wildfires by 2100 (UNEP 2022) is worrying. To reduce wildfire risks, it will be essential to adopt a comprehensive approach that involves multiple levels of governance and the collaboration of diverse stakeholders. Governments must develop policies and regulations that support implementation of effective fire management practices on the ground, while communities, landowners and other stakeholders must be empowered to participate in landscape-level agreements and coordinate their efforts.

Governments may not have the capacity to handle a surge in wildfires, making urgent action essential. Effective fire management strategies, policies and plans need to be coherent with broader national policy frameworks on climate change adaptation and mitigation. It is therefore important to combine aspects of the climate change and forest agendas, and national development strategies should acknowledge the importance of fire management in the sustainable use of land and forests. Importantly, the international community must recognize the importance of addressing the growing threat of wildfires in tropical forested landscapes and mobilize the resources needed to support this critical task and to ensure that these funds reach the local communities

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