

A soldier in a Brazilian military uniform, wearing a bucket hat and holding a radio, is seen from the side. In the background, a helicopter is dropping a red fire bucket from the sky. The scene is set against a blue sky with white clouds.

South America Fire Fund

ANNEX: Technology Strategy



Photo: Mayangdi Inzaulgarat/Ibama

ANNEX: Technology Strategy

Executive Summary

The technology strategy is designed to ensure that brigades across all LIFTs are well-equipped, trained, and ready for operations. It also aims to promote the development of transformative technologies in the region. Adopting a brigade-first approach is essential for cost-effective, high-impact wildfire management in the Amazon, Pantanal, and Chiquitania. The Fund uses two assessment frameworks, Brigade Capacity Levels and Data & Monitoring Technology Levels, to identify key needs in equipment, training, and decision-support systems.

** Cover photo: Vinícius Mendonça/Ibama*

Investments focus on strengthening brigade ecosystems and improving interoperability through reliable connectivity and participatory monitoring. Technology can help increase the effectiveness and safety of brigades' responses to active fires and support prevention activities. Field-based sensors, drones, and Earth observation will provide insights into fire behaviour and ecosystem recovery, enhancing fire modelling and restoration planning.

The Fund will tackle logistical and institutional challenges that cause delays in response times by exploring solutions such as direct satellite connectivity, new Earth observation systems, advanced suppression methods, and comprehensive sensing networks. Collaborations with organisations such as regional monitoring platforms, local universities, and fire startups, guided by Conservation X Labs, will help identify and scale high-impact innovative technologies. Ultimately, the strategy highlights the integration of technology within a broader framework of governance, sustained capacity-building, and long-term finance to ensure effective action on the ground and significant reduction of destructive fire in the region.



Brigadistas do Prevfogo em ação. Foto: Augusto Dauster/Ibama

1. Technical Analysis

The findings presented in this strategy are based on a structured technical assessment conducted over four months, combining targeted consultations, expert workshops, and desk research. The technology team engaged more than 40 organisations through one-on-one consultations across South and North America, complemented by two major gatherings: a South America Fire Technology expert Gathering in Oakland (January 2026) and a Wildfire Innovation & Technology Workshop held during the International Conservation Technology Conference (ICTC) in Lima (February 2026), with over 30 participants. These engagements brought together government agencies, Indigenous organisations, NGOs, research institutions, and private-sector technology providers. A detailed list of consulted stakeholders is provided in the annex, and key findings from the ICTC workshop are summarised in the workshop report.

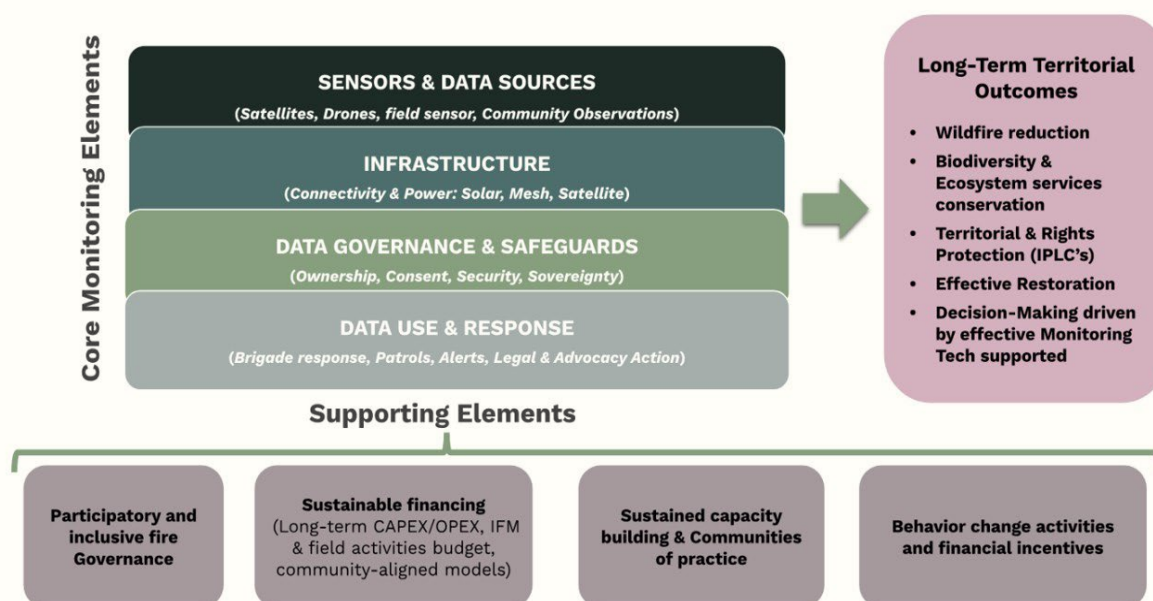
The methodology combined qualitative inputs (expert interviews, workshop discussions, and practitioner feedback) with comparative analysis of existing technologies, operational systems, and field constraints across key fire-prone regions, including the Amazon, Pantanal, and Chiquitania. This approach enabled the identification of both technological opportunities and systemic bottlenecks, ensuring that conclusions are rooted in operational realities rather than solely theoretical or technology-centred perspectives.

A central finding consistently emerging across consultations is that wildfire technology must be viewed as part of an integrated system rather

than as standalone tools. Although there are significant advances in detection, monitoring, and modelling, their effectiveness is often limited by gaps in connectivity, logistics, coordination, and frontline capacity. As highlighted during the ICTC workshop, sensing only matters if it prompts action, communication is only valuable if it reaches remote users, and equipment is only useful if it is usable, maintainable, and tailored to local contexts. In practice, responders currently depend on fragmented platforms and data streams, lacking a unified operational view across the fire cycle.

The Technology Framework below adopts a systemic perspective, recognising that long-term outcomes depend not only on core technological components, such as sensors, platforms, and infrastructure, but also on critical enabling factors, including governance, sustainable financing, capacity building, and behaviour change. Within this broader Integrated Fire Management approach, technology plays a central yet interdependent role. Accordingly, the technology strategy has been closely aligned with the Fund's complementary workstreams on financial innovation, behaviour change, and cross-border collaboration. This integrated approach ensures that technology deployments are embedded within a wider ecosystem of partners, incentives, and institutional arrangements, enabling them to address the underlying drivers of fire while supporting more effective prevention, response, and recovery across the region.

LIFT Effective Integrated Fire Management Monitoring Framework using Technology



1.1 Key Findings

Wildfire management effectiveness in South America is primarily limited by deficiencies in frontline capacity, system integration, and operational delivery. Across all consultations, a consistent conclusion emerges: this is fundamentally an implementation challenge, with brigades as the decisive factor in reducing fire impacts. Accordingly, a brigade-first approach focused on equipment, communications, integrated information systems, and low-cost territorial intelligence represents the most effective pathway to scale impact. Technology investments should therefore be evaluated based on their ability to enhance brigade capacity and safety, reduce response times, improve coordination, operate in low-connectivity environments, integrate with end-to-end fire management systems, and empower communities in prevention, response, and recovery.

1. Brigade-Centered Interventions Deliver the Highest Impact

Supporting brigades provides the highest return on investment throughout the fire cycle. They are key

to early detection, quick response, prevention, and territorial intelligence, especially in remote areas. Furthermore, during the low fire season, brigades can assist with Integrated Fire Management and prevention and restoration activities. However, most brigades remain under-equipped and underfunded. It is paramount to ensure that brigades have basic equipment (PPE, hand tools, radios) before equipping them with more advanced technologies. Achieving proper equipment, training, and support should come before more advanced investments.

2. Foundational Gaps: Equipment, Logistics, and Mobility

Operational readiness is hindered by inadequate equipment, weak logistics, and high maintenance costs. Mobility, which depends on boats, vehicles, or aircraft according to the biome, and vehicle maintenance needs, directly influences response time, a crucial factor in fire outcomes.

3. Connectivity and Communications as the Primary Bottleneck

Last-mile connectivity remains the most critical systemic challenge. In environments with poor

cellular and internet connectivity, alerts do not reach responders, tools underperform, and coordination within brigades is limited, creating a gap between detection and response. Solutions should prioritise resilient, offline-first communication systems that combine satellite, radio, and store-and-forward architectures.

4. Fragmented Systems and Lack of Operational Integration

Current monitoring and forecasting systems are fragmented and poorly integrated into field operations. There is no unified operational overview. Integrated fire information systems are necessary to merge data from multiple sources, operate offline, and deliver actionable intelligence directly to brigades through comprehensive workflows.

5. Data-to-Action Gap at the Frontline

Despite advances in detection and risk modelling, tools are often inaccessible at the brigade level. Key gaps include a lack of real-time fire-spread models and fuel maps, insufficient local meteorological data, limited data-analysis capacity, and weak field validation. These issues contribute to a “last-mile analytics gap,” which is made worse by the limited ability to interpret data without ongoing training. Future efforts should focus on forming partnerships with local universities and other organisations to analyse and present data in ways that support decision-making on the front lines.

6. Need for Cost-Effective, Locally Adapted Monitoring Systems

Monitoring systems should combine remote sensing with ground-based data (e.g., Cameras, weather and smoke sensors). Expensive technologies often fail due to maintenance and operational constraints. Priority ought to be given to low-cost, locally maintainable, and participatory monitoring systems that align with local territories.

7. Underutilisation of Existing Technologies

Technologies like drones are widely accessible but underutilised beyond basic reconnaissance. This highlights gaps in training, analytical capability, and workflow integration. Impact depends on integrating tools into operational systems and on user capacity, not merely on deploying hardware.

8. Community-Centered Approaches Enable Adoption

Community engagement is vital for adoption and sustainability. Interventions that begin with communities obtain higher uptake and effectiveness. Brigade performance relies on alignment with local governance, knowledge, and incentives.

9. Gaps in Post-Fire Monitoring and Impact Assessment

Significant gaps remain in assessing fire impacts, particularly on biodiversity and ecosystem services. Combining field data, remote sensing, and AI into integrated systems is essential to support recovery, accountability, and funding.

1.2 Comparative Insights or Case Examples

Brazil has recently created a robust institutional framework that promotes a brigade-first approach to integrated fire management, closely aligned with the Fund’s Technology Strategy. The National Policy on Integrated Fire Management (PNMIF; Law 14.944/2024) establishes a comprehensive governance structure covering prevention, response, ecological management, and social participation. The National Committee on Integrated Fire Management (COMIF) functions as a multi-actor coordination platform, aligning federal, subnational, and civil society actors while ensuring operational relevance at the local level.

A key strength is the link between policy and implementation. Integrated Fire Management Plans translate national policy into practice by involving brigades, particularly volunteer and community brigades, in prevention, preparedness, and response. These plans formalize roles, establish contingency structures, and enhance local partnerships, positioning brigades as the primary delivery mechanism. The Brazilian Network of Volunteer Brigades further supports coordination and peer learning. Volunteer brigades are essential for early detection, rapid response, and territorial intelligence, but they require sustained investment in equipment, training, and system integration. This approach reflects the brigade first principle, which recognizes brigades as the most cost-effective and high-impact investment.

Brazil's experience also shows that technology works best when designed for frontline use. Key strategic fund investments include communication systems, interoperable reporting tools, and mobile apps that improve safety, situational awareness, and coordination. The proposed regional platform, which combines satellite data, field inputs, and AI-enabled forecasting, enhances early detection, reduces response times, and supports coordinated action in remote areas. Monitoring technologies further strengthen this system. Participatory monitoring, remote sensing, drones, and sensor networks help in prevention, response, and post-fire recovery, while camera traps and acoustic sensors assist with biodiversity monitoring. Together, these elements create an effective wildfire management approach that depends on integrated systems in which governance, brigades, and technology work together. Prioritising brigade capacity, supported by targeted technologies, provides a clear and scalable way to create impact across South America.



2. Proposed Intervention Strategy

The proposed intervention strategy transforms the Technology Strategy into a brigade-first program across SAFF's three core pillars: Fire Prevention and Resilient Stewardship, Enhanced Detection and Coordinated Rapid Response, and Integrated Fire Information and Decision Systems. The strategy focuses on enhancing brigades as the primary delivery mechanism by addressing systemic bottlenecks and investing in equipment, mobility, and communications. Key elements include deploying integrated information systems and affordable monitoring solutions to close the "last-mile gap" in high-risk areas such as the Amazon, Chiquitania and the Pantanal. It emphasises that technology should be part of an operational system, facilitating quick action from trained responders. The strategy prioritises community-centred and Indigenous-led approaches, involving local stakeholders in monitoring and response efforts through participatory systems and culturally appropriate practices.

The Fund will tackle logistical and institutional challenges that cause delays in response times by exploring solutions such as direct satellite connectivity and advanced sensing networks. Collaborations with organisations such as regional data efforts, local universities, and fire startups, guided by Conservation X Labs, will help identify and scale high-impact innovative technologies. Ultimately, the strategy highlights the integration of technology within a broader framework of governance, sustained capacity-building, and long-term finance to ensure effective action on the ground. SAFF acts as a catalyst for integration and innovation, establishing shared benchmarks for Brigade Capacity and Monitoring Technology to enhance data interoperability. It encourages targeted projects to tackle issues such as connectivity and rapid mapping. Two implementation scenarios are proposed: a \$30 million option focused on minimum operational capacity for priority LIFT landscapes and a \$100 million option for a fully integrated, regionally coordinated system to improve wildfire management across South America.



Scenario 1: \$30M – Targeted Deployment and Proof of Concept

Objective: Establish minimum operational capacity (Brigade Level 1+/2 and Monitoring Level 2) in priority LIFTs, close critical last-mile gaps, and demonstrate integrated brigade-centred fire management systems.

Activity	Description
Activity 1: Strengthening brigades (Brigade Capacity Levels)	Procure and deploy essential PPE (including tropics-adapted hand tools, radios, and basic mobility assets where appropriate). Focus on achieving minimum operational readiness and safety, and build local capacity. Brigades within LIFTs reach Brigade Capacity Level 2 (See section below). Connects to Output 2.1.2
Activity 2: Expand LIFT monitoring and response capacity (Data & Monitoring Levels)	Deploy cost-effective, locally maintainable monitoring systems combining satellite alerts, community reporting, and field sensors (weather, smoke, cameras). Focus on achieving a basic comparable monitoring framework, and build local capacity. LIFTs reach Data & Monitoring Level 2 (See section below). Connects to Output 2.1.1
Activity 3: Training and exchange	Deliver targeted training on equipment use, integrated fire management practices, data interpretation, and coordination protocols. Establish regional communities of practice and peer-to-peer exchanges across LIFTs. Connects to Output 2.1.2 & 2.1.3
Activity 4: Provide integrated fire intelligence to communities and brigades in the field	Develop (build/adapt) a field-grade mobile app providing a “single operational view” integrating alerts, risk maps, reporting, and response guidance, with offline functionality with tiers for brigades and communities. Develop models to fill existing gaps in fire spread projections and fuel maps of South America ecosystems. Integrate emerging satellite capabilities. Connects to Output 3.3.1
Activity 5: Support transformative technologies	Deploy and scale leapfrog technologies to address key gaps, including satellite monitoring with higher resolution and faster revisit rates, direct-to-device satellite communication, novel and semi-autonomous suppression tools, etc. Connects to Output 2.3.1

Activity 6: Innovation ecosystem strengthening	Initiate the process of building a South American fire innovation pipeline with the Innovation Committee and the technology working group of partners. Connects to Outputs 2.2.2
---	---

Scenario 2: \$100M – Regional Scale and System Transformation

Objective: Achieve regionally integrated fire management systems, ensure LIFTs reach Brigade Capacity Level and Monitoring Level 3, increase LIFT areas, and enable cross-border, data-driven, and innovation-enabled wildfire management.

Activity	Description
Activity 1: Scaled Brigade System Strengthening (Brigade Capacity Levels)	Expand full brigade capacity across multiple LIFTs, including advanced mobility, full remote communications, logistics systems, and sustainable equipment supply chains. Institutionalise and expand brigade networks within national systems. Brigades within LIFTs reach Brigade Capacity Level 3. Connects to Output 2.1.2
Activity 2: Integrated Fire Information Systems within LIFTs (Data & Monitoring Levels)	LIFTs reach Data & Monitoring Level 3. Provide dedicated support to deploy a fully interoperable regional platform integrating satellite data, AI forecasting, meteorology, brigade reporting, and biodiversity monitoring. Connects to Output 2.1.1
Activity 3: Training and Exchange	Increase in-person exchange opportunities, including hosting additional LIFT technology trainings and gatherings, with more comprehensive representation of relevant partners. Connects to Output 2.1.2 & 2.1.3
Activity 4: Advanced Monitoring and Forecasting Systems Delivered to Brigades and Communities	Increase utility of mobile app with further investment into integrated risk and spread modelling systems tailored to South American fire regimes. Scale last-mile connectivity solutions (satellite, radio networks, hybrid systems) across remote regions, enabling effective incident command, reliable communication, and alert dissemination to brigades and communities. Connects to Output 2.2.3

Activity 5: Increased Scaling of Transformative Technologies	Deploy additional diverse leapfrog technologies of different innovation types, including integrated monitoring systems that combine EO, field sensors, and AI algorithms and advanced suppression technologies. Connects to Output 2.3.1
Activity 6: Increased Innovation Ecosystem Strengthening & Open Innovation Program	Provide the Partner Network with dedicated capacity to implement a technology/innovation strategy to build an open innovation pipeline across the regions. Launch a regional South America Fire Grand Challenge targeting breakthrough solutions in three key areas: improved equipment, fire-smart land stewardship, and actionable information. Connects to Outputs 1.1.3 & 2.2.2

2.1.1 Brigade Capacity Levels

The Brigade Capacity Levels framework provides a phased strategy to strengthen community and volunteer wildfire brigades in fire-prone regions of South America. It prioritizes a brigade-first investment approach, supporting cost-effective initiatives that enhance prevention, detection, and rapid suppression while remaining adaptable to regional needs. The model offers a scalable pathway for the Fund to direct resources toward the highest impact improvements in brigade capacity as funding permits. Lower levels of the framework address safety, communication, and manual suppression, while higher levels focus on mobility, territorial intelligence, and coordinated regional responses. This structure supports the broader technology strategy by investing in volunteer brigade systems, improving interoperability, and deploying practical, affordable technologies adequate to the South American reality for wildfire prevention and integrated fire management.

The implementation of brigades in the LIFTs will be supported by consortia of partners comprising regional organisations, government agencies, research institutions, volunteer brigade associations, local communities, and technical partners. This working group, facilitated by CXL experts, will conduct capacity assessments, facilitate peer learning, and oversee the procurement and deployment of equipment and training.

The working group will coordinate its activities and learnings with the committees presented in the Cross-Border Collaboration annex. Specifically, it will interface with Operations' Innovation Committee, which will help guide activities across the LIFTs, and it will provide direct input on technology and innovation needs to the Coordination for Knowledge Generation Committee. The Fund will utilize the working group to help translate the committees' knowledge transfer activities into action on the ground – carrying out peer-to-peer training, joint regional training, field demonstrations, and operational cooperation across South America. The Fund and its working group will coordinate with regional and government initiatives focused on wildfires (such as OTCA/ RAMIF, FAO Fire Hub, PrevFogo, and GIZ) to collaboratively support brigades while ensuring practices remain locally relevant and aligned with governmental efforts.

Procurement, distribution, and operational training to support the Brigades will be coordinated through the working group, in collaboration with national and regional institutions experienced in wildfire brigade development. Organisations such as the Brazilian volunteer brigade network, CEMIF/Prevfogo, and similar groups will help standardise equipment, conduct field training, and manage logistics. When appropriate, the strategy will also engage international technical partners with expertise in wildfire management and fire detection, including North American entities such as nonprofits and agencies as well as other institutions that provide technical knowledge, training, and support for advanced fire-monitoring systems. Further information on the deployment of Brigade Capacity Levels, and the Data & Monitoring Levels, can be found in the ‘LIFT Implementation Cycle’ section below.

Information on the Brigade Capacity Levels is provided in the table below. For these levels, brigade size is 14 wildfire firefighters (i.e. 2 teams of 7 members each). Each level builds on the previous ones, with each level’s ‘Components’ also including the gear described in the ‘Components’ sections of the previous levels¹. The costs stated for each level are the total operational costs to equip a brigade with the detailed ‘Components.’

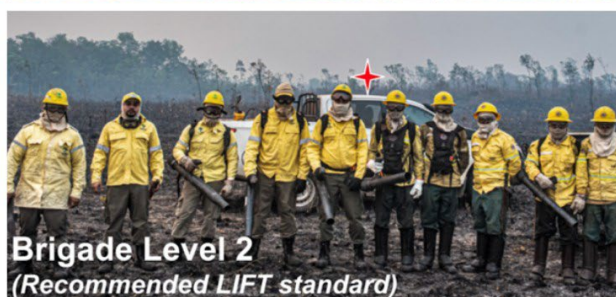
1. With the exception of the advanced Professional Radio equipment described on level 2+, which has been disconsidered due to technological outpacing and regulatory issues that make it more feasible to deploy other emerging solutions, such as commercial LEO satellite phones and internet, or open-source, low-cost alternatives.

Salaries, health insurance, and other costs are not included in the calculation of the 'Costs' column. Health insurance is highly recommended and should be made available through complementary channels and funding. Some LIFT areas and partners operate with full-time paid brigades that also work on community engagement, prevention, restoration, etc., and additional funds for this should be included within the specific LIFT consortia fund, where appropriate.

The Fund will coordinate with regional actors and partner consortia, to increase coordination between brigades and to facilitate group purchases of equipment and health insurance to decrease costs.

Components and Costs of the Brigade Capacity Levels

Level	Description	Components	Costs (USD)
0	Basic manual wildfire combat brigade	- PPE and field support equipment - Hand tools & basic power tools (i.e. leafblowers, brushcutters)	\$20,000
1	+ Basic comms & navigation support 	- 7 long-range radios & 2 mobile phones with plans - 2 handheld GPS units	\$25,000
1+	+ More advanced tools & improved comms, navigation, monitoring 	- Additional tools (i.e. chainsaws, drip torch, more leafblowers) - Aerial reconnaissance under 250g drone and basic monitoring tools (e.g. binoculars, camera, thermometers) - Field Logistics: tents, water, generator and fuel containers, fuel	\$35,000
2	+ 4x4 vehicle/boat & increased drone mapping, comms, & equipment 	- 4x4 pickup truck/ boat, skid unit for bed, and mobile water pump - Pro-Quadcopter drone kit and drone flight planning app - Mobile internet unit (i.e. Starlink mini) and plan	\$120,000
2+	+ Added VHF-UHF radio (where feasible / allowed) 	- VHF handheld units and antenna, repeaters, transceivers	\$135,000
3	+ Mechanized combat and support vehicles / regional assets 	- Additional 4x4 (with skid and pump) and 4000L tanker trailer - Mini loader tractor for firebreaks	\$550,000



2.1.2 Data & Monitoring Levels

The Data & Monitoring Technology framework presents a phased approach to deploying territorial intelligence, participatory monitoring, and early-detection technologies to support integrated fire management in fire-prone South American landscapes. The primary purpose of these levels is to prioritise the broader fire technology needs of each LIFT. They complement Brigade Capacity Levels by providing a tiered structure for monitoring and intelligence that supports prevention, detection, and response.

The Data & Monitoring Levels prioritise cost-effective, interoperable, and accessible systems, ensuring that monitoring technologies directly enhance prevention, early detection, and coordinated response, even in remote or infrastructure-limited areas. Lower levels concentrate on scalable regional digital platforms and participatory monitoring, while higher levels utilize advanced sensing and automation technologies. This strategy aligns investments in information and monitoring tools with the Fund's brigade-first approach, prioritizing technologies that improve situational awareness, coordination, and integrated fire management in complex and remote ecosystems. This initiative will include targeted capacity building through LIFT-level training, a community of practice, and an annual regional technology forum for knowledge exchange and collaboration.

Monitoring technology will be deployed in LIFT areas using a collaborative approach integrated with brigade capacity development. Guided by CXL experts, the technology working group will introduce or expand monitoring tools in coordination with brigade teams, local communities, research institutions, and technical partners, ensuring compatibility with existing fire information systems.

Like brigade capacity development, monitoring technology implementation will be guided by baseline assessments within each LIFT landscape. These assessments will analyse existing monitoring infrastructure, connectivity, satellite data access, local reporting systems, and the technological capabilities of brigades and partner institutions. The insights gained will help determine suitable monitoring technologies for each landscape and ensure that investments align with operational needs and institutional capacities. Further information on deploying the Data & Monitoring Levels is available in the 'LIFT Implementation Cycle' section below.

A detailed breakdown of the data and monitoring levels is available in: Technology Sub-Annex 3: Outline of Data & Monitoring Levels Framework, which can be provided by request.



Operação Verde Brasil, Rondônia Foto: Vinícius Mendonça/Ibama

Components and Costs of the Data & Monitoring Levels

Level	Description	Components	Costs (USD)
0	Brigades + Participatory monitoring Mobile-based (Earth Observation Information, AI & mobile apps)	Mobile app and knowledge platform, including: - Multiple tiers for community members and responders - Incident command and communications functions - Near-real-time alerts, fire behaviour analysis, automatic sync from multiple sources, and offline functionality	Low (cost varies)
1	Plus, Field sensor / AI platforms & Pro-drone mapping	- In-situ sensor networks & AI tools for analysis - Pro Drone Mapping kit for vegetation mapping - Camera traps and acoustic sensors to monitor biodiversity recovery	Medium (approx. US\$ 85,000 per LIFT)
2	Plus, Cameras with AI smoke detection & multisensory drones	- AI-enabled smoke-detection cameras for early alerts - Drone kit (quad or fixed wing) with additional camera sensor types	Medium to High (approx. US\$ 250,000 per LIFT)
3	Plus, Experimental advanced drones and a connected advanced sensor network	- Dense advanced sensor network with connectivity for live monitoring - Able to track wildlife and detect fires from smoke & gas in the air - Advanced large drones for IFM activities, including seedling dispersal, prescribed fire ignition, and fire suppression (water or acoustic)	High to very high (approx. US\$ 800,000 per LIFT)

Recommended LIFT standard framework: **Brigade Level 1+2 & Monitoring Level 2** (with limited trial Level 3 pilots*)



*constrained by budget, regulations, and LIFT experimental design

2.1.3 South America Fire Grand Challenge and Open Innovation Mechanisms

In the Amazon, the Pantanal, and the Chiquitania ecosystems, communities are the frontlines of the fire crisis. The South America Fire Grand Challenge is an open call to innovators around the globe and communities across the target regions to collaboratively co-develop and implement solutions that can transform how we manage fire. The Challenge will be implemented if adequate additional funding is raised beyond the initial \$30 million.

Building on the success of the [Fire Grand Challenge: Western North America](#), this iteration of the Challenge will provide prizes and programming to incentivize, accelerate, and scale innovations that bring together cutting-edge technology with the knowledge and practice of frontline Indigenous and rural communities. Our coalition of partners will provide applicants with guidance alongside CXL's administrators and advisors, ensuring a holistic approach to every step of the innovation process. A fuller description of the design of the Fire Grand Challenge: South America can be found in [Technology Sub-Annex 4: South America Fire Open Innovation Plan](#).

In summary, the Challenge would support innovations that have a working prototype that is ready to be tested. Innovations will address at least one of three thematic areas, which have been updated through recent stakeholder consultations and workshops:

- **Information & Communications:** Solutions that promote real-time communications, coordination, two-way knowledge exchange, and greater transparency throughout the fire cycle.

- **Equipment:** Solutions that provide improved, cost-effective tools for fire response and management, particularly in remote and resource-limited areas, including better-tropically-adapted PPE and more efficient equipment delivery and logistics.
- **Fire & Land Management:** Solutions that scale locally-appropriate ecosystem stewardship throughout the fire cycle, protecting biodiversity and community livelihoods through community-centered land, production and fire management practices.

These three thematic areas were developed through a participatory design process, going back over four years. In 2022 and 2023, Conservation X Labs organized and hosted a series of four 'Think' ideation events to a) delineate the key challenges of the fire problem space in the Challenge's focal regions of the Amazon, Indonesia, and Western North America, and b) guide the design of the Fire Grand Challenge, which was developed to catalyze a wide community of solvers to work on the fire crisis. The first round of the Challenge was then launched in the fall of 2024 in Western North America. To design the South America Fire Grand Challenge, the Fund's technology team drew on the findings from the design process, the MEL analysis of the Western North America Fire Grand Challenge, over 40 consultations with individual experts, finally, and the results from a workshop designed to work with experts and stakeholders from across the region to update the Challenge design. This convening was the the Co-Designing the Fire Grand Challenge Workshop held before the International Conservation Technology Conference in Lima in February 2026.

Additional, alternative models to a competitive structure will also be further explored to help build collective capacity and collaboration in the South America fire innovation ecosystem.

2.1.4 Collaboratively provide integrated fire intelligence to communities and brigades in the field

Currently, brigades and communities lack access to information on active fires and other crucial fire intelligence, including pre-fire risk maps. The Fund will support strategic rapid response by unifying fire datastreams and models in South America into an integrated mobile application designed to enhance situational awareness and serve as a unified decision-support system for actors in the field throughout all phases of fire management. The Fund team will begin by consulting with technical partners and end users, including those within LIFTs, to analyze existing applications and platforms. Drawing on these outcomes, the Fund will then convene and fund a consortium of partners to a) strengthen an existing application or b) develop a comprehensive, user-friendly mobile application, drawing on existing architecture and collaborations where possible. This tool would provide actionable information on fire ignition, propagation, and operational conditions and serve as a primary resource for situational awareness for brigades and communities during fires.

The end product will effectively aggregate a) real-time and near-real-time field inputs, including fire intensity, behavior observations, and management decisions, with b) remote and contextual data such as weather, climate, high-resolution satellite imagery, fire behavior models, and fuel mapping to generate actionable insights across all phases of fire management. To ensure that fire information accurately matches conditions on the ground, the developers will work to fill key data and analysis gaps in South America, including by adapting and/or creating fire spread models and fuel maps that match the target ecosystems. These models will utilize the data generated by sensors deployed by the Fund in LIFTs. The effort will support coordination

between existing and future geospatial data layers, models and tools by integrating with existing information platforms (i.e. risk maps, weather data, portals, etc.).

The application will feature two user levels (one for communities and one for brigades), ensuring accessibility while offering advanced functionality and security features for responders. It will utilize a multilingual, icon-based interface to accommodate varying literacy levels, and it will be optimized to operate seamlessly online and offline in remote areas with low connectivity. To facilitate faster reporting, improved coordination, and safer, more effective operations, including risk alerts and suppression guidance, the platform will incorporate interoperable data layers and integrate with official systems (e.g., SISFOGO). Additionally, it will employ rule-based and AI-assisted analytics, supported by robust backend infrastructure and geospatial data, thereby enhancing the effectiveness and interoperability of regional fire management.

Simultaneously, the Fund will support, test, and scale new technologies that allow South American brigades and land managers to 'leapfrog' existing fire management methods that are standard in other fire-prone regions. These technologies will include direct-to-satellite capabilities for low connectivity areas, high-resolution satellite detection systems, acoustic fire suppression devices, and other cutting-edge innovations from within and outside the region. This activity will be implemented in coordination with the technology deployments outlined in the 'Brigade Capacity Levels' and the 'Data & Monitoring Levels,' and it will be designed to validate and scale innovations that have the highest potential for impact. All findings will be shared with the Innovation Committee outlined in the Cross Border Collaboration strategy in order to maximize knowledge sharing potential.

2.1.5 Strengthening the South America Fire Innovation Ecosystem

An overarching goal of the Fund's technology strategy is to begin the participatory process of building a comprehensive innovation ecosystem in South America. This process will seek to increase coordination between currently siloed actors, build an effective innovation pipeline, and ultimately scale technologies through the region's diverse fire management system. This effort will learn from and interface with similar efforts in other fire-prone regions across the world, including:

The United States – leading governmental and private actors have been advocating for the creation of a governmental Wildland Fire Intelligence Center to curate, analyze, and disseminate critical wildfire data, modeled in part after [California's Wildfire Forecast and Threat Intelligence Integration Center](#). Multiple partners have also collaborated to create [FireWERX](#), a nonprofit that is positioned to be central coordinating organization that connects wildfire agencies to innovators, sources fire technology, develops pilot-to-scale pathways, accelerates solutions, and stewards capital.

Canada – Leading actors have created the Wildfire Resilience Consortium of Canada (WRCC), with one of its three core strategies being to develop a cohesive fire technology and innovation system for the nation.

European Union – Nascent efforts to build stronger cohesion and foster more cross-boundary innovation hubs include as [FIRE-RES](#)

Australia – Significant progress has been made in operationalizing technology and coordinating across actors with efforts including [FireTech Connect](#) and the [Bushfire Research Centre of Excellence](#) at Australian National University.



Operações Aéreas, Maranhão Foto: Vinícius Mendonça/Ibama



The Fund will utilize its Innovation Committee and operations-focused technology working group to build connectivity among leading actors and to explore methods to strengthen and unify South America's innovation ecosystem. Guided by the needs identified by the technology working group and other stakeholders in the field, the Fund will make initial investments into creating a coordinating structure for fire innovation in the region. The structure's exact form, roles, and constituent organizations would be determined through an in-depth stakeholder mapping and partner engagement process. The structure could then lead or support the following activities:

- Compile, curate, and analyze data and disseminate actionable information to relevant actors in formats that match their context.
- Analyze key gaps across the technology landscape and collaborate closely with agencies and organizations to understand end user needs and adjust procurement processes.
- Carry out technology user training with a train-the-trainer model, provide extension services to communities, and provide nonfinancial technology transition support to agencies to increase adoption.
- Coordinate group purchase and pooling structures for brigades (i.e. for technology orders, health insurance plans, etc.).
- Create virtual and physical testbeds to field-test and validate technologies with interoperable testing standards and transparency for potential users.

- Build and maintain communities of interest that cross jurisdictional and disciplinary boundaries (e.g. organizing virtual spaces or events that connect innovators working in a certain area to government, philanthropic, and private-sector funders).
- Advise and direct funding through:
 - Targeted prizes and accelerators that attract and focus talent on key gaps.
 - Directly giving research and development (R&D) grants.
 - Make halo-focused investments to unlock further investment and balance the innovation portfolio in the space.

2.2 Implementation Model

To ensure that Brigade Capacity Levels, Monitoring Technology Levels, and the other aforementioned activities lead to real operational improvements, their deployment in LIFT areas will follow a five-step implementation cycle. This structured approach allows the Fund and its partners to systematically progress from landscape assessment to operational deployment, ongoing development, and knowledge exchange.

1. Assessment

The cycle starts with a complementary baseline assessment of brigade capacity, data and monitoring infrastructure, and fire risk within each LIFT landscape. This review will build on the initial assessment done by each LIFT consortia to further evaluate the operational capabilities of brigades, including staffing, equipment, communications, mobility, and integration with public fire systems, and develop a detailed upgrading plan for each LIFT. Actual capacities within LIFTS vary; for example, some LIFT regions, such as Pantanal, have more

like cameras for fire detection, while other LIFT areas, such as Acre and Para, still have limited capacity and lack field sensors, highlighting the need for detailed assessment. The detailed assessment evaluates the monitoring infrastructure, including connectivity, satellite alerts, sensor systems, and local reporting methods, and the specific needs for each LIFT to achieve the target level for Brigade and technology capacity. These assessments will be carried out through the technology working group, and potentially in collaboration with other organizations across the regions, with support from CXL experts. The results of this assessment establish the initial benchmarks for Brigade Capacity and Monitoring Technology in each landscape.

2. Prioritization

Following the baseline assessment, a prioritisation process identifies the most effective investments to enhance prevention, detection, and rapid response in each specific LIFT. This process will build on the initial assessment done by each LIFT consortia to further detail it taking into account several factors, including:

- Local dynamics, fire risk and past fire incidents
- Ecological vulnerability and conservation importance
- Population exposure and community safety
- Existing brigade capacity and territorial coverage
- Connectivity and monitoring infrastructure

This step determines the suitable capacity and monitoring levels for each LIFT area, ensuring investments align with the brigade-first strategy and concentrate on cost-effective operational improvements. In most landscapes, **the target operational standard will be Brigade Capacity Level 2 and Monitoring Technology Level 2**, which offer the mobility, connectivity, and situational awareness needed for integrated fire management and effective

monitoring across large territories.

3. Deployment

After priorities are established, the technology working group, facilitated by CXL, coordinates the procurement and deployment of equipment and monitoring technologies, paired with a continuous training and capacity-building approach. This includes acquiring, distributing, and installing vehicles, suppression tools, communication systems, sensor networks, and drone platforms. Regional organizations could help oversee distribution and ensure compatibility with operational protocols. Deployment will prioritise building local capacity and interoperability among brigades and regions to support effective information sharing and response. When needed, international technical partners may provide additional support for advanced monitoring systems and fire information platforms.

4. Training and Operational Integration

Technology should be deployed together, alongside a robust, continuous training and capacity-building approach. After deployment, brigades will receive structured training and operational support to ensure new technologies and equipment are effectively integrated into daily fire management. Training will be delivered through the regional community of practice, with peer-to-peer inclusive learning approaches and technical support from CXL experts and partner organisations. These programmes cover:

- Safe operation and maintenance of suppression gear
- Integrated fire management methods, including prescribed burns where permitted
- Use of monitoring tools such as drones and

field sensor systems (i.e., camera traps, acoustic sensors, etc.)

- Interpretation of satellite fire alerts and environmental data
- Communication and coordination protocols among brigades and agencies.

This phase ensures that investments yield lasting operational improvements rather than isolated technology deployments.

5. Evaluation and Adaptive Learning

The final stage includes continuous assessment and adaptive learning to evaluate the effectiveness of deployed technologies and improvements in brigade capacity. Evaluation criteria may include response times to fire incidents, area burned, the number of coordinated multi-brigade responses, the operational uptime of monitoring systems, and engagement in prevention and prescribed fire activities. Insights gained from these evaluations will inform adjustments to equipment deployment, training, and monitoring systems. Lessons learned will be shared within the technology working group, the Operations' Innovation Committee and the Coordination for Knowledge Generation Committee, as well as through the broader brigade community of practice, promoting ongoing improvement and knowledge sharing across landscapes.

2.3 Integration with LIFTs

At the LIFT level, we will focus on deploying both the Brigade Capacity Levels and Data and Monitoring Technology Levels frameworks to guide tailored interventions. These deployments will ensure that brigades are equipped with context-appropriate tools and technologies aligned with their operational maturity and environmental conditions, enabling monitoring and comparability across LIFT areas. Additionally, dedicated

resources will be allocated to support field logistics, including regular maintenance and monitoring of deployed technologies. This will involve approximately four monitoring campaigns per year carried out by LIFT consortia partners to service sensors and ensure continuity, data integrity, and operational reliability. Additional resources will be allocated for training and knowledge exchange within LIFTS, overseen by CXL experts with support from strategic partners to accelerate learning and replication.

2.3.1 Operational Capacity for Implementation

The implementation of the technology strategy will be supported by a dedicated team of two full-time CXL technical staff members. Their ongoing presence is essential for ensuring effective deployment, adoption, and scaling of technologies across LIFT areas. This support aims to prevent fragmentation, underutilization of investments, and reduced operational effectiveness, especially in complex and remote environments. These staff will be responsible for end-to-end implementation support, including monitoring the performance, reliability, and adoption of deployed technologies, and ensuring alignment with Brigade Capacity Levels and Data and Monitoring Technology Levels. They will help provide ongoing training to brigades and partners, ensuring that technologies are delivered and used effectively in operational contexts. This training will include initial onboarding, refresher courses, troubleshooting, adapting tools to local conditions, and deploying innovative technological solutions. This will be done in partnership with each local LIFT consortia and the broader partner organizations.

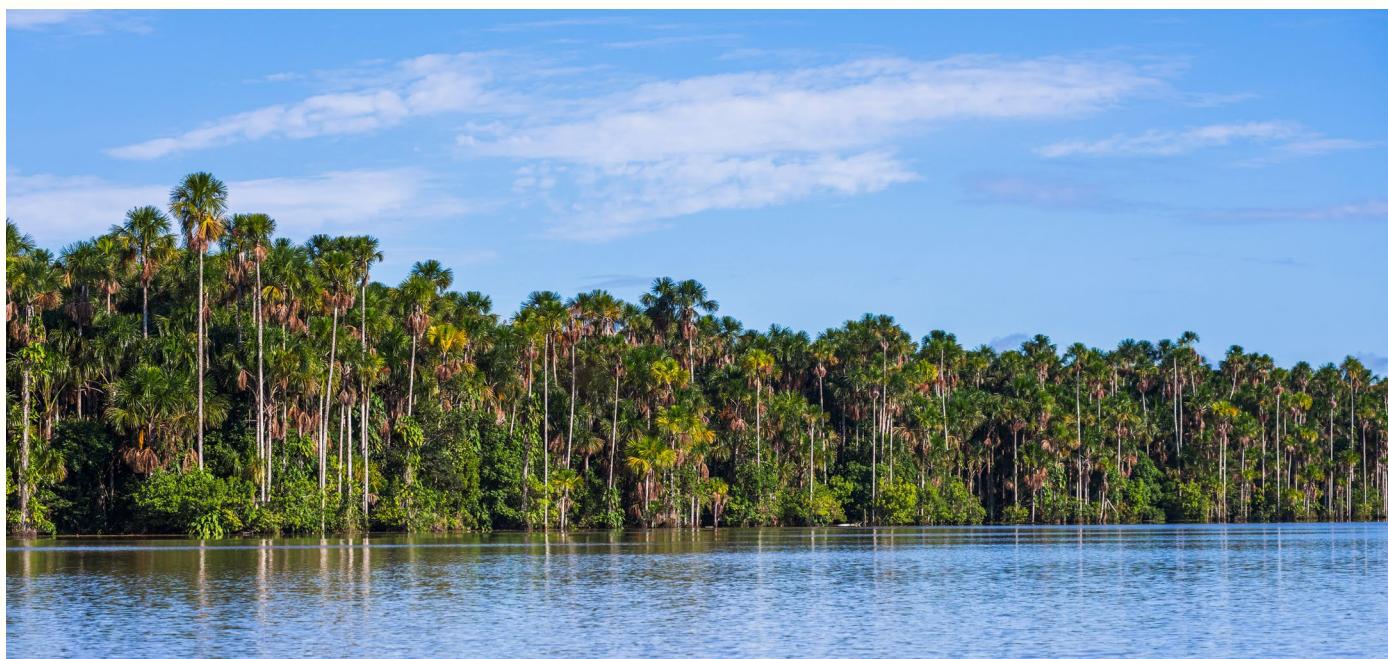
A key role of the CXL team will be to help promote knowledge sharing and peer learning across LIFT, facilitating the dissemination of best practices, lessons learned, and innovations through coordinated cross-site engagement, communities

of practice, and regional exchanges. At the same time, the team will oversee continuous supervision and monitoring of implementation, including comparative performance analysis across LIFT areas to identify gaps, optimize resource allocation, and inform adaptive management.

The team will also play a central role in partner coordination, fostering innovation and ecosystem strengthening, ensuring alignment between brigades, technology providers, and institutional stakeholders, while maintaining system interoperability, data quality, and integration with national and regional platforms. The operational budget for each of the activities will cover personnel costs for these full-time roles, as well as travel expenses to LIFT locations for training, deployment support, and monitoring. It will also include costs for attending conferences, partner events, and regional gatherings, as well as expenses for organizing training sessions and knowledge exchange activities. Additional funds will account for incidental costs and essential equipment needed to support field operations, coordination, and the successful implementation of the technology strategy.

2.4 Key Stakeholders

The strategy will focus on supporting the LIFT consortia outlined in the main report. These LIFT partners include local organizations with in-depth knowledge and connections to their communities as well as partners that have a broader reach and advanced technological tools applicable to larger areas in the region. The tables below provide examples of initial partners we plan to engage with. However, this list is not exhaustive. We will make extensive efforts to foster a community of practice across the target region that enhances coordination among additional relevant partners.



Organization type	Potential role in wildfire fund
Intergovernmental regional body / regional technical network	Can help convene and coordinate Amazon countries; support cross-border IFM coordination; promote shared protocols, interoperability standards, joint planning, and regional policy dialogue; help align Amazon-wide prevention, monitoring, and response systems.
Bilateral development cooperation agency	Can help provide technical assistance, capacity building, institutional strengthening, equipment packages, pilot financing, and support to municipal or territorial IFM implementation and cross border governance.
Public space/science agency	Can help provide core satellite hotspot and burned area data; EO data streams for early warning, detection, and regional awareness; can support science partnerships and calibration of risk products.
Regional geospatial service platform / development partnership	Can help translate EO and climate data into operational products; support training, data services, and geospatial capacity for ministries and technical agencies; useful for risk, early warning, and decision support; support in the development of the mobile application for communities and brigades.
Multilateral technical platform	Can act as a neutral regional facilitator for interoperability, data standards, IFM guidance, equipment benchmarks, and cross-border coordination; support brigade strengthening and practical South-South exchange.
International operational cooperation	Potential partner for training, incident management systems, doctrine, interoperability, training methods, and cross-border mutual aid protocols. They have dedicated funding for engagement in LATAM.
Conservation technology network	Potential partner for Innovation scouting, challenge outreach, practitioner network mobilisation, testing pipelines, and matchmaking between field users and technology developers.
Civil society/science data consortium	Potential partner for burned area mapping, land use change analysis, historical fire patterns, post-fire assessment, hotspot prioritisation, and evidence-based prevention and accountability.
Innovation/fire technology accelerator	Potential partner for support for innovation pipeline development, challenge implementation, technology scouting, and field testing of applied, brigade-relevant solutions.

Government agency / international technical cooperation partner	Potential partner for strengthening brigade systems and IFM implementation in South America. Advanced expertise in fire management science, training, and operational doctrine; supports capacity building, incident management systems (ICS), prescribed burning, and fire ecology; provides technical assistance, training programs, and knowledge transfer;
International NGO / conservation partnership platform	Can help mobilise large-scale conservation financing and partnerships across the Amazon and other priority biomes; support Indigenous- and community-led conservation and fire stewardship initiatives; contribute to landscape-scale protection, restoration, and resilience strategies; leverage global visibility, advocacy, and funding mechanisms (e.g., Protecting Our Planet Challenge) to align fire prevention, biodiversity conservation, and climate action efforts.

Potential partners in Brazil

Organization type	Potential role in wildfire fund
Federal operational and policy fire management institutions	Core public sector backbone for IFM in Brazil; Potential partner for training, suppression coordination, SISFOGO data backbone, PNMIF and PAI alignment, brigade support, prescribed burning governance, interoperability with states and municipalities, and national standards.
Indigenous peoples' representative organisation / territorial governance actor	Potential partner for Indigenous-led monitoring, brigade strengthening, culturally grounded prevention and response, Indigenous data governance, territorial intelligence, restoration, and community-level early warning in Amazon Indigenous Territories.
Civil society network of volunteer brigades	Can act as a regional actor to support volunteer brigades. Organize, represent, and strengthen volunteer/community brigades; provide rapid initial attack, local detection, territorial intelligence, training pathways, and a channel for scaling brigade support and pooled procurement.
Universities / applied research institutions	Potential partners for applied science, fire ecology, risk modelling, remote sensing, mobile tools, training, impact monitoring, and technical validation.

Civil society / community network	Potential partner for Community mobilization, territorial governance, communication, Indigenous and traditional community engagement, uptake of prevention and response tools, and field co-development.
Private reserve / field operations actor	Mature biome specific operational model in the Pantanal; can serve as demonstration site for AI camera detection, mechanized response, PMIF/IFM implementation, biodiversity monitoring, and logistics lessons for wetland fire management.
Federal science and remote sensing institution	Foundational source of hotspot, burned area, and CIMAN-related operational data for Brazil;
Federal ministry / policy lead	Central for COMIF, PNMIF, national IFM implementation, and coordination with volunteer brigades and municipalities.
Civil society fund / regional philanthropic grantmaker	Can act as a flexible financing intermediary for hard-to-reach actors. Direct financing of community-based and Indigenous initiatives; rapid small-grant deployment for local fire prevention, response, and restoration; strengthens grassroots organizations, territorial governance, and locally led solutions;
National NGO / research and implementation organization	Can help strengthen and support volunteer and community brigades through training, equipment, and coordination; contribute to mapping and prioritisation of high-risk areas and brigade networks; support community-based fire prevention and Integrated Fire Management (IFM); mobilise resources and campaigns to enhance frontline response capacity; and generate applied research and field-based evidence to inform policy, planning, and scalable fire management strategies.

Potential partners in Peru

Name	Organization type	Potential role in wildfire fund
AIDSEP	Indigenous peoples' representative organization	Potential partner for Indigenous territorial governance, prevention, last-mile communication, partner community mobilisation, culturally appropriate fire management, and co-development/testing of field tools in Amazon Indigenous territories.
SERNANP	National protected areas agency	Potential partner for Protected area fire preparedness and response, brigade deployment, operational planning, training, and piloting of detection/monitoring and IFM systems in protected landscapes.
UTEC / PUC	Universities / technical research actors	Potential partners for applied R&D, platform design, training, geospatial analysis, engineering support, and evidence generation; workshop participation suggests relevance for Peru-side innovation and applied science.
ACCA	NGO	Potential partner for Amazon field implementation, early warning uptake, and community/territorial work in Peru and broader Amazonia.
CARE Perú	NGO	Potential partner for community engagement, local governance, and partner community mobilization.
SENAMHI, MINAM, SERFOR, CENEPRED, INDECI, CONIDA	Government technical and emergency agencies	Potential partner from the public sector for forecasting, meteorology, forestry, disaster risk reduction, and emergency coordination in Peru

Potential partners in Bolivia

Organization type	Potential role in wildfire fund
National Protected Areas Service	Potential partner for Protected area fire management, detection, coordination, and deployment in high-risk landscapes, including Chiquitania and adjacent areas.
National NGO / technical conservation actor	Potential partner for Landscape-level fire planning, field partnerships, local implementation, ecosystem monitoring,
Subnational government	Potential partner for cross-border coordination, escalation chain, emergency operations, and local decision-making.
National NGO / community-based conservation and fire management organization	Can help strengthen Integrated Fire Management (IFM) through community-based approaches, capacity building, and training of local and Indigenous brigades; support prevention strategies that recognise fire as both a risk and a management tool; contribute to landscape-level planning, risk reduction, and resilience building in fire-prone ecosystems; and facilitate partnerships, knowledge exchange, and locally grounded implementation models for sustainable fire governance.

Potential technology partners

Organization type	Potential role in wildfire fund
Private satellite connectivity provider	Potential provider of connectivity for remote brigades, Indigenous territories, situation rooms, and incident command; supports data transfer, alerts, imagery sharing, and coordination where current terrestrial networks fail.
Commercial geospatial platform provider	Potential provider of operational dashboards, mapping, asset tracking, data layers, incident visualisation, and interoperability support, where licensing and capacity allow.
Fire science and technology nonprofit	Potential provider of satellite-enabled fire intelligence, science partnerships, analytics, and potentially regional fire monitoring/data products.
Private sector / fire technology company (acoustic fire suppression)	Potential pilot partner for development and deployment of infrasound-based fire prevention and suppression technologies that disrupt combustion without water or chemicals.

Philanthropic / AI and cloud ecosystem actor	Potential provider of AI-assisted risk analytics, cloud credits, processing support, translation of large EO datasets into usable intelligence, and possible support for platform sustainability.
Network / coordination platform	Potential provider of Innovation ecosystem building, challenge partnerships, synthesis of global lessons, matchmaking between practitioners and developers, and support to open standards and evidence sharing.
Fire detection and modeling startup	Potential partner to support early detection and fire spread data delivery and the development of the mobile app for brigades and communities.
Commercial EO provider	Potential provider of higher frequency imagery and rapid mapping, though cost remains a limitation.
Fire detection technology company	Potential provider of AI camera towers; highly relevant for early-detection and verification pilots.
Drone technology providers	Potential provider of drone mapping equipment and software for brigade support.

3. Budget and Resource Requirements

3.1 Sustainability

The long-term sustainability of the proposed interventions relies on a brigade-first approach that enhances local and Indigenous capacity, supported by suitable technologies and ongoing funding. By positioning community and volunteer brigades as the main delivery mechanism, the strategy invests in durable human capital, territorial presence, and locally embedded knowledge, ensuring that fire prevention, detection, and response remain operational beyond external funding cycles.

Technology is deployed as an enabler of this capacity. Investments in connectivity, interoperable platforms, and user-centered tools enhance safety, situational awareness, and response times, while remaining accessible in low-resource settings. Integrated monitoring systems, combining Earth observation, participatory approaches, and field sensors, are embedded into routine operations, supporting prevention, response, and recovery, and ensuring continuous use and local ownership. A key driver of sustainability is the alignment with the Fund's Financial Innovation component, which transforms operational gains into long-term, investable systems. Instruments such as jurisdictional REDD+ benefit-sharing, outcome-based financing, and parametric insurance generate predictable revenue streams to support long-term brigade operations, equipment, connectivity, and monitoring. These mechanisms also depend on robust data, accountability, and interoperable systems, creating strong incentives to maintain and institutionalise the deployed technologies. Sustainability is further reinforced through institutional integration and coordination. Aligning brigades with governance frameworks, improving interoperability across actors, and fostering communities of practice support continuity, shared ownership, and adaptive learning. Coupled with standardised capacity frameworks and cost-effective deployment, this approach creates a resilient system capable of sustaining impact across South America's fire-prone landscapes.

3.2 Leveraging Opportunities

The proposed strategy builds on existing regional and national wildfire management efforts, ensuring investments complement and reinforce ongoing initiatives.

The strategy emphasises knowledge exchange and peer learning among LIFT areas and local partners to increase impact. Through the working group and its community of practice, brigades and institutions participate in joint training, regional exchanges, and shared operational learning. Experience across LIFT areas underscores the need for harmonised approaches, enhanced institutional capacity, and shared methodologies for integrated fire management. A brigade-first approach supported by technology translates this collaboration into operational improvements. By aligning with existing early warning systems, monitoring platforms, and

coordinated response mechanisms, the strategy enhances system effectiveness. Tools such as risk monitoring and alert systems support decision-making across prevention, response, and recovery by linking data to local action. The approach also improves alignment with national policies and integrated action plans, including those supporting brigade deployment and inter-institutional coordination. By integrating local capacity, regional cooperation, and interoperable technologies, the strategy facilitates coordinated action across borders, strengthens institutional linkages, and supports a scalable pathway to improve wildfire management across South America.



Parque Indígena do Xingu, Mato Grosso Foto: Vinícius Mendonça/Ibama

4. Gaps and Risks

Technology is a vital enabler of the Fund's strategy, but it functions within a broader Integrated Fire Management system. The Technology Framework diagram (see below) emphasizes this interconnectedness. Weaknesses in any layer of the system, from sensors and connectivity to data infrastructure, as well as factors such as governance, long-term financing, institutional capacity, and behaviour change, can severely undermine the effectiveness of technology investments. This risk is particularly pronounced at the frontline, where last-mile constraints (such as limited connectivity, mobility, fuel, and equipment) often hinder timely responses, even when fires are detected within minutes. In many areas of the Amazon and Chiquitania, detection systems can identify fires in near real-time, yet response times can exceed 36 to 40 hours due to logistical and institutional barriers.

Without sufficiently resourced and trained brigades, interoperable systems, and reliable communication channels, technology risks being underutilised or disconnected from operational decision-making. There is also a risk of fragmentation, where multiple platforms and tools fail to integrate, leading to parallel systems instead of a coherent operational architecture. To mitigate these risks, the strategy for technology and brigades has been designed as part of a broader, integrated approach that aligns closely with the Fund's complementary efforts in financial innovation, behaviour change, and cross-border coordination. This ensures that technology deployments are not isolated interventions but are embedded within a functioning ecosystem that connects detection to action. Consequently, investments will prioritise not only tools and systems but also the enabling conditions necessary for their effective use, including sustained financing for brigade operations, capacity building, governance frameworks, and incentives for prevention. By anchoring technology within a brigade-first model and a multi-stakeholder partnership network, the strategy directly addresses the root causes of fires while strengthening the entire chain from early warning to response and recovery.