Integrated Fire Management: Portugal's Experience

2017-2024

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AGIF AGÊNCIA PARA A GESTÃO INTEGRADA DE FOGOS RURAIS

©Hélio Medeiros (FEPC)

Severe wildfires in 2017 (15/10/2017)

Wildland fires in Portugal are common, but 2017 took a heavy toll, with over 100 fatalities and more than 500 thousand burnt hectares (6% of country)

Two independent technical commissions at the Parliament were brought in to look at what had happened and help define the path forward.

6,5 Mha (2/3 of country area) can sustain fire

One of the warmest in Europe, with an average high of 29°C.

16% d/yr with high fire danger **FWI> 38** (temp > 35, RH< 30% and wind, but usually moisture recover during night)
Mediterranean climate

Primary productivity is high

Large areas with **Urban Interface |Intermix**

97% of the Forest **is private owned**

Our pain points from 2017 (under evaluation)

Lack of Prevention
- Urban expansion towards afforested areas
- Ineffective post harvesting fuel management
- Reduced management on forested areas
- No national risk awareness campaign

Poor Surveillance, Detection and Inspection
- Incapability for all year resource adjustment
- Disproportionately high number of yearly ignitions
- In 3 days, highly concentrated number of fire starts
- Limited inspection of plan enforcement
- Lack of of wildfire meteorology experts

Ineffective Suppression, Mop Up and Post Fire Vigilance
- Communications network out-of-date
- Population unaware of best practices in case of wildfire
- Efective Early Warning System
- Difficulties incorporating the full picture of wildfire potential in the operation

Qualification and Op Standards
- Different organizations in the system have diverse qualifications
- Lack of standard procedures for Incident Command Post -location and access
- Deterioration of the volunteering regime
- Limited number of professional operatives

Knowledge Gaps
- Lack of a lessons learned process
- Decision making supported in individual experience
- Certification of professional skills to allow sharing of resources
- Real Risk vs different Percieved Risk

Weak Governance
- Leadership empowerment of the national forest authority
- Gap between prevention and suppression
- Lack of specialization
- Hierarchical top-down vs polycentric governance
- Authority vs responsibility and networking of actors

Strategy: short term and long-term prioritization

1. Quick-fix: **Stop bleeding & fix bottlenecks**

Priorities

I. Protecting people (assure evacuation)

II. Reduce ignitions

III. Manage fuel in high-risk areas

IV. Reinforce and pre-deploy resources

V. Knowledge in operational decision

Risk Communication

2. Design a National Coehesive Rural Fire **Strategy**, **Procedures** and **Action Programs**

Integrated Rural Fire Management System (IRFMS)

ACTIONS TAKEN

- Adopted <u>new legislation</u>: Law-decree Nr 82-2021, establishing the Integrated Rural Fire Management System.

- A large-scale <u>risk communication</u> program was implemented - the <u>"Portugal Chama" (Portugal Calls) campaign</u> - which addressed the main causes of fires.

- Technical Support Instrument (TSI) – European Commission tool to improve implementation and tackle existing challenges:
  - Pilot Implementation of the National Plan for Integrated Rural Fire Management (Tâmega and Sousa, Coimbra, and Barlavento Algarvio);
  - Climate Adaptation: challenges toward integrated rural fire management in Portugal (EC, OECD)

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Sistema de Gestão Integrada de Fogos Rurais

Integrated Rural Fire Management System (IRFMS)

ACTIONS TAKEN

- Adopted an international governance Framework, supported by FAO, UNEP, UNFF, OECD, OSCE, Council of Europe, United States, Germany, Brazil, Spain, Australia, New Zealand.

- Cooperation and projects with external partners:
  - Taming wildfires in the context of climate change: The case of Portugal (OECD, 2023);
  - Cooperation AGIF – FAO (UN): FireHub project;
  - MoU with USA, Canada, Finland, Brazil, and Chile (being negotiated);
  - Protocols with international experts.

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National Plan for Integrated Fire Management (NPIRFM)

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Sistema de Gestão Integrada
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The Plan defines a vision, goals and a strategy based on the agroforestry economy and risk management. Is composed by:

- Strategy 20-30 identifies the context, designates strategic guidelines and strategic objectives and introduces a new governance and risk management model;
- Process chain supports all entity intervention, with a matrix of responsibilities, from planning to post-event;
- Action programme details the projects to be implemented, the respective schedule and budget, indicators and expected results.

Main Targets to be achieved:

- the loss of human lives in fires, although possible, is a rare occurrence;
- fires spanning over 500 ha only account for 0.3% of total fires;
- the accumulated burnt area over the decade is less than 660 000 ha.

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- **Strategic Guideline 1**
  Value rural areas
- **Strategic Guideline 2**
  Active management of rural areas
- **Strategic Guideline 3**
  Change behaviours
- **Strategic Guideline 4**
  Efficient risk management

NAP

Orientações Estratégicas	4
Objetivos Estratégicos	12
Programas	28
Projetos	97
Iniciativas / Medidas	+200

Integrated Rural Fire Management System (IRFMS)

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RESULTS

- <u>Implementation of new legislation</u> (incl. organic laws) and a substantial increase in resources, in a context of generic reinforcement of the capacity of the entire system, which tripled.

- <u>Spending on **prevention** has increased 9 times</u>, representing more than half of total spending in recent years, with <u>vegetation management in the forest</u> and around buildings and infrastructures on an unprecedented scale, in addition to projects to increase the protection of people and villages;

- "Portugal Chama" campaign contributed to the <u>number of ignitions falling by less than half</u>;

- <u>Coordination capacity between government bodies and institutions</u>, through cross sectorial mechanisms boosted by AGIF as an intra-ministerial Agency.

Integrated Rural Fire Management System (IRFMS)

RESULTS

‣ More <u>knowledge</u> was <u>incorporated</u> into <u>operations and decision-making,</u> with the establishment of the decision support cell at ANEPC (civil protection) and with the greater role of ICNF (forestry and conservation institute)

- consensus on a <u>National Qualification Plan</u>,
- establishment of the <u>Lessons Learned</u> capacity coordinated by AGIF (with NATO methodology) and with the creation of the <u>interoperability platform that serves all entities</u>;

‣ An integrated and participated planning and control methodology was introduced, based on coordination and cooperation between system entities, which produces physical and financial execution results, presented publicly, contributing to continuous improvement and scrutiny of the system;

- Bottom-up integrated planning with the regional organizational structure (NUTS) in use in EU Member States – enabling funding capacity.

Integrated Rural Fire Management System (IRFMS)

RESULTS

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Sistema de Gestão Integrada de Fogos Rurais

Integrated Rural Fire Management System (IRFMS)

RESULTS

Action Programme Implementation:

- The NAP is implemented at 42%

- Of the 566 initiatives, 24% were concluded
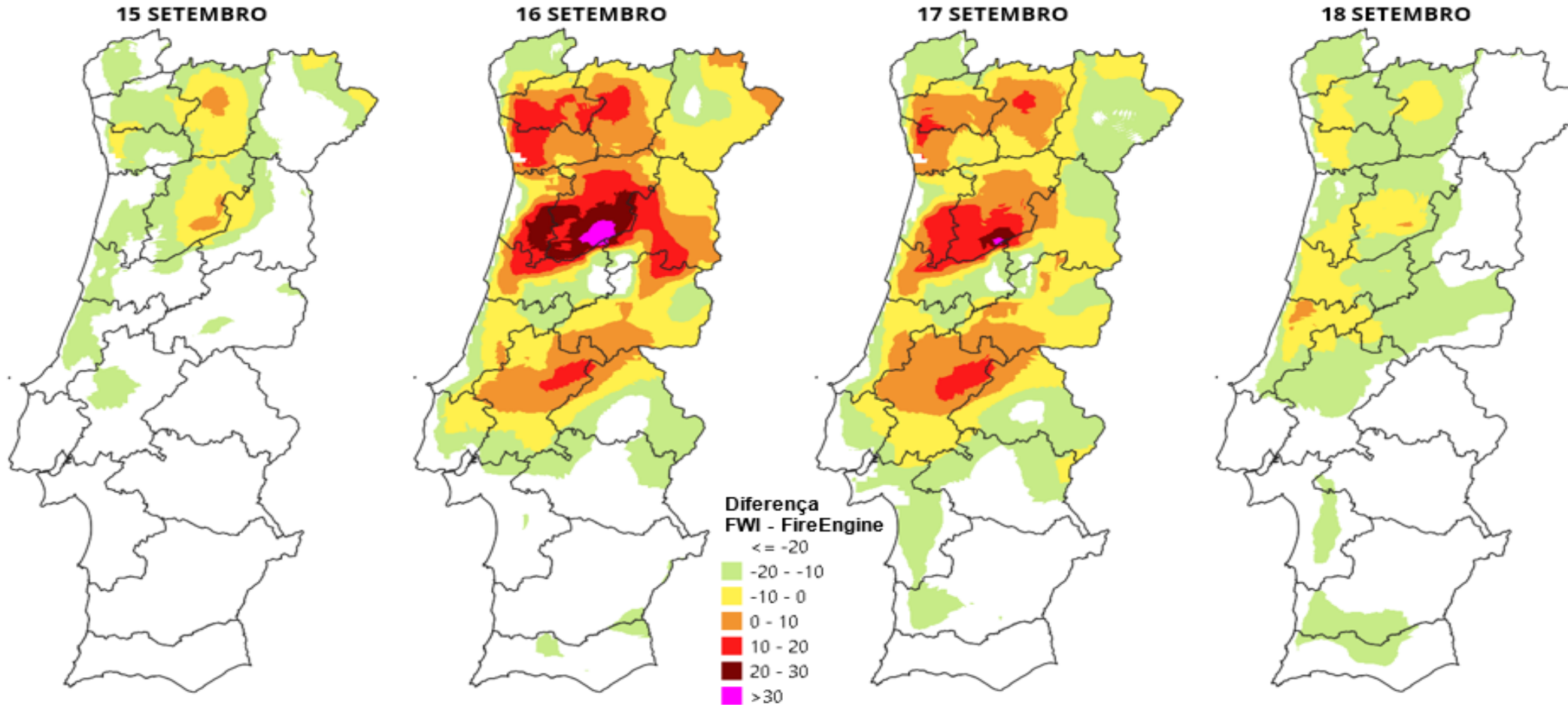
- More than 200 stakeholders reporting data

42%

Progresso por OE (%)

33% 51% 32% 46%
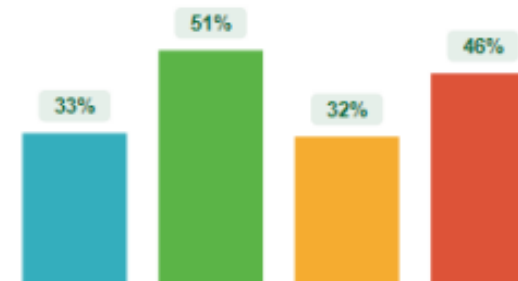
2024 – Pyro-meteorology was available for early warning

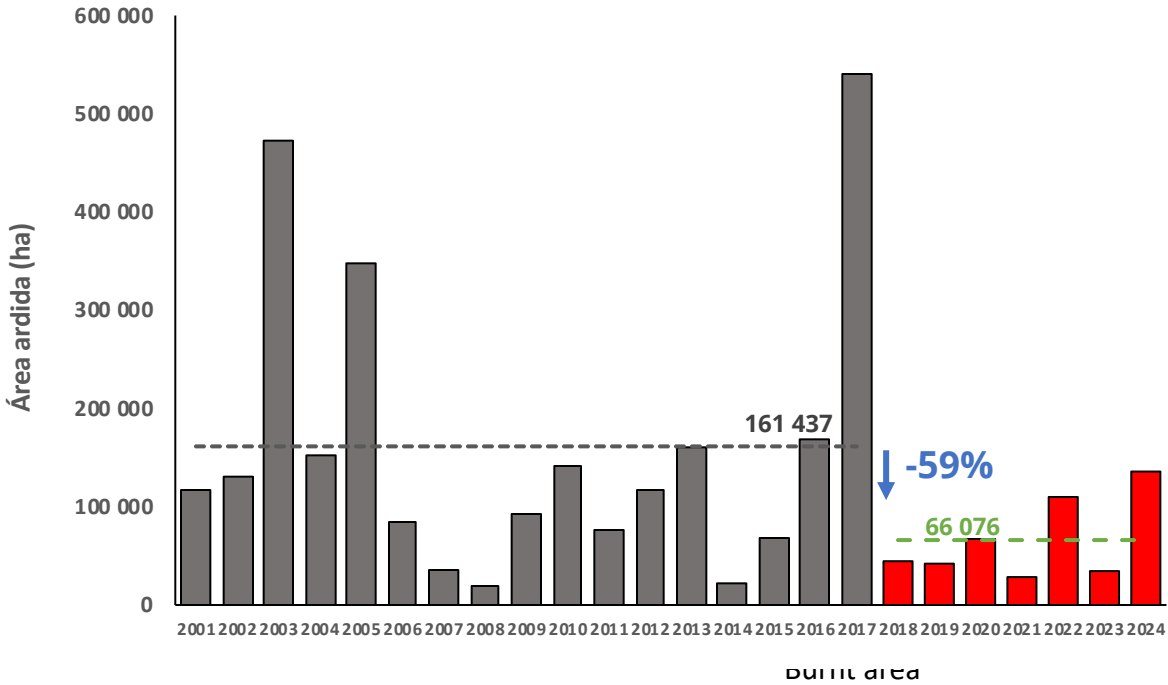Accumulated Daily Probability from a fire start to burn above > 500ha

Diferença
FWI - FireEngine
<= -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
>30

Between 2018 and 2024

Halved the # wildland fires, including the days of severe fire weather

1/3 **of historical** burnt area

3%/yr (2001-2017)   vs   1%/yr (2018-2024)
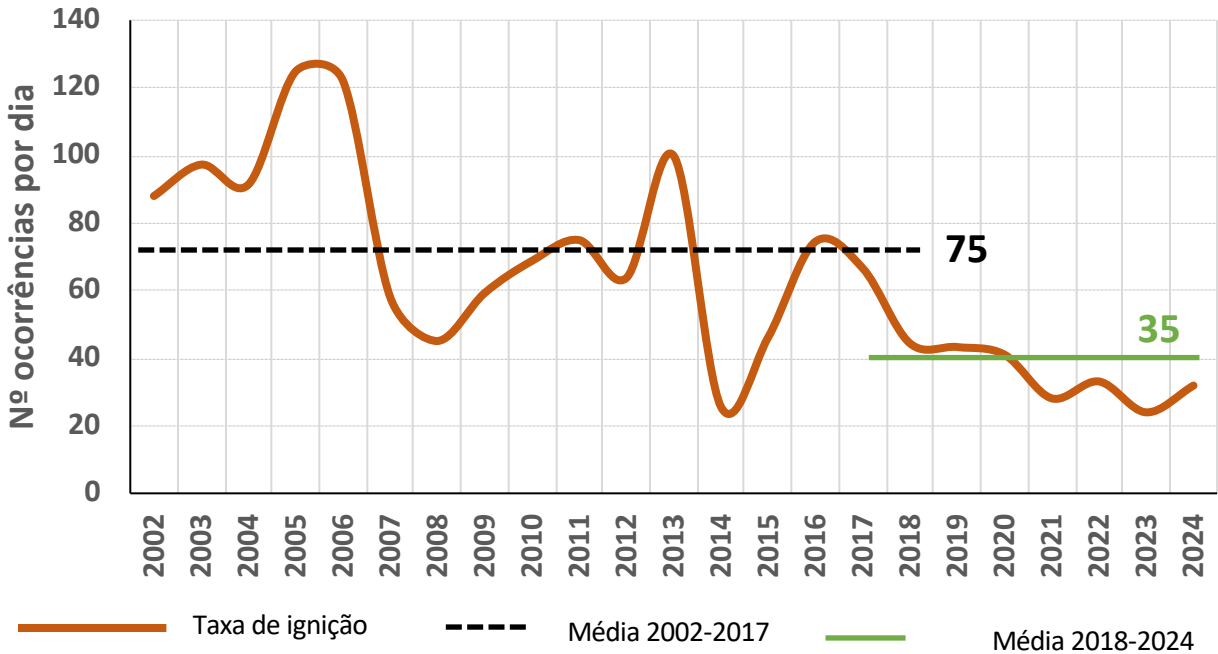
Number of fire in critical extreme fire danger days (fwi > 38)

The Challenges
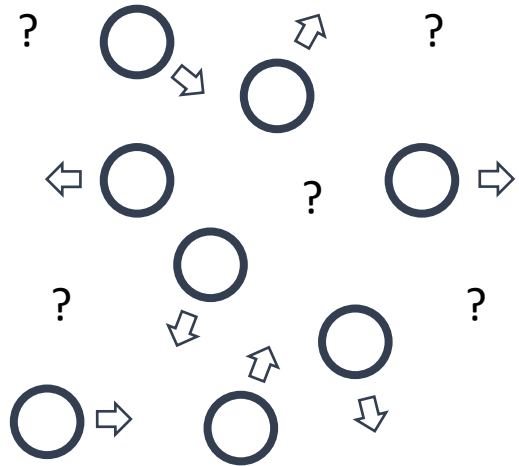
Strategic

- Steering to keep direction, untangling complexity, uncertainty and ambiguity
- Institutional thrust and political culture
- Governance and political bodies

Political

- Aligning department goals and budgeting
- Fiscal, energy, agriculture and environmental policies cohesiveness
- Strategic leadership for endurance

Managerial

- Engagement and commitment to adjust procedures
- Flexible use of resource using best available knowlegde vs empirical
- Accountability, monitoring and communication

Miller B. A. Yung L. Wyborn C. Essen M. Gray B. Williams D. R. (2022)

The Governance of Integrated Fire Management
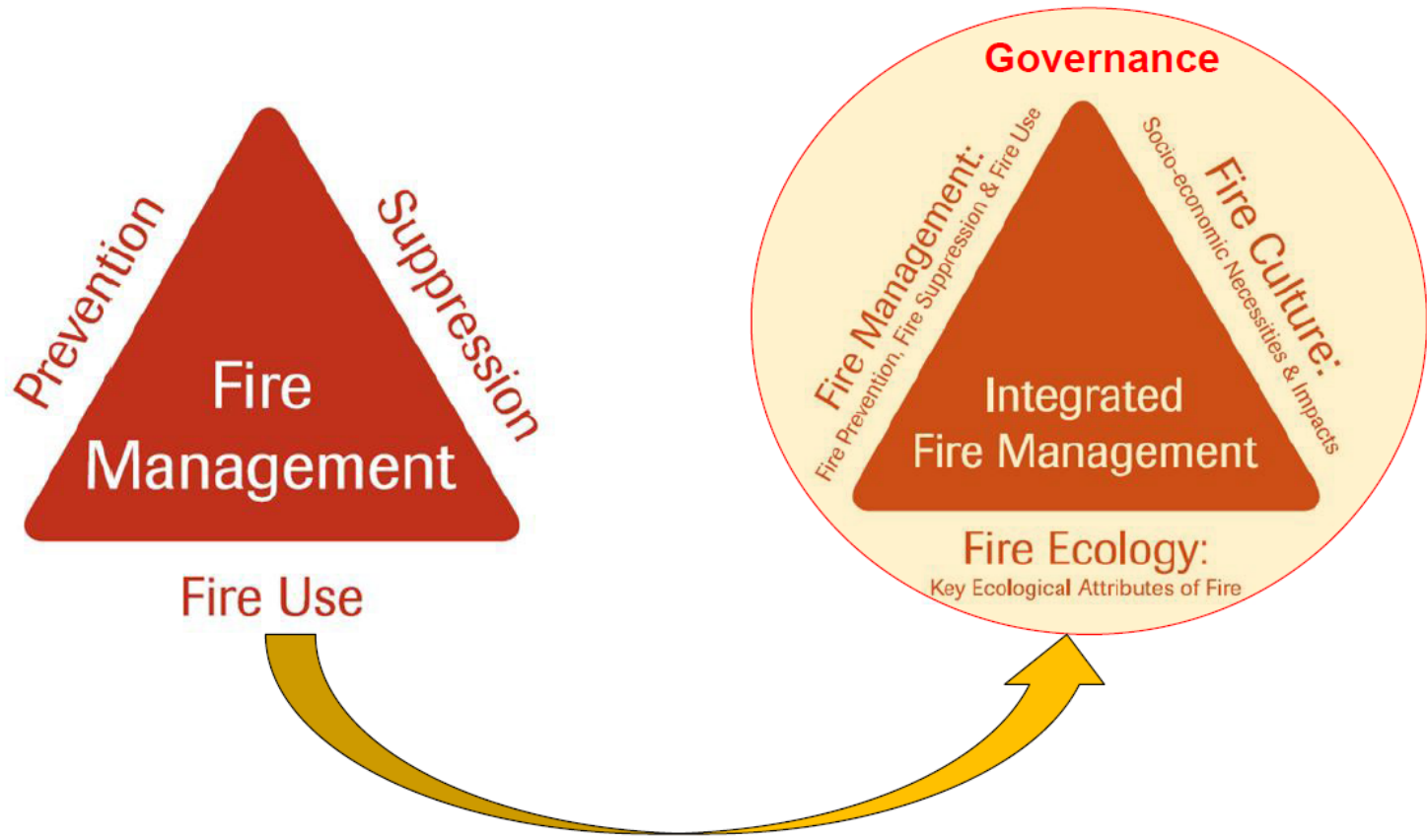
Risk Governance

Focused on the institutional arrangements of how risk information is collected, analyzed and communicated and how risk management decisions are taken (IRGC 2005).

Landscape Fire Governance Framework

Cross-border long-term commitments, bringing together the best expertise. International qualification and training programmes fostering effectiveness and efficiency of cross-border cooperation. Platforms aiming to share scientific developments and fire knowledge assuring the cross-sectoral approach for the wildfire risk management.

International Cooperation

Governance bodies
Facilitating bodies, overarching in scope and politically empowered, working with all stakeholders

Risk Assessment

Assessing environmental, social, and economic implications of wildfires, including asset value to better support planning, policy negotiation and decision-making.

Risk Evaluation

Wildfire risk tolerance is variable, depending on how it is perceived. Acceptance levels call for community-driven solutions, keeping risk as low as reasonably possible.

Risk Management

Continuously manage across the whole value chain

- Plan
- Prepare
- Prevent
- Pre-Suppress
- Suppress
- Work post-fire

Adaptive Management

Monitor, measure progress, adapt as needed

Stakeholder Engagement

Involve regulatory bodies, industry experts, scientists, researchers and communities in a trans--disciplinary model. Revive traditional uses of fire under safer conditions and foster benign land-use practices.

Systemic and Public Communication

Clear communication of what the challenges are and what deliberations are asked for and what their expected outcomes should be. Speaking clearly to the general public, so that they understand hazards and what to do to better protect themselves and others.

THANK YOU