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From Wildfire Risk to Resilience: The Investment Case for Action

WHITE PAPER

JANUARY 2026

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Foreword

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Wildfire risk is becoming one of the defining resilience challenges of our time. Across the world, longer fire seasons, more severe events and expanding exposure are reshaping communities and the natural landscapes they depend on. Homes, forests, critical infrastructure and local economies are increasingly vulnerable, placing families, workers and entire regions under sustained pressure.

Across our respective organizations, we have seen this challenge from different but complementary perspectives. At Habitat for Humanity, our work with wildfire-affected communities across the US shows how these disasters strain affordable housing systems, deepen inequities and underscore the need for a community resilience approach that strengthens preparedness, mitigation and long-term recovery.

At Salesforce, we are committed to investing in ecosystem restoration and innovative solutions to accelerate a nature-positive future, which is essential to long-term wildfire resilience. This effort serves as a critical continuation of the global ambition set by 1t.org, recognizing that planting, growing and protecting trees is inseparable from managing the threat of wildfire.

No single sector can meet this challenge alone. Building true resilience requires moving from these reactive models to long-term, coordinated action. It calls for community organizations, industry leaders, governments and philanthropies to work from a shared understanding of risk and to co-invest in solutions that protect people and steward the natural systems around them. We must develop forward-looking risk reduction and risk-sharing models to create a sustainable, long-term solution.

The World Economic Forum's Global Wildfire Leadership Network, part of the Forum's Forest Future Alliance (previously 1t.org), plays an important role in advancing this mission. This white paper proposes a whole-of-society approach to accelerate recovery and engage multiple stakeholders in preventing and managing catastrophic wildfires. It demonstrates how coordinated action across sectors, leveraging different financial and insurance mechanisms, technology, artificial intelligence (AI) and data, nature-based approaches and community-led coordination, can make prevention, mitigation and adaptation more measurable, financeable and scalable.

Wildfire resilience is ultimately about people and planet, protecting lives and livelihoods, supporting safe and sustainable communities, and safeguarding the natural systems that sustain us all. Through collaboration and shared investment, we can build a more resilient future for generations to come.

Executive summary

Wildfires are outpacing current suppression capabilities and now pose a significant threat, requiring greater investment in fire prevention.

Wildfire risk has entered a new era, with losses rising faster than current systems can manage, placing wildfires among the most destructive and costly climate-driven threats of the 21st century. In 2024, tree cover loss in Brazil's Amazon biome rose 110% compared to 2023, with fires accounting for 60% of the loss.[1] The January 2025 Los Angeles-area wildfires became one of the costliest wildfire events on record, with Swiss Re Institute estimating insured losses of $40 billion.[2]

Despite escalating losses, fire management spending in many regions remains focused on suppression and disaster response rather than prevention and planning. As Los Angeles looks to rebuild, each $1 invested in wildfire-resistant construction could save around $210 in avoided future economic losses.[3] Yet, the United Nations Environment Programme (UNEP) notes that more than half of wildfire-related expenditure is typically spent on response, while planning receives only around 0.2% of total wildfire budgets, underscoring a largely reactive approach.[4]

Building long-term resilience requires investment to move upstream and be measured, priced and financed over multiple years. The National Institute of Building Sciences (NIBS) estimates that wildfire-focused measures such as wildland-urban interface (WUI) code compliance can deliver benefit-cost ratios of roughly 2:1 to 8:1,[5] while the US Chamber of Commerce estimates that every $1 not invested in wildfire preparedness could result in more than $22 in lost future economic activity.[6]

Key challenges

- **Escalating fire risk**: Rising temperatures and drought result in dry fuels, intensifying fires and extending fire seasons across around 25% of vegetated land globally since the late 1970s.[7]

- **Human ignitions**: Most US wildfires are human-caused,[8] while land-use change and expansion of the WUI increase property risk,[9] even as prescribed fire remains a vital restoration tool.[10]

- **Urban exposure**: Ember-driven ignition and radiant heat transform wildfires into urban conflagrations, with structure-to-structure spread and building heat release far exceeding that of natural fuels.[11,12]

- **Compound impacts**: Smoke,[13] grid strain,[14] soil and watershed damage[15] often outlast flames, increasing risks of mudslides, debris flows and flooding,[16] while undermining public health, communities and economic development.[17]

- **Wildfire–climate nexus**: A climate–fire feedback loop emerges as wildfire emissions accelerate warming and fire risk, making deforestation prevention and stronger fire prevention essential climate mitigation and adaptation actions.

- **Protection gap**: Between 2000 and 2023, around 56% of global wildfire losses were uninsured,[18] as insurers withdraw from high-hazard regions due to rising losses, modelling uncertainty and pricing constraints.

The solution framework

This paper presents the case for investing in wildfire prevention through loss avoidance. It argues for scaling financial instruments that allow investors to earn returns from avoided losses and resilience investments. Four interconnected pillars are proposed to make prevention, mitigation and adaptation measurable and financeable: finance and insurance; tech, data and governance; nature-based solutions; and community and multistakeholder coordination.

Path forward

The Forum's Global Wildfire Leadership Network proposes a roadmap aligned to five priorities: setting common standards, mobilizing blended finance, investing in AI and open data systems, empowering local capacity, and embedding resilience in policy and markets.

Note: Unless otherwise noted, perspectives and examples are drawn from interviews with contributors acknowledged at the end of the paper.

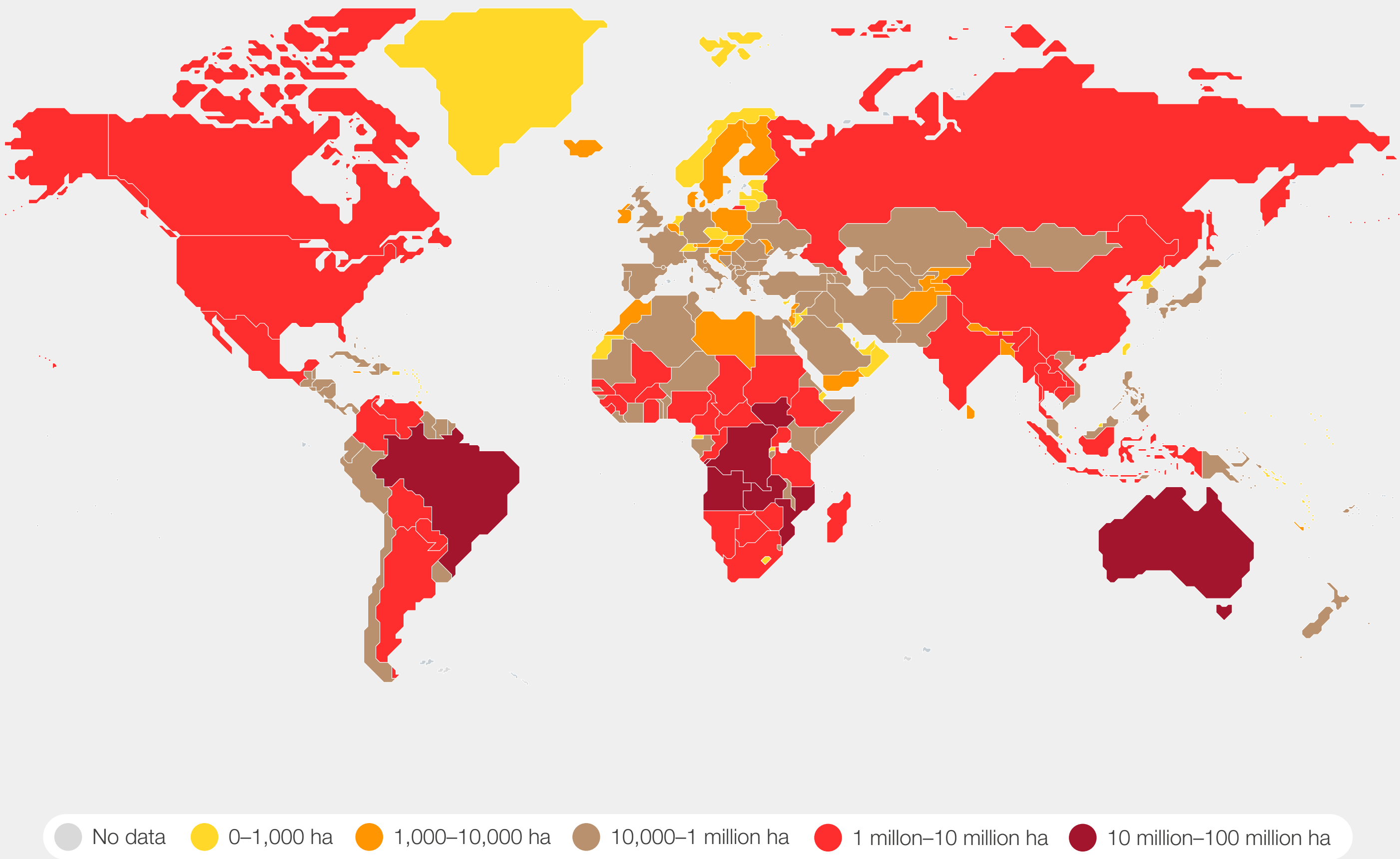
1 Introduction to wildfire resilience

As extreme wildfires intensify worldwide, the cost of inaction has never been greater.

1.1 Current state of the world: signs of urgency

FIGURE 1 **Annual area burned by wildfires, 2025**[1]

Area burned by wildfires[2] in hectares (ha)



Note: 1. Data was last accessed/updated on 1 January 2026; **2.** A wildfire, characterized by its uncontrolled and rapid spread, can occur in various types of vegetation and wildlands, including forests, savannahs, grasslands and various other vegetation types. These incidents are identified using satellite imagery, which detects thermal anomalies as indicators of active burning areas.

Source: Global Wildfire Information Systems. (2025). *Annual area burnt by wildfires*. https://ourworldindata.org/grapher/annual-area-burnt-by-wildfires?tab=map&country=USA~CAN~RUS~BRA~OWID_WRL~COD.

Recent global wildfire data tells a paradoxical story, as area burned has decreased in some regions since the early 2000s,[19] while extreme fires are intensifying. In 2024, record global forest loss was recorded, with severe impacts in Brazil, the Congo Basin (including the Democratic Republic of the Congo, and boreal forests such as Canada and Russia.[20] In 2025, the largest burned areas were concentrated in parts of Sub-Saharan Africa, South America and Australia, with widespread burning also experienced across boreal regions (Canada and Russia) and parts of the western US (Figure 1). Europe also experienced exceptionally high wildfire activity in 2025, with Portugal and Spain among the most affected, impacting parts of the western Iberian Peninsula – where fires exceeded 5,000 hectares – and the Mediterranean basin.[21]

Wildfire risk is rising due to the combined effects of hotter, drier conditions that lengthen fire seasons and dry fuels, and human factors such as expansion of the wildland-urban interface (WUI), ignition sources (e.g. power lines, and land/forest management practices. Fire seasons in regions of the western US, Mexico, Brazil and East Africa have increased by over a month compared to 35 years ago.[22,23]

Wildfires also emit significant amounts of carbon dioxide (CO_2) and can weaken land carbon sinks. The World Meteorological Organization noted wildfire-related emissions and reduced sink uptake as key contributors to the large increase in global CO_2 emissions between 2023 and 2024.[24,25] Drier conditions caused by climate change, in turn, lead to elevated fire risk, contributing to a fire–climate reinforcing feedback loop.

FIGURE 2 **Fires and the climate feedback loop**

Source: Thayer, K. & MacCarthy, J. (2025). *5 Graphics Explain the Climate-Fire Feedback Loop*. World Resources Institute. https://www.wri.org/insights/climate-fire-feedback-loop-explained.

“Good” vs “bad” fire

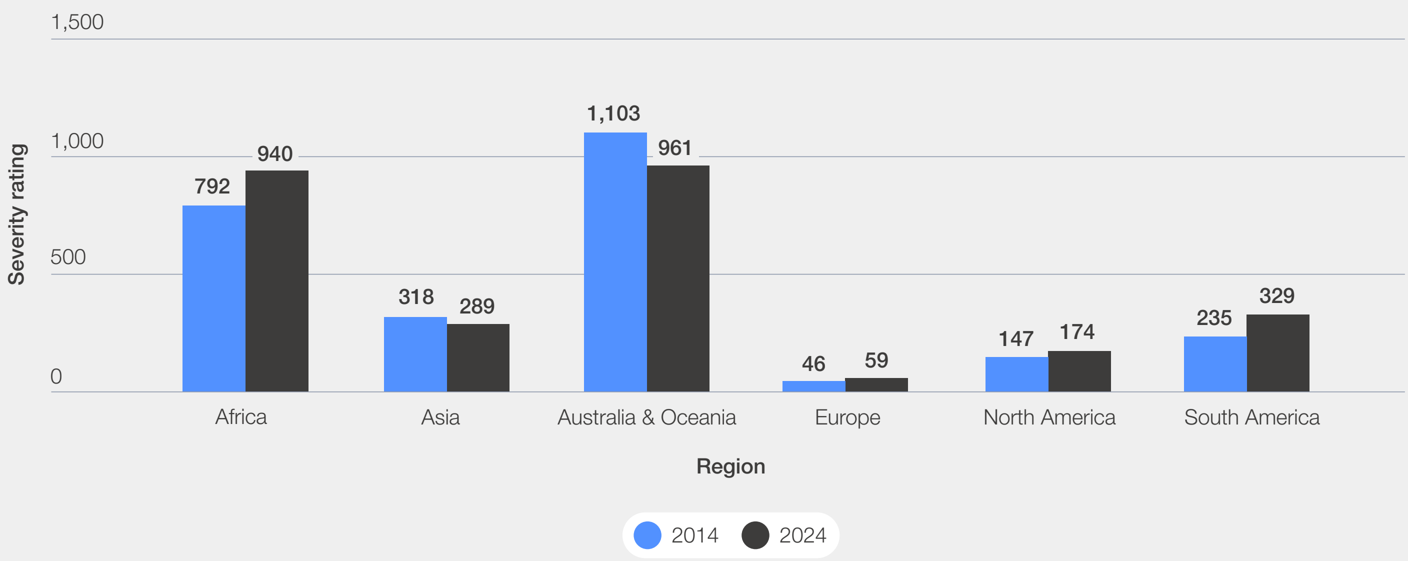
Fire is a natural and essential process for many ecosystems. “Good” fire is usually smaller and lower-intensity (e.g. Indigenous cultural burning) that reduces built-up brush and fuels.[26] It becomes harmful when it grows unusually large or high in severity, jeopardizing people, property and infrastructure and causing widespread tree loss that can be slow to recover.[27]

1.2 Regional analysis of wildfire risk

In evaluating regional differences in wildfire risk, Africa and South America stand out in terms of absolute impact (larger burned area and total emissions), while North America and Europe experienced higher emissions intensity per hectare burned. Oceania and Africa show the most fire-conducive weather conditions (highest severity), while Europe has the lowest. However, more localized analysis can reveal important sub-regional patterns that are not visible at a regional level (e.g. Mediterranean hotspots within the broader Europe region).

Figures 3–5 compare two example years, 2014 and 2024, to illustrate regional differences at two points in time across a 10-year interval. Figure 3 shows the severity rating (fire danger measure), Figure 4 shows the area burned, and Figure 5 shows the CO_2 fire emissions. Figure 6 shows the regional population and asset exposure to wildfires.

FIGURE 3 **Severity rating* by region (2014 vs. 2024)**



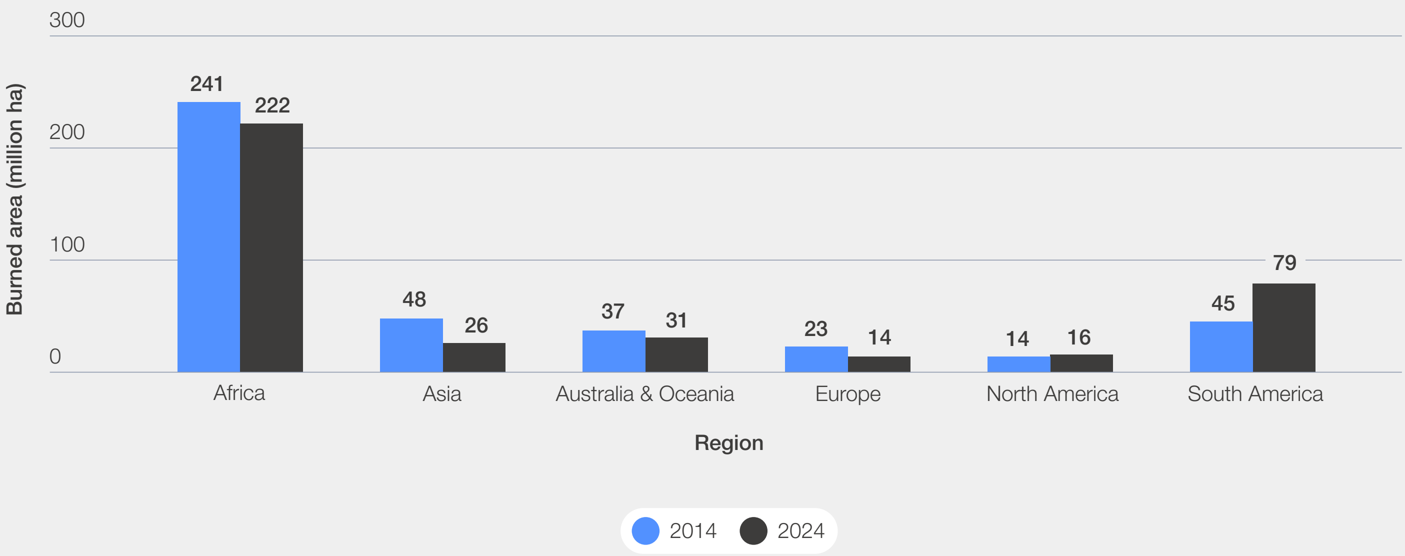
Note: * Reported as weekly cumulative severity rating year-end for 2014 and 2024.

Source: European Commission, Joint Research Centre. (n.d.). *GWIS — Seasonal trend statistics*. https://gwis.jrc.ec.europa.eu/apps/gwis.statistics/seasonaltrend.

Severity rating is a measure of fire danger based on a data-transformation model of the Canadian Fire Weather Index,[28] which assesses the weather’s conduciveness to wildfire ignition and spread, and quantifies the difficulty of fire control. It is computed from three global, physics-based weather/Earth-system models: European Centre for Medium-Range Weather Forecasts (ECMWF), MeteoFrance and NASA GEOS-5. Higher values indicate more persistent or severe fire-conducive conditions. Regions have different climatological baselines, and therefore absolute values (e.g. 1,000 vs. 50) should be interpreted as relative severity across regions and years.

Within the 2014 and 2024 reference years, severity ratings (Figure 3) were higher in 2024 than in 2014 for Africa, Europe, North America and South America, indicating more fire-conducive weather conditions in 2024 for these regions. Severity ratings were lower in 2024 than in 2014 for Asia and Oceania, indicating slightly less severe fire-weather conditions in 2024 compared to 2014 in those regions.

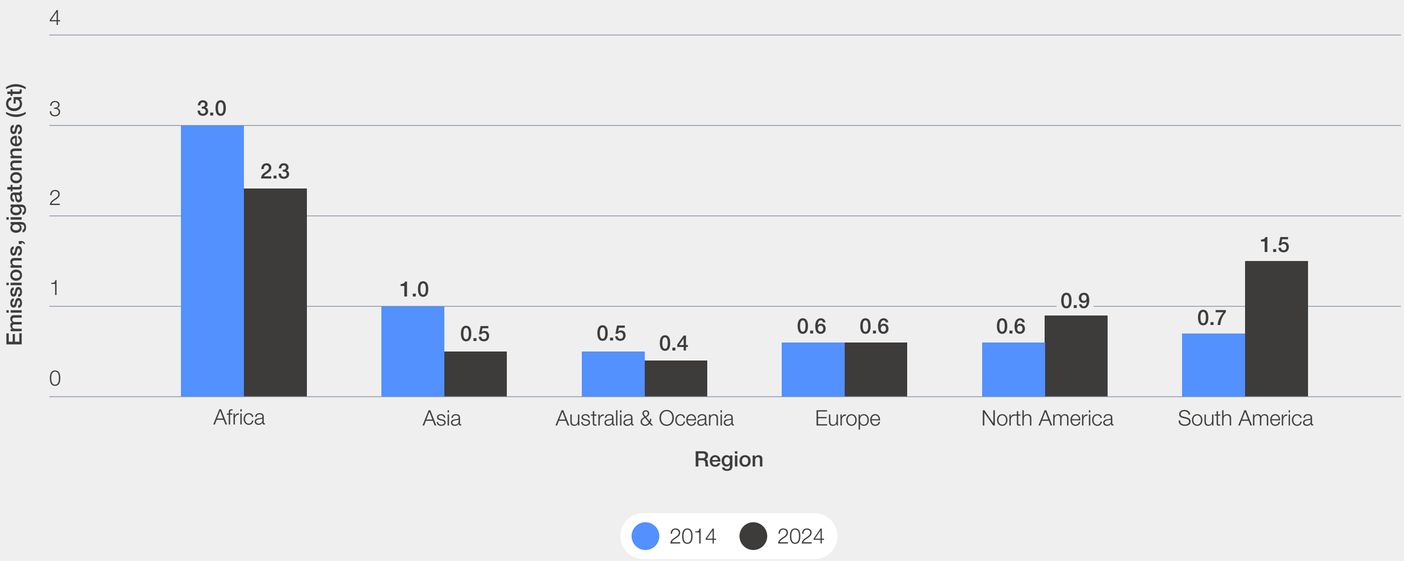
FIGURE 4 **Burned area by region (2014 vs. 2024)**



Source: European Commission, Joint Research Centre. (n.d.). *GWIS — Seasonal trend statistics*. https://gwis.jrc.ec.europa.eu/apps/gwis.statistics/seasonaltrend.

Shifts in fire-weather conditions and severity ratings partially explain differences in burned areas. Africa had the largest burned area (Figure 4), at approximately 222 million hectares in 2024, with the burned area about 8% lower in 2024 than in 2014. Perhaps most concerning, South America shows the largest difference between reference years, with burned area around 76% higher in 2024 than in 2014. This is particularly concerning given the sensitivity of Amazon and Cerrado systems to climate variability and land-use pressures.[29] In 2024, Europe and Asia recorded lower burned areas compared to 2014, while North America's totals remained at similar levels, amid longer fire seasons and rising severity.

FIGURE 5 | CO_2 fire emissions by region (2014 vs. 2024)



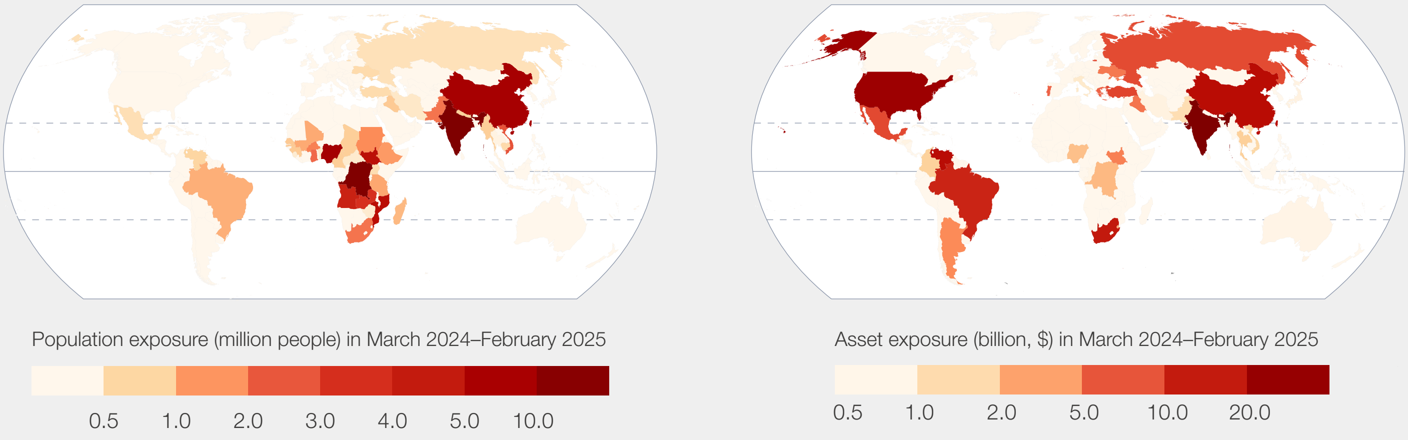
Source: European Commission, Joint Research Centre. (n.d.). *GWIS — Seasonal trend statistics*. https://gwis.jrc.ec.europa.eu/apps/gwis.statistics/seasonaltrend.

As previously referenced, hotter, drier conditions tend to make fires burn larger and more intensely, releasing more CO_2 as vegetation (and sometimes soil carbon) burns. For example, wildfire-related CO_2 emissions in South America were approximately twice as high in 2024 as in 2014 (Figure 5). This aligns with elevated risks across parts of Brazil and other South American regions, where agricultural expansion and land-use practices contribute to fire occurrence.[31] Meanwhile, Asia's fire-related CO_2 emissions were around 50% lower in 2024 than in 2014 (Figure 5). Normalizing emissions by area burned reveals a different pattern. In 2024, North America exhibited the highest CO_2 emissions per hectare burned (approximately 0.06), followed by Europe (approximately 0.04), indicating more carbon-intensive fires relative to burned area.

Beyond CO_2, wildfire smoke contains fine particulate matter (PM2.5), which is a key public health threat.[32] Wildfires also emit short-lived climate pollutants such as methane (CH_4) and black carbon[33,34] that contribute to near-term warming and have a warming potential many times greater than CO_2.[35]

Figure 6 shows that population and asset exposure only partially overlap: people are most exposed in South and East Asia (notably India and China), as well as in parts of Africa, while assets are most exposed in the United States and also elevated in Russia and parts of South America. India and China stand out in both population and physical asset exposure to wildfires. Considering the regional analysis of severity ratings, area burned and emissions in conjunction with regional populations and assets that are most exposed, wildfires truly stand out as a global challenge with local nuances, requiring cross-sector collaboration.

FIGURE 6 | **Population and physical asset exposure to wildfires**



Source: Kelley, D.I. et al. (2025). State of Wildfires 2024–2025. *Earth System Science Data*, vol. 17, issue 10. https://doi.org/10.5194/essd-17-5377-2025.

1.3 The economic cost of inaction and the future that awaits

While the intensity of wildfires grows globally, and their economic and social costs rise, funding remains concentrated on suppression and recovery rather than prevention. Post-disaster funding rarely offsets the escalating social and economic toll of disasters. The UN Office for Disaster Risk Reduction's (UNDRR) 2025 Global Assessment Report[36] estimates annual direct costs of disasters have climbed from $70–80 billion per year (1970–2000) to $180–200 billion per year (2001–2020) and exceed $2.3 trillion per year when cascading effects on health, livelihoods and supply chains are included.[37] In the case of wildfires, it is estimated that more than $215 billion in assets were exposed to wildfires globally between 2024 and 2025 (Figure 6), with $57 billion in realized direct damages recorded by EM-DAT, including $53 billion caused by fires affecting Los Angeles and Southern California.[38]

Despite the rising costs, disaster-related aid remains overwhelmingly reactive. Over 95% of disaster aid (2005–2017) was allocated to response and reconstruction, with less than 4% going to prevention or preparedness.[39] Portugal represents a rare reversal, shifting its wildfire spending from suppression to prevention. The country increased prevention spending (of the national integrated rural fire management system) from around 20% in 2017 to approximately 60% in 2022, resulting in spending less on suppression than on prevention since 2020.[40] Meanwhile, most countries remain stuck in a reactive recovery model. Reorienting investment towards resilience is essential for long-term risk reduction, loss avoidance and economic development.

1.4 How resilience is defined and measured

Environmental resilience can be defined as the ability of a system to cope with the full range of hazards interlinked within each landscape, including the ability to "resist, absorb, accommodate, adapt to, transform and recover from" hazard impacts.[41] Within this broader context, this paper focuses on wildfire as a focal peril through which broader resilience can be advanced. Wildfire resilience lacks a single definition but extends beyond "bouncing back" to emphasize adaptation, transformation and continuous learning "building back better".[42]

This paper recognizes that wildfires expose social and ecological vulnerabilities that demand adaptive suppression and response capacity alongside measures that enhance long-term sustainability.

Meaningful assessment of climate perils must ask: resilience of what, for whom and to what stressors? Ecosystems, communities and economies face distinct recovery paths. Evidence from the Intergovernmental Panel on Climate Change (IPCC)[43] and empirical studies[44,45,46] highlight the increasing intensity of climate-driven extremes and uneven vulnerabilities, underscoring the importance of pairing mitigation with adaptation and participatory governance.[47]

Resilience is multidimensional; hence, measuring it requires metrics that capture the breadth of indicators across environmental, social, economic and cross-sectoral/regional dimensions. Considering these dimensions holistically helps mitigate unintended consequences of optimizing one metric at the expense of others, while failing to effectively advance overall resiliency.

The examples below distinguish a) **what to measure** as leading indicators of how resilient a community is, b) the **cost of inaction** as lagging indicators that cost if prevention fails and fires prevail, and c) **fire resilience benefits** as the measurable upside of resilience investments. Key examples include:

1. **Environmental**

    a. **What to measure**: community density, land use/land cover, WUI, fire emissions, smoke days/PM, watershed function (sediment, turbidity), fuel load/ forest structure, biodiversity indicators

    b. **Cost of inaction**: larger seasonal emission spikes, forest and biodiversity loss; ecosystem degradation that raises downstream risks and response costs

    c. **Fire resilience benefits**: avoided losses from reduced high-severity fire impacts (lower severity and spread) and reduced smoke exposure and related health harms; improved watershed function (water quality and supply), reduced post-fire flooding and erosion risk, and protection of ecosystems (habitat and biodiversity)[48]

2. **Human, social and health**

    a. **What to measure**: evacuations/ displacement, smoke-related casualties/ absences, lingering toxins in soil and built environment post-fire, mental health burden, equity impact on livelihoods and recovery outcomes across socioeconomic groups (e.g. housing re-occupancy)

    b. **Cost of inaction**: disruption and inequity compound in under-resourced regions, including emerging and under-insured markets, recovery and health costs persist beyond the fire season; human dislocation, mortality and morbidity (from both direct and indirect fire exposure and health hazards)

    c. **Fire resilience benefits**: longer and higher-quality lives; coordinated community action, such as homeowners associations (HOAs)/ municipalities setting shared standards and building local capacity, reduced smoke exposure and displacement[49,50]

3. **Economic and financial**

    a. **What to measure**: expected annual loss (EAL), total losses and disaster spending incurred, premium/coverage changes at renewal, capital release/recycling, insurance penetration, avoided utility/public-agency costs and resilience project payback

    b. **Cost of inaction**: lack of insurance availability and low affordability; fiscal volatility from disaster response-heavy spending, reduced access to lending and financing, slower economic development

    c. **Fire resilience benefits**: visible, verified and programmatic mitigation; leading to losses decreasing and insurance premiums and access to coverage improving; prevention finance unlocks scaling resilience and facilitates economic development[51,52]

4. **Cross-sector and regional**

    a. **What to measure**: supply chain interruptions, municipal credit/tax revenue stability, housing and municipal bond markets in high-risk areas and post-fire cascading hazards (debris flow, flood, water contamination)

    b. **Cost of inaction**: regional productivity shocks and asset devaluation; repeated disasters drive fiscal stress and risk contagion[53]

    c. **Fire resilience benefits**: limiting tax base erosion and fiscal pressure protects municipal credit,[54] reduced downward pressure on property values in higher wildfire-risk areas supports housing markets,[55] and reduced business interruption and supply chain ripple effects support faster regional recovery[56]

2 The wildfire stakeholder ecosystem

Mapping the wildfire stakeholder ecosystem reveals interconnected pathways that can help adaptation efforts scale.

Wildfire resilience requires coordination,[57] yet stakeholders remain disconnected. In response to wildfire risk, insurers withdraw from markets where exposure is too high,[58] utilities focus primarily on ignition prevention,[59] communities lack sufficient mitigation[60] and public agencies direct resources mostly to suppression.[61] This fragmentation fuels a cycle of escalating losses, ecosystem degradation and community and economic vulnerability, highlighting the need for more cross-sector collaboration and stakeholder alignment.

2.1 The core wildfire stakeholder ecosystem participants

The wildfire stakeholder ecosystem comprises a diverse set of stakeholders, ranging from local to global actors, each possessing a unique set of knowledge, resources, capital and influence. While all stakeholders hold critical roles, gaps in coordination among them present a key challenge.

Table 1 outlines the core participants in this wildfire ecosystem, including the distinct yet interdependent roles they play, as well as some of the challenges and risks they face.

TABLE 1 | **Roles, challenges and risks across wildfire ecosystem actors**

Wildfire ecosystem actor	Role in the ecosystem	Challenges and risks
Communities (including Indigenous Peoples), non-governmental organizations (NGOs) and civil society	Pioneer on-the-ground solutions, combining traditional knowledge and innovation that larger systems can scale.	Scale and continuity: Reliance on short grant cycles limits replication and long-term stewardship.
Home/landowners, small businesses and HOAs	Collective action drives community-level mitigation and represents the frontline of wildfire resilience.	Affordability and uptake: Upfront costs and uneven incentives slow adoption of hardening and defensible space.
The public sector (municipal to national)	Governments affect wildfire resilience through land-use planning, funding, building codes, emergency management and regulatory measures.	Capacity and funding gaps: Local governments often lack funding, technical capacity or incentives to focus on mitigation over immediate emergency needs.
Multilateral institutions	Align global policy, financial and technical standards to scale local resilience efforts worldwide.	Metric misalignment: Global climate finance frameworks still emphasize emissions reduction over adaptation, leaving wildfire resilience under-funded.
Philanthropy	Provide catalytic funding for early pilots, data systems, as well as community-led programmes.	Bridge failure: Early grants de-risk pilots but rarely connect to sustained government or private investment pipelines.
Agriculture and forestry	Land managers can reduce wildfire risk by embedding fuel treatments (thinning, prescribed fire and targeted grazing) into routine forest and rangeland management.	Economic imbalance: Fuel-reduction and restoration costs often exceed returns from crops, timber or carbon credits, discouraging participation in resilience efforts.
Private sector: insurers and reinsurers	Convert physical risk into financial signals that reward prevention and determine coverage availability and affordability. Promote "build back better" coverage.	Regulatory misalignment: Short-term policy and pricing cycles limit recognition of long-duration risk reduction, while local regulatory frameworks in some jurisdictions (e.g. the US) constrain insurance availability.
Private sector: utilities	Co-fund ignition reduction and share mitigation data to reduce systemic risk.	High exposure and cascading risk: Utility-linked fires can trigger outsized claims and capital strain; prevention evidence must be recognized in pricing to sustain investment.
Private sector: technology and data providers	Enable detection, modelling and measurement, reporting and verification (MRV), turning data into investable information.	Policy and privacy concerns: Airspace restrictions, data-sharing and procurement barriers slow the adoption of artificial intelligence (AI) detection and autonomous response.
Private sector: lenders and builders	Integrate mitigation standards into finance and construction, shaping where and how resilience is built.	Credit withdrawal and valuation risk: Lenders are retreating from high fire-prone areas (e.g. in California, US) due to rising default and insurance instability.[62]
Private sector: investors and asset owners	Investors and operators seek stable, risk-adjusted returns by embedding resilience into portfolios, infrastructure and asset management.	Valuation uncertainty: Data quality and lack of standardized avoided-loss metrics prevent pricing of resilience in portfolios and bonds.

Wildfire resilience requires coordination among ecosystem stakeholders who play distinct but interconnected roles, across knowledge, public planning, land management and capital allocation. When these roles are aligned, community knowledge and pilots inform regulation; governments translate this learning into codes and planning; land managers implement fuel treatments and restoration; and market actors, such as insurers and utilities, use consistent data to guide risk reduction and direct capital towards what works.

In practice, achieving alignment requires negotiation and trade-offs, and trust-building among parties whose objectives and incentives may conflict. Wildfire risk cascades across properties and community lifelines; therefore, resilience planning helps communities align priorities and resources.[63] Neighbourhood-scale resilience standards then provide a common basis for action across adjacent properties[64] and shared infrastructure, reducing conflicting goals and enabling measures to reinforce one another over time.[65]

3 Building a framework for investing in resilience

Resilience can be enhanced by linking prevention, mitigation and adaptation into an investment cycle.

3.1 Building a continuous resilience system

Wildfire resilience can be advanced through a continuous, data-driven system that links actions to prevent, reduce and recover from losses into one investable cycle. When risk-reduction actions generate verifiable proof, that proof alters the economics of insurance, capital and recovery, creating a feedback loop where actions leave evidence, evidence influences price and price influences capital. Resilience finance is different from traditional finance from a return perspective because the return is essentially avoiding loss.

Multiple studies point to a high loss avoidance return from wildfire prevention intervention.

- The National Institute of Building Sciences (NIBS) finds that in the US WUI, above-code wildfire mitigation can yield about $4 in avoided losses for every $1 spent.[66] In addition, stronger building requirements can improve life safety and expedite functional recovery, supporting social benefits alongside avoided losses.[67]
- The US Forest Service's review of 85 studies found that 86–94% of modelled landscape fuel-treatment scenarios reduced fire intensity or damage relative to untreated areas.[68]

When avoided losses materially exceed spend and treatments reliably reduce modelled fire impacts, the rationale for acting before ignition becomes hard to ignore, setting the foundation for a resilience system in which prevention, mitigation and adaptation reinforce one another.

Prevention: financing risk reduction up front

Communities can reduce ignition and exposure through fuel management, home hardening and detection networks, but these activities require capital before losses occur. Capital can be deployed through retrofits for existing structures or by building back to a better (more resilient) standard for new construction or rebuilds following a disaster. In general, upgrading to a more resilient standard is often more affordable at the point of construction than through retrofits. For example, Wildfire Prepared Home (Base/Plus) is estimated to add around 2–3% (approximately $15,000) to a mid-range new build/rebuild in Altadena,[69] while retrofitting an existing roof can cost up to around $22,010 (model home).[70]

Different financing mechanisms can be deployed to fund proven fire prevention interventions. For example, blended-finance models (e.g. Forest Resilience Bond) can provide upfront liquidity, with multiple beneficiaries repaying over time. Similarly, insurance structures can recognize verified risk reduction and translate it into improved pricing and/or availability, as illustrated by the wildfire resilience insurance launched by Willis Towers Watson (WTW) and The Nature Conservancy (TNC). When measurement, reporting and verification (MRV) confirm performance, repayments or savings can be recycled to finance additional resilience measures.[71,72]

Mitigation/suppression: ensuring rapid liquidity and operational readiness

Proactive, landscape-scale mitigation, including nature-based solutions and preparedness measures like building strategic fuel breaks and road networks, reduces fire severity and improves response effectiveness. For fire-adapted ecosystems, reintroducing cultural and prescribed burning can reduce fuel loads and limit extreme fires.

When fires do occur, speed determines the scale of damage. Prepositioned assets and parametric triggers can provide rapid liquidity to agencies and utilities, enabling early response and continuity of operations. They have the potential to stabilize cash flow, shorten recovery and generate post-event data that improves risk and loss models over time.

Reactive adaptation: rebuilding to verified standards and recycling savings

Post-fire recovery is where resilience becomes self-reinforcing. Rebuilding to verified standards and taking actions such as restoring watersheds prevent risk from reaccumulating. Tracking reductions in EAL shows programme effectiveness; as verified savings grow, public and bond support can taper, while private capital recycles. Traction could also come from strategically targeting pools of capital that have previously been unavailable or underutilised, and that are willing to earn future risk premiums by taking on new and diversified resilience-finance risks. Carbon markets have the potential to further incentivize investment in resilience by providing a monetization mechanism for verified avoided CO_2 equivalent (CO_2e) from prevention measures (e.g. fuel treatments, prescribed fire, home hardening), creating an additional cash flow to refinance the next cycle of fire loss prevention interventions.

Regional capital pathways

Regional capital pathways vary but share a common principle: verified risk reduction earns cheaper capital. In places with relatively broader insurance availability and more mature capital markets (e.g. parts of the US and Europe), private finance can play a larger role if mitigation is measured and rewarded. In practice, capital pathways for wildfire resilience manifest differently in mature and emerging markets:

- **Mature markets**: Where capital markets are deeper, and there are established payers (e.g. utilities, municipalities, insurers and pooled buyers), risk reduction can be financed through repeatable structures such as revolving funds, mitigation credits and resilience bonds – which can be certified by institutions such as Climate Bonds Initiative (CBI) for adaptation impact reporting and impact.[73] Large corporates may also invest in wildfire mitigation where co-benefits exist. Clear standards, like the Insurance Institute for Business & Home Safety (IBHS) Wildfire Prepared Home programme, help make risk reduction "priceable".
- **Emerging and under-insured markets**: Where insurance coverage and domestic capital access are more limited, development finance institutions, sovereign risk pools and philanthropy can anchor first-loss capital and guarantees. Blended structures, such as green or resilience bonds, can fund community-based prevention and ecosystem restoration. Examples include: REDD+ (Reducing Emissions from Deforestation and Forest Degradation) results-based payments model – backed by ecosystem outcomes;[74] African Risk Capacity (ARC) sovereign pool for parametric event liquidity;[75] and Adaptation Fund/Green Climate Fund for de-risking and performance windows.[76] Measurement and reporting often extend beyond EAL to emissions, health and biodiversity metrics, unlocking concessional finance.

A self-reinforcing resilience economy

Evolution of resilience finance hinges on the direct and active pricing of risk. When prevention, mitigation and adaptation operate as one system, wildfire management shifts from emergency response to evidence-based investment. Technology, including generative artificial intelligence (AI), may be a pricing enabler and break down information asymmetry over time. Every intervention feeds new data into shared MRV frameworks, which inform pricing, govern capital flows and finance the next round of work.

3.2 Life cycle of capital flow

To translate this system into practice, capital must follow the life cycle of resilience, evolving across prevention, mitigation and adaptation, each with distinct risks, instruments and payers.

This framework maps how funds, responsibility and returns move through this continuum: from capital that designs and de-risks programmes, to blended funds financing for mitigation infrastructure, to rapid-liquidity mechanisms for response and recovery, and finally to recycled savings that refuel prevention. Since many local and sub-national institutions have limited fiscal and administrative capacity, higher-level backstops and coordinated funding are needed to ensure that responsibility is shared according to capability rather than shifted downward.

These financial flows underpin a self-sustaining wildfire resilience system.

TABLE 2 | **Life cycle of capital flow – illustrative**

Phase	Prevention: de-risk and design	Mitigation preparation: build, capitalize and deliver	Mitigation operations: liquidity and suppression response	Reactive adaptation: rebuild and recycle
Purpose	Turn ideas into investable programmes and align investors Set standards and delivery rails	Build the assets that keep fires small and costs down	Ensure speed and cash flow when events occur	Rebuild to standard, repair watersheds and refuel the next prevention cycle
Instruments	Planning grants, first-loss/ guarantees, technical assistance, results-based grants (simple milestones)	Blended revolving funds, resilience-linked bonds/ loans, concessional lines, pooled community finance, optional parametric bridge for surge liquidity	Parametric covers (sovereign/sub-sovereign/ corporate), working capital lines, rapid vendor pay rails, mutual aid cost-share	Premium discounts/credit schedules, savings-share tranches, outcome-based grants, follow-on bond lines for next cohorts, build-back-better endorsements, enhanced insurance coverage and utility cost-recovery mechanisms
Common payers (mature markets)	State/federal grants, utilities (planning budgets), property owners, development finance institutions (DFIs)/ multilateral development banks (MDBs), sovereign funds/pools, climate funds	Utilities, large corporates, municipalities/states, HOAs/developers, insurers, impact/pension capital, property owners, philanthropy for first-loss	Insurers (parametric), utilities/public agencies, pooled buyers	Insurers (discounts/ credits), public-budget savings, HOA/municipal dues, revolving reflows
Common payers (emerging and under-insured markets)	DFIs/MDBs, sovereign funds/pools, climate funds, philanthropy	DFIs/sovereigns (first-loss guarantees), climate funds, line ministries	Sovereign risk pools (e.g. African Risk Capacity, Caribbean and Central America Parametric Insurance Facility), ministries, DFI facilities	Ministries/sovereign funds, DFIs/climate funds (results-based), community co-pays (where viable)
Use of funds	Programme design, baselines and targeting, community and buyer aggregation, procurement playbooks, governance and data-sharing guardrails aligned to FAIR/CARE* principles, permitting	Land management, home-hardening cohorts, detection and early-warning systems, enabling works (e.g. access and water points), shared data commons to coordinate implementation, MRV	Pre-positioned crews and equipment, seasonal treatments and inspections, rapid containment, stabilization and clean-up	Rebuild-to-standard/ code, watershed repair, operations and maintenance, next-year treatment cohorts to prevent backsliding
Risk/return profile	Highest programme/ design risk, patient capital	Medium execution/ product risk, blended returns	Event-driven, rapid liquidity, exposure concentrated around fire seasons and trigger performance	Performance-based, recycling mechanism, multi-year programmes

*FAIR = findable, accessible, interoperable, reusable; CARE = collective benefit, authority to control, responsibility, ethics.

3.3 Carbon markets and climate finance integration: closing the cycle

In 2024, 18% of forest carbon projects on the voluntary carbon market were exposed to wildfire.[77] Left unmanaged, wildfires pose an increasingly significant risk to the existing carbon market, as fires release stored carbon and destroy the value of the offsets. However, wildfire prevention and resilience can be seen as a carbon-mitigation asset capable of generating verified, tradable climate value.

By integrating carbon revenue streams into prevention finance, mitigation actions such as fuel treatments, prescribed fire and home hardening can yield two measurable payoffs:

1. Reduced expected annual losses that stabilize insurance and credit costs
2. Avoided CO_2e emissions that can be monetized under compliance or voluntary carbon market frameworks

This dual accounting, economic and atmospheric, has the potential to create a recurring cash flow that allows prevention projects to refinance over time. Each treated hectare can yield an EAL dividend for insurers and utilities while earning high-integrity carbon credits, forming a closed resilience-carbon loop where verified risk reduction funds the next cycle of prevention.

Carbon credit mechanisms

- **Compliance integration:** Where eligible, align with tested protocols and compliance-grade measurement and reporting.[78]
- **Voluntary market premiums for co-benefits**: Buyers value biodiversity and watershed co-benefits.[79]
- **Stacking without double-counting**: For example, follow the Voluntary Carbon Markets Integrity Initiative's Claims Code of Practice guidance to combine carbon with water/biodiversity claims credibly.[80] As another example, use protocols, such as the methodology being developed by Verra in collaboration with the National Forest Foundation and Vibrant Planet, to certify forests in the Mediterranean.[81]

4 Pathways for investment and action

Empirical evidence informs four sets of actions to advance wildfire resilience.

To advance wildfire resilience, action should focus on four interconnected pillars: 1) finance and insurance, 2) nature-based solutions, 3) data, technology and governance, and 4) community and multistakeholder coordination. The case studies presented in support of these themes were collected by the World Economic Forum in late 2025, and information was provided via interviews unless otherwise cited.

4.1 Finance and insurance: converting prevention into price and capital

Wildfire resilience becomes investable when prevention, mitigation and reactive adaptation benefits are visible, verified and measurable. Prevention remains underfunded for many different reasons, including limited awareness and the upfront affordability of interventions, while the payoff comes mainly through avoided losses, which can be harder for investors to value and compare against alternative, yield-generating investments. As insurers retreat from high-risk markets, taxpayers absorb fiscal exposure. Standardized avoided loss metrics, community aggregation and aligned multi-party financing can move capital upstream, making prevention investable and self-reinforcing.

CASE STUDY 1

Financial mechanisms for wildfire risk reduction

The American Forest Foundation (AFF), in collaboration with **Pacific Gas & Electric (PG&E)**, **Blue Forest** and other partners, leads an innovative pilot in Tuolumne County that aims to reduce wildfire risk and enhance energy resilience on family-owned forest lands adjacent to critical infrastructure. This “stacked benefit” model combines multiple revenue streams to finance hazardous fuels reduction at scale.

Around Lake Tahoe, **WTW and TNC** created a $2.5 million HOA insurance policy that rewards verified forest treatments, cutting premiums by 39%.[82] By linking thinning and prescribed burns to reduced losses – estimated at 40–60%[83] (modelled) – the model shows how measurable prevention can directly influence pricing, supported by county-level data commons that give insurers and communities a shared view of risk.

Factory Mutual (FM) combined engineering-led credits with underwriting levers, reducing $30 billion in climate-related loss exposure in commercial lines, and returning $1.4 billion to clients over recent years. Their experience suggests that the return on investment (ROI) from loss prevention was realized not only from loss avoidance, but also coverage continuity and client retention.

Guidewire (HazardHub) analysed the California Department of Forestry and Fire Protection’s (CAL FIRE) damage-inspection data (DINS) across 91,800 California home inspections and found that bundled home hardening and mitigation measures (captured as a “resiliency score”) are associated with materially lower wildfire losses. For example, adopting three resiliency points reduced expected loss by approximately 20–25%, while a score of 13 reduced expected loss by more than 70%. This kind of evidence base can support insurance incentives (e.g. credits) tied to verified mitigation actions.[84]

Design principles for scalable finance and insurance mechanisms

These principles describe what empirical evidence suggests is likely needed to translate verified risk reduction into pricing, capital and repeatable programmes. Not every principle applies to every case.

- **Beneficiary-specific value**: Each payer funds outcomes most relevant to their mandate.
- **Measurable results**: Prevention is tracked through verifiable indicators of avoided loss and effective resiliency interventions.
- **Scale through aggregation**: Community/municipal pooling stabilizes loss ratios and allows financing bodies to manage risk at scale.
- **Fit-for-risk planning unit**: Plan interventions at the unit that drives loss in that context (property, community or landscape).
- **Establish standards**: Evidence-based standards, such as wildfire-specific resilient building and community characteristics, verification protocols and building codes, enable insurability and financing.
- **Public-private balance**: Early guarantees, policy incentives and investment by the public sector and philanthropy help to de-risk innovation for private sector investment.
- **Complementary markets**: Link prevention work to complementary markets within the ecosystem (such as biomass) to support continued economic vitality.
- **Open data integration**: Interoperable data commons ensure consistency and trust among partners.
- **Risk-based pricing and incentives**: Pricing and coverage availability reflect underlying risk. Higher-risk properties face higher premiums and/or reduced availability, while lower-risk properties are generally offered lower premiums. Verified preventative action is rewarded through premium credits, improved terms or greater availability, helping avoid moral hazard.

TABLE 3 **Putting the pillar into practice**

Sample outcome metrics	Partners	Instruments	Policy enablers
Environmental (e.g. flame length, rate of spread, water yield/sedimentation), **human, social and health** (e.g. claim-settlement time, underinsured or uninsured property owners), **economic and financial** (e.g. avoided losses, premium change, loss-ratio improvement, capacity stability), **cross-sector and regional** (e.g. number of buildings hardened)	Utilities, large corporates, insurers/reinsurers, agencies, communities and Indigenous groups, municipalities, property owners, investors, implementers, and data providers	Resilience bonds and revolving funds, resilience-linked riders, build-back-better insurance endorsements and coverage continuity for resilient properties that meet appropriate prevention standards, community/parametric covers, public reinsurance backstops (CATNAT)	5–10-year multi-payer "pay-for-results" agreements, procurement templates, concessional/first-loss capital for early phases, codes and standards, and public education campaigns

Key takeaways

- Prevention can be priced and financed when co-benefits are converted into bankable contributions.
- Resilience finance is repeatable through long-term, multi-payer, metrics-tied finance that is replicable and can be adapted across regions.
- The loop can be closed by pairing resilience bonds with resilience-linked insurance, restoring capacity, stabilizing tax bases and turning prevention into a core product feature.

4.2 Nature-based solutions

Nature-based solutions (NbS) have long been integral to wildfire and land management. Practices such as forest thinning, cultural and prescribed burning, green buffers and improved water distribution reduce ignition and fire spread while delivering water, biodiversity and climate co-benefits. In certain contexts, green firebreak plantings (using less-flammable species) and targeted grazing (e.g. using goats) can help maintain low-fuel corridors near homes, roads and critical infrastructure.

Still, decades of suppression-driven policy and short-term budgeting have degraded these natural defences. Restoring balance requires treating ecosystem stewardship as infrastructure that can be financed and maintained over time. NbS transforms restoration and maintenance into measurable avoided losses and biodiversity value, generating environmental and financial returns. Indigenous communities have long used NbS to protect and regenerate landscapes, and financing their stewardship builds durable, locally led resilience.

CASE STUDY 2

Ecological interventions for wildfire management

The **Cheslatta Carrier Nation in British Columbia** has expanded its stewardship over approximately 300,000 hectares of traditional lands through strategic partnerships with the provincial government and forestry industry leaders. Traditionally managing fuels through cultural fire practices, Cheslatta now implements mechanized fuel removal methods under commercial agreements that generate community benefits and support sustainable forest management.

Blue Forest and the California Council on Science and Technology's research shows that proactive forest management significantly cuts wildfire smoke emissions and related health costs. Treatments combining prescribed burns and thinning reduced smoke by 14% in Washington and lowered fine PM2.5 emissions by up to 48% in California's Rim Fire area. Long-term projections estimate this could save $7 billion in annual health costs over 25 years.[85]

Planscape, developed by the **Spatial Informatics Group (SIG)** in partnership with CAL FIRE and the US Forest Service, supported El Dorado County partners in identifying 60,000 acres of priority treatments in the Placerville region, securing $10 million in funding to accelerate implementation.

Drone-based reforestation company **Flash Forest** is challenging monoculture replanting practices. The company's drones plant at 20 times the speed of human planters while ensuring species diversity.[86]

Design principles for scalable nature-based wildfire resilience programmes

These principles describe what empirical evidence suggests is likely needed to translate ecosystem stewardship into measurable risk reduction, durable co-benefits and fundable, repeatable programmes. Not every principle applies to every case.

- **Co-producing knowledge**: Combine Indigenous knowledge with scientific methods for fit-for-place prescriptions.
- **Programmatic maintenance**: Multi-year contracts prevent risk rebound.
- **Co-benefit valuation**: Track water quality, biodiversity and avoided emissions recognized (not just carbon) to reflect the full value of ecosystem restoration.
- **Stewardship incentives**: Establish pay-for-performance mechanisms and sovereignty-respecting data practices – e.g. CARE (collective benefit, authority to control, responsibility, ethics) Principles for Indigenous Data Governance – to align incentives with long-term community stewardship.
- **Pricing link**: When verified NbS data flows to insurance underwriting (via data commons), resilience-linked discounts and coverage can improve, accelerating investment and lowering long-term suppression costs.
- **Market integration**: Monetize byproducts (biomass pellets, biochar, etc.) to make restoration into a profit-generating entity.

TABLE 4 | **Putting the pillar into practice**

Sample outcome metrics	Partners	Contracts	Policy enablers
Environmental (e.g. fuel load reductions, spread potential, water sedimentation risk, biodiversity indicators), **economic and financial** (e.g. change in EAL)	Indigenous nations, community forests, agencies, utilities, insurers and buyers of biomass products	Multi-year prescribed burning/thinning agreements with maintenance service-level agreements (SLAs) offtake contracts	Permissions for prescribed fire, land-tenure alignment, cross-border collaboration and stewardship agreements

Key takeaways

– Treat NbS as infrastructure, fund maintenance and measure co-benefits beyond carbon.

– Indigenous stewardship is central for both ecological and social dividends.

– Markets for byproducts improve the economics and durability of fuel work.

4.3 Data, technology and governance: coordinated early warning and risk platforms

Data and technology are essential to modern wildfire resilience. Every intervention, from home hardening to nature-based interventions and insuring assets, requires reliable and consistent data and information. Yet, data remains fragmented across sectors and often lacks interoperability. Efforts to create an open data system, or "data commons", are under way, but require broader stakeholder buy-in.

Emerging technologies powered by AI, including autonomous drones, cameras and sensors, combined with machine learning (ML) modelling, can integrate climate, vegetation and infrastructure data to better predict ignition potential, assess mitigation impacts, simulate suppression effectiveness and quantify avoided losses. Treating AI and data as investable infrastructure by developing, governing and scaling technology solutions to advance wildfire resilience serves both public safety and capital markets.

> **It's not just data. We need experts, cloud compatibility and a governed marketplace where sharers set rules**
>
> Ilkay Altıntaş, Principal, UCSD Wildfire Lab and Alert, University of California, San Diego

CASE STUDY 3

Technology, AI and data for wildfire management

Tasmania's government and **Sustainable Timber Tasmania** partnered with **Indicium Dynamics** and **RoboticsCats** to deploy AI-driven wildfire detection technology, enabling early detection and rapid response during the 2023–2024 fire season, helping to reduce the annual burned area to 20,000 hectares, less than half the prior decade's average.

Pano AI uses networks of rotating high-definition and infrared cameras to detect wildfires early, covering a 10-mile radius per station, cutting response times by over 20 minutes.[87]

Embrace the Forest (Brazil) under the wider Embrace the Forest initiative, **umgrauemeio**, in partnership with other private sector actors, government agencies, non-governmental organizations (NGOs) and Indigenous communities, operates 11 AI detection towers across 2.5 million hectares in Brazil's Pantanal. This collaboration combines prevention and rapid response, reducing burned areas by 40% compared to 2020 during the severe 2024 fire season.

FireSat, a partnership led by **Earth Fire Alliance** with **Google.org**, the **Gordon and Betty Moore Foundation** and **Muon**, is a satellite constellation designed for rapid wildfire detection. Scanning every 15–20 minutes, it can detect fires 400 times smaller than current systems and track them through smoke and darkness in near real time. In California alone, FireSat could prevent 190,000–350,000 acres from burning each year and avoid 4–8 million tonnes of CO_2 emissions.

Design principles for scalable wildfire data, technology and governance ecosystems

These principles describe what empirical evidence suggests is likely needed to turn detection-to-response technologies and risk data into trusted, interoperable systems that can be governed, adopted and scaled. Not every principle applies to every case.

- **Reference standards**: Use common data formats, quality checks, licences (open where possible) and a common alert protocol.
- **Last-mile operational integration**: Deliver role-specific, decision-ready insights into the tools and workflows where they're used – fast enough to change outcomes (e.g. alerts on wind shifts and fire behaviour).
- **Privacy and data rights**: Build data systems that protect privacy and respect community and Indigenous ownership of information, while supporting responsible data use for risk reduction and underwriting.
- **Pilot-to-scale**: Support flexible rules and funding for proven tech (drones and AI systems) to move to scale, and change management to facilitate integration (i.e. data, processes, training, labour agreements, etc.).

TABLE 5 **Putting the pillar into practice**

Sample outcome metrics	Partners	Contracts	Policy enablers
Economic and financial (e.g. change in EAL), **human, social and health** (e.g. detection latency, suppression response minutes), **cross-sector and regional** (e.g. mitigation feature inventory and status)	Counties/HOAs, insurers, utilities, vendors, insurers, universities and incident agencies	Data-sharing agreements, third-party assurance, procurement for integrated detect-to-respond systems	Rules for drones/autonomous flight, privacy templates, international alert protocols and Wildfire Science & Technology Commons participation

Key takeaways

- **Interoperability** prevents tech data from remaining isolated, allowing it to inform risk models. Assurance (verification) makes those signals trusted enough to price risk and unlock premium credits and resilience finance.
- **Open data or data commons** bridge the last mile between field work and underwriting.
- **Policy and privacy frameworks** are vital for using new technology safely and at scale.

4.4 Community and multistakeholder coordination: building local capacity and shared governance

Community-driven action and partnership are core to wildfire resilience. Local governments, civil society groups and Indigenous and rural communities are on the frontlines of wildfire and serve as first responders and stewards of risk reduction. Inclusive, multistakeholder partnerships make mitigation continuous, broadly adopted and grounded in community priorities.

CASE STUDY 4

Community action for wildfire resilience

Regional Community Forestry Training Center for Asia and the Pacific's (RECOFTC) Community-based Fire Management programme in Cambodia's Tonle Sap Biosphere Reserve builds local capacity for fire prevention and firefighting. The programme also supports coordination with local authorities and relevant agencies, including the Ministry of Agriculture, Forestry and Fisheries and the Fisheries Administration.[88]

In partnership with **GIZ**, the **Lower Tapajós Brigade Network** unites volunteer, Indigenous and government brigades to manage wildfires across over 1 million hectares in Pará, addressing the region's remote terrain and climate-driven fire risks. Through satellite monitoring, controlled burns, climate education and an emergency response fund, the network cut wildfire response times to below 12 hours.

With a $400 million **International Bank for Reconstruction and Development (IBRD)–World Bank** loan, **Türkiye's Directorate General of Forestry** aims to enhance wildfire resilience across 14 high-risk provinces, protecting 6.8 million hectares of forest and 6 million people, including 21,000 vulnerable households and 2,000 women-led enterprises.

Tahoe Fund's Nevada pilot brings together wildfire partners to reduce risk in a high-hazard landscape. Using advanced modelling and remote vegetation treatments, the project identifies and prioritizes prevention measures such as home hardening and forest thinning. Its goal is to create a replicable model for community-scale wildfire resilience that links proactive action to measurable risk reduction.

Habitat for Humanity's Building Forward initiative advances equitable resilience by supporting communities through preparedness, mitigation and long-term recovery. Centered on community-driven solutions, it helps vulnerable households access wildfire-resilient homes and safe, affordable rebuilding.[89]

Design principles for scalable community-led coordination and shared governance

These principles describe what empirical evidence suggests is likely needed to build locally owned capacity and governance that sustains prevention and enables replication across communities. Not every principle applies to every case.

- **Decentralized governance**: Empower municipalities and communities to co-design local action plans within national frameworks.
- **Workforce and skills**: Sustained funding for local crews builds year-round capacity and stable employment.
- **Access and reach**: Programmes should be designed to reach people and small businesses in the highest-risk areas, including those with limited resources to invest upfront, aligning risk reduction with wider community outcomes.
- **Knowledge exchange**: Peer-to-peer learning between regions and integration of traditional or Indigenous knowledge enhances local ownership.

TABLE 6 | **Putting the pillar into practice**

Sample outcome metrics	Partners	Contracts and funding	Policy enablers
Human, social and health (e.g. number of trained personnel, participation of vulnerable groups), environmental (e.g. hectares maintained), **economic and financial** (e.g. employment created), **cross-sector and regional** (e.g. community plans implemented)	Municipal authorities, fire services, Indigenous or local leaders, private forestry firms, NGOs and universities	Multi-year community-capacity agreements, public works and social enterprise models, and performance-based grants	Integration of community plans into national fire strategies, dedicated budget lines for local workforce training, formal recognition of volunteer brigades and Indigenous stewardship roles

Key takeaways

- **Empowered communities** are the operating system of resilience; they turn prevention plans into daily practice.
- **Multistakeholder governance**, combining local leadership with technical support from agencies and private actors, delivers sustained prevention and faster recovery.
- Models are more likely to scale when they are **socially inclusive**, **economically viable and locally led**.

From proven solutions to global scale

Wildfire resilience is within reach with effective tools and models, but widespread impact requires investment and scale-up. These four investment pathways create the foundations of a wildfire-resilient economy, built on the premise that when risk reduction is measured and verified through innovative pilots and projects, it becomes a financial asset that can attract sustained investment.

5 Scaling wildfire resilience globally

Building and scaling wildfire resilience efforts is essential to advancing the global resilience agenda.

5.1 From pilots to a global portfolio

Scaling wildfire resilience requires more than pilots or technology; it needs coordinated approaches that link knowledge, capital, governance and community action. Experience from climate adaptation shows a consistent sequence: build evidence and standards, demonstrate impact through collaboration, and embed proven models in markets and institutions that shape risk and finance. The roadmap that follows outlines how this progression could unfold over the next three years for the Global Wildfire Leadership Network (GWLN).

TABLE 7 **Global Wildfire Leadership Network roadmap (2026–2028): a three-phase path from alignment to scale wildfire solutions and resilience**

Phase	**2026** Foundation: build the architecture for resilience	**2026–2027** Acceleration: demonstrate and scale	**2027–2028** Transformation: institutionalize and sustain
Core focus	Strengthen and operationalize, and, where needed, establish frameworks, standards and alliances that make wildfire resilience measurable and investable.	Prove that integrated solutions work through regional pilots and multi-sector partnerships.	Embed successful frameworks in policy, finance and market systems to enable and catalyse local, regional and global adoption.
Strategic priorities	– Define common metrics for prevention and avoided loss. – Align financial, technological, ecological and community approaches under a shared resilience model. – Build cross-sector commitment and early coalitions.	– Deploy flagship demonstrations in high-risk regions to validate economic and environmental returns. – Mobilize blended capital, technology, and environmental and community partnerships to scale proven solutions. – Capture and compare results to guide future investment.	– Use pilot outcomes to inform policy recommendations and financial standards. – Integrate resilience criteria into national plans and global adaptation frameworks. – Facilitate long-term funding and governance mechanisms.
Partnership focus	Forge alliances between private, public, and civil society sectors and local communities to co-design scalable models.	Expand coalitions that connect public and private capital with frontline delivery partners.	Formalize governance within established climate and nature platforms, and ensure continuity beyond initial sponsors/participants.
Outcome	Shared architecture for measuring and financing wildfire resilience is defined by the end of 2026.	Proven, replicable models attract sustained multi-source investment across regions.	Wildfire resilience is supported as a pillar of global climate adaptation and sustainable finance.

5.2 Building collective action

Finally, because wildfires disproportionately impact vulnerable high-risk communities worldwide,[90,91,92] it is important to consider how to deliver wildfire resilience fairly. Doing so requires embedding participation across socioeconomic groups in every stage of implementation to protect livelihoods and achieve recovery outcomes.

The Food and Agricultural Organization of the United Nations (FAO)[93] supports countries in building integrated fire management systems that elevate local and Indigenous stewardship, emphasizing community-based monitoring, early-warning capacity and livelihood co-benefits. Drawing on the FAO's experience with integrated and community-based fire management, delivering wildfire resilience effectively means embedding participation, representation and livelihood outcomes into every stage of design and delivery, so that prevention reduces risk and strengthens welfare. The FAO stresses integrated approaches that engage diverse stakeholders and elevate traditional and Indigenous knowledge, including community monitoring, early warning and locally grounded risk reduction practices. This approach helps direct investments to those most at risk while strengthening social stability and long-term economic resilience.

The 2025 G7 Kananaskis Wildfire Charter launched a new era of global cooperation on prevention and recovery, while the *Call to Action on Integrated Fire Management and Wildfire Resilience*, adopted by 49 countries at COP30 (30th meeting of the Conference of the Parties), embeds prevention, Indigenous leadership and cross-sector investment into national wildfire strategies.[94,95]

To advance this agenda, the GWLN, under the Forum's Forest Future Alliance (previously 1t.org), brings together leaders across business, the public sector, civil society and philanthropy to catalyse investment and scale systemic solutions for wildfire resilience. Working across the four investment pathways outlined in this paper, GWLN mobilizes collaboration and directs capital towards a more wildfire-resilient future. The global roadmap outlined here illustrates how GWLN and its partner network will turn this vision into practice for a more resilient future.

Conclusion

Wildfires represent a complex, multifaceted risk with no single solution. For people and businesses in highly fire-exposed communities, wildfire can be an existential threat, endangering lives, homes, livelihoods and critical infrastructure. Recent reviews caution that escalating heat and drought – amplified by wildfire activity – may increase the risk of tipping-point behaviour in major forest systems, including the Amazon and parts of the boreal.[96]

Real-life case studies cited in this paper point to a path where shifting from wildfire response to prevention leads to favourable environmental, economic and community outcomes across regions.

The pillars outlined in this paper showcase that wildfire resilience is investable when it is measurable, standardized and shared across the wildfire stakeholder ecosystem.

1. **Finance and investment translate** prevention into price and capital.

2. **Nature-based solutions** restore ecosystems, reduce fire risk and deliver co-benefits for water, biodiversity, climate and local livelihoods.

3. **Data, technology and governance** help inform and accelerate effective wildfire prevention interventions and investment.

4. **Community action and access** ensure solutions are co-beneficial, sustainable and widely adopted.

Rather than working in isolation, an integrated wildfire resilience approach brings these investment pathways together to create shared value among actors and communities. It creates a shared system of risk reduction, where prevention, mitigation and adaptation are valued and financed collectively.

Scaling wildfire resilience

Resilience moves through design, delivery and institutionalization. When proof of prevention flows through the financial system, incentives change. Verified outcomes, such as fewer fires or reduced losses, support lower insurance premiums and alternative finance. In this way, prevention becomes self-reinforcing. The more accurately prevention is measured, the more effectively it can be financed.

Key priorities for action

Across all pillars, five priorities emerge to guide efforts:

- Set common standards for measuring avoided losses, ecosystem health and equity outcomes.

- Mobilize blended finance through revolving funds, resilience bonds and community aggregation models.

- Invest in AI and open data systems as public infrastructure that enables faster detection, more accurate prediction and effective intervention.

- Empower local capacity by financing long-term workforce training, Indigenous stewardship and community governance.

- Embed resilience in policy and markets so prevention becomes a core feature of climate finance and sustainable development.

Wildfires are a global challenge that transcends borders, communities and sectors. They require a whole-of-society approach rooted in collaboration, investment and innovation. By strengthening wildfire resilience, it is possible to transform shared risk into shared opportunity, building environmental, economic and social stability, and enabling communities to not only withstand wildfire impacts, but thrive over the long term.

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Acknowledgements

The World Economic Forum extends gratitude to Google.org and the Gordon and Betty Moore Foundation for its generous support of the Global Wildfire Leadership Network from its inception.

The World Economic Forum thanks all individuals and organizations whose insights and collaboration made this white paper possible. Written as a joint effort with PwC, this paper was developed under the Global Wildfire Leadership Network, a joint initiative of the Forest Future Alliance (FFA) (previously 1t.org) and Giving to Amplify Earth Action (GAEA), within the Forum's Centre for Nature and Climate. This paper draws upon the collective expertise of the network's working groups, research partners, field practitioners, frontline communities and firefighters dedicated to advancing global wildfire resilience. The Forum further thanks PwC for its continued support of the initiative and acknowledges Salesforce for its support of the Forest Future Alliance and its commitment to accelerating wildfire resilience.

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