

Fire Governance

in the context of Integrated Landscape Management

Key concepts and guidance for
practitioners



Photo: Fundación para la Conservación del Bosque Chiquitano

Purpose

This guide has the following purpose:

1. To provide leaders, practitioners, and facilitators of integrated landscape management (ILM) with a conceptual framework on fire and its management from a participatory governance perspective;
2. To guide the implementation of fire governance processes from the ILM approach;
3. To describe tools that foster coordination among public policy, local knowledge, and territorial action for fire governance.

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Introduction

Fire is a natural element that human beings have used since ancestral times, and the feelings it provokes range from fear to fascination.

Beyond humanity's dependence on fire, Indigenous cultures built myths and legends around their relationship with it, and today that tradition endures not only in the spiritual realm but also in practical terms, since fire has been, and continues to be, a tool that communities use for a variety of purposes.

In ecological terms, fire is an essential element for maintaining and sustaining the functioning of ecosystems, especially those adapted to it. However, the problems associated with fire, including wildfires, can affect ecosystem goods (e.g., fruit, timber, among others)¹ and services (e.g., water purification, pollination, among others)² as well as the livelihoods of the population. This situation is intensifying in a scenario where climate change is worsening the problem through wildfires that are more intense, severe, and recurrent, compounded further by poor practices and weak policies.^{3,4,5}

In this scenario, suppression alone is not enough to address the problems posed by wildfires; rather, what is needed are actions organized over time and across different scales (e.g., farm, community, landscape), in which those involved work together in a coordinated search for strategies and solutions. In a broad sense, integrated fire management (IFM) promotes the recognition of fire management as an ecological, social, and cultural process, one that combines prevention, risk reduction, planned use of fire, community preparedness, and other elements to minimize the negative impacts of wildfires and strengthen the resilience of ecosystems and communities.



However, is IFM enough to tackle the problems caused by fire misuse?

No, it is not, since complex problems call for actions that generate influence and bring about deep change. In the pursuit of this transformation, fire governance emerges as an opportunity to align objectives, bring institutions together, establish regulations, or design oversight mechanisms. It also makes it possible to generate change through the participation of public, private, and civil society actors in settings where a lack of institutional and policy coordination makes it difficult to address the problem at the scale and within the timeframe required.⁶

In this way, shared responsibility through fire governance helps ensure that the IFM approach is properly applied within the context of a given landscape or territory, with results that are manifested through better landscape planning, conflict prevention, the strategic use of spatial information, capacity building, among others.

This brings us to the next question: how can fire governance be promoted from a landscape perspective?

Integrated landscape management (ILM) is an approach that fosters multisectoral cooperation to address issues of shared interest. Through ILM, stakeholders can build the foundations for fire governance processes and make decisions that help minimize the damage caused by wildfires, while also promoting the appropriate use of fire and maximizing the ecological, social, and economic benefits of the landscape.

In this sense, fire governance approached from ILM represents an opportunity to link education, exchange, and knowledge generation, as well as advocacy, as strategies to bring landscape actors together and address fire-related problems. However, this is not a simple process, since it requires understanding both the complexity of these problems and the challenges of governance, understood as a process that spans everything from setting work agendas to influencing public policy.

In this context, some key questions arise:

- What are integrated fire management and fire governance?
- How is fire governance built from integrated landscape management?
- In what ways is fire governance practiced from integrated landscape management?

The following document describes the main conceptual aspects related to **fire and the landscape**, as well as practical elements that show how fire governance contributes to **landscape resilience** from the perspective and interests of its stakeholders.

The Landscape: Concept and Importance

A landscape is a territory where nature, people, and productive activities converge, generating multiple interdependencies and shared challenges. It can be understood as a unit of territorial management in which diverse actors, land uses, and interests coexist and interact in a highly interconnected way.

Thus, the “landscape” is a concept that integrates both natural and human-made elements, and reflects the physical characteristics of the environment as well as the cultural and social aspects of the communities that inhabit it,^{7,8} Managing the landscape, particularly in a context of climate change—where processes of degradation and biodiversity loss are accelerating, and community demands are increasing—involves making decisions about resource use and management in order to balance the needs of society with the capacity of ecosystems to provide goods and services.⁹

While working from a landscape perspective allows for a broader view of the context, it necessarily requires the active participation of stakeholders. This is key to aligning agendas, balancing interests and expected benefits,¹⁰ and moving forward in building pathways that address the ecological, social, cultural, and economic challenges of the territory, promoting the sustainability and resilience of the landscape as a whole.

But between the concept of landscape and the need to manage it, how does fire, its problems, its benefits, and the importance of its management, fit in? To answer this, it is necessary to understand fire, its uses, as well as the general and specific aspects of integrated fire management.



Fire: from the landscape to integrated management

Fire is a necessary element for the ecological succession of ecosystems¹¹ and is a key factor in the development of various cultures. Shaped by both natural and human factors,^{12,13} it is associated with a range of positive (+) and negative (-) aspects. These include:^{14,15,16}

- ⊕ Planned burning in agricultural and livestock zones helps reduce fuel loads (e.g., stubble, dry grass, crop residue), eliminate pests, or stimulate regrowth, thereby optimizing production.
- ⊕ Fire can facilitate the design of habitat mosaics that depend on fire.
- ⊖ Unplanned fire causes degradation and biodiversity loss.
- ⊖ Unplanned burning promotes the buildup of particulate matter that affects air quality and community health.
- ⊖ Unplanned fire can lead to wildfires that result in loss of human life and economic damage.

Fire, along with the problems that arise from using it without responsible management, needs to be analyzed from an ecological, cultural, and operational perspective. These aspects come together under the approach known as *integrated fire management*^{17,18} (Figure 1). This approach supports the mitigation of wildfires and creates the conditions needed to advance the conservation and management of fire-affected landscapes. Its impacts can be seen both in flora and fauna and in the substantial economic, technical, and operational investments required to restore affected systems.¹⁹

Integrated fire management (IFM) promotes the strategic use of fire to reduce its negative impacts and enhance its benefits,¹⁵ through the joint work of the actors involved in its management. This approach makes it possible to address both the challenges and the opportunities that fire presents, taking into account the natural environments and the socioeconomic systems in which wildfires occur. In addition, IFM provides a conceptual framework for planning (for example, control and mitigation) and for defining strategies based on participatory governance. In this way, it contributes to preserving the natural, social, and cultural values of the landscape.²⁰

IFM promotes linking the ecological and cultural dimensions with the technical management of fire through fire governance, in which the five Rs (5Rs) are integrated as the core of the approach (Figure 1). In this way, from a holistic standpoint, IFM proposes addressing the challenges of fire and the effects of policy through the balanced integration of the social, cultural, and ecological aspects of fire management.²¹ To this end, the application of IFM should take the following into account:

- **Technical applications** are the set of tools used in a given context for fire management, aimed at reducing the risk and damage caused by wildfires, while also maximizing the benefits of fire in scenarios involving planning, control, and responsibility for this element. These include education, fuel management, early detection, institutional coordination, among others;
- **Culture of fire** involves recognizing, valuing, and drawing on the traditional knowledge and historical, productive, and cultural practices of indigenous peoples and local communities in designing strategies and implementing actions across various spatial and temporal scales. This fosters governance and shared responsibility; and
- **Fire ecology** involves understanding fire as both a natural and a cultural factor in ecosystem dynamics, recognizing that designing strategies and action plans requires knowledge of fire behavior under different conditions, fire–vegetation–soil interactions, historical fire regime patterns, and ecosystem resilience goals, in order to optimize the ecological benefits of planned fire and minimize the impacts of unwanted fire.

At the global level, IFM takes on various forms. For example:

- **In Ecuador**, IFM takes shape at the institutional level through political, regulatory, strategic, and technical decisions of national scope, implemented from the national down to the local level for the protection, conservation, and sustainable use of natural heritage, integrating both scientific and sociocultural dimensions;²²
- **In Peru**, although the regulatory framework restricts the use of fire and does not explicitly recognize the IFM approach, it is expressed, among other ways, through practical strategies such as the “Forest Backpack” (“Mochila Forestal”), led by the Peruvian Forest and Wildlife Resources Oversight Agency (OSINFOR), a set of participatory, intercultural, and inclusive training tools with a gender approach related to wildfire prevention and sustainable forest management;²³
- **In Thailand**, communities in Khun Chae National Park apply IFM in coordination with institutions, NGOs, and researchers to manage fire, where the creation of a committee to discuss policy and make decisions related to the forest and the use of fire has sustained the application of good practices and the delivery of landscape benefits.²⁴

Figure 1: Components of Integrated Fire Management



Source: FAO / Lara Steil, adapted from Myers, 2006

Although the documented experiences of IFM at the regional, national, and local levels show positive results, it is important to recognize that effective implementation requires a comprehensive analysis. This includes:

- Understanding the ecological structure of the landscape and fire behavior;²⁵
- The networks and interactions among stakeholders and wildfires;²⁶ and
- The impact of policies on fire management actions.²⁷

Integrated Fire Management and Fire Governance

IFM requires stakeholders to understand:

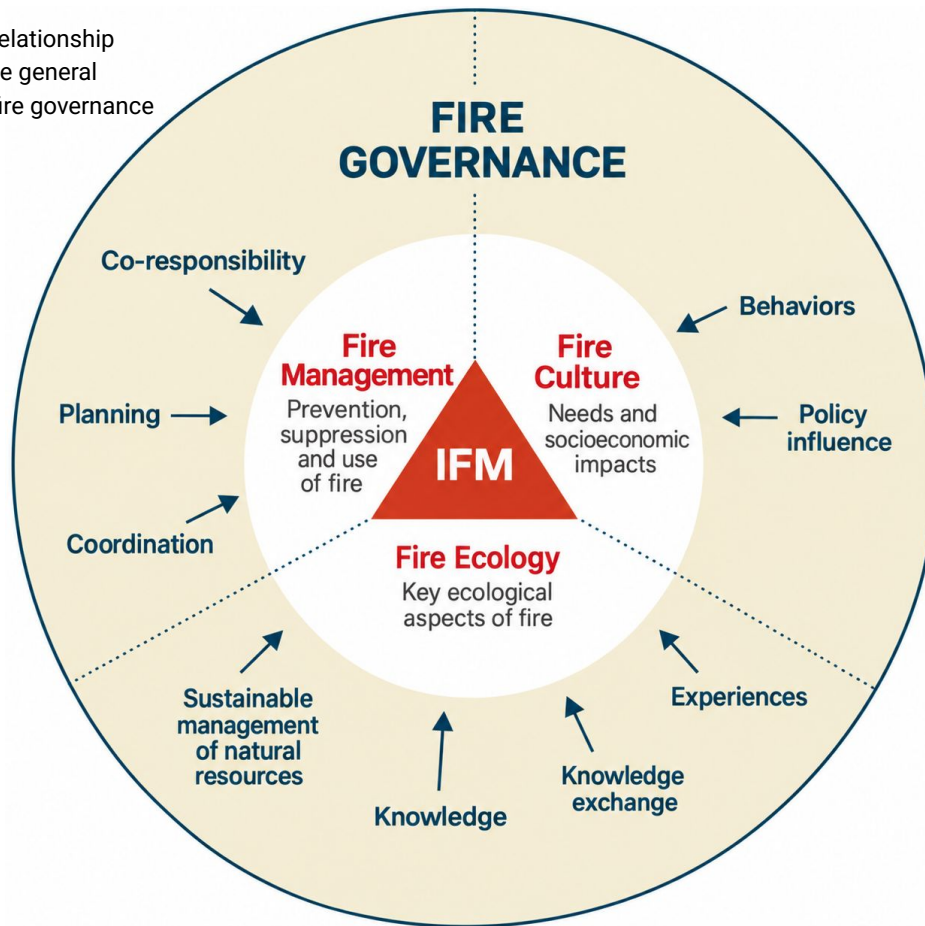
1. The characteristics of the ecosystem and the intended objectives of fire management
2. The cultural and socioeconomic aspects of fire management
3. The institutional structures and the processes involved in policy design and advocacy
4. The ways in which a landscape's stakeholders relate to one another vertically and horizontally, and the outcomes of the interaction among them²⁸

So, from the standpoint of IFM, how can stakeholders be helped to understand these points and use them strategically to make fire-related decisions? Fire governance is established as a process that brings together **(i) education, (ii) knowledge exchange and generation, and (iii) advocacy and decision-making** (spanning everything from behavior to policy). These are basic elements for building cohesion among a landscape's stakeholders, seeking to address fire-related problems and opportunities in an organized and coordinated way.

As a process, fire governance encourages society to engage in the sustainable management of risk at the landscape scale and to contribute by changing behaviors and strengthening procedures (e.g., regulatory ones) related to the use of fire. But fire governance is not just about coming together and working to prevent wildfires or build a culture of prevention. For example:

- **In the Santa Cruz region** of Bolivia, an area regularly affected by fires that can span millions of hectares, coordinated work among the departmental government, municipalities, the Chiquitanía Sostenible Model Forest, Indigenous communities, and public and private institutions made it possible to develop activities to reduce wildfire risk and ensure the population's safety and long-term sustainability.²⁹
- **In the Galicia region** of Spain, a heterogeneous territory where various forest management schemes are applied, vulnerability to wildfires led to the design of new resilience strategies that drew on community knowledge and public-private collaboration to promote more responsible uses of the forest.³⁰
- **In the Sierra Volcánica Biocultural Landscape** (PBSV), Jalisco, Mexico, fire governance took shape as a process of public-private coordination and territorial participation. Building on a fire management strategy led by the public sector in collaboration with Rainforest Alliance and the PBSV, it was possible to actively engage real estate sector actors, who contributed not only financing for its implementation but also operational brigades during critical seasons. This approach made it possible to align efforts both within and beyond their properties, strengthening coordination at the landscape scale, improving response capacity, and fostering effective shared responsibility for wildfire risk management.

Figure 2: Relationship between the general criteria of fire governance and IFM



In this way, through fire governance, stakeholders can contribute to (Figure 2):

- The prevention and control of wildfires;
- Education on the appropriate use of fire in agriculture and other productive activities;
- The design and/or adaptation of local and national regulations and policies;
- The development of scientific research projects and technology development and transfer; and
- The strengthening of capacities and the exchange of good cultural and ancestral practices
- The alignment of fire-related challenges and needs with other systemic (socio-environmental and economic) priorities of the landscape or territory.

But, how can stakeholders be brought together to address the challenges of fire and other landscape issues? To this end, integrated landscape management represents an integrating framework that fosters alliances and makes it possible to organize fire governance as part of a broader socio-ecological system within the territory.

Fire Governance within Integrated Landscape Management

Although fire is a cross-cutting issue that involves multiple stakeholders in a landscape, it remains just one component within a broader socio-ecological system, one in which many other challenges, interests, and priorities coexist.

Coordinating the stakeholders linked to fire is essential, but achieving meaningful progress requires situating fire governance within the landscape's broader agenda. Only in this way is it possible to address the structural and complex factors that drive fire risk, recognize competing interests, and find synergies that reduce conflict between sectors. So, how can ILM enable more effective and efficient fire governance and integrated fire management?

ILM establishes a framework for managing the landscape systemically, based on multi-stakeholder coordination and collaboration. This approach recognizes the social, economic, and ecological complexity of the territory, and promotes planning and the design of actions that are consistent with its dynamics.³¹

To this end, ILM drives the creation of multisectoral alliances as a central element of landscape governance, which form the basis for designing, implementing, and evaluating actions within the territory⁸ (Figure 3).

Below are characteristics of the landscape approach, organized by level of action, along with their contribution to strengthening and coordinating fire governance processes.



Figure 3: The 5 elements of integrated landscape management³²

Level of action	ILM attribute	Contribution to fire governance
Operational	Provides a framework for joint work among actors involved in the design, implementation, and evaluation of landscape planning instruments.	Makes it possible to coordinate instruments that are often applied in a scattered way, strengthening a systemic understanding of the landscape and enabling more comprehensive strategies for addressing fire-related challenges.
Organizational	Facilitates the construction of multilevel, multisectoral governance structures that connect actors ranging from grassroots organizations to decision-makers.	Participation in stable platforms (for example, territorial roundtables) makes it possible to bring together complementary capacities, interests, and responsibilities to drive fire management at the landscape scale.
Political and social	Fosters the recognition of landscape stakeholders as key actors in decision-making, strengthening their legitimacy to exert political influence.	This legitimacy helps position landscape issues within advocacy spaces and promotes changes in practices related to the use of fire.

In this sense, fire governance and integrated fire management play a dual role within the context of ILM. On one hand, fire can act as a unifying issue that brings together diverse stakeholders around its own agenda. At the same time, fire governance must be integrated into the broader framework of landscape governance, ensuring its alignment with shared visions, strategies, and priorities for the sustainable use of the territory. In practice, this integration can be carried out through various lines of action that span institutional alignment across multiple levels, territorial planning, knowledge generation, and the strengthening of capacities and leadership.

Fire governance as a sub-platform

A practical way to achieve this integration is to design fire governance structures—such as working groups, committees, or task forces—as sub-platforms directly linked to the broader landscape platform. This creates a two-way channel for feedback and influence: the landscape agenda guides and shapes the fire agenda, while fire-related priorities and lessons learned enrich and help reshape the landscape alliance's understanding and strategies. This can be implemented through shared representatives, regular communication, and joint decision-making processes between both levels of governance.

Aligning fire planning with landscape strategies

Likewise, fire management planning should be developed in a way that is consistent with the landscape plan. This ensures that fire-related objectives and activities are not addressed in isolation, but rather in synergy with strategies from other sectors, such as agriculture, forestry, water, biodiversity, or community development. For example, aligning fire prevention with agricultural zoning or forest restoration initiatives can reduce risk while at the same time enhancing ecological and social benefits.

Integrating fire governance into territorial planning instruments

Reviewing and discussing public planning instruments among stakeholders can lead to the design of land-use planning proposals that explicitly incorporate fire- and wildfire-related factors (for example, fuel continuity associated with changes in the landscape's productive matrix).³³ In this way, ILM makes it possible to approach fire not only as a threat, but also as a management tool with economic, social, and ecological implications, promoting more coherent and integrated territorial planning.³⁴

Incorporating local knowledge and experience into fire governance

Implementing collaborative, multilevel arrangements makes it possible to integrate the perceptions and experiences of land users (for example, farmers or foresters) together with those of other actors (such as large producers, researchers, or decision-makers).³⁵ Excluding communities can generate conflict and increase the risks associated with the improper use of fire.³⁶ In this sense, ILM promotes enabling conditions for collective learning and the adaptation of strategies, supporting more informed, inclusive, and innovative decisions about the use and management of fire.

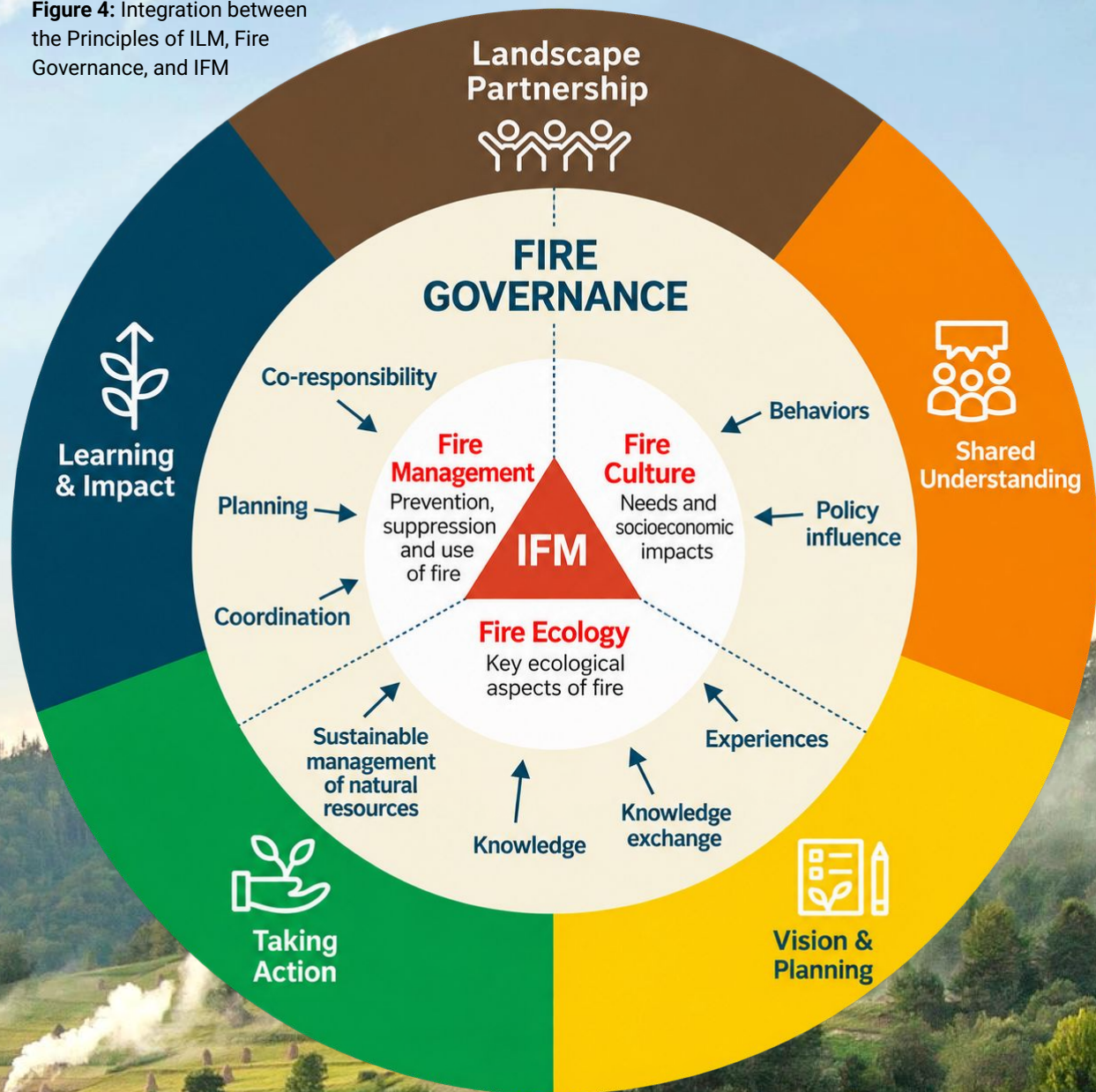
Strengthening leadership and coordination for fire policy advocacy

Joint work between local actors and others with a stake in the landscape helps strengthen legitimate leadership, capable of playing a key role in policy advocacy.³⁷ Building a shared vision of the landscape makes it possible to develop and sustain a transformative narrative, driven by local leaders and strategic allies. This can translate both into changes in day-to-day practices (for example, the timing of burns) and into broader shifts in institutional approaches, including regulatory and financing mechanisms linked to fire management.



Photo: Fundación para la Conservación del Bosque Chiquitano

Figure 4: Integration between the Principles of ILM, Fire Governance, and IFM



Further Reading

The relationship between innovative approaches and policy is a central aspect of the ILM approach. To explore this point further, we recommend reviewing the guide [*"Public Policy for Integrated Landscape Management."*](#)

Assessing fire governance

While the strengths of ILM as a strategy for driving fire governance are widely recognized, it is also necessary to demonstrate the results of integrating these processes. To do so, the actors that make up the landscape alliance must systematically review both the path forward and the results they expect to achieve.

In this regard, some guiding questions might include:³⁸

- What are the motivations for promoting a fire governance process?
- What factors will facilitate or hinder synergies for fire governance?
- How should the challenges of fire governance be managed to achieve the expected results?
- What roles, responsibilities, and decision-making mechanisms will each actor take on within the landscape alliance for fire governance?
- What indicators will make it possible to assess whether fire governance is generating effective changes in risk management, the use of fire, and the reduction of impacts on the landscape?
- What institutional, regulatory, or financial adjustments will be needed to sustain over time the agreements reached within the landscape alliance?

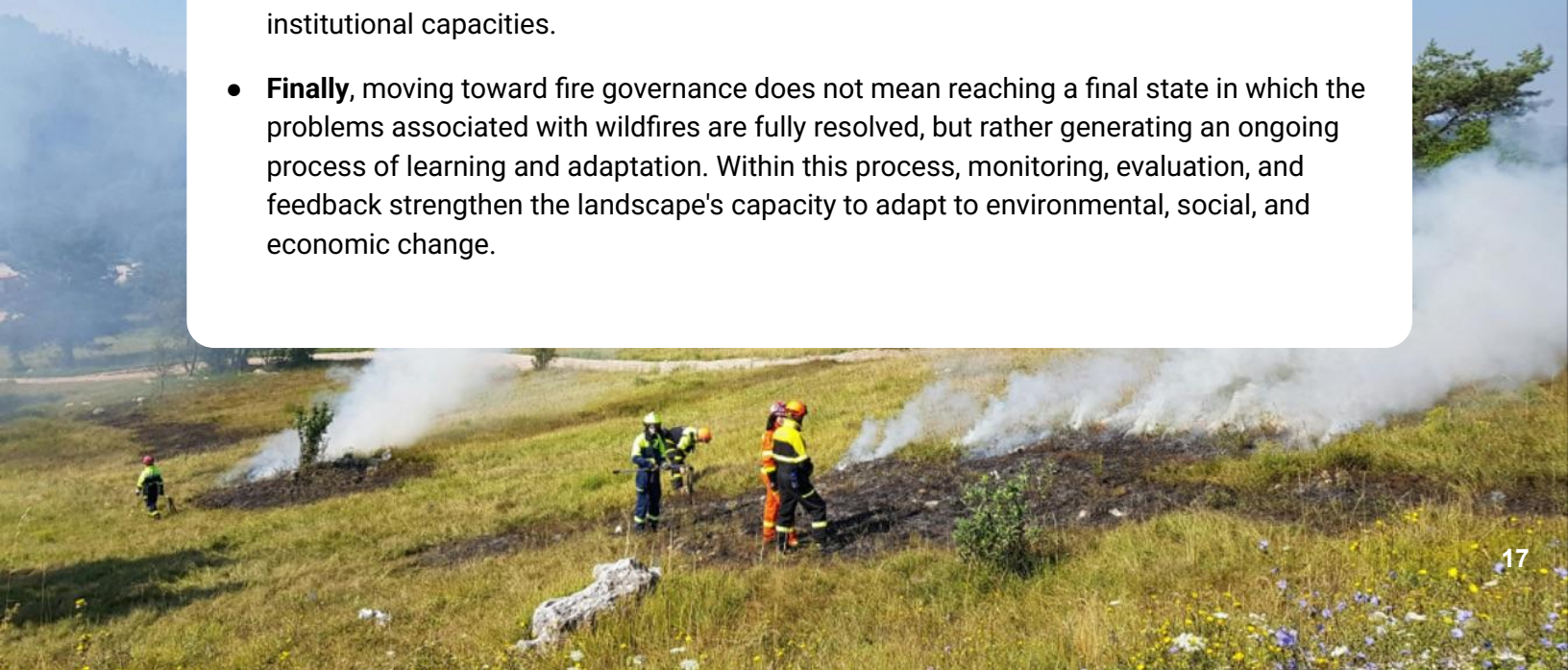
To answer these and other questions, a range of concepts, methods, and tools can be used. These include the principles of good governance—related to participation, accountability, equity, and inclusion, among others³⁹—which take on a particular expression depending on the characteristics of each landscape.

Likewise, to assess the results of fire governance and ensure that proposed goals are met, landscape actors can use methods suited to the scale of action. For example, public institutions can apply the Natural Resource Governance Index³⁹ to assess governance in productive sectors, or develop specific indicators⁴⁰ for particular programs (for example, financing initiatives aimed at promoting good fire-use practices with a landscape approach). These tools are complemented by policy evaluation and adjustment processes.

Among the tools available is the **governance quality analysis matrix**,⁴¹ which makes it possible to assess the current state of the process by relating criteria (scope, coherence, flexibility, and intensity) to dimensions (scale, networks, goals, strategies, and responsibilities), based on key questions. As an example, the following table presents some questions that local stakeholders can use to characterize the governance process; the results can help inform the design of evidence-based strategies.¹⁵

Governance dimensions	Governance quality			
	Scope	Coherence	Flexibility	Intensity
Levels and scales	From what levels (local, regional, national) do stakeholders take part in fire-related decision-making?	Do the different levels interact and make fire-related decisions based on trust and coordination?	Are there mechanisms to involve stakeholders from different levels and enable them to interact with one another?	Do decisions and actions generate changes at the different levels?
Actors and networks	Are all relevant landscape stakeholders represented in fire-related decision-making spaces?	Do stakeholders have experience in co-creation and collaboration processes?	Are there opportunities to bring new actors into decision-making spaces?	Do stakeholders perceive that working together helps resolve fire-related problems?
Problems, objectives, and goals	Are the fire-related problems in the landscape clearly defined?	Do the objectives and expected results comprehensively address the different dimensions of the problem?	Are mechanisms applied to review and adjust actions based on whether results are being achieved?	To what extent do the proposed actions and goals generate changes relative to customary practices in the landscape?
Strategies and instruments	What types of instruments are used to design action strategies?	Do stakeholders consider the equitable distribution of the costs and benefits of actions?	Is there an opportunity to integrate various instruments into the design of strategies?	What concrete changes do the strategies generate in relation to fire-related problems?
Resources and accountability	Are the roles and responsibilities of the stakeholders involved clearly defined?	Do the stakeholders participating in decision-making hold legitimacy within the landscape?	How is compliance with responsibilities measured and/or assessed, and what does that measurement involve?	Is the amount of resources invested by the decision-making body sufficient to achieve the goals?

- **Fire governance goes beyond taking action to put out fires.** It is a process aimed at achieving a balance between fire management, biodiversity conservation, and the maintenance of the ecological, social, and productive conditions that sustain communities and territorial systems.
- **Achieving this balance requires the active participation** of multiple stakeholders, effective communication mechanisms, intervention strategies at different scales, as well as the design of and advocacy for policy, financial, and planning instruments that can either facilitate or constrain fire management.
- **In this context, Integrated Landscape Management (ILM) provides the framework** that makes it possible to situate fire governance within a broader territorial vision. Under this “umbrella,” fire is no longer approached as an isolated, sectoral problem, but instead comes to be understood as an intrinsic component of the landscape's ecological, productive, and social dynamics. This facilitates coordination among stakeholders, coherence across sectors, and the alignment of strategies, enabling fire governance to contribute effectively to broader goals of landscape sustainability, development, and resilience.
- **From this perspective, fire can act as a unifying axis** that mobilizes stakeholders, while its management becomes integrated into broader processes of planning, land use, and territorial development. In this way, ILM not only strengthens fire governance, but also turns it into a vehicle for collective action, innovation, and landscape transformation.
- **Within this framework, fire governance provides a foundation for decision-making** that is informed, inclusive, and adaptive, supporting not only effective fire management but also contributing to comprehensive landscape management. It also makes it possible to shift from reactive, sectoral responses toward preventive approaches, in which wildfire risk is managed comprehensively, combining scientific knowledge, local knowledge, and institutional capacities.
- **Finally,** moving toward fire governance does not mean reaching a final state in which the problems associated with wildfires are fully resolved, but rather generating an ongoing process of learning and adaptation. Within this process, monitoring, evaluation, and feedback strengthen the landscape's capacity to adapt to environmental, social, and economic change.



Ideas for a Learning Session

This component accompanies the fire governance module within the context of ILM and provides practical guidance for conducting interactive, participatory learning sessions at the local level with key landscape stakeholders. It builds on the module's objective of addressing the **main concepts of fire management** and the basic elements for developing **fire governance processes** within the context of ILM.

The guide includes a **sample workshop agenda**; however, facilitators should adapt the agenda, timing, and activities to the specific context, participants, and cultural setting.



Expected learning outcomes

After this session, participants will be able to:

1. Define the key concepts of fire management and governance within the framework of ILM
2. Analyze the problems associated with fire and the social, technical, and policy interactions among landscape stakeholders
3. Develop strategies aimed at designing and implementing fire governance processes at the landscape scale

Learning session on fire governance

From a cross-cutting, systemic perspective, any initiative aimed at strengthening fire governance within the context of ILM requires **participatory processes of collective analysis and reflection** that help ensure actions are *context-specific, inclusive, and sustainable over time*.

The proposed workshop aims to bring together landscape stakeholders, such as producers, decision-makers, leaders of environmental organizations, academics, and researchers, among others, to **analyze and discuss the challenges posed by fire**, and to identify the institutional and social conditions needed to address fire-related problems through governance processes.

Based on participatory methodologies, the workshop is organized into **four stages**:

1. The first is designed to help participants **become familiar with key concepts** such as *integrated landscape management, integrated fire management, and fire governance*, among others;
2. The second is designed to have participants **discuss fire-related problems**, and describe the social processes and policies that need to be reflected in the landscape to address these problems;
3. The third is designed to have participants **build strategies** and prioritize activities that can be implemented to promote fire governance in the landscape; and
4. The fourth is designed to have participants, drawing on the results and lessons learned, **define next steps** to strengthen work in the landscape and sustain fire governance over time.

The workshop is designed for stakeholders to carry out the activities in **1 day (6 hours)**, but it is recommended to adapt this to participants' availability and to the context in which the workshop will be implemented.

Finally, it is important that the activity take place in a location that is **comfortable** and that fosters **dialogue** and **respectful communication** throughout.

Sample workshop agenda

Objective	Approach and description of the activity	Methodology and materials	Time
Introduce the workshop's objectives, the participants, and the facilitation team	Activity 1: Introducing the objectives and the facilitation team Presentation of the workshop's objectives, the day's agenda, the facilitation team, and, above all, the participants. In the following document, you will find some methods for participant introductions: "Hacer Talleres - Una guía práctica para capacitadores, prepared by Candelo et al, 2003". To open the workshop, consider using materials such as flip charts, tape, markers, and sticky notes for participants' notes		15 minutes
Define the key concepts of fire management and governance within the framework of ILM	Activity 2: Review and discussion of key concepts Introduction of concepts related to the use of fire, the relationship between human beings and fire, and impacts at the landscape scale (use the concepts described in the document as a reference), followed by discussion based on the following questions: • Do the ecosystems in our landscape have a natural relationship with fire? • What benefits does the use of fire bring us? • Are there alternatives to fire that we can use? (for example, for productive activities) • What happens to ecosystems if fire is not used properly?	Materials: • Presentation (slides) • Explanatory video Why certain naturally occurring wildfires are necessary. From: TedEd Lesson Worth Sharing) • Flip charts, tape, markers, and sticky notes for participants' notes	30 minutes

Objective	Approach and description of the activity	Methodology and materials	Time
Define the key concepts of fire management and governance within the framework of ILM	Activity 3: What is fire governance? Review of the concept of governance and collective construction of the concept of “fire governance” for the landscape. Participants work using the following methodology: 1. Participants are divided into working groups 2. Keywords are presented (slide) for the groups to build a definition of fire governance. These are: Participation, Consensus, Landscape, Impact, and Institutional Arrangements. Participants may add other keywords to these (optional). 3. Each group presents the definition it developed in plenary, and the differences and similarities are discussed. 4. In plenary, workshop participants build a "single" definition of fire governance for their landscape based on the groups' definitions. 5. Discussion among participants on: What is needed to implement fire governance processes in the landscape?	Materials: • Presentation (slides) • Explanatory video (e.g., Landscape Governance – Challenges and solutions. From: Partnership for forests) • Flip charts, tape, markers, and sticky notes for participants' notes	75 minutes
Analyze the problems associated with fire and the social, technical, and policy interactions among landscape stakeholders	Activity 4: What are the fire-related problems in our landscape? Identification and description of the main fire-related problems in the landscape. Participants work using the following methodology: 1. Participants are divided into groups 2. They brainstorm and list the problems and those affected by them 3. Each group presents the problems identified, and the similarities and differences are analyzed.	Materials: • Presentation (slides) • Flip charts, tape, markers, and sticky notes for participants' notes	30 minutes

Objective	Approach and description of the activity	Methodology and materials	Time
Analyze the problems associated with fire and the social, technical, and policy interactions among landscape stakeholders	Activity 5: Who are the stakeholders linked to fire-related problems and the search for solutions in our landscape? Development of a map of the landscape stakeholders connected to the problems and to the definition or implementation of actions addressing them. Participants work using the following methodology: 1. Participants are divided into working groups 2. They identify and organize stakeholders according to their link to: the problem or the solution (to design the stakeholder map, examples can be found at this link. It is recommended that all groups use the same template) 3. Stakeholders are connected using one-way or two-way arrows to describe the interactions between problems and the application of solutions 4. The interactions are described in terms of the expected outcome (e.g., the fire department provides the ministry of emergencies with annual data on fires) 5. Each group presents its stakeholder map, and the differences and similarities are discussed. 6. Participants reflect on the results, reinforcing the idea that <i>interaction within the landscape is dynamic, and that ILM, from the landscape alliance's perspective, seeks to have stakeholders and their interactions updated systematically in order to understand and describe the landscape context</i>	Materials: • Presentation (slides) • Flip charts, tape, markers, and sticky notes for participants' notes	75 minutes
	Activity 6: What can each landscape stakeholder contribute to make fire governance effective? Participants identify and describe how they can contribute, from generating and sharing information to organizing local working groups, to laying the groundwork for a fire governance process in the landscape.	Materials: • Presentation (slides) • Flip charts, tape, markers, and sticky notes for participants' notes	45 minutes

Objective	Approach and description of the activity	Methodology and materials	Time
Develop strategies for implementing governance processes in the landscape	Activity 6 (continued): What can each landscape stakeholder contribute to make fire governance effective? Participants work using the following methodology: 1. Participants are divided into groups 2. They describe the contribution of each stakeholder identified in the previous activity 3. They analyze the factors that shape each stakeholder's contribution to a fire governance process in the landscape 4. Each group presents its results in plenary, and the similarities and differences are analyzed.	Materials: • Presentation (slides) • Flip charts, tape, markers, and sticky notes for participants' notes	45 minutes
	Activity 7: Let's build our vision for fire governance and roadmaps for our landscape Group development of a long-term vision (next 5 years) of how the landscape will differ in the way it addresses fire-related problems, along with the drafting of short-term (6 months), medium-term (1 year), and long-term (2 years) actions that can be implemented to fulfill that vision (to motivate participants, it is recommended to share a summary of the results obtained previously before starting the activity). Stay attentive to, and identify, how this vision and preliminary plan connect with existing efforts and instruments within the broader ILM process. Participants work using the following methodology: 1. Participants are divided into groups 2. Based on keywords, they draft the vision for future fire management in the territory 3. They describe activities, expected results, and the resources needed to implement each activity (it is recommended to define the types of resources so that participants do not focus solely on financial aspects). 4. Each group presents its results in plenary, and the similarities and differences are analyzed 5. In plenary, a single vision and a consensus-based work plan are drafted for the landscape	Materials: • Presentation (slides) • Flip charts, tape, markers, and sticky notes for participants' notes	75 minutes

Objective	Approach and description of the activity	Methodology and materials	Time
Develop strategies for implementing governance processes in the landscape	Activity 8: Reflecting on “the good,” “the bad,” and “what needs to improve” in the landscape for fire governance In plenary, participants identify and discuss the conditions, opportunities, and limitations of the landscape and its overall governance that need to be taken into account in order to implement the action plan developed and move forward effectively with a fire governance process.	Materials: • Flip charts, tape, markers, and sticky notes for participants' notes	25 minutes
Reflectively implement the proposed activities in the landscape	Activity 9: So, what's next? In plenary, participants reflect on the workshop (lessons learned and expectations) and define the next steps to be taken (based on the work plan developed in the previous activity), which will be reviewed at the landscape partnership's next meeting. Through this activity, <i>the principles of ILM are reinforced, along with the idea that moving forward means systematically learning from everything that has been done.</i>	Materials: • Flip charts, tape, markers, and sticky notes for participants' notes	30 minutes

1. Madrigal, J., Espinoza, J., Vidal-Cordero, J., Carro, F., et al. (2022). Resultado del fuego en los ecosistemas: resultados de quemas experimentales en espacios protegidos. En Almodóvar, J., Brotons, J., Carrillo-García, C., et al (Eds). Los incendios en la Red Natura 2000: situación, prevención y propuestas para una gestión integral. Ministerio para la Transición Ecológica y el Reto Demográfico-MITECO. p. 135-150.
2. Gajendiran, K., Kandasamy, S., & Narayanan, M. (2024). Influences of wildfire on the forest ecosystem and climate change: A comprehensive study. *Environmental Research*. 240,117537. <https://doi.org/10.1016/j.envres.2023.117537>
3. Singh, S. (2022). Forest fire emissions: A contribution to global climate change. *Front. For. Glob. Change*. 5. <https://doi.org/10.3389/ffgc.2022.925480>
4. van Bellen, S., Garneau, M. & Bergeron, Y. (2010). Impact of Climate Change on Forest Fire Severity and Consequences for Carbon Stocks in Boreal Forest Stands of Quebec, Canada: a Synthesis. *Fire ecol.* 6,16-44. <https://doi.org/10.4996/fireecology.0603016>
5. Barik, A., & Baidya Roy, S. (2023). Climate change strongly affects future fire weather danger in Indian forests. *Commun Earth Environ*. 4,452. <https://doi.org/10.1038/s43247-023-01112-w>
6. Kirschner, J.A., Ascoli, D., Moore, P. et al. (2024). Governance drivers hinder and support a paradigm shift in wildfire risk management in Italy. *Reg Environ Change*. 24, 13. <https://doi.org/10.1007/s10113-023-02174-4>
7. Cumming, G., Olsson, P., Chapin, F., & Holling, C. S. (2013). Resilience, experimentation, and scale mismatches in social-ecological landscapes. *Landscape Ecology*. 28,1139-1150. <https://doi.org/10.1007/s10980-012-9725-4>
8. McLauchlan, K., Higuera, P., Miesel, J., et al. (2020). Fire as a fundamental ecological process: Research advances and frontiers. *Journal Ecology*. 108:2047–2069. <https://doi.org/10.1111/1365-2745.13403>
9. Holden, Z., Morgan, P., & Envans, J. (2009). A predictive model of burn severity based on 20-year satellite-inferred burn severity data in a large southwestern US wilderness área. *Forest Ecology and Management*. 258(11),2399-2406. <https://doi.org/10.1016/j.foreco.2009.08.017>
10. Gan, J. (2025). Disentangling the drivers of wildfires. *Science*. 387(6729), 23-23. <https://api.semanticscholar.org/CorpusID:275226778>
11. Bowman, D., Balch, J., Artaxo, P., Bond, W. et al. (2009). Fire in the Earth system. *Science*.24;324(5926):481-4. <https://doi.org/10.1126/science.1163886>
12. Pavaglio, T., Carroll, M., Stasiewicz, A., Williams, D., & Becker, D. (2018). Incorporating Social Diversity into Wildfire Management: Proposing “Pathways” for Fire Adaptation. *Forest Science*. 64(5), 515–532. <https://doi.org/10.1093/forsci/fxy005>
13. Pausas, J., & Keeley, J. (2023). Evolutionary fire ecology: An historical account and future directions. *BioScience*. 73(8), 602–608. <https://doi.org/10.1093/biosci/biad059>
14. Prakash, Ch. (2023). Environmental and socioeconomic impacts of forest fires: A call for multilateral cooperation and management interventions. *Natural Hazard Research*. 3(2),286-294. <https://doi.org/10.1016/j.nhres.2023.04.003>
15. Rego, F., Rigolot, E., Fernandes, P., Montierl, C., & Sande, J. (2010). Towards Integrated Fire Management.Policy Brief n°4. EFI
16. Oliveras Menor, I., Prat-Guitart, N., Spadoni, G.L. et al. 82025). Integrated fire management as an adaptation and mitigation strategy to altered fire regimes. *Commun Earth Environ*. 6, 202. <https://doi.org/10.1038/s43247-025-02165-9>
17. ROE (Reglamento del Código Orgánico del Ambiente, R-CODA). (2019). Registro Oficial del Ecuador. Órgano del Gobierno del Ecuador. Año III. N°507. Quito, Ecuador. 144 p.
18. Creación original del organismo de Supervisión de los recursos Forestales y de Fauna Silvestre (Osinfor) mediante la resolución N°22013-2024/DSD-INDECOPI.

19. Tanpipat, V., Rassameethes, R., Wanthongchai, K., Nhuchaiya, P., & Yodcum, J. (2022). Combinando el manejo comunitario del fuego y del agua en Tailandia. *Tropenbos*. 8 p. Available at <https://www.tropenbos.org/app/data/uploads/sites/2/3-4Tanpipat-ES-1.pdf>
20. Pasiescznik, N., & Goldammer, J. (Eds.). (2022). Towards fire-smart landscapes. *Tropical Forest Issues*. n° 61. Tropenbos International. 208 p.
21. Durán, L., Villalobos, R., Ruiz-Guevara, N., & Carrera, F. (Eds.). (2022). Gobernanza del Fuego: experiencias desde las plataformas de gobernanza de la red Latinoamericana de Bosques Modelo. <https://doi.org/10.13140/RG.2.2.36627.14881>
22. Santiago-Gómez, E., & Rodríguez-Rodríguez, C. (2023). Building Forest Fires Resilience, the Incorporation of Local Knowledge into Disaster Mitigation Strategies. *Social Sciences*. 12,7:420. <https://doi.org/10.3390/socsci12070420>
23. <https://centreforwildfires.org/fire-governance-working-group>
24. 1000 Landscapes for 1 Billion People. (2022). Integrated Landscape Management Tool Guide. EcoAgriculture Partners, on behalf of 1000 Landscapes for 1 Billion People.
25. Myers, L. (2006). Living with fire-Sustaining ecosystems & livelihoods through integrated fire management. The Nature Conservancy. 36 p. Available at https://www.conservationgateway.org/Documents/Integrated_Fire_Management_Myers_2006.pdf
26. Fernández-Giménez, M., Venable, N., Angerer, J., Fassnacht, S., Reid, R., & Khishigbayar, J. (2017). Exploring linked ecological and cultural tipping points in Mongolia. *Anthropocene*. 17, 46–69. <https://doi.org/10.1016/j.ancene.2017.01.003>
27. Pausas, J., & Keeley, J. (2019). Wildfires as an ecosystem service. *Frontiers in Ecology and the Environment*. 17(5), 289–295. <https://doi.org/10.1002/fee.2044>
28. Moreira, F., Ascoli, D., Safford, H., Adams, M., Moreno, J., Pereira, J., et al (2020). Wildfire management in Mediterranean-type regions: Paradigm change needed. *Environmental Research Letters*. 15(1), 011001. <https://doi.org/10.1088/1748-9326/ab541e>
29. Chaffin, B., Gosnell, H., & Cosens, B. (2016). A decade of adaptive governance scholarship: Synthesis and future directions. *Ecology and Society*. 19(3), 56. <https://doi.org/10.5751/ES-06824-190356>
30. 1000L. (2022). Guía práctica para la Gestión Integrada del Paisaje. Versión 1.0. Available at https://landscapes.global/wp-content/uploads/2023/01/ILM_Practical_Guide_SP.pdf
31. Sayer, J., Sunderland, T., Ghazoul, J., Pfund, J., Sheil, D., Meijaard, E., et al. (2013). Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses. *Proceedings of the National Academy of Sciences*. 110(21), 8349–8356. <https://doi.org/10.1073/pnas.1210595110>
32. Aguirre-Sala, J. (2019). Propuesta de indicadores para medir y evaluar la gobernanza. *Gobernar: The Journal of Latin American Public Policy and Governance*. 3,5:11. <https://doi.org/10.22191/gobernar/vol3/iss5/7>
33. Hu, T., Xu, Z., Yu, Ch., Dou, X., Zhang, Y., & Sun, L. (2024). Impacts of different forest fire management policies and fuel treatment models on forest fire risk in boreal forest of China. *Ecological Indicators*. 169,112806. <https://doi.org/10.1016/j.ecolind.2024.112806>
34. De Graaf, M., Buck, L., Shames, S., & Zagt, R. (2017). Assessing Landscape Governance: A Participatory Approach. Tropenbos International & Ecoagriculture Partners. 48 p.
35. Neger, Ch., Ponce-Calderon, L., Manzo-Delgad, L., & López-Madrid, M. (2024). Integrated fire management in a tropical biosphere reserve: Achievements and challenges. *Integrated Journal of Disaster Risk Reduction*. 106,104447. <https://doi.org/10.1016/j.ijdr.2024.104447>
36. Campos-Fernandes, C., Valente, S., Figueiredo, E., & Polido, A. (2025). Stakeholder and social network analysis for understanding forest (fires) management – A contribution based on a systematic literature review. *Forest Policy and Economics*. 170,103396. <https://doi.org/10.1016/j.forpol.2024.103396>
37. Bressers, H., Bressers, N., Kuks, S., & Larrue, C. (2016). The Governance Assessment Tool and Its Use. In Bressers, H., Bressers, N., & Larrue, C. (Eds.). *Governance for drought resilience*. Springer International Publishing. p. 45 – 65. https://doi.org/10.1007/978-3-319-29671-5_3

38. Chueca, P., Zotano, J., & Sala, D. (2008). Región, comarca, lugar: escalas de referencia en la metodología del paisaje. Cuadernos geográficos. 43,227-255.
39. NRG (Natural Resources Governance Institute). (2021). Índice de Gobernanza de los Recursos Naturales. 44 p. Available at https://resourcegovernance.org/sites/default/files/documents/indice_de_gobernanza_de_los_recursos_naturales_2021.pdf
40. Mishra, M., Guria, R., Baraj, B., Pradas, A., Guimarães, C., Marquez, R., & Laksono, A. (2024). Spatial analysis and machine learning prediction of forest fire susceptibility: a comprehensive approach for effective management and mitigation. Science of the Total Environment. 926,171713. <https://doi.org/10.1016/j.scitotenv.2024.171713>
41. 1000 Landscapes for 1 billion people. (2021). Strategy for scaling sustainable landscape solutions for people and planet. 35 p. Available at <https://landscapes.global/wp-content/uploads/2021/04/1000L-strategy-for-scaling-sustainable-landscape-solutions-for-people-and-planet.pdf>

Acknowledgements

This learning module is part of an ongoing effort to generate practical learning and reflection around integrated approaches to sustainable landscape management. It is designed as a resource for landscape practitioners and leaders who seek to understand how integrated landscape management (ILM) can contribute to, and integrate with, fire management for more effective and efficient outcomes. It can be used as base theoretical material for developing learning sessions or as a stand-alone document.

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