

Innovation Laboratory (InnoLab) approach to forest fire risk reduction: a successful story with forest communities living in fire-prone areas in Algarve, Portugal.

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Algarve region, southern Portugal, has been affected by a series of forest fires in recent decades, which have become more frequent and severe, leading to high social, economic and environmental impacts. Currently, this region has extensive areas of its forest territories classified as high risk of fires between 2020-2030 (highlighted in red in **Figure 1**). Direct causes of increased risk, common to other at-risk territories in the country, include the concentration of forest mass in small and fragmented forest properties in a context of depopulation or ageing population, low dynamism in rural areas and devaluation of forest assets, leading to increased abandonment of forests and compromising effective fire risk management. In addition, indirect drivers should be addressed to improved resilience to forest fires in Portugal:

Limited local capacity and a lack of associativism among forest owners to effectively manage forests.

Low engagement of local communities in decision-making processes related to forest policies.

Gap of a participatory approach that gives voice to and foster the active role of local communities in collaborative forest management.

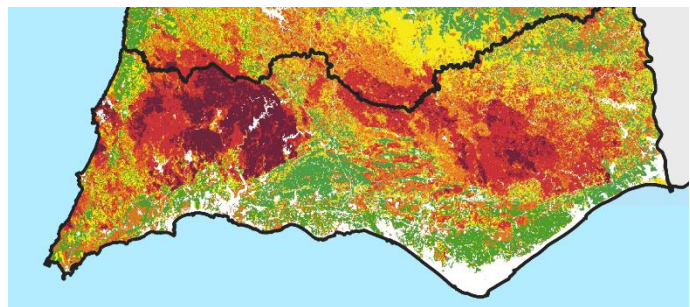


Figure 1. Structural forest fire hazard map 2020-2030 (ICNF, 2020)

Motivated to respond to this huge challenge, Social Innovation Research Group - SIRG (CiTUA/IST) developed an Innovation Laboratory (InnoLab) approach in the context of the Bridge Project (Bridging Science and Local

Communities to wildfire risk reduction)², applied in Monchique (pilot case), a fire-prone territory in Algarve region. InnoLab Bridge, a participatory and collaborative approach, represent a collective (and innovative!) space aiming to engage a set of multiple actors (public, private and communities) in dialogue and sharing of different knowledges, visions and experiences. InnoLab, therefore, may contribute to the process of social learning and co-creation of new knowledge and practices focused on key aspects of forest fires risk reduction and sustainable forest management (**Figure 2**).

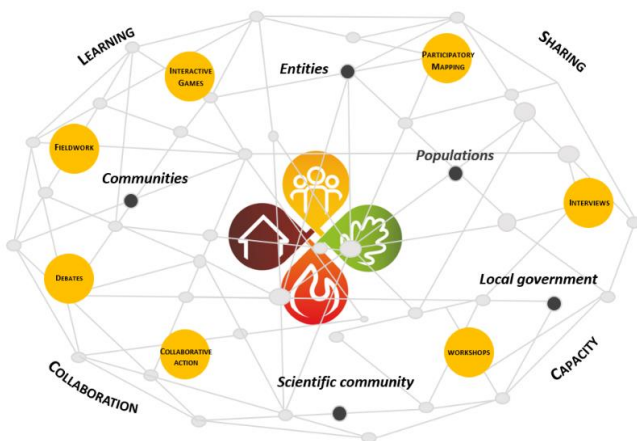


Figure 2. Bridge Project (InnoLab Bridge, 2022)

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² Bridge Project: for further information access <https://bridgecomunidade.pt/en> and https://zenodo.org/communities/bridge_community

InnoLab was developed in Monchique between 2022 and 2024 and involved representatives of forest-related public agencies (from national to local levels), local governments, entities and associations, forest producers' organizations, companies, private forest owners and residents in a set of participatory sessions. It's worth noting that, before the 1st participatory session of InnoLab, SIRG carried out a Participatory Mapping method involving a range of forest landowners in Monchique, enabling to identify and recognise the diversity of local knowledge, experiences and practices, and most importantly, stimulated the mobilisation and involvement of the community of forest owners, placing them in an active role in the debate on forest fire risk management in their territory (Partidário et al, 2022). Another strategy adopted throughout all the InnoLab process in Monchique was the development of several socio-educational activities involving the school community and different dissemination actions (e.g. social media, newsletters, releases in local/regional media, etc.) to spread the InnoLab Bridge through Monchique's community, to enhance local debate on forest fires and to stimulate the participation of that community and their local representatives.

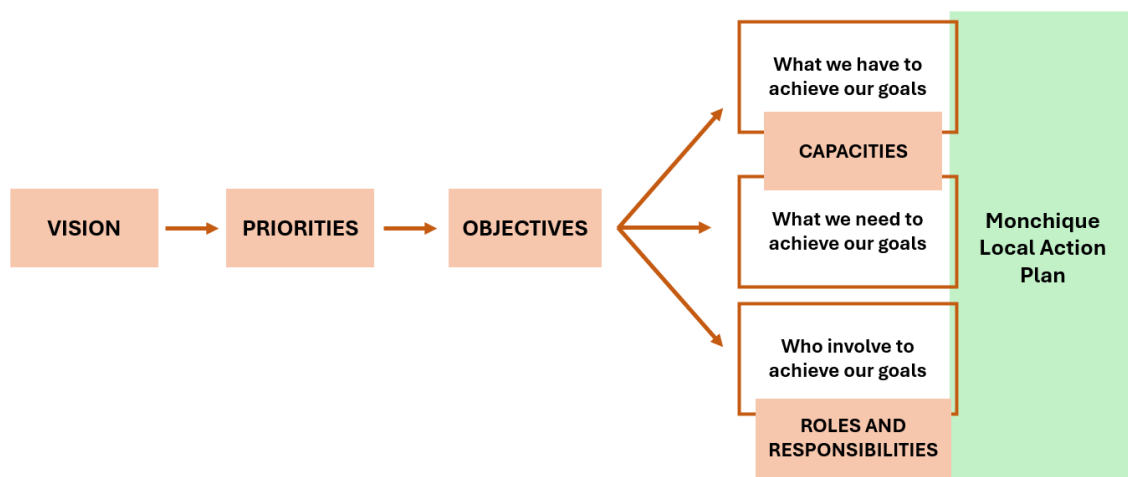


Figure 3. InnoLab Bridge design based on ST4S (InnoLab Bridge, 2022)

Based on Strategic Thinking for Sustainability approach – ST4S (Partidário, 2021), InnoLab was designed and implemented through a sequence of participatory sessions, with a set of sequential purposes (**Figure 3**): Vision, Priorities and Capacities, Roles and Responsibilities, Strategies for Action and, lastly, development of an Action Plan tailored to the context and local expectations of the forest community, built by the local group, which is now known as the Monchique Local Action Group (Dias et al, 2024). Once the Local Action Plan was defined, the InnoLab team continued to support the local group in their journey to be committed and autonomous towards their Action Plan implementation. Thus, SIRG team organised face-to-face and online meetings involving the members of the Monchique group to provide support and orientation to ensure the effective implementation of the set of interventions in the territory included in the plan developed by them.

The main results achieved by InnoLab Bridge contributed significantly to addressing two major challenges in reducing the fire risk and promoting a sustainable and resilient development in Monchique's forest territories. The first challenge refers to the need to strengthen an actors' network in Monchique as a contribution to promote social learning by sharing different visions, experiences and knowledge on key aspects of fire risk management and to facilitate collaboration among actors, both central aspects for collaborative and adaptive management to forest fires risk (Saad, 2022). Specifically in terms of strengthening the local actors' network in Monchique, it's

noteworthy that InnoLab involved 56 actors in participatory sessions, including 22 entities (11 of them local), 2 companies of pulp and paper sector and a total of 34 forest owners of Monchique, 26 nationals and 8 foreigners (**Annex**). The second challenge refers to the need to increase the adaptive capacity of the local community. InnoLab Bridge created space to place the local community in an active role in forest management. It promoted the adoption of sustainable land use practices and created a Local Action Group that can become a vital partner in sustainable forest policy and planning in Portugal (Soares, 2023).



Figure 4. InnoLab Bridge Participatory Sessions - Monchique, 2022-2024 (InnoLab Bridge, 2024)

Both results are directly aligned with the Portuguese National Integrated Rural Fire Management Plan (RCM, no. 45-A/2020) and called the attention and interest of the Integrated Rural Fire Management Agency (AGIF) that allocated new resources to ensure the continuity of the InnoLab Bridge approach in the Algarve region. The contract (2024-2025) involved the Social Innovation Research Group (CiTUA/IST), University of the Algarve (UAlg), Intermunicipal Community of the Algarve (AMAL) and local municipalities enabling 1) the continuity and support for actions of Monchique Local Action Group and 2) extend the application of InnoLab approach to the Serra do Caldeirão, another forest area at high risk of fires in the Algarve.

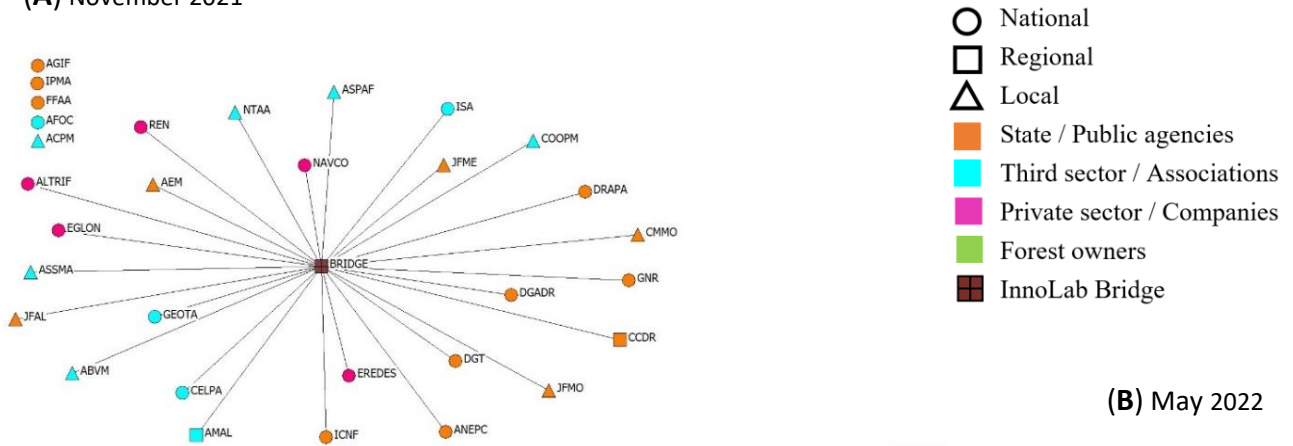
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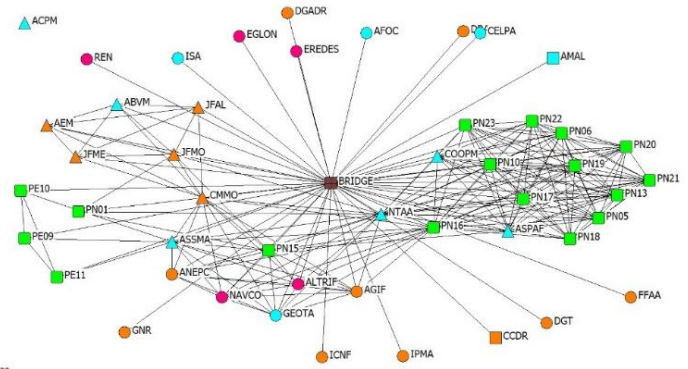
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Annex. Evolution of the actors' network in Monchique promoted by InnoLab Bridge (2021-2024)

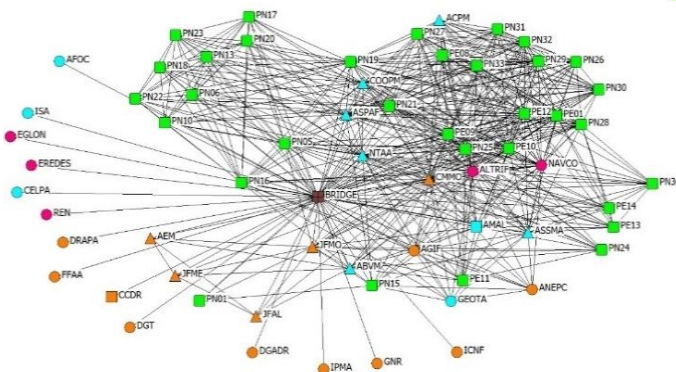
(A) November 2021



(B) May 2022



(C) March 2023



(D) March 2024

