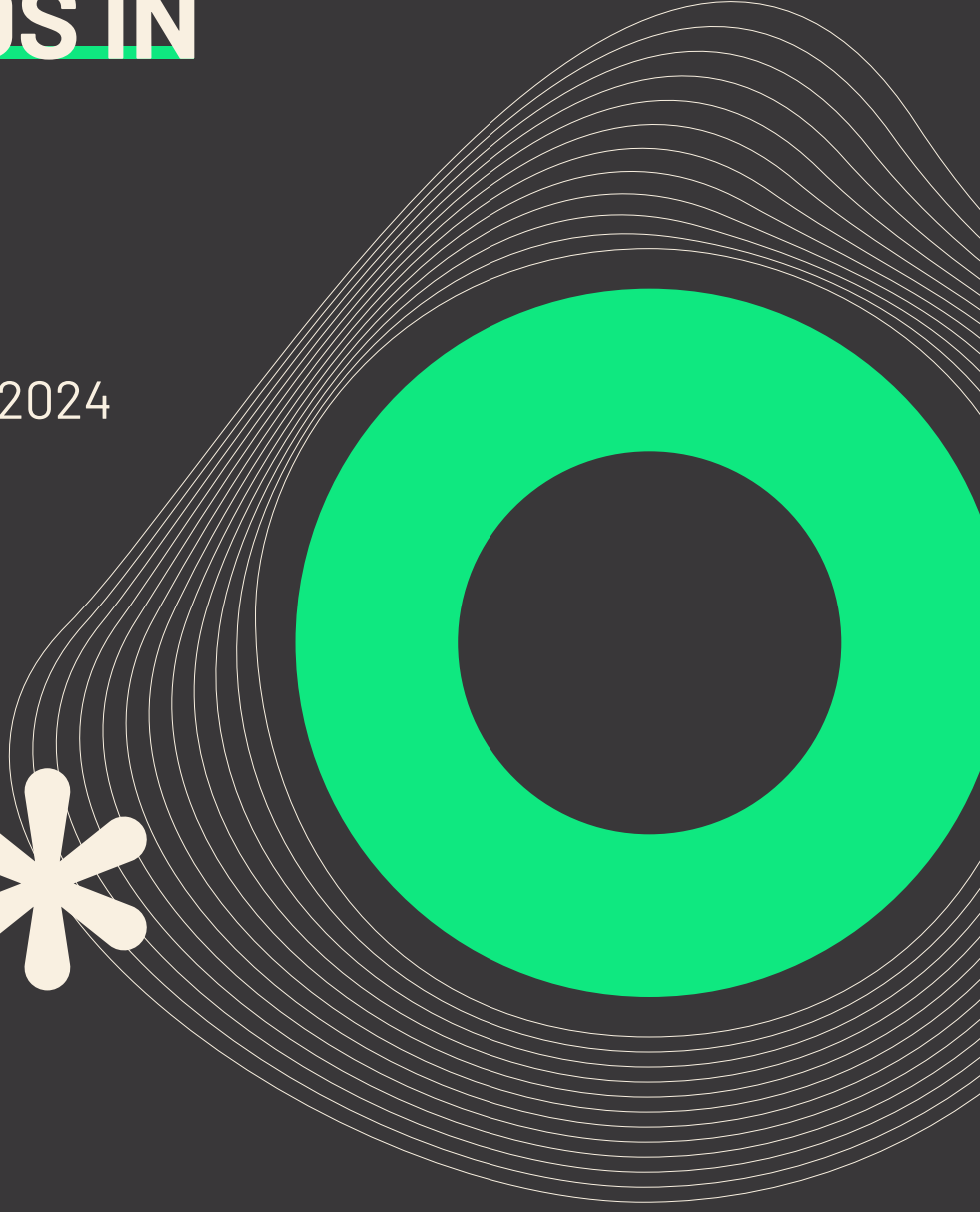


COMMUNICATION & LOCAL NEEDS IN RESILIAGE'S CORE LABS

1st Edition - 15th October 2024



INTRODUCTION

RESILIAGE stands for **RESIL**ience + herit**AGE**. The contraction of the two words expresses our approach to Disaster Risk Reduction and Management through cultural heritage.

As a three-year European research project (Sep 2023- Aug 2026) funded in the ambitious Horizon Europe Program framework, RESILIAGE is working on **“Advancing holistic understanding of community RESILience and heritAGE drivers through community-based methodologies”**.

It explores the mechanisms of societal resilience by including cultural and natural heritage as a significant resource of local communities and a notable factor of their diversities, to integrate it as a source for disaster risk management. To this end, the project conducts field research to identify factors that encourage resilience and fosters a community-centred approach for **co-generating** new actionable knowledge **with local communities** in their multi-hazards and multi-dimensional real scenarios.

RESILIAGE vision is that bottom-up processes can contribute to rooting resilience at local level and help find solutions exploitable at global level. Its ambition is to enhance public awareness and empower communities to be better prepared to mitigate disasters' effects and to adapt to climate change.

Our 18 partners from 10 countries, with the coordination of the Politecnico di Torino, bring together representatives of main actors in dealing with natural hazards and extreme events crises: First Responders, Policy makers and public authorities, Citizen associations and knowledge organisations.

We work together by analysing gaps and opportunities from our different expertise perspectives for identifying long-lasting strategies by a systemic implementation of Disaster Risk Management at all different stages of prevention, preparedness, response and recovery. We also integrate Sustainable Development Goal #5 in our research objectives considering the need to empower women and girls in this domain.

However, there are important variations in aspects of society like culture, risk awareness and perception, socio-economic and geographical conditions. We need to better understand these variations for considering human factors for Disaster Risk Reduction. Heritage is about variations that have shaped our landscapes and local practices in relation to the environment too.

Accordingly, RESILIAGE has established 5 **CO**mmunity **RE**silience **laboratories** (CORE Labs) in 5 countries with various kinds of exposures, vulnerabilities and cultural, geographical and environmental characterisations.

Each CORE Lab consists of a consortium partner and a network that takes into account the RESILIAGE research aims and includes representatives of local authorities, heritage organisations, first responders, and citizen associations. **The CORE Labs with their network are at the core of RESILIAGE activities and objectives.**

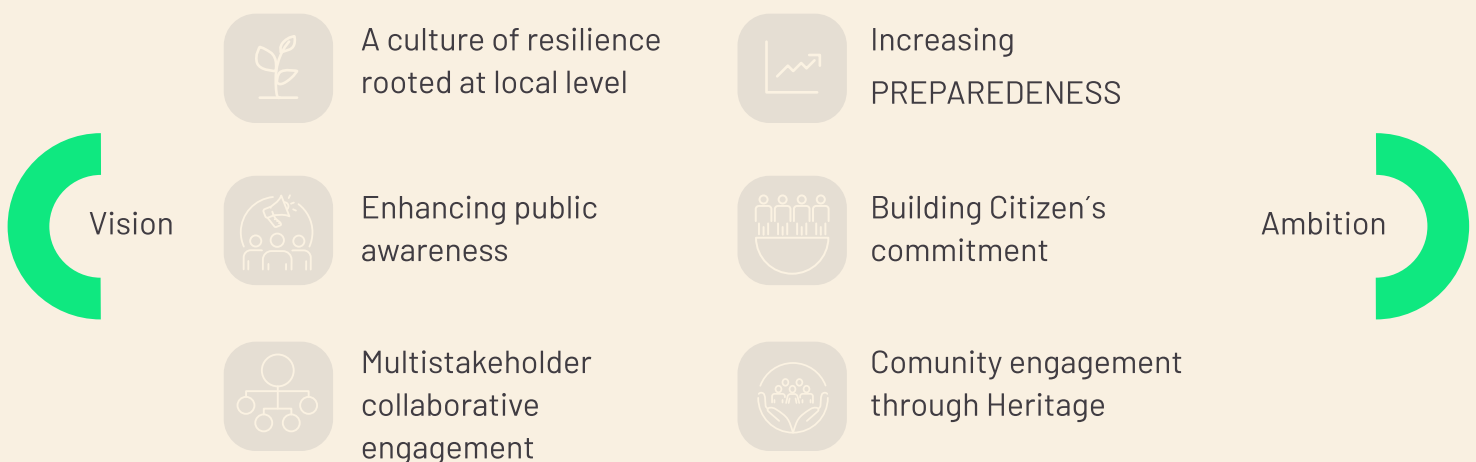
In the CORE Labs we examine the variety of conditions with the lens of a **Systemic Resilience Innovation (SyRI)** framework that encompasses what we consider relevant aspects for structural resilience enhancement. They encompass aspects related to governance, memory, social interaction and inclusiveness, socio-economic resilience, health and wellbeing. They provide important indicators for designing both digital and non-digital solutions to empower communities to reinforce their preparedness and support planning for disaster resilient communities in a sustainable perspective.

For this purpose, we engage multiple stakeholders of CORE Labs with their network with a range of collaborative methods and participatory processes. The activities – in field and in remote – feed the research at all its stages contributing in **co-creating digital tools and soft solutions** for implementing SyRI actions and improving **preparedness plans**.

Capacity building, peer learning, interacting in a multiple stakeholder context, by integrating local and global perspectives and leveraging local heritage with its global values, is RESILIAGE way for community resilience. New Associated Digital CORE Labs will join the project at the beginning of next year.

Building on its CORE Labs, RESILIAGE aims is to provide **novel knowledge** and **impactful solutions for exploiting community resilience, leveraging heritage** and **co-building a risk-aware and disaster prepared sustainable development**.

Heritage: The Resiliage way for Building Resilience

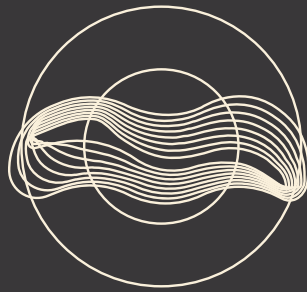


CONTENT

Communication in many ways plays a crucial role before, during and after the development of natural disasters. At its core, communication involves sending and receiving messages or information. For those managing crises and disasters, information sharing via communication becomes one of the most important needs during and after disasters. Organisations must communicate effectively with various stakeholders to prevent panic and implement an orderly plan for response. On the individual level, disasters are strongly linked to uncertainty, due to their unpredictable, non-routine nature, resulting in information uncertainty, situational uncertainty, or both. As part of natural human reaction, the affected public becomes “hungry for information” and engages itself in information seeking behaviour. As research highlights, community preparedness through engagement plays one of the most significant roles in reducing human and property losses during an emergency. Engagement is considered as an “iterative, dynamic communication process, where participation, experience and shared action emerge as central components, creating meaning and value for a community”. Building community capacity through dialogic communication with citizens therefore plays a vital role before and after the disaster event.

During Spring 2024 researchers of the RESILIAGE project have conducted focus group sessions, distributed surveys and organised interviews with key stakeholders in the 5 CORE Labs, to understand the characteristics of the communication network, to explore whether there are any gaps, missing links within the information flow, as well as to collect best practices (“things that work well”) within the community. Most importantly, based on the results of this data collection the needs of local authorities, first responders and citizens were identified and collected to be addressed with the solutions that RESILIAGE has to offer.

In this document, you will read our most important findings.



Core Lab

**Famenne - Ardenne
BELGIUM**

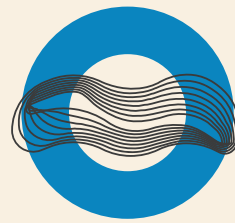
FAMENNE ARDENNE CORE LAB

FAMENNE ARDENNE CORE LAB

As observed in the Famenne-Ardenne CORE Lab, the population living within the geopark has adapted its lifestyle and habits to the “rhythm of the river.” Over the centuries, both modern and traditional observation techniques have been developed to monitor and predict the river’s behaviour closely. Since the geopark is heavily reliant on tourism, the “rhythm” of this natural “big boss” directly impacts daily life and indirectly influences tourism, as precautionary measures based on the water level determine whether or not visitors are permitted to enter the area.

Characteristics of communication network

The communication strategy and network are structured based on the number of municipalities affected by the emergency. This determines whether higher-level authorities (e.g., Governors, the Minister of the Interior) and specific first responder groups (e.g., DINAPHI rescue zone) will be involved in crisis response communication. A key finding is that certain relevant stakeholders, such as the SPW Nature and Forestry Department and tourism stakeholders, seem to be excluded from formal communication channels. This exclusion partly contributes to tourists becoming one of the most vulnerable groups during crisis events. Focus group participants also raised concerns about ineffective communication between authorities at different levels.

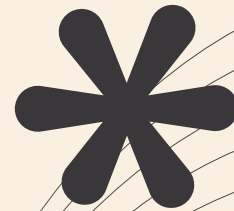


Core Lab

**Famenne - Ardenne
BELGIUM**

“We live according to the rhythm of
the river. She is our big boss”

*Representative of Geopark
Famenne-Ardenne*



The key best practices within the Famenne-Ardenne community

What works well?

Local authorities

- The Water River Contract established an agreement with the Walloon region to work on risk culture. Over the next few years, they are going to develop tools with the stakeholders concerned, starting with training in schools.
- The mayor has implemented municipal regulations to restrict scout camps in high-risk areas.

First responders

- ASTRID radio network is considered a reliable means of communication.
- A comprehensive database for campgrounds is available including GPS coordinates and access path details.

Citizens

- There is increased communication to citizens about disasters and risk-related information on social networks.
- Monplandurgence.be - a website to create one's own emergency plan (e.g. where is the electric metre, where to find a flashlight, car keys etc.).

Gaps identified

Pain points of the status quo

Local authorities

- Emergency plans do not involve the public in developing preparedness measures.
- Currently, the role of organisations like the Lesse River Contract is underused by local authorities in their potential active role of raising awareness and supporting preparedness efforts.
- No refuge centres map currently exist; authorities lacked a clear system for sharing refuge location information.
- Inconsistent practical implementation of regulations, role ambiguity across different levels.
- Difficulty of reaching out to non-native-speaking individuals (e.g. tourists).
- Difficulty of locating citizens especially tourists and scouts.

First responders

- Lack of coordination between different response teams (firemen, medical, police, etc.) due to their separate internal disaster management plans.
- Reliance on door-to-door warnings during emergencies was ineffective as citizens disregarded first responders.
- Difficulty to deliver warnings due to the overload of communication channels and doubts related to the correctness of the information to be conveyed.
- Difficult locating citizens especially tourists and scouts.

Citizens

- Unawareness of refugee centres.
- No specific courses in schools on flood prevention.
- General unawareness of communication channels (e.g. b-alert, emergency numbers)
- General unawareness of existing crisis plans and resources.
- Tourists lack awareness and knowledge of what to do in case of an emergency (due to tourism stakeholders being excluded from communication flow).
- Unclear, outdated information related to the status of the crisis.

Needs

What would be needed to improve preparedness?

Local authorities

- Actively integrate organisations such as Lesse River Contract into the overall preparedness strategy and training delivery on risk culture.
- Receive up-to-date information about the unfolding event.
- Receive clear, actionable instructions about how to intervene.
- Unified communication strategy about watercourse management.
- Smart application as a platform for all the actors (authorities, FRs, citizens).
- Tourism stakeholders should be included in the formal communication.
- Communication guidelines on how to communicate with citizens, and vulnerable groups in a timely and effective manner.

First responders

- Alignment of internal plans of different response teams.
- Well-established and steady communication channel that includes all first responders.
- Smart application as a platform for all the actors (authorities, first responders, citizens) to support effective communication and coordination across first responder teams.
- Communication guidelines for first responders to effectively communicate with citizens.
- Communication channels including all first responders allowing the Forestry Department to inform about available paths.

Citizens

- Inform citizens about the availability and location of refugee centres.
- Educate the general public about emergency management and related topics (contact points, available resources, what-to-dos).
- Training and education on how to best collaborate with first responders.
- Inclusion of other communication channels for crisis communication with citizens: calls, texts, text apps, TV, radio).
- Preparedness toolkits, smart applications, and alert systems in several languages, informing tourists about what to do in a crisis.



Core Lab

**Crete
GREECE**

CRETE GREECE CORE LAB

CRETE CORE LAB



Core Lab

**Crete
GREECE**

The 2021 earthquake has been described as a "wake-up call" by a resident of Arkalochori. Despite the region's familiarity with seismic activity, focus group participants reported that the community was largely unprepared for such a disaster. As a result, education and training have become top priorities, with respondents expressing a strong demand for mandatory, practical training (e.g., earthquake drills) in public spaces, including schools, workplaces, and leisure facilities like sports centres.

In addition to the challenges related to citizens' preparedness, the centralisation of actions was cited as a major issue that delayed the immediate disaster response. Volunteer efforts were also perceived as disorganised and uncoordinated following the event. More critically, Arkalochori's residents continue to suffer from the earthquake's aftermath, feeling abandoned and without effective communication channels with the government. While waiting for financial support, many have returned to their damaged homes, living in constant uncertainty and danger, while others remain displaced, residing in temporary mobile homes for the past three years.

Consequently, there is a pressing need for psychological support to address the community's mental health, as well as for improved communication with government representatives to express their needs. Although the community was initially unprepared for the earthquake, focus group participants view the 2021 event as a paradigm shift—a "wake-up call" that has made the community more open to education and preparedness for future disasters.

"It has been a wake-up call."

Citizen of Arkalochori

Characteristics of communication network

Centralisation has been identified as a major obstacle in crisis response, significantly slowing down effective actions in the field. Additionally, volunteer groups, despite being available to assist, were perceived as internally uncoordinated, highlighting the need for smoother, more organised interventions. In the aftermath of the earthquake, phone lines became inoperable, exacerbating panic and chaos as citizens were unable to contact loved ones. Furthermore, residents expressed frustration and a sense of betrayal due to the lack of effective communication with the government since the earthquake. Establishing clear communication between citizens and authorities is critical to fostering empowerment, restoring a sense of control, and improving mental health.

The most vulnerable groups identified in the area include the elderly, physically disabled individuals, the homeless, refugees, and children—although children are generally seen as well-prepared due to school-based education and drills. Additionally, tourists were reported as vulnerable, as they are not typically included in preparedness plans, and the tourism industry is largely excluded from disaster-related education programs.

The key best practices within the Crete community

What works well?

Local authorities

- A large-scale Operational Earthquake Field Exercise (“MINOAS”) took place to simulate an evacuation scenario.
- The Ministry of Climate Crisis and Civil Protection has short videos that introduce the most important “what-to-do”-s in case of a natural disaster (many of them available with sign language).
- After the earthquake all municipal buildings were checked, evacuation and contingency plans were updated. building managers and floor managers were deployed especially for the tall buildings.

First responders

- The Organization for Earthquake Planning and Protection (OASP) prepare leaflets, videos aired on television and providing information on their website (informative, accessible).
- The Hellenic Red Cross regularly renews its information and education system to constantly be prepared for a future disaster, and continuously trains its volunteers.
- Samaritan brothers - provided first aid to the residents of Arkalochori.
- A platform has been set up from Heraklion, where volunteers can sign up and indicate which day they could come to help and in which shift.

Citizens

- Children are trained by volunteers on a regular basis on how to act when it comes to an earthquake.
- There are some positive examples where hotel owners and employees regularly exercise how to evacuate the building in case of a disaster event.
- Athletics Club of Arklochori founded a volunteer team to assist the residents in urgent needs right after the earthquake.
- The Elpida Association has been founded, for representing the rights of earthquake victims.



Gaps identified

Pain points of the status quo

Local authorities

- Citizens are generally not aware of educational videos, only a few people mainly first responders- know about them.
- 112 and phones did not work
- An issue with targeting citizens: some individuals (vulnerable groups) have no access to the internet, social media, television or radio.

First responders

- The procedures that volunteers follow are not always clear to other actors.
- The legal framework around volunteerism has been mentioned as an important challenge.
- Earthquake drill is not part of the police's regular training.
- Volunteers were perceived as being disorganised, not having a central head to coordinate them.

Citizens

- Infrastructural prevention seems to lag behind the efforts related to training and education.
- More education would be needed about what to do in the long run.
- The optimism bias is strongly prevalent in the region ("It won't happen to us").
- Poor building infrastructure that does not allow disabled individuals to exit buildings.
- Tourists and hotels are not included in the preparedness plans.
- No psychological help was offered from the official side for the affected population.
- Missing communication links between citizens and the government, resulting in a lack of trust and frustration.
- After 3 years: the houses are still damaged, and people are still waiting for support. Citizens feel abandoned and betrayed by the government.

Needs

What would be needed to improve preparedness?

Local authorities

- Risk awareness campaign to promote the already available resources on disaster preparedness.
- Inclusion of face-to-face communication and the church as a channel into the disaster preparation.
- Need for training on how to speak to the affected population considering their individual different backgrounds.

First responders

- Universal and common training with the participation of all key actors in crisis response – to understand each other's role (who does what) and to create a shared mental model of disaster management.
- Revision and stabilization of the legal framework around volunteerism.
- Practical training for police officers (and all actors involved) to simulate an earthquake event and related actions.

Citizens

- Risk awareness campaigns to communicate the risk of potential future earthquakes (to fight the optimism bias).
- Printed and digital materials / training on what to do in the long run.
- Need for creating a list with only the 10 most important instructions, and for regularly checking whether these instructions have been properly memorized.
- Mandatory practical exercise built in the safety training of workplaces.
- Revising and improving building infrastructures to allow disabled individuals to exit the buildings.
- Mandatory exercises built in the national curricula of universities.
- School personnel (e.g. teachers, and coaches) should attend mandatory training on how to stay calm, what to do, and how to protect children during an earthquake.
- Involving travel agencies in informing tourists, not only about accommodation, leisure activities and restaurants but also about the core instructions to follow in case of an earthquake.



Core Lab

**Naturtejo
PORTUGAL**

NATURTEJO CORE LAB

NATURTEJO CORE LAB

Compared to other natural disasters, such as earthquakes, wildfires present a constant challenge that requires continuous efforts in mitigation and preparedness. Skills, knowledge, and strategies for dealing with wildfires must be regularly updated and monitored.

According to focus group participants, this ongoing wildfire risk is partly due to demographic changes in the region. The Naturtejo CORE Lab area is characterised by an ageing population, with most residents being 65 years or older. As younger generations have moved to larger coastal cities, the geopark area has been gradually abandoned, leading to poor forest management and increased vulnerability to wildfires.

Characteristics of communication network

There is a significant lack of communication between governmental agencies, such as municipalities, in crisis response efforts. Citizens perceive the government as ineffective in communicating with them, often relying on television, which is criticised for being overly sensational and causing panic. While regulations exist for managing forests and areas around villages, many residents are either unaware of these regulations or fail to comply, as there are no government-enforced consequences for violations. Additionally, many of these regulations do not align with the specific needs and characteristics of the area, making them difficult to implement.



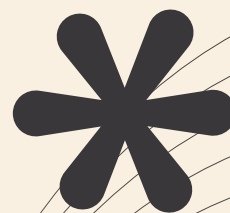
Core Lab

**Naturtejo
PORTUGAL**

“If it burnt five years ago, it would burn in seven.”

Representative of Geopark Naturtejo

Another critical issue is the lack of communication with foreign campers residing in forested areas in camper vans. These foreigners often do not speak Portuguese and fail to register with local authorities, making them highly vulnerable in the event of a wildfire. First responders are generally unaware of their presence, location, or how to contact them, further complicating emergency response efforts.



The key best practices within the Naturtejo community

What works well?

Local authorities

- “Safe Villages” and “Safe People” programme to protect lands and citizens and to prepared them for future crises.
- “Village Condominums Program” to change the landscape (e.g. types of trees) to become more resistant to future crises.

First responders

- Awareness of where vulnerable people live, and in case of a fire, their priority is to make sure these people are evacuated to safe areas.
- Regular awareness campaigns and education of citizens - instructions on how to act in emergencies (business cards, magnets, contact numbers to put on refrigerators).

Citizens

- Vulnerable individuals registered at first responders – they are priorities to evacuate.
- Citizens access information through firefighters or forest keepers who go to these villages and organise events where they update and inform village citizens – educate people on what to do during a crisis.



Gaps identified

Pain points of the status quo

Local authorities

- Channels to communicate with citizens are in some cases inappropriately chosen (e.g. social media) and used (e.g. television).
- Difficulty in receiving and identifying up-to-date and valid information of the actual state of the crisis.
- Local authorities often do not communicate and coordinate effectively with each other and other actors.
- Language barriers to communicate with non-Portuguese and non-English speaker individuals.
- No effective communication about the available resources for financial compensation or other types of support in recovery.
- The issue of centralisation: regulations do not always work effectively once put into practice.

First responders

- Difficulty communicating and coordinating with other actors, often informal communication (e.g. WhatsApp groups) where information is difficult to search and manage.
- Difficulty in coordinating with non-local firefighters joining them on the field.
- Unawareness of forest van campers.

Citizens

- Risk awareness campaigns have been repetitive over the last few years and no longer attract attention.
- The heritage of local knowledge related to how to maintain forests and villages to keep them safe is not transferred to younger generations, therefore fading away.
- Citizens with special needs (problems with hearing or vision, digital illiteracy) having difficulty understanding official warnings.
- Foreign van campers in the forest do not contact and inform authorities about their whereabouts and they are unaware of the regulations related to „how to behave“ in a forest.
- Citizens often lack knowledge related to the application of already existing tools (e.g. fire extinguishers, agricultural equipment)

Needs

What would be needed to improve preparedness?

Local authorities

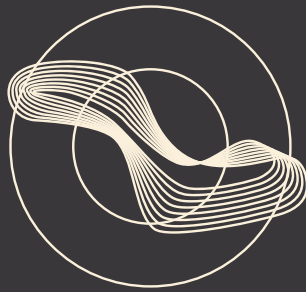
- Need to understand and build a strategy of what, how, and on which channels to communicate to citizens of different demographic backgrounds, to keep them updated and avoid causing panic.
- Need for local authorities to be trained to recognize misleading or distorted communication, especially in emergency situations where accurate information is critical.
- Need for awareness of other actors' activities to ensure synchronised disaster management efforts.
- Need for revising laws and regulations in terms of their feasibility and applicability in real operation.
- Need to communicate "what to do in crisis" in multiple languages.

First responders

- Need for an updated list of vulnerable individuals within the villages and in the forests, too (tourists, campers).
- Need to be able to contact and communicate with vulnerable groups in different languages and prepare them for crisis.
- There is a need for training on how to best collaborate with volunteers and local authorities in crisis.
- Need for training on how to team up and collaborate with firefighters from other regions.
- Need for reflecting on past crises, identifying best practices, points of challenges and lessons learned for future purposes.

Citizens

- Face-to-face contact and updated risk awareness campaigns that spark the citizens' interest.
- Easy-to-use and easy-to-remember information related to what to do, who to contact, where to go in case of fire.
- Need for face-to-face occasions where knowledge, best practices and lessons learned related to the maintenance of forests, villages and streets can be shared among citizens of different generations.
- Need for targeted awareness campaigns, and information material tailored to the needs of the audience: e.g. using multiple (traditional) channels, simplified information and further aides like Braille text, and sound amplification of warnings).
- Educating foreign tourists about how to inform themselves about the crisis, what to do, who to contact and how to locate themselves in case of a fire.
- Education and training would be needed to support citizens in acquiring practical, easy-to-use, easy-to-remember knowledge related to the use and maintenance of special equipment.
- Need to inform citizens about existing and available resources.



Core Lab

**Trondheim
NORWAY**

**TRONDHEIM
NORWAY
CORE LAB**

TRONDHEIM CORE LAB

Although the CORE Lab is generally known for its strong sense of community, exemplified by practices such as "dugnad" (a type of voluntary community work), this contradicts our survey findings, where more than 65% of respondents rated their relationship with their neighbours as weak or very weak. In terms of information accessibility, students have been identified as a vulnerable group due to their relatively poor social networks compared to local residents, limiting their access to critical information in the event of a disaster.

Additionally, citizens in the community reportedly have a high level of trust in authorities, which has led to passivity and a lack of individual empowerment. Supporting citizens in building a sense of control and training them to contribute as active agents in crisis response is therefore a key challenge.

In Trondheim, one notable difference from other CORE Labs is the hypothetical nature of the scenario used in the focus group sessions. Despite being hypothetical, participants were able to map out a detailed network of actors involved in crisis response, indicating a high level of disaster awareness. However, participants also expressed confusion about the roles and responsibilities of different actors, which can be attributed to the large number of stakeholders involved and the tendency towards "silo thinking" in crisis management. Addressing this issue will be essential to ensure smooth coordination in future disasters. In relation to this, participants highlighted the need for situational plots to keep actors informed as the crisis unfolds.



Core Lab

**Trondheim
NORWAY**

“There is probably no one you know worse than your closest neighbours.”

Citizen Trondheim

Characteristics of communication network

Trondheim has a well-established alert system that integrates a variety of communication channels in its crisis response efforts. Focus group participants noted that these channels are bidirectional, enabling participants to both receive updates and provide feedback on the evolving crisis. However, the recent replacement of a well-functioning digital system with a new one, RAVEN, may have contributed to less coordinated initial actions as key actors adjust to using the new platform effectively. Additionally, focus group participants emphasised the importance of situational plots for timely updates and collaboration during crises.

The key best practices within the Trondheim community

What works well?

Local authorities

- Every year, the municipality is challenged to work on a self-preparedness campaign.
- Maps of quick clay risk areas are online available.
- Self-preparedness brochures have been distributed via the post. Having a brochure ensures also having access to the information when no phone reception/internet connection is guaranteed.
- The press is handled by Trondheim Municipality and is used to inform people on how to behave and reduce the consequences.
- Last year during Emergency Preparedness Week, interactive tasks were created (DSB), such as tabletop exercises for the home, or discussion tasks with the family on how to manage ourselves in the event of a crisis.

First responders

- Crisis management often involves in-person meetings and courses to build personal relationships. This approach helps establish trust and collaboration.
- The emergency watch of the Trondheim Red Cross would support with resources, first responders rescue corps but also provide the centre for evacuees and relatives.
- Rescue Professional Forum for Voluntary Organizations.

Citizens

- A few years ago, the Norwegian Labour Inspection Authority ran information campaigns aimed at foreign drivers through their relatives.
- DSB published an emergency list of what to have at home in case of a crisis, food and water for a week.
- Bjornis mascot for educating children on fire-related hazards, police and health issues.
- Online national e-learning courses on first aid available.
- For people with poor digital skills there is already a book available "in case of doomsday" providing information on how to prepare and to behave.
- For people with language barriers small cards were handed out with the relevant emergency numbers.
- Majority of residents do have trust in the police and authorities.

Gaps identified

Pain points of the status quo

Local authorities

- Shift in Norway's national digital solution: RAVEN replaced CIM but is not as well functioning anymore.

First responders

- High dependency on the phone without a backup communication line.

Citizens

- The mudslides risk is communicated but the consequences are not communicated.
- Citizen do not know where to they must go in case of a crisis.
- The importance of insurance was highlighted as it is believed that many students do not have a home insurance.
- Population registry list is not up to date as only a few residents registered. Not everyone is registering their move to Trondheim.
- High trust in authorities results in little or no responsibility taking.
- Tourist associations are not interested in communicating risks.

Needs

What would be needed to improve preparedness?

Local authorities

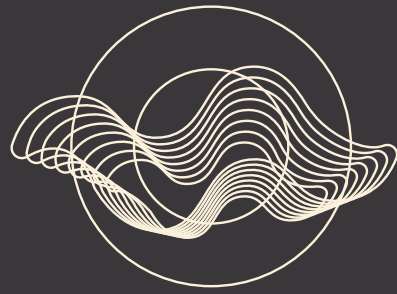
- There are many potential actors within Trondheim that will be of support in case of an emergency. There is a need to identify them and know their resources (e.g. University NTNU, Refugee Services...).
- Communication remains a recurring issue, particularly in crisis management and exercises. There is uncertainty about roles, responsibilities, and authority, which leads to confusion and inefficiencies.
- Encouraging individual responsibility is crucial. While it's positive that Norwegians trust their authorities, it's equally important for people to take proactive steps.
- A separate communication system for actors to collaborate.
- Maps and situational plots to support information updates and collaboration.

First responders

- To address this, a system that focuses on roles and functions rather than personal relationships is needed. This would ensure consistent and effective crisis management, even if specific individuals are unavailable or replaced.
- Regular practice of roles, responsibilities, and authority is essential.

Citizens

- Information on gathering points.
- Quick clay campaign: where to meet, how to leave your house, what to bring, how not to be a burden, how to help, what is the structure of your neighbourhood.
- Include vulnerable groups—refugees and immigrants. they often come from cultures where they are used to taking care of themselves. consider them as a resource and include them in planning.
- A checklist in paper format with information on what to do in case of an emergency.
- Facilitation of group sessions to avoid having people scared by the impersonal transmission of information.
- Other risks should also be considered, such as the risk of fire especially for the area "Moellenberg".
- Visualisation video: what can happen if the landslide happens - what are the consequences?
- Encouragement of getting to know people and forming networks to support each other on a community level.
- Find a solution on how to include the ones who cannot read or write the Norwegian language.
- Need to include social media (TikTok) as a distribution tool to reach the younger generation.

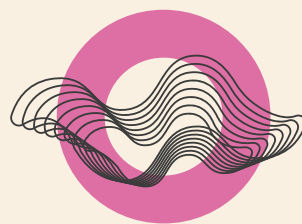


Core Lab

**Karsiyaka
TURKEY**

KARSIYAKA CORE LAB

KARSIYAKA TURKEY



Core Lab

**Karsiyaka
TURKEY**

Unlike other natural disasters such as earthquakes, floods, or fires, heatwaves are invisible, though many people suffer from their health-related consequences. As a result, public awareness of the risks associated with heatwaves is perceived to be low, both among citizens and governmental institutions. In Izmir, a densely populated municipal city district, the impact of heat has been exacerbated by large-scale urbanisation since the 1980s. The city has experienced extensive growth, leading to changes in urban spaces, building materials, architectural design, and a reduction in green areas, which, along with the diminished mitigative effect of the sea breeze, has worsened heat-related issues in the inner parts of the city.

Focus group sessions revealed that one key factor contributing to the low-risk awareness is the lack of well-planned, targeted communication about heatwave risks. One of the main reasons is that “heatwave” is not identified as hazard officially by the authorities in charge, within the framework of Disaster Management, mainly the central government. Due to urbanisation, Izmir has seen significant internal migration, resulting in a dense and highly diverse population in terms of demographics and media preferences. However, communication efforts about heatwave risks have been inadequate, in terms of timing, the range of communication channels, and targeting the right audiences.

The most vulnerable groups identified include the elderly, children, pregnant women, individuals with chronic illnesses, and workers exposed to heat due to their jobs (e.g., road workers). Due to the unique nature of heatwaves and the general lack of awareness, the CORE lab reports that no recovery plans or mitigation measures are currently in place for the city.

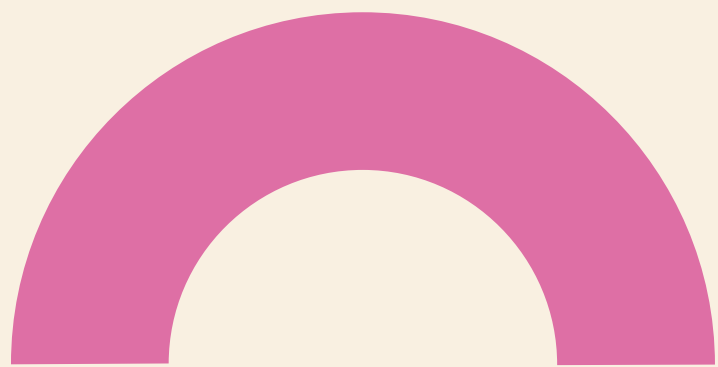
“Heatwave, the silent killer.”

participant of the focus group session

Characteristics of communication network

According to the results, there is a general pattern of centralised communication related to hazards, with reportedly less effective use of communication channels, providing rather vague or sometimes even controversial messages to a less well-targeted group of citizens. In addition, the potential role of Muhtars and building managers in the communication chain was emphasised.

While local municipalities usually organise the work of volunteers via social media, this link is missing in the case of heatwaves, although volunteers would be very important to be able to reach the dense and highly heterogeneous population of Karsiyaka. While vulnerable people are well looked after by their general practitioners, objective data about medical emergencies or fatalities related to heatwaves are often missing, therefore making the magnitude of the hazard difficult to calculate. Participants furthermore emphasised the role of education institutes in raising citizens’ awareness to the risk of heatwaves.



The key best practices within the Karsiyaka community

What works well?

Local authorities

- Local authorities already apply digital boards and billboards at the most crowded places (e.g. at the seaside or at the market) to make sure the message can be seen clearly and frequently.
- There is already a preparedness plan for heatwaves available on municipal level.
- The Karsiyaka local government has taken proactive steps. They conduct both online and face-to-face citizen training, employing various tools. Heatwaves will be added to these trainings.
- The city's master plan contains recommendations for separate city parks in each area. These parks will serve as gathering points during earthquakes and as a refuge for people during heatwaves.

First responders

- The fire department of Izmir and others have good practices specialising in vulnerable groups.
- When there is a shortage of equipment, human resources or anything else it is communicated through the AYDES system.

Citizens

- Common representatives who take care of the buildings and the needs of the residents. They also inform citizens about upcoming heatwaves and/or other types of emergencies.
- Volunteers and citizens gather every two weeks or once a month to talk about the problems of the neighbourhood, or organise events (e.g. concerts, exhibitions).

Gaps identified

Pain points of the status quo

Local authorities

- There is a lack of risk analysis before the disaster.
- Local authorities usually use social media or websites to communicate with the citizens, but they are not well-customised to reach vulnerable groups.
- District municipalities and neighbourhoods are not involved in the preparedness plan.
- Not all areas of Izmir are equally affected by the heatwave, which makes a warning message sent out to all citizens less trustworthy.
- There are a lot of impacts and casualties in heatwaves, but there is a lack of statistics.

First responders

- No regulations on the involvement of volunteer associations.
- People with disabilities are also important vulnerable groups to consider.

Citizens

- Knowledge about heatwave preparedness is missing.
- Citizens are not aware of existing plans. They do not know what to do and how to behave. Some participants claimed although they have high awareness, they don't even know what is being done by local authorities.
- The messages received are not providing the information needed such as how high the temperatures will rise and what effects might have on people.

Needs

What would be needed to improve preparedness?

Local authorities

- To establish risk analysis for each type of hazard.
- Periodic monitoring of the urban heat island effect.
- District-level risk assessments are perceived as crucial for tailored preparedness strategies.
- Emergency plans and strategies should be prepared including the side risk of fires, too.
- Need for education from the central governmental agencies to smaller local health centres.
- Warning messages should be more customised and targeting those individuals who live in the affected areas.
- Shared information on number of deaths from heatwaves per year.
- Multi-directional communication between authorities, first responders and citizens.

First responders

- Strong need for volunteers to receive clear and actionable instructions that can help to promptly intervene.
- Communication, direction and coordination are needed for unbound volunteers.
- Involvement of the NGOs in the communication is needed.
- Need for creating an accessible interface where a pool of lessons learned and best practices can be created, stored and searched.

Citizens

- Practical training materials for adults and children that catch the attention and incorporate already existing best practices.
- Receive credible and up-to-date information.
- Need for early warning system.
- The warning language should focus on practical, tangible symptoms to be noticed. Making the messages more personal also has an advantage to increase their acceptance.
- Bi-directional communication between citizens and authorities or citizens and first responders would be important so that citizens can communicate their ideas and actual needs.
- Solution that maps the most affected areas and compares them to the closest cooling areas, so that citizens are aware of where the nearest area in their vicinity.
- Need for creating an accessible interface where a pool of lessons learned and best practices can be created, stored and searched.

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www.resiliage.eu

CONTACT US

info@resiliage.eu

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