GUIDELINES FOR COMMUNITY ENGAGEMENT

EduFire Toolkit

This project is funded by EU Programa Erasmus +, award number 2021-1-ES01-KA220-SCH-000029947

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INTRODUCTION

This guide is divided into two main sections.

After this introduction, you will find a **Quick Guide for Teachers and Educators**, which is mainly addressed to **secondary education teachers** and any other **educators working with young people** who want to implement community engagement practices within their wildfire and climate change activities. Any other community actors mentioned in this guide (see, for example, section 2.1.2.) can also find helpful tips and ideas for their education programs. This Quick Guide will support teachers and educators in the main decisions they must navigate when designing their activities and some tips to make them more successful in community engagement.

Those who want to go deeper into community engagement practices and discover and get inspired by some of the experiences developed during the Edufire Toolkit pilot tests can go through the second part of this document: the **Extended Guide on Community Engagement**. It might interest educators who want to emphasise the community engagement dimension while working with students and their colleagues in schools. Also, it can be helpful for any **community engagement professional** who wants to include wildfire education as part of their programs or **wildfire practitioners** who want to develop community engagement educational activities.

Although this guide is a self-contained document, we suggest you read it as a complement of the **Modules** (choosing the age range that works best for you), **Challenges** (significant for section *3. Edufire Challenges with Community Engagement Activities*), and the **Teachers Guide**, to have a more integrated understanding of the Edufire Toolkit proposal.

All the information provided in this document is based on previous **research** and the **Edufire Toolkit pilots.** However, you will not find magic recipes here: each case will have its own needs and challenges. The information here is expected to be general guidelines, recommendations, and inspirational examples. Based on that, we are sure you can develop new and valuable examples and experiences for your students, schools and communities: we will be delighted if you share them via our **Edufire Toolkit Map**!

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QUICK GUIDE FOR TEACHERS AND EDUCATORS

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1. Where do I start?

Next, we present a general compass to support your decision when designing and implementing a community engagement approach in your wildfire and climate change education activities. You will probably not find clues to every decision you make through the process, as we have only prioritised those aspects that can be critical to your success:

a) **Mapping**: In general, it makes no sense to start from scratch if we can take advantage of previous experiences around us. However, it is even more critical if our goal is to reinforce our communities, that we identify with, know and acknowledge those experiences. So, we recommend you start by mapping (i) wildfire experience knowledge, (ii) key community actors, and (iii) the school community and its involvement with its environment. These should be the essential ingredients from where to start the network that will support your community engagement activities. Next, we will give you some decision trees to help you navigate this process.

b) **Nurturing**: It is not enough to create a network; you must also learn how to keep it vibrant and alive and have it envisaged from the beginning. Below, you will find some clues to support this nurturing process.

We recommend reading and thinking about all these questions before planning your activities. Once you are into the planning details, a second reading can also be helpful to contrast the coherence and consistency of your proposal.

1.1. Identify and acknowledge wildfire experiences within the community you will work with

Your activities may vary depending on whether your students (or only some) have been affected by a wildfire. The closer the experience is, the easier it becomes to make the topic relevant to them whenever you pay attention to potential emotional triggering. Also, you need to know if you live in a fire-prone area: depending on that, some activities will be more relevant than others, as well as the potential network of actors to be engaged.

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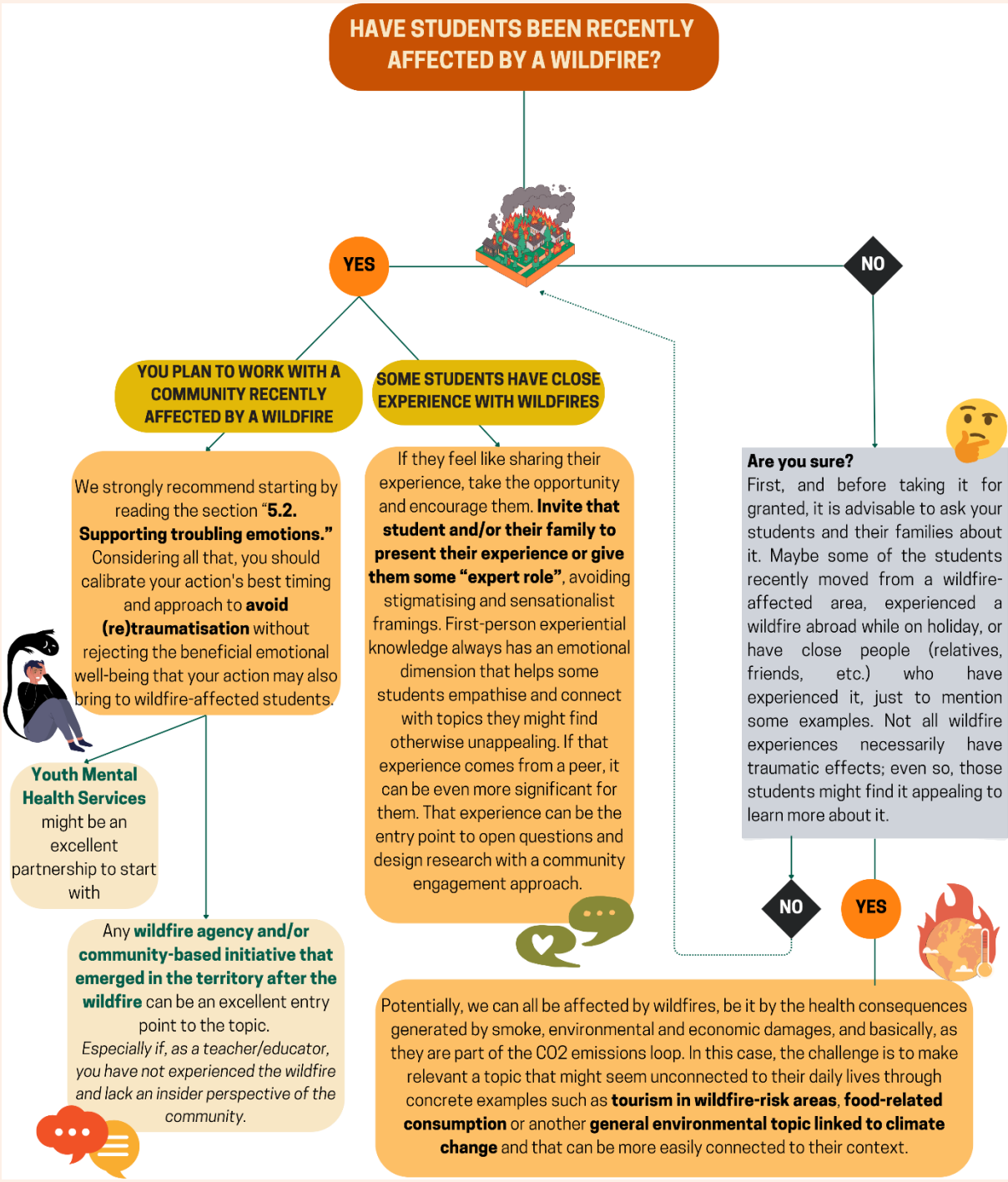

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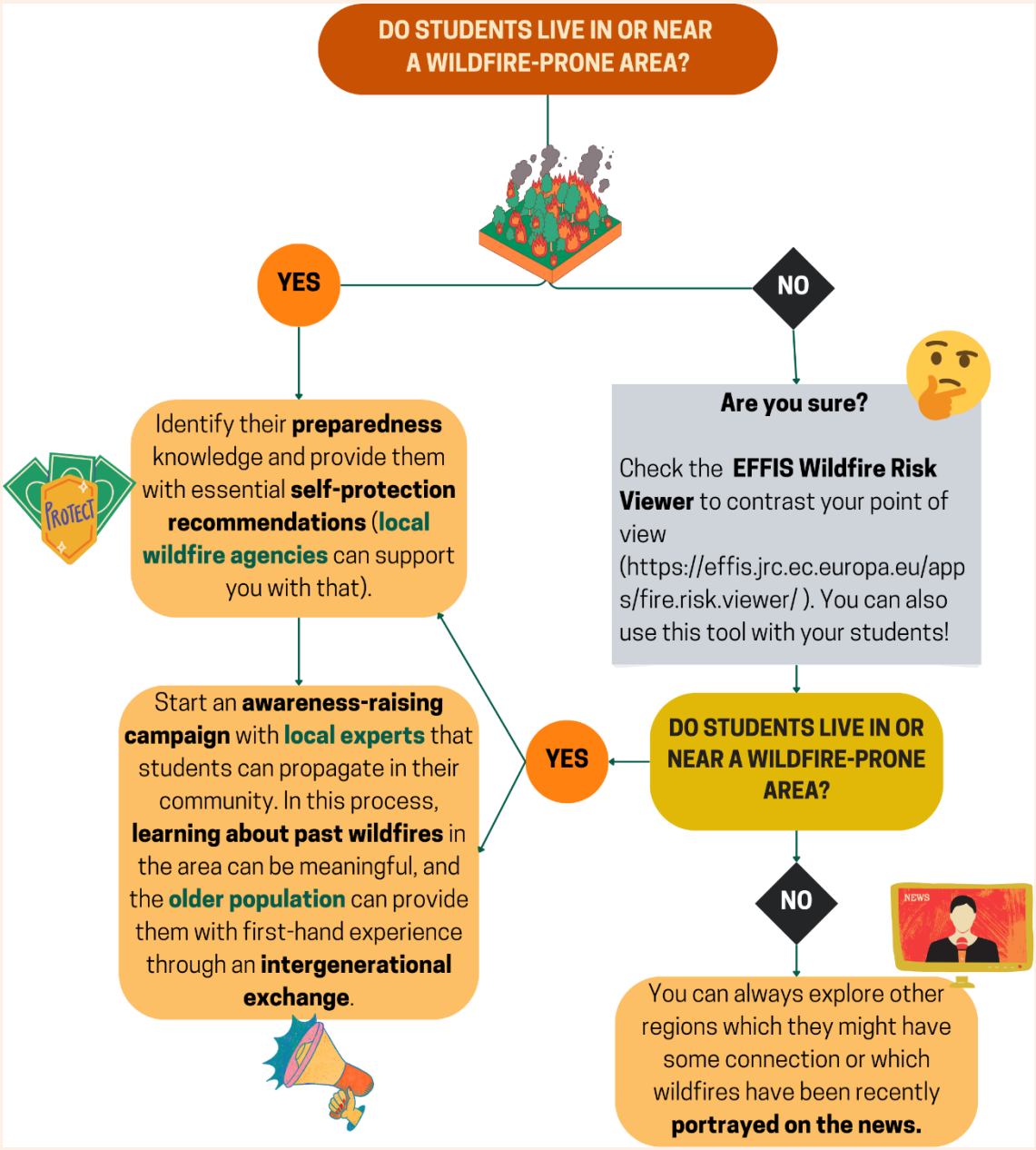

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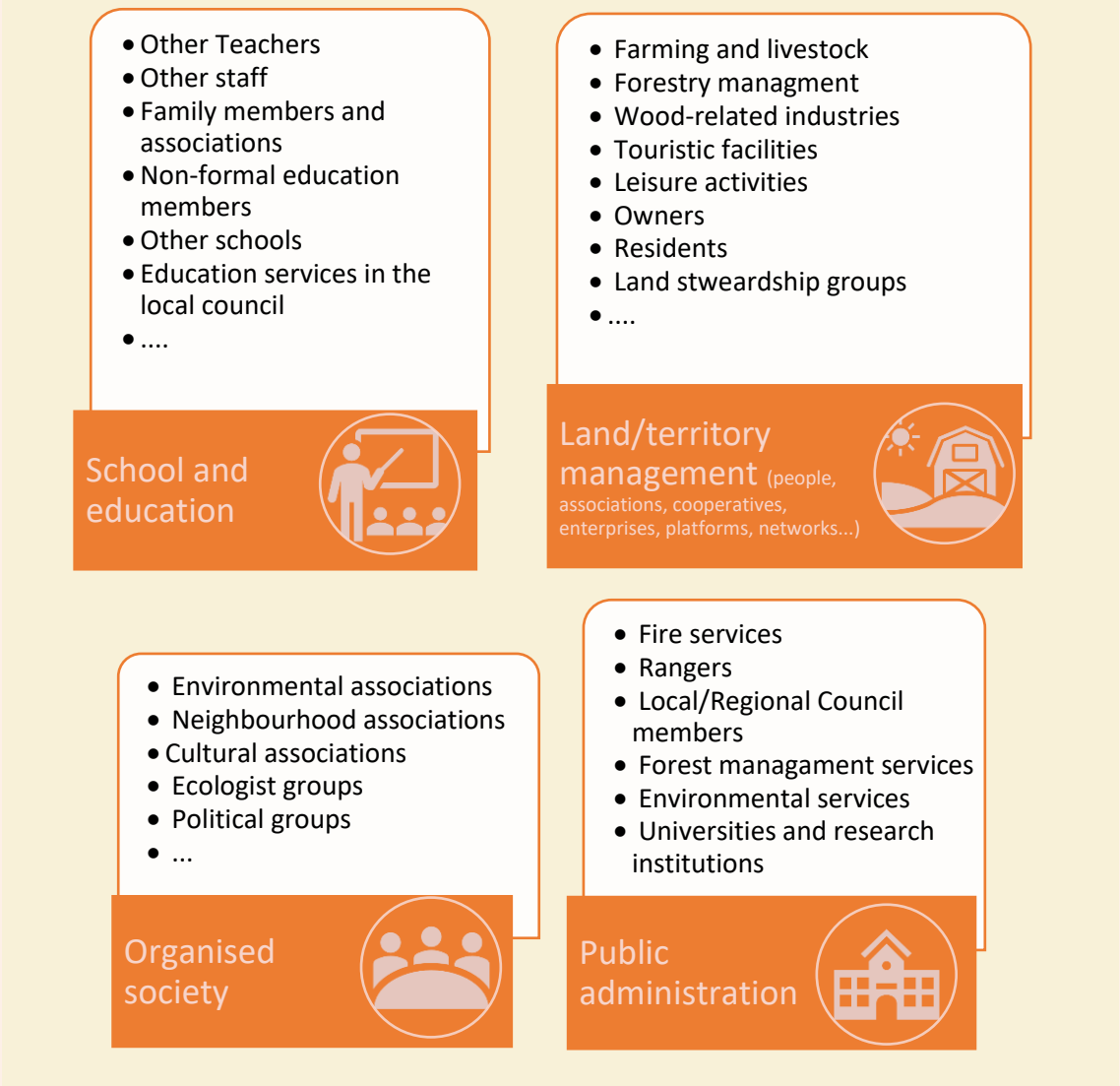
1.2. Identify key community actors in your area.

Even if you do not plan to involve all key community actors in your community engagement activity, it is advisable to have them mapped. Starting with local actors with whom you have collaborated is always advisable. However, suppose you want to widen the scope, or some potential actors cannot or do not want to participate in your community engagement action. In that case, you can always consider alternatives based on your map. Below, we offer a list of potential actors relevant to wildfire and climate change topics. However, remember that the local perspective is always the guiding rule for prioritising.



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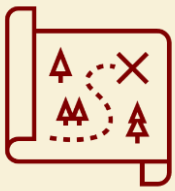
Tips for Teachers



This **mapping process** can also be transformed into an educational activity with your students. They can start with a reflexive process and complement it with research via the Internet or interviews to collect this information. Ultimately, they can build a map or visual representation online or on paper.

In the CUIDAR project (https://www.lancaster.ac.uk/cuidar/), one of the activities done with children and young people during the participatory process was to help them build this kind of **Local Actors Map**. In this case, they were not exclusively working with wildfires, and the objective was to go beyond the emergency moment, so some guiding questions were to think about **WHO** is expected to act **BEFORE** (preparedness and risk mitigation), **DURING** (emergency moment), and **AFTER** (recovery phase) the event.

- This included reflecting on who was related to the **causes and who received the impacts and consequences** of those risks and disasters.
- It helped to make them aware of how **responsibilities and exposure** are unevenly distributed among the community members and who has the **power** to make significant changes.

1.3. Identify your school community and involvement with its environment.

The following steps will depend on how your school is situated regarding community building and/or engagement and its openness to its environment. The following table helps you prioritise your actions, depending on your self-diagnosis. However, if you do not know how to situate your school at the following table, we recommend reading section *5. Extended Guide on Community Engagement*, in this document. It will help you understand what we mean by concepts such as community or community engagement from an educational perspective and how they can be related to **wildfire management** and **education**.

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HOW IS THE RELATIONSHIP WITH THE COMMUNITY?	HOW DO WE DEVELOP THIS RELATIONSHIP?
The community as an object and CURRICULAR CONTENT: There is no direct engagement with the community, though educators help students learn about their communities.	Start with the basics. For a single teacher, arranging a community engagement activity can be challenging; however, small activities can be initiated that, if nurtured, can grow and be transformed into wider ones. If you are alone, share your idea with your mates: some of them may join you and make it easier and more enjoyable. To start, you can invite an expert or community member to your classroom for a talk or an activity, organise a visit outside the school, or propose to your students to develop research that implies doing interviews with experts, community members, etc. (see section *3. Edufire Challenges with Community Engagement Activities*). You can also check if other teachers work in schools with similar interests and can help by sharing their experiences.
Learning IN THE COMMUNITY: The community territory serves as an educational space. Students conduct activities in the community, but the interaction is unilateral, without other community members.	
Learning FROM THE COMMUNITY: Other agents and social actors in the community (families, professionals, institutions, associations, and organisations) are involved in the educational process of students, either in the classroom or other community spaces.	If the school is involved with the community connect and develop this net. Identify where, how, and when the wildfire and climate change activity could be more easily connected: Any initiative that can be helpful to your purposes, such as the annual school party, service-learning activities, or other community-based projects. Start a conversation with any school member who could help you. Commit to the community, intervene, and participate in its well-being, improvement, and development.
Getting involved WITH THE COMMUNITY: Educators and community members actively work with young people and a broader community to bring about change.	

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Along with the role of the community in the educational project, schools can also have different approaches regarding their openness to their **(socio)natural environment**. Not all schools with high levels of community engagement include the environmental dimension and vice versa. If your school does, to some extent, join forces to keep developing this connection. Advice from the table above can be helpful in this context, too. If your centre has no experience working on environmental topics, identify if the local city council offers you any educational services (of their own or in collaboration with other local partners) that can help you organise your activity. You can also contact the actors you have identified in your map: your prioritisation process can be guided according to your preferences and/or the chosen Edufire Challenges (see section *3. Edufire Challenges with Community Engagement Activities*).

1.4. Nurturing community engagement activities

Schools can choose to get involved in community engagement initiatives and projects already existing or try to develop new ones. Furthermore, for its educational dimension, teachers can find inspiration in multiple pedagogical methodologies and approaches: service learning, citizen science, open schooling, learning communities….

However, to be successful, community engagement activities need to see beyond the pedagogical dimension and understand how these initiatives can be nurtured and kept alive over time. For that, initiatives should be ideally not only **planned, managed, and evaluated**, but also incorporating any of the following dimensions can be helpful to give more strength to the project:

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Give a role to the local Public Administration:

such as legal endorser, disseminator of "good practices," articulator of contacts and relationships between schools and social institutions and organisations, facilitator of resources, motivator and reinforcer of initiatives, promoter of this type of initiatives, adviser, and supporter, etc.

Involve all the school actors:

management, families, students, teachers, and other educators, and if possible, transform it into an official project of the schools.

Build wide social networks:

use the initiative to establish links and alliances with any interested local institution, agency, or organisation.

Offer teacher training in community engagement and participatory practices and development of appropriate teaching materials.

Offer students training for community action through participatory processes, which includes training for personal development, objective knowledge of the community reality and critical awareness of its needs and problems, development of social values (solidarity, cooperation, responsibility and civic commitment, freedom, justice and social equality, human and civil rights...), or adequate use and sustainable interaction with the natural, cultural, and social resources of the community, to name just a few.

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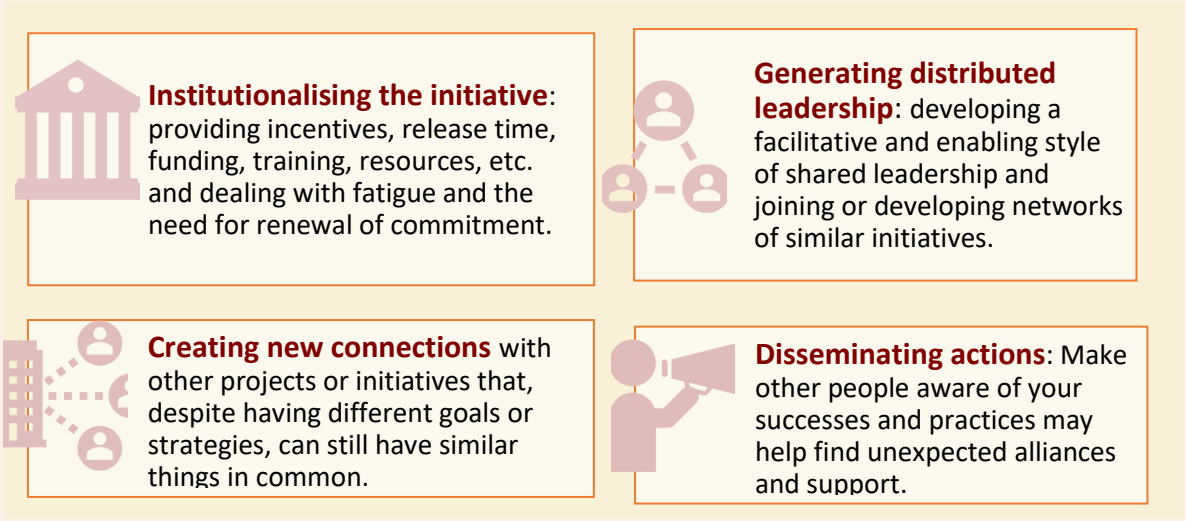
Despite all these efforts, community engagement experiences are always fragile, and they can face many challenges throughout their process. For example, sometimes, some initiatives are too dependent on the commitment of specific individuals or a tiny group. Also, it can be challenging to maintain leadership because of retirements, transfers, or changes in staffing and budgets. In all these processes involving different actors, it will be necessary to (i) develop and refine **standard directions and objectives**, (ii) learn to **develop relationships and trust** over time, and (iii) make **mutual adjustments** and give up some demands for control, among other issues. For some of these challenges, the following actions can help to keep the project alive and consolidated over time (Head, 2007; Monroe et al., 2016):



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2. Edufire Challenges with Community Engagement Activities

In the Edufire Toolkit, you will find a list of potential challenges to explore with your students. It is an opportunity for community engagement activities to participate in more extensive project-based learning activities where students develop STEAM competencies. The challenges encompass curriculum-relevant content to be developed inside the classroom and different levels of potential community engagement (involving other students in the school, families and/or the wider community). The learning method proposed for these challenges consists of a driving question to be answered through some activity or research and presented creatively.

You and your colleagues are meant to find a community member that fits the students' challenges. Each challenge offers the possibility of inviting the members to the school centre or visiting them in a place of interest. The invited person can prepare a video or presentation or think of any other way to deliver the knowledge that they find appropriate. Then, students will research the topic the hallenge presents on their own. Resources to do the research can be found in each Unit, and the invited person should be encouraged to show some resources linked to their background. Finally, students will present what they have learned in a way they choose within the possibility of each school/class. For each challenge, there is a suggestion for who can be invited, sites where the first part of the activity could take place, and the general aim, which gives space for every school to focus on more specific topics within a wider topic/aim. The table also references challenges with a more extensively developed guide that can be found on the Platform.

Below is a summarised version of how some guiding questions developed during the Edufire Toolkit pilots and how they can be connected to different community members and in diverse locations. For each general topic, you can also find the reference to specific challenges that include a community engagement orientation.

For a more detailed explanation of the activities developed in each pilot, you can check the Pilot Test page of the Edufire Toolkit website: https://www.edufiretoolkit.eu/en/pilot-tests/

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WILDFIRES AND CLIMATE CHANGE

QUESTION	**What is climate change - and/or other emergencies such as loss of biodiversity, droughts or the energetic crisis?**
COMMUNITY MEMBER	Someone with knowledge in a field related to the environment (biology, oceanography, climatology, physics…).
LOCATION	The school or a museum, a forest, a university, etc.
GENERAL AIM	That students can explain what climate change is.

QUESTION	**What is the relation between climate change and wildfires?**
COMMUNITY MEMBER	Someone with knowledge in a field related to the environment (biology, oceanography, climatology, physics…)
LOCATION	The school or a museum, a forest, a university, etc.
GENERAL AIM	That students can explain how climate change modifies wildfire trends.

+

See also challenges:

1.1. What impacts do wildfires have on our daily lives?

1.4. Are wildfires a consequence of climate change?

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FIRE AND WILDFIRE HISTORY

QUESTION	COMMUNITY	LOCATION	GENERAL AIM
What is the triangle of fire?	Someone with basic knowledge of fire ecology or fire management.	The school, a forest, a firefighter station.	That students know more about how a wildfire is generated and how to put it down.
QUESTION	COMMUNITY MEMBER	LOCATION	GENERAL AIM
When did wildfires begin on earth? Why?	Someone with basic knowledge of fire ecology and the history of fire.	The school or a library/ historical centre with old photos/ maps.	That students know more about how a wildfire is generated and when where the first wildfires on earth.
QUESTION	COMMUNITY MEMBER	LOCATION	GENERAL AIM
How was our school environment 50, 100, 200... years ago?	Someone with knowledge of the town's changes of land use and wildfires.	The school or a library/ historical centre with old photos/ maps.	That students know more about their environment decades before and what is the history of wildfires.

See also challenges:

2.2. We celebrate with fire!

2.3. Who owns the forests?

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ECOLOGY OF FIRE

QUESTION	**How do fauna respond and adapt to fire?**
COMMUNITY	Someone with knowledge of fire ecology.
LOCATION	The school, a forest or a field.
GENERAL AIM	That students can identify some fauna's adaptation to fire.

QUESTION	**How do vegetation respond and adapt to fire?**
COMMUNITY MEMBER	Someone with knowledge of fire ecology.
LOCATION	The school, a forest or a field.
GENERAL AIM	That students are aware of the presence of fire in some ecosystems through hundreds of years and can identify some vegetation's adaptation to fire.

QUESTION	**What is the role of farming on fire prevention?**
COMMUNITY MEMBER	A farmer.
LOCATION	A farm, a school, a forest or a field.
GENERAL AIM	That students understand the importance of extensive farming for several reasons, including the prevention of uncontrolled fires

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WILDFIRE RISK MANAGEMENT

QUESTION	COMMUNITY	LOCATION	GENERAL AIM
What are firebreaks? How is fire used to prevent uncontrolled fire?	Someone related to fire management.	The school, a forest or a field, , where you can see a wildland-urban interface.	That students can understand how firebreaks work.

See also challenges:

5.2. How do emergency services (fire, police, ambulance) prepare for wildfires?

5.3. What can be done to prevent wildfires?

5.4. How can we protect our locality from wildfires?

6.1. How can we measure the wildfire risk in our area?

6.2. How do our daily lives impact wildfires?

7.1. How do firefighters try to stop wildfires?

7.3. Who is in charge of controlling fire?

WILDFIRE IMPACTS

QUESTION	COMMUNITY	LOCATION	GENERAL AIM
What is the community experience with wildfires?	Some inhabitant of the school's town/village.	The school or some place in town or village.	That students learn abouth the impacts that a wildfire can have.

See also challenges:

8.2. Aftermath of a wildfire: a case study of a nearby wildfire

8.3. Who pays if a landscape burns?

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AGENCY AND TRANSFORMATION

QUESTION	**Are there any environmental organisations in our town/region? What do they claim? Does it have any implication for wildfire management?**
COMMUNITY MEMBER	Members of environmental organisations.
LOCATION	The school or some place in town or village.
GENERAL AIM	That students students get to know organisations near them, to learn about socio-ecological conflicts and hear experiences of how to organise to protect the

QUESTION	**What type of landscape do you want to see in the future?**
COMMUNITY MEMBER	Some inhabitant of the school's town/region
LOCATION	Field visits to see examples of good practices (forestry management, agriculture, livestock, prescribed burning, etc.).
GENERAL AIM	That students students get to know which landscape management actions can help to reduce wildfire risk.

See also challenge:

9.2. We act to prevent wildfire risk!

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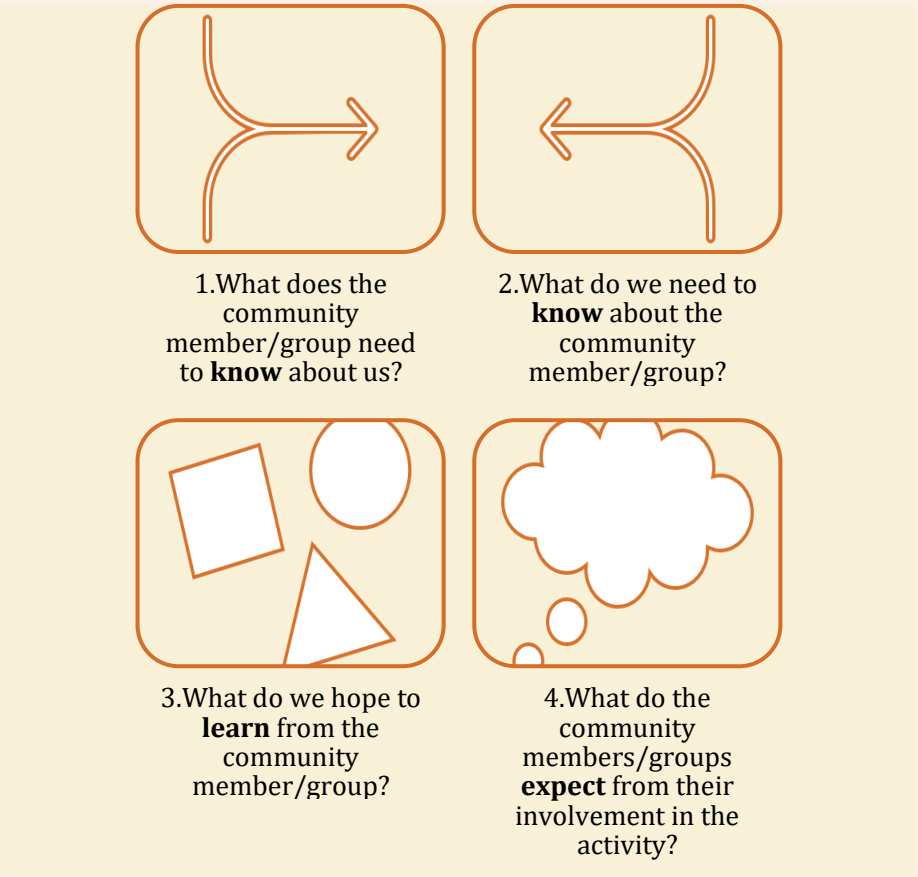
3. Evaluating your activities

In the Teacher Guide, you will find suggestions on evaluating your students' learning process. Here, you will find some ideas on assessing the community engagement dimensions, which apply to students, and everyone involved in the activity. For more comprehensive reasoning about why it is relevant to evaluate this dimension, you can read the corresponding section of the extended guide.

Community engagement can have different objectives depending on each case. The evaluation process must be designed according to those specific objectives. Here is a list of potential questions you can pose yourself during the organisation process to help you identify them and adjust the activities and evaluation process accordingly.

It is advisable to do this process with all the people involved. Co-organising the activity with students and community members to some extent will take extra time, preparatory meetings and activities, but the results will improve).

First questions for **co-defining our objectives**:



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Once the objectives are defined, we can start **planning**:

1. How will the visit/activity be organised?	2. How and when will we evaluate it?
- What **day** and at what **time**? - **Where**? - In which **format**? What will be the **content** and **activities**? **Who** will be in charge of every task/activity? What will be the **role of students** (asking questions, filing a template, taking photographs, recording the activity, etc.)? - What **resources** are needed for the activity, and who will provide them?	- Which **evaluation tools** will be used (we may need different ones for each party involved - students, teachers, community members, etc.)? - **When** do we want to do the evaluation? if you do not have the time to evaluate the activity just after it takes place, you will need to schedule a different moment.

Also, if you want to **co-organise some activities with your students**, here is an example of how you can **prepare** for a visit from a community member to your school:

Pre-visit

- Research the visitor and the topic. Hold a class discussion about the proposed visit.
- Brainstorm a list of questions to ask.
- Assign different responsibilities to each student, e.g., meeting the visitor, introducing the visitor, asking questions, thanking the visitor.
- Arrange the room to suit the activity. What is required?

Experience

- Be courteous at all times.
- Listen attentively to the visitor.
- Record main points.

Post-visit

- What worked well?
- How did we work as a team?
- What would we do differently?
- Did anything go wrong? Why?

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EXTENDED GUIDE ON COMMUNITY ENGAGEMENT

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4. Situating community engagement in wildfire education

To reduce the unintended and exacerbated threats to human lives and values posed by wildfires, there is a scientific consensus that we need to move from the focus on fire suppression strategies towards new policies grounded in developing **fire-adapted communities** able to deal with the climate change-related effects on forest conditions and wildfire behaviour (Brenkert-Smith et al., 2017). It implies that wildfire management services must develop community engagement strategies, understanding that **engagement** goes beyond participation and entails information sharing and problem-solving within communities and between community members and agency representatives (Eriksen & Prior, 2011). However, traditionally, the actors involved in wildfire risk management (communication, education, land management, fire suppression, etc.) have operated at **different social, spatial, and temporal scales** (Brenkert-Smith et al., 2017), adding substantial complexity to the goal of involving local communities, which in turn, are experiencing significant demographic and socioeconomic transformations.

Consequently, wildfire risk can be considered a **wicked problem** with no single 'optimized' solution: an interdisciplinary and scientifically disputed phenomenon that has many moving parts interconnected to other problem spheres with moving parts that change the 'rules of the game' (e.g. climate change, rural exodus, urban sprawl) – triggering events that in isolation appear improbable yet will have dire consequences whenever they occur. Options to learn from history are also limited by its diffusely evolving nature and possible contradictions between short-term successes and long-term failures (Wunder et al., 2021).

> "Wildfires are far from simple and straightforward and show ever more unpredictable behaviour. Nonetheless, oftentimes Wildfire Risk Communication campaigns use fairly simple slogans and convey basic messages. This might be valuable as a very first step for people who are totally unaware of wildfire risk. However, it can also lead to people not understanding more complex matters (like the ecological role of wildfire and the cultural uses of fire), or even directly opposing management actions (like prescribed burns). Hence, it is important to create spaces that allow for dialogues addressing the complex, uncertain and ambiguous nature of wildfires."
>
> (Ottolini et al., 2023, p.14)

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All this complexity makes wildfire-related topics interesting **educational research topics**. After learning about all the existing challenges and the knowns and unknowns that this reality has at both a global and a local level, young students can be genuinely invited to co-design potential solutions at the local level and embedded within their communities. But to succeed, students will need support from schools, teachers, local agencies, and community members who can contribute to these goals.

This extended guide provides some guidance to teachers and other community members who want to reinforce the community engagement dimension of the Edufire Toolkit program.

4.1. What is a community?

Community engagement is a goal of contemporary wildfire risk management and many other policy fields, including education. However, it is not always based on a clear and unique definition of how we understand communities. This is partly because of the different social sciences traditions and perspectives, but we also should be wary of easy translations among different cultures and languages.

Tips for Teachers

In this section, we will review different dimensions that might be relevant to consider when implementing the Edufire Toolkit community engagement guidelines. However, the first task of a teacher/educator who wants to implement any of the activities proposed should be to define what they understand as their **community of reference**. A definition exercise in which, ideally, students should also be involved as part of a discussion process. For that aim, teachers can rely on some of the content in this section or any other material they consider relevant to their local context.

In **urban** and post-industrial societies, characterised by rampant individualism and social detachment, *communities* are often considered more a project, a process under construction, a desire, or a dream, rather than a factual reality. It reflects a longing for the stronger communitarian sense that defined more traditional societies and that is still alive in some smaller **rural** areas and less industrialised world regions. Independently of these general trends, we can identify different definitions of communities, according to their emphasis on certain dimensions such as:

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- **Relationships**

Following the public health approach of Segura del Pozo (2023), communities can be defined by the relationship between their members, shaped by certain emotions, affection, and a sense of commitment and reciprocity that unites them. It often implies the emergence of a **shared identity** that generates certain boundaries that situate others (outsiders) as non-belonging. On the bright side, this shared identity is connected to concepts such as solidarity, self-organisation, collaboration, and proximity, as well as with active citizenship, political agency, and participatory democracy.

However, communities can also have a flipped side, such as barriers, segregation, hostility, coercion, pressure, abuse, violence, or discrimination, among others. This darker side of the communitarian dynamics, though, can be mitigated through specific actions to make them more **participatory and equitable** spaces, reinforcing the benefits that community belonging implies for most people (a welcoming environment providing hospitality, trust, care, and protection), and as a tool for articulating citizen participation for the common good and the general interest. In any case, we must be aware that communities are usually built upon conflicts, contradictions, and antagonisms that we must learn to navigate when we want to do community work.

- **Places**

The connection to a particular **territory**, although not essential (see below), is usually a defining trait of many communities. In this sense, we can define a community as a "specific geographic location at a given scale": a city, a town, a village, a neighbourhood, and many other variations depending on the culture and urbanisation model. Moreover, as the physical and social dimensions are intertwined, places are connected to a particular history and way of life.

In this case, we must also be wary of generalisations based only on geospatial locations, as they can obscure internal **diversity and inequalities** (Lambrou et al., 2023): needs, interests, objectives, and expectations can be diverse and complex, explicit or not, and concerning present realities and future prospects (García, 2010).

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Finally, in political terms, administrative borders can also define communities. However, they usually bypass and/or are crossed by them: for example, a mountain range, a valley, etc. So, in some cases, whereas a community is neatly linked to a specific territory, in administrative terms, that territory can imply a wide range of public and private cross-sectoral organisations that do not necessarily have a relationship of cooperation.

- **Glue uniting people**

Although most communities are place-based, this is not a necessary condition. For example, despite older technologies having already enabled it previously, the Internet allowed the emergence of virtual communities whose members can be distributed across the globe. So, we cannot only understand communities in **local** terms because even when this dimension is relevant, they are constantly exposed to the impact of **global** dynamics.

Tips for Teachers

To reflect on what communities are with your students, you can create a **debate** based on the following question: **Could climate change and the current global wildfire situation be the catalyst for generating a new transnational community?**

Undoubtedly, we are all affected by climate change (although unequally), and catastrophic wildfires are reaching unprecedented latitudes. Likewise, we probably do not all live near flammable natural areas, but extreme contemporary wildfires have shown that smoke has no barriers and affects people living in distant regions of the fires.

We already have a growing international community (of scientists, activists, citizens, and politicians) fighting against climate change through diverse strategies and claiming new wildfire management strategies. However, opposing interests still pervade our societies concerning these global challenges. This is why we must keep building up this global community and gaining new supporters from local and transnational perspectives to make this change effective.

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Whether sharing or not a specific geographical location, the link that transforms a group of people into a community can also vary. It can have an **affective** dimension, as stated before. However, the main link can be **sharing a common interest** or **supporting the same thing**. Finally, communities can also be **circumstantial**, the product of an external and unexpected event (Ntontis et al., 2020). Probably, in each community, there can be more than one of these dimensions implied in different configurations that, at the same time, may change over time.

Tips for Teachers

Circumstantial communities are especially relevant for understanding certain social phenomena related to **emergencies and disasters**. In these contexts, identifying a shared unfortunate fate can temporarily break group divisions and community boundaries, giving place to a solidarity movement. These **emergent communities**, however, are usually temporary and decline once the most disastrous phase of the event disappears. So, after an initial increase in solidarity, old problems and conflicts eventually reemerge.

Circumstantial communities, resulting from disastrous wildfires and affecting previously unconnected groups of people, can also be an interesting entry point for community engagement actions. Our intervention could help strengthen them and consolidate community involvement and participation over time.

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EDUFIRE TOOLKIT PILOT EXAMPLES

Creating a new community in Castelldefels: opportunities and challenges

Castelldefels' pilot in Edufire mainly addressed the dimension of community engagement. Thus, when co-designing the implementation with the coordinator teacher, it was essential to find a moment when students had the **flexibility** not just to adapt their schedule to the content but also to do **outdoor activities** for field visits. Finally, the **Erasmus+ exchange** activities opened the window for us to organise the pilot: it allowed time and flexibility to **design a series of educational activities for 5 days**, offering a unique opportunity to design a fully community-oriented program. Organising the pilot during this week meant **that the educational community was not just local but international:**

A total of **64 students aged between 12 and 15 years old participated**: 32 students from Castelldefels (**Spain**) hosted 32 students from three schools in **Portugal, France, and Slovakia** in their homes during these days.
In total, more than **10 secondary school teachers** participated: 6 teachers came abroad with the visiting students, and 4 teachers from Castelldefels' pilot engaged with the week's activities.

As a result, we had a big intercultural group of students to work with, and we had to adapt to plan **all the activities in English**, as it was the condition of organising the pilot as part of the Erasmus+ exchange. It added extra complexity for the local community groups that we wanted to engage in the process: on the one hand, such a big group of people implied some extra logistic challenges, and, on the other hand, it was not so easy to find local community members who felt confident to speak in English. Despite these difficulties, we found a way to initiate **a networking dynamic involving various local actors and projects linked to education and eco-social activism, landscape preservation, and wildfire prevention, among others**. Thus, we connected this diverse and international educational community with different actors in the local community of Castelldefels and its surroundings.

To facilitate the understanding of foreign students about local realities, all activities were designed to be developed in **mixed pairs or groups**, including always local students. Also, we included some comparative reflections and analysis to help foreign students feel included in the activities. Thus, the activities had a twofold framework: on the one side, **getting to know the local** -its flora, fauna and people, its conflicts and its initiatives-and on the other, **connecting these with global issues** such as climate change, land conservation, globalisation of the agricultural market and conflicts over industrialisation.

Creating this **expanded educational community** implied extra efforts but simultaneously allowed us to amplify the pilot impact to a greater number of students and teachers and to include **intercultural and transnational perspectives**. In this case, via informal exchanges, we have identified that none of them (students or teachers) had very specific knowledge about wildfires, but teachers shared previous experience and interest in other climate change-related topics.

In this case, we could say they are part of a circumstantial community created by the Erasmus+ exchange program that share some common interests, and with the added value of the affective

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dimension for the students, achieved by the experience of hosting and being hosted by a family of a different European country. To reinforce this affective dimension and intercultural learning process, the week of activities also included several leisure and cultural ones, some with the local families' direct involvement. Moreover, during the same academic year, students from Castelldefels completed their exchanges, changing roles with the students they hosted at their homes.

EDUFIRE TOOLKIT PILOT EXAMPLES

Taradell's pilot test: Students get involved in the community

In the Taradell pilot test, the 4th ESO students of the Taradell High School carried out 3 days of activities with various members of the community involved. The pilot test focused on the need to manage the territory to prevent large wildfires. 50 students took part in the optional subjects of biology and geology.

The students were able to understand the number of actors involved who are dedicated to managing the territory and the different areas involved.

In this line, the importance of consuming local products was emphasized to favour local producers who do a great job of managing the landscape and thus protect us against large wildfires. They also analysed the current landscape and identified the territory's main risks.

A reflection on the various actors involved in landscape management is an essential strategy to foster community cohesion and a sense of belonging.

4.2. What is community engagement?

Now that we have explored what " community " means, we can further understand its engagement.

On the policy level, community engagement can be understood as a participatory turn led by some democratic governance approaches in the last decades. Facilitating civic participation practices is considered a way for the public sector to have better-informed decision-making processes, thus deepening the representativeness of democratic systems. It responds to an attempt to decrease disengagement and distrust of citizens towards the political institutions.

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However, it may also hide some interest in redistributing responsibilities, which "may allow a partial displacement of blame from the shoulders of government" (Head, 2007, p. 447). Nevertheless, participatory processes can also represent an opportunity for community groups, for example, to have a greater voice and influence for the interests they represent, to fulfil the equity principle that people should be involved in issues affecting them, or to look for better outcomes for ordinary citizens and disadvantaged groups, among others (Head, 2007).

These kinds of participatory arrangements can take different forms. For example, Head (2007, p. 451) distinguishes at least three of them: **cooperation, coordination, and collaboration**.

	DURATION	GOALS/PERSPECTIVE	FORMALITY	RISKS/ REWARDS
Cooperation	short term	- independent outcomes - autonomy	informal	Low risk & modest reward
Coordination	medium term	- joint planning - autonomy	in/formal	Increase in risks and benefits up to a point
Collaboration	long term	- new systems - interdependency	formal	High risk & high reward

4.2.1. Community engagement in wildfire management

Wildfire community engagement actions are usually targeted at **geographical communities**, especially those more exposed to the associated risks. However, when exploring communities exposed to wildfire risk, it is essential to know that natural environments can have different owners: public, private, or community. Moreover, those spaces can have **several uses** and offer various **services**: forestry activity, agriculture, livestock, leisure, tourism, natural conservation, residential, etc. So, when we select and define a community, we must be aware of the coexisting groups in that territory and the nature of their relationships, as there might be potential conflicting interests.

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Tips for Teachers

Students can try to identify **existing discourses about wildfires** in their community by analysing selected local media pieces related to these topics or by interviewing some local actors.

For example, in the research after the tragic Horta de Sant Joan wildfire (Catalonia, 2009) Marien González Hidalgo, Iago Otero Armengol, and Giorgos Kallis (2014) found a clash between different social discourses revealing different sociopolitical forms of constructing the relationship between nature and society. They identified at least four discourses articulated by diverse local actors (fire-fighters, tourism entrepreneurs, local civil servants, farmstock and livestock breeders, shepherds, environmentalists, and natural park authorities): **capitalist**, **rural idyllic**, **green,** and **resilient**. These discourses were built upon different interests, desires, and/or knowledge related to topics, such as:

- Seeing **forests** as a habitat, a commodity and/or a livelihood
- Positioning towards interventions in the **landscape**, such as grazing, forestry works, energy generating landscape, …
- Acceptance of **activities** such as residential housing, tourism, …
- Knowledge and acceptance of different **fire management strategies**: high technology risk control, conventional firefighting, technical fire, "good" natural fires, fire as agrosylvopastoral tool, …

Furthermore, as explored in section 5.1.1, communities regarding wildfire risk management are also heterogeneous. So, despite the need for local contextualisation, here we offer some examples of diversity within communities towards wildfire management based on research done in Australia, the USA and northwestern European Mediterranean countries (Spain, Italy and France). It can help you to look for or identify similar patterns in your local contexts:

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Tips for Teachers

(A) Time living in fire-prone areas: If you know long-term residents in the community (for example, family members) who have experience/knowledge in wildfires, it can be interesting to invite them to share their experience with students. Especially if the community has a significant number of newcomers, it is always more engaging for students to hear the personal stories of people like them, with whom they can easily identify.

Longer-term residents are more likely to have direct experience of wildfire. They integrate new knowledge and information from their previous experiences. Newer residents have little or no wildfire experience, personally or in their families. They will establish knowledge, attitudes, beliefs, and values relating to wildfire via second-hand information from, for example, neighbours, friends, family, the media, environmental groups, or fire agencies. (Eriksen and Prior, 2011)

(B) Social exclusion dynamics: For those students (and families) with no solid social networks in the area, it might be relevant to learn about the wildfire-related local services and management plans. It can be helpful as a preparedness activity. However, it is essential to acknowledge that some social minorities, because of a history of marginalisation and discrimination, might have aversion feelings towards specific public administration figures (for example, police, social services, and other law enforcement representatives). In this case, involving other community leaders as referents is important to generate more trust among the students.

Residents in fast-growing new communities may lack important social networks and may, therefore, be less likely to reach out beyond those in their immediate context. *Racial and ethnic minorities* are more likely to rely on social networks and kin for information and support. However, they are more likely to be excluded from community planning and preparedness processes. (Lambrou et al., 2023)

(C) Diversity within WUI (Wildland Urban Interface) Communities: The urban/rural divide represents the extremes of a continuum where we can find multiple realities of communities living in wildfire-risk areas. It can be interesting that students research their community with a historical approach to understand economic, demographic, and social changes and how they have shaped the relationship of the population in that area towards the landscape and wildfires. In all cases, it can be based on archive research and analysis of secondary sources. However, in locations that have been populated for a long time, it can be complemented with interviews that analyse intergenerational exchange of what it means to live in a particular area and what it meant some decades ago. For those intergenerational approaches, it is vital to include potential migration processes in the equation: how they have contributed and/or are contributing to these kinds of place-based knowledge and experiences to travel, transform, adapt, and/or disappear. Migrations can include not only the rural/urban divide in one or another direction but also transcultural experiences that need to be considered.

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- *Formalised Suburban* communities are inhabited by relatively affluent residents (often commuters to urban centres for work) who typically lack highly developed skills for reducing area vegetation or operating machinery. Local organisations are somewhat formal, and regulations at neighbourhood, city or higher levels of governance are supported. Experience and knowledge about the ecological role of wildfire in the landscape tends to be relatively low.

- *High Amenity/High Resource* communities have more heterogeneous residents *who* choose to live in a particular area because of visual and other outdoor recreation-linked opportunities. They tend to place a high value on the landscapes in which their communities are embedded, are concerned by environmental issues, and have relatively high trust in government agencies. Direct experience with fire in the landscape tends to be low, given the relatively large proportion of former urbanites in such places.

- In *Rural Lifestyle* communities, life tends to be more focused on rurality as a way of life rather than scenery or outdoor recreation, per se. There is a mix of both professional skills and practical know-how in such communities, and they prefer dealing with issues on their own and are reluctant to work with the government or impose regulations. Inhabitants have more direct experience with fire and handed-down knowledge about it and are more likely to respond to messages about the positive role of fire management in restoring ecosystem health and protecting recreational activities.

- Livelihoods in *Working Landscape/Resource Dependent* communities are based on traditional rural economic activity (farming, mining, agriculture, etc.), or at least some family members are. There is a strong emphasis on intergenerational ties and kinship with place-based solid traditions of 'working the land' and contributing to and perpetuating a well-defined local culture. They have more practical skills than professional or more formalised ones. Direct experience with fire in the landscape tends to be prevalent, and they actively attempt to contribute to firefighting actions that pose a risk to the landscape to which their livelihoods are tied. Inhabitants tend to be more trusting of local sources of information and lived experience about managing fuels around residences. - Their local economies can potentially support costs for reducing fuel loadings that contribute to wildfire risk.

(Carroll and Paveglio, 2016)

(D) Local dimensions that operate as enablers or barriers to fire adaptation within communities: The more you learn about social dynamics in your community, the easier it will be to understand their relationship with wildfire. With that knowledge, students' projects and proposals can be oriented as targeted actions towards reinforcing local enablers and transforming local barriers.

- *Local interactions and relationships* identified as enablers of fire adaptation can be: property owners manage forests for economic and cultural reasons; you can find a sense of belonging, history, solidarity, and social ties; there are environmental/cultural values of the landscape; there are volunteer fire organisations; you can find generational population renewal; it is a willingness to pay for fire prevention programs; solidarity emerge as a reaction to hazards; you can find relationships between urban residents and forest managers; local champions work as a positive influence and/or there is a valued role of elder residents; you can find communication networks with diverse neighbours, physical places for residents to gather, and/or social/cultural networks and associations; the community has access to basic services (municipal lighting, waste pickup, water, adequate road conditions) and there is a trusting relationship with local administration. On the other side, social fragmentation, conflicting land use values, ageing or unrenewed populations (including fire volunteer organisations), lack of fire awareness from newcomers, blend of first and second residencies, lack of access to basic services, and residents placing too many demands on unequipped local administration have been identified as barriers for communities' fire adaptation.

- *Local knowledge and experience* identified as enablers of fire adaptation can be: existing socially valued local fire knowledge; experience with fires in recent memory; sensitivity to other risks and local climate change; perception of landscape health as a motivator for management; understanding historic land use effect on territory (i.e. rural abandonment, agriculture, animal husbandry, forestry, the effect of wars, dictatorships and industrialization); understanding of current land use alliances for fire management (i.e. sustainable agriculture, extensive livestock, sustainable forestry, responsible recreation/tourism, environmental activism, hunting associations, renewable energies) and some environmentalist

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frameworks that encourage forest management. On the other side, when local knowledge is deemed unfit with current conditions, the cultural origins of landscapes are ignored, professionalisation of the fire sector sidelines local knowledge, biodiversity and local knowledge are lost, some environmentalism opposes forest management, and some local knowledge is based on large social inequalities have been identified as barriers for communities' fire adaptation. Also, when women and immigrants play important but unrecognised roles in maintaining rural agriculture socio-ecosystems, and ownership of low-value assets like woodlands and pasture does not influence fire prevention uptake, it can also be a barrier.

(Uyttewaal et. al, 2023)

These are only some examples that can help us think about where and what to pay attention to when identifying wildfire risk-related problems and potential solutions in our community engagement-oriented projects. However, **it is paramount that we analyse and understand the specificities of the community we want to work with**. As for community engagement in wildfire risk management to be effective, it:

> "Needs to resonate locally and generate local participation in ways that are compatible with the reasons people live in the places they do. If wildfire management is to be successfully organised, and if local people are to play a role in that organisation, ongoing efforts need to take account of the cultures of communities and the ways they approach and solve problems."
>
> (Carroll and Paveglio, 2016, p.4)

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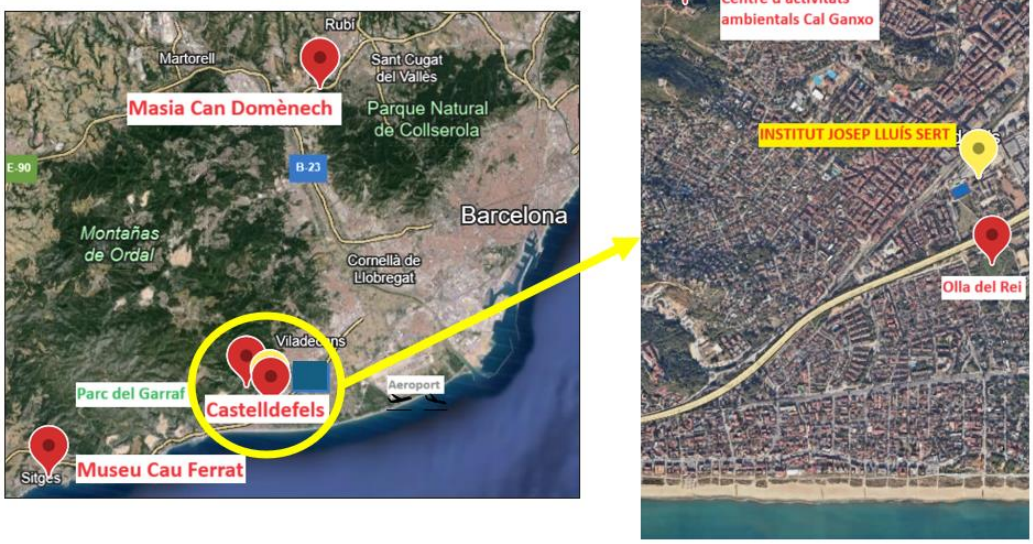
EDUFIRE TOOLKIT PILOT EXAMPLES

Specificities of the local communities: The Castelldefels case

1. The socioenvironmental context



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EDUFIRE TOOLKIT PILOT EXAMPLES

On the left is a general overview of all the places where the pilot took place, and on the right, zoom in to the Castelldefels sites. On the left map, we can see how Castelldefels (and Sitges, where Cau Ferrat Museum is located) is next to Garraf Park. The park is in the Catalan Coastal Range, between the Llobregat River valley, the Penedès Depression and the Mediterranean Sea. The massif is constituted by a set of low mountains, mostly limestone, with many chasms and caves. It is sparsely wooded; the main vegetation is maquis shrubland, and the Mediterranean Fan Palm is an endemic species of these mountains. Despite having been declared a Protected Area by the Catalan Government, there are many seriously degraded areas throughout the massif, including quarries and vast rubbish dumps. Urbanization has covered different zones of the range, especially in locations close to Sitges and on the Castelldefels side. The massif has suffered several forest fires (the most important in 1982 and 1994), but the vegetation is greatly adapted to it. On the right map, we can see that Josep Lluís Sert High School is near the city centre and closer to the Olla del Rei wetland than Garraf Park, which starts just before the Environmental Education Centre Cal Ganxo.

Turning back to the left map, up north, we can see Can Domènech farmhouse, which is situated at one of the borders of the Collserola Natural Park. This is a bigger natural part of the metropolitan area of Barcelona that contains a wide sample of Mediterranean natural environments, in which we find predominantly mixed pine and oak forests, along with formations of low vegetation and even gallery bush. This park is also under great urban pressure as it is surrounded by more than three million people spread over a set of large municipalities, including neighbourhoods very close to the natural areas.

2. Local community knowledge

The City Council has its own forestry agents' team, which, among other environmental and civil protection tasks, oversees wildfire prevention and first-response actions in coordination with fire-fighters. Part of these preventive tasks is to create protection strips for buildings and houses near the vegetated areas, which occasionally have created citizens' protests. They and their environmental education activities were included in the pilot agenda since the beginning.

Before the pilot, we had the opportunity to perform an ex-ante evaluation test about the forest fire knowledge of Josep Lluís Sert High School students. It showed us that, in general, they had very basic knowledge about climate change and wildfires, and their community engagement activities were not related to environmental issues. About half of them claimed to have some knowledge, mainly due to press and informative campaigns. When asked about relevant measures to reduce fire risk, some go beyond littering and point to clearing the undergrowth. But most of them don't think their homes are at risk of a forest fire and wouldn't know how to act in case of one, as probably they do not live in the wildland-urban interface. Similarly, some of the post-pilot test answers suggest that families consider this topic relevant but not an urgent, personal matter. Evaluation tests with students reproduced similar results. So, the pilot was a good opportunity to work as an awareness-raising program for students and their families living close to high-risk wildfire areas.

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3. Adapting the proposal to the context

Because of this less direct experience with wildfire risk, we also decided to link the topic with other broader local ecological challenges related to landscape management: some activities were dynamised by activists organised to defend the local territory, highlighting the case of the Olla del Rei wetland (very close to the high school) and the controversies over the expansion of Barcelona airport as it menaces a natural protected area (about only 10 km away from the high school). They invited the students to reflect and debate on the importance of being informed, organised and mobilised to defend their territories, and it all allowed us to situate wildfire risk management within the more complex challenges that climate change poses to urban environments in the Barcelona area.

Teachers -who, as mentioned before, didn't have a natural science background- were always present in all the activities, so the week was a training and awareness-raising experience for them, too. For instance, some of them shared that although having some knowledge of forest fires before, they didn't know the importance of management that clears excessive undergrowth or the risks of having pines surrounding houses.

Also, as it was not possible to organise a visit to some of the farms that work in the Garraf area, we decided it was important for students to have some first-hand experience, especially with grazing practices for wildfire prevention. This is how Can Domènech was also added to the agenda, as it fulfilled those requirements despite being in a different natural park. However, it is still close enough to their city so they can easily understand the role and challenges these traditional farm practices face in highly urbanised areas.

4.2.2. Community engagement in education

This community engagement turn is also important in the formal education systems, leaving away "fortress schools" models (Collet-Sabé, 2020) and moving towards models based on participatory and coordinated actions with other local social and educational actors and the public administration. In fact, social participation in education is a right and a duty of citizens. And when it is channelled via community action practices, it can energise and strengthen social ties between those actors who live in the same location or institutional environment to improve people's quality of life (Cano-Hila et al., 2019).

All schools have a particular natural and social environment. However, this is not always considered as a source of learning or a space to put that learning into practice. Many schools consider their environment as a stage surrounding their facilities with no other interest. Others may perceive it as a threat to their activities, distracting children and young people from the learning process that should happen within the walls (Fernández-Enguita, 2007). However, we can also understand the territory as a **resource** or, more recently, as an **actor** involved in the educational process (Collet-Sabé, 2020).

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Schools do not exist in a vacuum, and children and young people bring their worlds with them into the classrooms. Sometimes, they carry what teachers consider problems. Still, they also bring skills, knowledge, and ideas that, even if not apparently aligned with the school curriculum, can be valuable sources of knowledge, especially for the local context where they live. At the same time, many students lack knowledge and connections with their closer social and natural environment, hindering their sense of belonging and opportunities to thrive. This disconnection can be due to several reasons: they recently moved to that area, they attend a school facility far away from where they live, etc. However, there are also products of larger-scale dynamics:

Urban contexts / Big cities: Students have increasingly institutionalised and/or individualised their spare time outside school, filled with extra educational activities or spent in the online world, alone at home or in small groups. This sense of disconnection can also affect educational staff in schools. If they do not live near the school where they work, they leave the school as soon as their workday ends, and/or if they are constantly moving between schools and locations, it is harder for them to connect what happens inside the school with its environment. Altogether, these individualisation processes in increasingly diverse societies make it harder for all people who are part of an educational centre (students, educators and other staff and families) to consider themselves a community with a shared vision and mission.

Rural contexts/Small villages: The distinction between urban and rural environments (highly influenced by urban logic) is blurring, so rural contexts may also face some challenges pointed out above. Nevertheless, rural schools may still have some benefits in terms of community engagement, such as (i) closer and more permanent contact with the environment and nature that can facilitate the development of ecological awareness, (ii) more familiarisation and integration of the school into the dynamics and life of the town/village, (iii) greater chances of having more organisational flexibility in timetables and more open curricula (Callís, 2019).

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To summarise, both urban and rural environments have their own challenges. For instance, in rural environments, the communitarian dimension might still be more robust than in urban ones, yet place-based cultural and educational experiences might not be so rationalised, accessible, and abundant as in more populated areas, where the offer might be more diverse and updated. But urban schools can also learn from some of the practices in rural contexts such as teachers having a deep knowledge of the environment (natural and social) where the school is located and incorporating it into the curriculum; or opening the school to the community, with the educational activity provided by plural actors and educational spaces beyond the schools' walls (Feu & Soler, 2002).

So, in terms of community engagement, schools can be understood as nodes of a decentralised educational system where all actors, services and organisations generate an **open, flexible, and place-based integrated network to contribute to community development** based on collective responsibility and shared commitment principles. It requires schools to be open to the local community in several ways to enhance learning processes at multiple levels (García, 2010).

4.2.3. Community engagement in environmental and wildfire education

Environmental education programs are also part of community engagement approaches. Based on holistic and participatory approaches, they involve students, teachers, and the entire educational community, including local authorities. The goal is to generate heterogeneous work teams that encourage citizen involvement in local problems and allow different points of view on the same problem, favouring community development and encouraging direct participation in resolving socio-environmental problems. This community engagement approach can be developed in any given context and led by any actor: the school system, public administration (autonomously or jointly with the school system), and citizen organisations (Moreno-Fernández et al., 2018). While not necessarily rejecting the principles of the traditional approach, but rather as a complement, the community-based model increases **student's engagement, empowerment, and sense of agency**:

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	TRADITIONAL	COMMUNITY-BASED
Problem framing	- Global impact problems - Environmental problems and needs are introduced to students	- Self-diagnosis to identify problems at the local level - Students propose problems and needs
Working concepts	- Abstract and complex	- Simple, well-known, and frequent
Connection	- Students may not find any connection to their daily lives	- Students feel connected to the problems as they have proposed them
Participation	- Individualistic: What can I do in front of such a global problem?	- Collective action: if we cooperate at the local level, we can improve the situation

(Based on Moreno-Fernández et al., 2018, p. 909)

Tips for Teachers

The Greencomp-The European sustainability competence framework reinforces students' sense of agency by defining a set of competencies under the area of "acting for sustainability", aimed at encouraging "learners to act at the individual and collective level to shape sustainable futures, to the extent possible. It also invites learners to demand action from those responsible to make change happen" (Bianchi et al. 2022, p. 25). The framework includes the following competencies: **embodying sustainability values** (valuing sustainability, supporting fairness, and promoting nature), **embracing complexity in sustainability** (systems thinking, critical thinking and problem framing), **envisioning sustainable futures** (futures literacy, adaptability, and exploratory thinking), and **acting for sustainability** (political agency, collective action, and individual initiative).

To develop environmental education practices aimed at successfully engaging communities, the North American Association for Environmental Education has also identified five key elements in the *Guidelines for Excellence and Community Engagement* (2017, p.17). The document further develops this set of guidelines, examples, and specific resources for each of these characteristics.

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1. COMMUNITY CENTRED

Anchoring environmental aims within the context of community interests, issues, and capacities puts the community at the heart of environmental education.

1.1 Get to know and understand the community
1.2 Connect environmental education interests and capacities with community concerns,
assets, and aspirations
1.3 Consider the appropriateness of community engagement
1.4 Focus on community assets and shared priorities
1.5 Reach beyond usual partners and program delivery modes

2. BASED ON SOUND ENVIRONMENTAL EDUCATION PRINCIPLES

Environmental education engages communities in ways that rely on established principles and proven practices of the field.

2.1 Build on interests, issues, and settings familiar to the community
2.2 Facilitate broad accessibility
2.3 Use appropriate instructional strategies
2.4 Select, adapt, or develop effective educational materials
2.5 Match engagement strategies and tools to the interests, issues, and capacities of your partnership and community

3. COLLABORATIVE AND INCLUSIVE

Environmental education works in collaborative and inclusive relationships, partnerships, and coalitions.

3.1 Build coalitions and partnerships strategically
3.2 Value and incorporate diversity, equity, and inclusion
3.3 Plan and implement collaboratively
3.4 Learn from and resolve conflict

4. ORIENTED TOWARD CAPACITY BUILDING AND CIVIC ACTION

Environmental education supports capacity building for ongoing civic engagement in community life, contributing to long-term community well-being, sustainability, and resilience.

4.1 Integrate environmental education with complementary communication, education, and social-change approaches
4.2 Support and build community capacity
4.3 Move toward civic action

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5. A LONG-TERM INVESTMENT IN CHANGE

Working in communities to create change is typically a long-term initiative, requiring a commitment to relationship building and an ongoing and evolving process of engagement.

5.1 Assess individual and organizational readiness for community engagement
5.2 Invest in building capacity for engagement
5.3 Incorporate learning, improvement, and adaptation
5.4 Plan for long-term support and viability
5.5 Embrace change and celebrate progress

Developing these kinds of community engagement approaches in environmental/wildfire education can face several barriers, some internal to the school (such as a lack of planning time or a solid educational community to support it), but also to a weak connection with their external community. However, overcoming those barriers is relevant as schools are privileged spaces for sharing and co-producing a preventive culture with the community. Moreover, teachers are central to community resilience by considering school nodes for community empowerment and supportive spaces for affected students and their families (Rodríguez-Giralt et al., 2020).

In section *2. Quick guide for teachers and educators* you can find some guidelines to help you build more robust community engagement strategies that are complementary to the successful practices listed in the next table.

SUCCESSFUL PRACTICES IN WILDFIRE EDUCATION
based on Monroe et al. (2016) and Towers et al. (2018)

1) DEVELOPING A PARTNERSHIP that includes the expertise of the community, educators, and wildfire agencies and actors. Objectives cannot be imposed upon a community by external agents: all involved actors must collaborate to develop activities tailored to the local social and environmental context, drawing on the community's assets and strengths and engaging the students' needs and interests. That is the best way for all participants to take ownership of the program, which promotes sustainability.

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2) IDENTIFYING BOUNDARY BROKERS. Strong partnerships usually start with small alliances. They can more easily emerge when opportunity and need intersect with a well-positioned individual: a boundary broker or convener who later can assume administrative or coordinating responsibilities in the project. Boundary brokers are essential because they understand enough of each culture (wildfire practitioners, scientists, formal educators, etc.) and have credibility with those multiple partners, thereby enabling the creation of a collaborative relationship. They can also be the key person to contact in case any member of the partnership has doubts.

3) MUTUALITY AND AUTONOMY. Partnerships do not need to share one single problem but find a way to generate win-win relationships amid these diverse interests. Each organisation will be committed to the project if it helps them to achieve their organisational goals, thanks to other members' contributions:

i. **Educators and students** can help agencies and public administration staff meet their needs and organisational goals through youthful energy, such as helping them make their mission-based message more appealing to the community.
ii. **Wildfire agencies** can bring meaningful opportunities to help educators meet their educational and youth development goals with expertise, equipment, and real-world experiences. They also provide priorities, history, resources, and management know-how.
iii. **Community-based partners** can provide relationships, context, on-the-ground realities, and local opportunities to make a difference.

4) BENEFITS FOR YOUNG PEOPLE. Avoiding *adultist* and *tokenist* approaches in our community engagement actions with students is essential. In other words, activities must benefit young people in at least one dimension. Community-engagement educational practices can have multiple benefits for students (García, 2010):

i. **Personal development**: self-image, self-knowledge, self-esteem, perception of self-competence and personal expectations are reinforced.
ii. **Social development**: cooperation and teamwork skills, learning to participate actively, sense of social responsibility, communication and interpersonal relationships and social skills, intergenerational relationships, interculturality, feelings of belonging to the community, citizenship skills, recognition of their potential for change and transformation of reality (empowerment).
iii. **Academic development**: essential competencies (reading, writing, calculation) and those related to the curricular areas included in the initiative; complex and critical thinking, decision making, problem solving and analysis of tasks and results; knowledge acquired in the school that applies to real life. In general, the curriculum becomes more relevant and motivates students.
iv. **Vocational and professional development**: skills acquired for future professional performance: teamwork, communication, self-knowledge of one's own skills and professional preferences, positive attitudes and skills aimed at job search, first-hand knowledge of diverse professional options.

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For teachers, it is also important that students have access to learning experiences that are highly relevant and meaningful in the context of students' lives and their communities and that it provides opportunities to address areas of the curriculum or even go beyond it to support the social and emotional development of their students (Towers et al., 2018). This is why, before developing the initiative, it can be helpful to ask students about their interests, concerns and worries about wildfires and climate change and try to include them in the program. If it goes beyond the field of expertise of the existing partnership, you can invite an expert on those topics you are knowledgeable about. Otherwise, in wildfire education programs for young people, it is easy to fall into **malpractices**, such as:

- taking advantage of a "captive audience," using them only to our benefit, for example, as mere transmitters of messages and knowledge that are harder to deliver to other population groups.

- an easy and cheap way of "showing up" that we are doing something to mitigate wildfires/climate change.

Teachers and educators must be especially adamant about caring for this aspect:

> "Young people should be seen as more than free labour or an easy entrée to a community. Youth-appropriate opportunities to increase community awareness, collect data, and restore forest health are worthy goals to justify partnering with educators."
>
> (Monroe et al. 2016, p.14)

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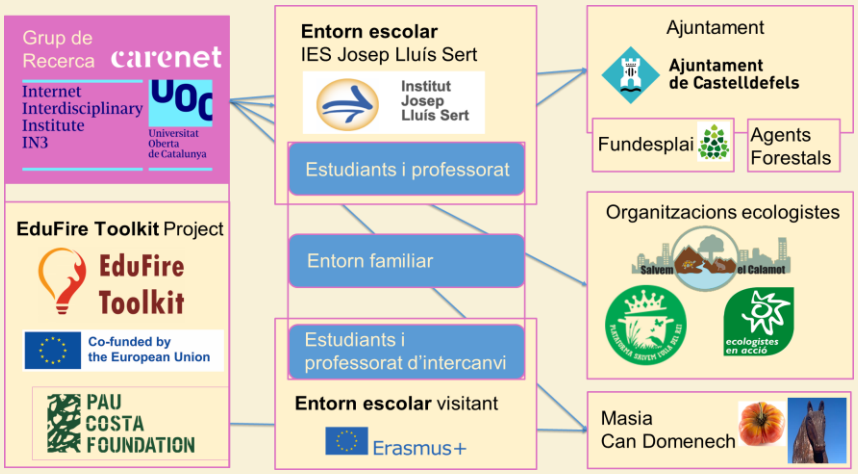
EDUFIRE TOOLKIT PILOT EXAMPLES

The Castelldefels network building process: continuous adaptation and negotiation

As mentioned before, Castelldefels' pilot was the result of merging the need to develop a pilot test within the Edufire project of one of the partners (Carenet research group from the Open University of Catalonia) with the one-week Erasmus+ exchange program that this high school had scheduled with three other European high schools. A priority for the researchers was to put into practice this community engagement guideline. Thus, although only a weeklong, we aimed at catalysing a process to initiate a more in-depth and sustained working dynamic over time on these topics, which reinforces the network created both at the local and community level, as well as the exchange of experiences at the European level.

For that, we developed a partnership between the teacher responsible for the exchange, local actors, and us (Carenet researchers with the support of Edufire coordinators, the team from Pau Costa Foundation). As stated before, along with the Edufire activities, it was important to fit cultural and leisure activities in that same week, and all activities needed to be in English for this large group of 64 students. These conditions were also determinants of the organisation of the week. We proceeded to identify actors who work or are involved in activities related to environmental protection. The aim was thus not to work only on forest fire issues but to create connections with these diverse environmental concerns. However, they materialised in this local context. This resulted in a very diverse set of activities for the week, including visiting a modern art museum and creating paintings inspired by how fire made the students feel, getting to know local conflicts to protect a wetland area from urbanisation and deterioration, and visiting a farmer with a donkey herd that helps clear the undergrowth thus reducing fire risk (they are part of the Fire Flocks project). Every partner ended the week feeling they had contributed to and benefited from it, including the students whose social, personal and academic development was prioritised.

The following diagram shows the map of actors resulting from the week, which also includes the Castelldelfs city council and their forestry agent and environmental education team:



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EDUFIRE TOOLKIT PILOT EXAMPLES

Actors participating in Taradell's pilot test

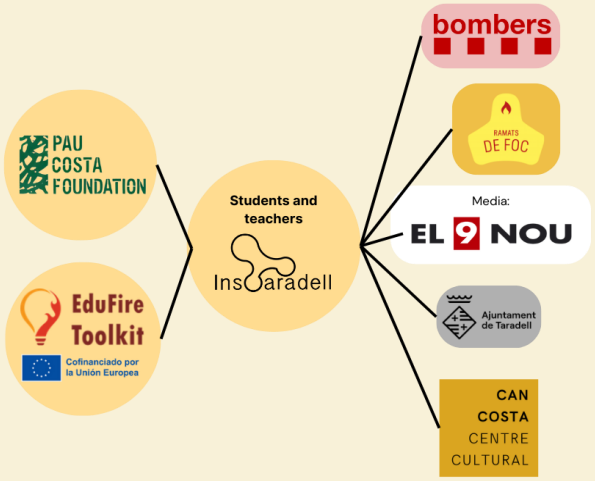
In Taradell's pilot test, different local actors that are involved in the management of the landscape and wildfires participated.

The Fire Department ("Bombers") participated by giving a talk on the basic concepts of fire spread. They are an important actor as they work day-to-day with fires and have a great deal of knowledge that they can transfer to the students. In the pilot test, we could count on a farmer from "Ramats de foc". A territory management strategy seal that seeks to enhance the contribution of herds to fire risk management through grazing in forest areas. It is also interesting to involve the media, such as "El 9 nou", in the case of this pilot test, where the students collaborated with the media to make a report. A technician from Taradell town hall also participated in the pilot test. Public administration is an important part of the management of the territory and can explain first-hand what is being worked on and what the main problems currently exist at a more local level are.

One way to create community is by making an exhibition about the knowledge learned. The students were able to exhibit what they had learned and created at the Can Costa Cultural Centre in Taradell. The exhibition opened to the whole population and explained the main contents learned and worked on. It can be a meeting point that allows for the generation of knowledge and synergies between the people.

In the pilot test, the students also made a podcast interviewing several people who have contact with the management of the territory and forest fires. In this way, the students learned and get involved by preparing the interview questions and also give back to the community by making this podcast available to everyone.

The following diagram shows the map of actors involved in the Taradell's pilot test:



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5. Supporting troubling emotions

Climate change and wildfire topics can trigger distress and negative emotions in students, especially for those who have had a previous traumatic experience related to these topics and/or live with anxiety about the fact of having more information about the grim future that current modelling data predict about our future on planet Earth. Hence, as educators, we must know and develop specific skills to manage this dimension and, at least, avoid (re)traumatising students:

> “Although emotions and feelings are not always recognised immediately by professionals, parents and adults in general, they play a fundamental role in building meaning (…), developing risk perception, creating self-reliance and fostering decision-making among children and young people. Therefore, it is essential that this dimension is acknowledged, both individually and collectively, and developed by everyone who works in DRM [Disaster Risk Management] and seeks greater involvement of children and young people (…) [And] schools [are very important] in the provision of spaces and activities for individual and collective processing of feelings and emotions”.
>
> (Rodríguez-Giralt et al., 2020b)

5.1. Working with affected students

> “During and shortly after a wildfire event is when the wildfire topic often becomes more of a priority in people’s lives. As such, this is the moment in the risk cycle when communities tend to be most interested in learning about how to prevent future wildfires. This can be both the community that has experienced the wildfire up close, but also nearby communities”.
>
> (Ottolini et al. 2023, p22)

Experiencing wildfires “involving considerable destruction and threats to life or injury to self, family, and friends” can give rise to a wide range of stress and traumatic responses (Shepard et al., 2017, pp. 63-64). However, these reactions may differ depending on age, gender, or other conditions. Sometimes, children and young people can be even more vulnerable to secondary trauma: “troubled family functioning may have more impact on children than actual exposure to the wildfires”, worsened by parents' “lack of understanding of the impact of events on their children” (Shepard et al., 2017, pp. 64-65). Also, school closures and disruption in school-based services might have a relevant impact on children’s well-being, especially those who most benefit from school attendance, such as disabled students and/or from disadvantaged communities (Ducy et al., 2021; Berger et al., 2018).

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In this context, the daily contact between school staff and students (in case the school is not affected structurally by wildfires) situates teachers and other educators as key agents to identify the negative impacts of wildfires both on student learning and resilience (Berger et al., 2018). They can play "an important role in the healing process by providing a stable, familiar environment (….) [and] children can return to normal activities and routines as much as possible, and their frightening experience can turn into a learning experience" (Shepard et al., 2017, p.65). This kind of support may be needed for a long time. For instance, Shepard et al. (2017) consider that for two years after the disaster, children and families might need mental health services and psychological support, and that families might need an assessment of their functioning and general coping processes for at least six years.

Whereas "in the immediate aftermath of a disaster, providing a safe and secure place, physically and emotionally, is paramount", a broader approach to trauma recovery should also include **remembering and mourning** as well as **reconnecting and healing** (Shepard et al., 2017, p. 159). In this sense, beyond individual and/or group psychological interventions, teachers can develop classroom-level interventions that will benefit from reaching many students if they integrate it into the curriculum. Social and sciences curriculum can be "a powerful way to provide wildfire education, explore the impact of wildfires on the social structure of communities, and present historical perspectives on how communities recovered" (Shepard et al., 2017, p.73). Moreover, it can be combined with activities for disaster-related emotional coping: art projects, oral and written storytelling, skits, journal writing or poetry. **Recalling events in narrative or creative ways** and portraying their experiences of the fires in various multimedia (individually or in small groups), with activities such as designing and creating artwork and films, can help them return to emotional and psychological equilibrium by generating some distance between themselves and the event through a shared coherent narrative (Rodríguez-Giralt et al., 2020a). Having access to peer support while exchanging stories can assure children that their reactions are appropriate and typical, and guided listening and reading of age-appropriate literature about catastrophic events can help students generate alternative responses to the stress they might be feeling (Shepard et al., 2017). All this is especially significant **when working with youth**: their unique social positioning (continued dependence on adults and emerging independence) makes them usually less visible as a target for disaster recovery activities. So, it is important to engage them in activities that help them connect to their feelings, concerns, hopes and ideas (Plush et al., 2019).

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In all these activities, it is important that teachers and other educators also develop self-care practices, especially when they find themselves "in the dual role of being both a caregiver and a survivor who has been touched personally by the wildfires in the community (Shepard et al., 2017, p.75).

5.2. Other general recommendations

If we work with students who have not had a traumatic wildfire experience, it is also essential to acknowledge the emotional dimension that dealing with these topics may generate. We must not hide or downplay information from students that is relevant to their present and future lives. Nevertheless, simultaneously, we must be aware of how we deliver it to them and provide coping strategies:

1) Open spaces for sharing students' worries, concerns, fears, and anxieties around these topics and make them feel heard. It is also essential that adults (comprising wildfire management professionals and other experts) share those emotions with young students, including fear: it enables a space of mutual recognition that facilitates connections and meaningful communication (Rodríguez-Giralt et al., 2020b). Emotions can also be used as a proxy to identify and map hidden social dimensions in disasters, such as social exclusions and vulnerabilities (CUIDAR Project, 2018, p. 23).

2) Do not force participation: Make it voluntary and remind students they can opt out at any stage.

3) Provide them with successful and hopeful good practices for wildfires and climate change.

4) Train them in tools and strategies for emotional management with interactive activities like role-playing, simulations and drills using real-life or virtual reality tools, where they can learn how to give and receive support from peers, teachers, and other community members. Young people need: "to find someone 'being there' and offering guidance and trust (…) Being with others and experiencing a shared sense of belonging and communality can have a strong and beneficial impact on young people, empowering them, but also creating spaces of emotional release, solidarity and cooperation (…) knowing, acknowledging and understanding emotions are inextricably linked with self-control, a feeling of safety and resilience. (Rodríguez-Giralt et al., 2020b, p. 113-114).

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5) Reinforce students' sense of agency: community-engagement projects that have a real impact in their communities, where they can contribute with their ideas, energy, and time, is a way of feeling that they can do something to face these global challenges, even at a local scale. For example (Monroe et al., 2016):

- **Older youth** can be given a chance to report their findings to community members and municipal leaders through a venue that makes it clear their work is valued and will be used.
- **Younger youth** can share information with the public and execute accessible ecosystem management tasks to reduce wildfire risk.

6) Do not put too much pressure on them or create false expectations: their contribution is relevant. However, these global challenges require structural transformation that must be addressed fundamentally by the adult population, especially by those who can make change happen at a higher level. The motto "Think global, act local" can help students understand these multiple levels of actions and responsibility.

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EDUFIRE TOOLKIT PILOT EXAMPLES

Emotional dimensions in the Castelldefels' pilot

We asked the participating teachers in advance if any students had had direct experience with wildfires. It was not the case, but some of them had second-hand experiences.

To address this topic directly with students, we included this as the first question in the "previous knowledge" online questionnaire they filled out on the first day of the Edufire pilot activities. As we shared the results with the whole group once they had finished, it allowed us to comment on the results (only a small group reported some experience of wildfires, directly or indirectly) and correct some basic misconceptions about the topic.

That same day, as the closing activity, we asked them to reflect on their feelings after exploring basic knowledge of climate change and wildfires through several activities. It was through another online survey that included two questions:

1. How do these issues make you feel? What emotions do they arouse in you?

The image above (Colombo, 2023) helped them to identify potential feelings, but it was open to adding new words or ideas.

The second question was connected to the artistic representation of the fire. The idea was to help them understand different approaches and emotions to wildfires, connecting them to their view. Also, it was a preliminary activity for the next day, where they visited a local museum, which included a painting workshop. In the workshop, they were asked to do a painting of wildfires connecting to the emotions they had identified. Some examples below.

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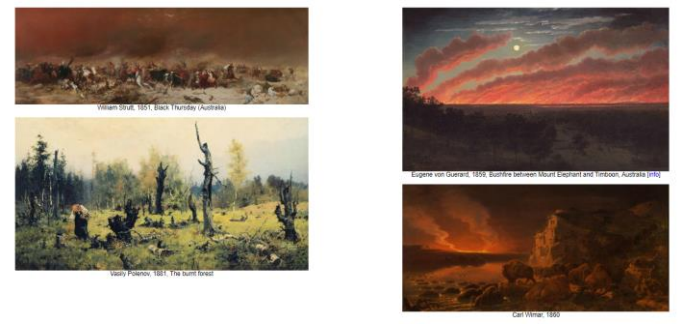
2. Look at this digital collection about Fire & Art.

- Which paintings do you like more? Why? - What emotions do you think they reflect?



Examples of some paintings portrayed in the Fire & Art: Paintings of wildfires and burned landscapes by Juli G. Pausas: https://www.uv.es/jgpausas/paintings.html

Finally, as part of the learning outcomes evaluation questionnaire on the last day of the Edufire pilot, we included the question, "How do we feel about climate change and wildfires after all the activities?" The idea here was to grasp if the activities we had prepared during the whole week helped them change their feelings somehow. The first day was focused on sharing the diagnosis of the situation with students, which can easily lead to negative emotions. However, we expected that the process of learning more about specific local actions, initiatives, and projects oriented to improve the situation of wildfires and climate change could help them connect with more positive and hopeful emotions. Afterwards, to keep this positive mood, we also asked them to think of potential actions they would like to take in their schools to spread their knowledge and ideas once the pilot finished.

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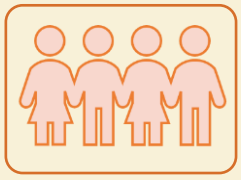
6. Evaluation of community engagement practices

When implementing community engagement practices in wildfire education programs beyond student learning outcomes, it would be important to develop a systematic evaluation "to measure changes in youth, educators, and parents, and community resilience" (Monroe et al., 2016, p.15). However, as with Wildfire Risk Communication initiatives (Ottolini et al., 2023, p. 11), it is not always a consolidated practice.

Our evaluation will be related to our objectives (see section *3. Evaluating your activities*). Furthermore, we must choose the best technique to collect that information based on each context. For instance, Towers et al. (2018) developed an evaluation of "Survive and Thrive" in Australia, an intensive two-year bushfire education program for primary school students delivered by local CFA brigades and local schools. Employing a mixed-methods design (semi-structured interviews, focus groups and surveys), their outcomes were at three levels (children, households and community) with the following results:



Child-level

- Increased knowledge and awareness
- Increased confidence and empowerment
- Reduced worry and fear

Household-level

- Increased knowledge and awareness within households
- Increased child participation in household wildifre planning and preparedness
- Enhanced wildfire planning and preparedness within households

Community-level

- Strengthened fire services
- Increased capacity for effective community engagement
- Strengthened relationships between agencies and schools
- Strengthened relationships between agencies

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A second example is the Service-Learning project *Plantando Cara al* Fuego. Composed of several S-L projects, it was aimed at reducing the problem of forest fires, involving different social agents such as researchers, students (from different disciplines), schools, multidisciplinary professionals, NGOs, and public administration. In its evaluation process, Souza-Alonso et al. (2024) considered both dimensions usually assessed in service-learning projects: its impact on society and the methodology as a pedagogical and training tool.

For the societal impact, they considered the number of organizations and participants involved in the design and implementation of the S-L projects, also taking into account the type of entity and gender of participants. Furthermore, regarding the pedagogical and training tools, feedback was collected from tutors and students via a questionnaire and self-evaluation rubric and semi-structured interviews with representatives belonging to collaborating entities.

EDUFIRE TOOLKIT PILOT EXAMPLES

Evaluating community engagement in the Castelldefels' pilot

In the Castelldefels' project, student evaluation was mainly addressed to their learning outcomes (see Teachers' Guide) and the emotional impact (see previous section). However, we also asked students about their opinions on the activities. Also, to foster community impact, we invited them to think about potential future activities they would like to do at the school level to keep working on this topic after the pilot ended and share them with the whole group. However, we also evaluated other participant experiences in some other dimensions:

Families

As part of the community engagement dimension, we wanted to identify if their students' participation impacted their households and the perspective of families in more general terms. We collected information with two online surveys.

a) **Before the pilot**, about their knowledge of wildfires and climate change, if it was a topic they discussed at the family level, their risk knowledge preparedness level, their sense of agency towards those problems (individually and collectively), along with personal data (including age, gender, relationship with the student, time living in the city and participation in local organisations).

b) **After the pilot**, about the information of the pilot that the student had shared with them and if it had helped them (families) to learn something else about the topic, about their opinion on teaching students about climate change and wildfires and the best way to do it, and about the role families, teachers and the public administration should have related to these educational topics.

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Teachers

We collected feedback from teachers with an online survey after the pilot that included questions about:

a) Their previous knowledge about **wildfires and climate change** and new learnings made for their involvement in the pilot.
b) Their evaluation of the **pilot**, their interest in continuing to work on these topics, and the support they would need (resources, training, etc.).
c) Their evaluation of the **community engagement** level at their school and the barriers they face.
d) Their knowledge and experience about **project-based-learning methodologies**, and their opinion about teaching students about climate change and wildfires and the best way to develop it.
e) Their opinion about **the role families, teachers and the public administration** should have related to these educational topics.
f) Some **personal data**: training, years of experience as a teacher, teaching subjects, age and gender.

Other community actors

We also collected feedback from some community actors participating in the pilot afterwards and via semi-structured personal interviews conducted online. In this case, the topics were:
a) Their experience and opinion about the opportunities and challenges in working with secondary education centres.
b) Their evaluation of the pilot
c) Their opinion about how secondary education schools are connected or not to their local environments, how to work the climate change and wildfire topic with students, and how to address the emotional dimension.

RESULTS

Families, teachers, and local stakeholders who participated in the activities showed a unanimous conclusion: the school's engagement with the wider community is relevant and useful for everyone, but the rigidness of the school curriculum and the lack of time for everyone involved makes it very difficult to develop these connections further. Teachers also point out that families become more detached from the school communities when students age. Local actors highlight that activities like the pilot project need to have continuity over time and not be presented in isolation. They emphasise the disconnection of the school curriculum with local matters and the fact that current knowledge is the fruit of the voluntary and unsupported extra work that activists and motivated teachers put together.

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