

DELIVERABLE 4.4 RISK MANAGEMENT GUIDE



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31/07/2025	Executive summary - added an executive summary and infographic highlighting the key steps to increase resilience for SMEs.
31/07/2025	Section 4 - Natural disaster descriptions were moved to Annex 1 - Natural disasters: Origin and Impact
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Contents

Executive summary.....	6
1. Introduction	7
1.1. Purpose and Scope.....	7
2. Key Concepts and Definition in Disaster Risk Management.....	8
2.1 Main Phases of Disaster Risk Management	8
2.2 The European Disaster Resilience Goals and the European Civil Protection Mechanism.....	10
2.3 Monitoring and Adapting to the Changing World: The Copernicus Programme and its services .	10
2.4 Copernicus Services for the Tourism Sector.....	11
2.5 Risks of the Tourism Ecosystem.....	12
3. Know Your Route - Risk Profiles of the DETOUR project Walking Routes	14
3.1 Introduction.....	14
3.2 The Lycian Way - Türkiye	14
3.3 Via Francigena/Road to Rome - Italy.....	15
3.4 Sultan's Trail - Bulgaria	16
3.5 Greek Mountain Routes: Mounts Olympus, Kissavos, Mavrovouni	18
4. Key Disaster Types	19
4.1 Introduction.....	19
4.2 Type of Natural Disasters (Fire, Floods, Landslides, Earthquake, Heatwaves, Hurricanes).....	20
4.2.1 Fire: Wildfires and forest fires	20
Disaster Risk Management Checklist: Fire.....	20
4.2.2 Flood: Flash floods, river floods, coastal flooding, and storm surges	22
Disaster Risk Management Checklist: Flood.....	24
4.2.3 Landslide Disasters	25
Disaster Risk Management Checklist: Landslide	26
4.2.4 Earthquake and Tsunamis	28
Disaster Risk Management Checklist: Earthquake and Tsunamis.....	28
4.2.5 Heatwaves	31
Disaster Management Checklist: Heatwaves.....	31
4.2.6 Hurricanes and Sandstorm	33
Disaster Risk Management Checklist: Hurricanes and Sandstorms	33
4.3 Type of Man-Made/ Technological Disasters.....	36
4.3.1 Pandemics	36
4.3.2 Riots and Civil Unrest.....	36
4.3.3 Terrorist Attacks.....	37
4.3.4 Wars and Military Aggressions	37

4.3.5 Transport Disasters - Air, Road and Water.....	38
4.4 Conclusion	39
Disaster Risk Management Checklist: Man-made/ Technological Disaster	39
5. Digital Resilience and Cyber Risk Preparedness	42
5.1 Introduction.....	42
5.2 Main Digital Risks for Tourism SMEs	42
5.3 Supporting Digital Resilience: Role of ENISA and Basic Cyber Hygiene Practices	43
5.4 Entry-level Cybersecurity Solutions.....	43
6. Build Tourism SMEs Resilience: Practical Strategies	46
6.1 Develop a Business Continuity Plan	46
6.2 Collaborate with Local Authorities.....	47
6.3 Use Risk Monitoring and Preparedness Tools.....	47
6.4 Raising Awareness among Locals and Tourists.....	47
6.5 First Response and Incident management.....	48
6.6 Resource for Broader Resilience: GSTC Destination Self-Assessment Tool.....	48
7. Other risks related to Tourism SMEs along Mediterranean Walking Routes	49
7.1 Damage to Tangible Cultural Heritage.....	49
7.2 Lack of First Aid Training Among Tourism Staff	49
7.3 Limited Awareness on Insurance Options and Obligations.....	50
List of Figures	51
List of Tables	51
References.....	51
Annex 1 Natural disasters: Origin and Impact	54
Annex 2 General Risk Management Checklist for Tourism SMEs.....	62

Executive summary

Tourism SMEs along Mediterranean walking routes face increasing risks from natural disasters, climate change, geopolitical tensions, and digital threats. The DETOUR Risk Management Guide provides practical tools and guidance to help small tourism businesses and operators prepare for, respond to, and recover from crises—while building long-term resilience and sustainability.

The guide outlines essential risk management concepts (Preparedness and Mitigation, Response and Recovery), European support tools like the Copernicus Emergency Management Service, and risk profiles of the walking routes of the DETOUR project, namely Via Francigena (Italy), Lycian Way (Türkiye), Mount Olympus, Kissavos and Mavrovouni Trails (Greece), and Sultans Trail (Bulgaria). It includes actionable checklists for natural disaster types (e.g., wildfire, flood, earthquake) and man-made/ technological (e.g., pandemics, riots, war, cyber attacks), as well as strategies for improving digital and operational preparedness. The infographic below summarises the key steps to increase resilience in tourism SMEs, considering the topic addressed in this guide.

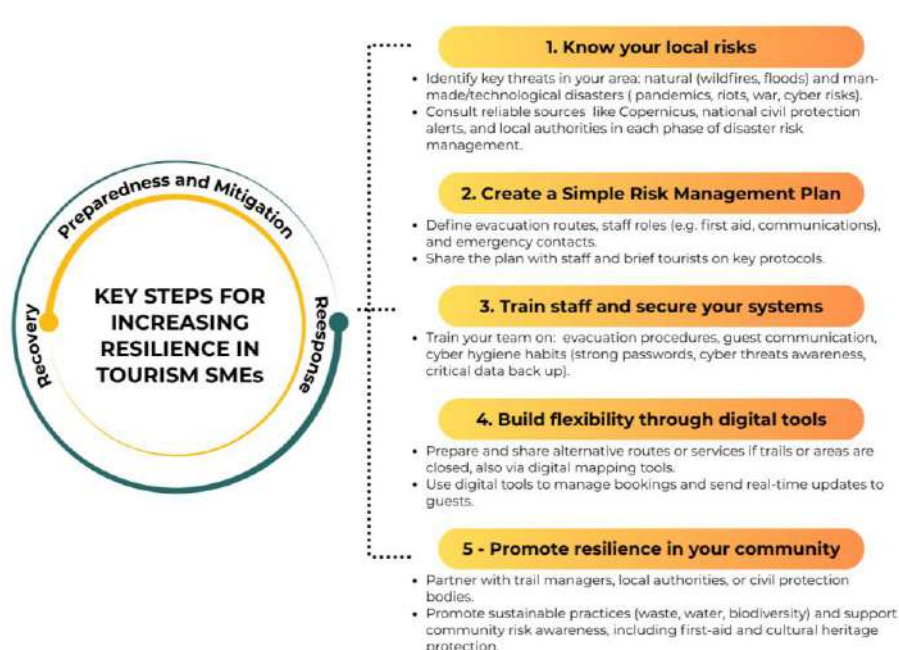


Figure 1 - Key steps for increasing resilience in tourism SMEs - Infographic

1. Introduction

DETOUR is a three-year SMP-funded project, launched in November 2024, with the participation of a diverse consortium of trail managers – AEVF for Via Francigena, CRS for Lycian Way, MCE for Mount Olympus, Kissavos and Mavrovouni Trails, and STS (associate partner) for Sultans Trail, alongside with innovation and knowledge transfer entities – Training 2000, ESCO, ATM, FID and MOTTR. The project will facilitate the future-proofing of long-distance walking trails in Southeast Europe in three ways: (1) supporting the green transition and guiding tourism operators to mitigate climate and other risks, (2) developing products and strategies to extend seasonality, and (3) enhancing sustainability by exploiting environmental advantages and digitalising market access. These efforts aim to create resilient, innovative tourism ecosystems that benefit both trekkers and local businesses.

Walking routes have become a focal point of economic and cultural activity, attracting thousands of travellers annually. However, SMEs along these trails often face challenges related to visibility, access to resources, and adaptability to modern tourism trends. DETOUR offers a blueprint for transforming these challenges into opportunities by integrating green and digital practices, providing targeted training and mentoring, and encouraging innovative partnerships between local stakeholders. The project also leverages the increasing demand for sustainable tourism destinations, aiming to position rural areas as attractive alternatives to oversaturated urban centres.

At its core, DETOUR envisions a collaborative framework that connects SMEs with local administrations, tour operators, cultural associations, and other stakeholders to build robust tourism networks. By focusing on capacity building, innovative project funding, and strategic promotion, DETOUR will enable SMEs to thrive while enhancing the overall experience for walkers and tourists. The project will also create a replicable model that can be applied to other walking routes across Europe and beyond.

1.1. Purpose and Scope

This Risk Management Guide, together with the Training Packages developed in Work Package 4 (WP4) - Capacity Building, forms a comprehensive resource for tourism SME managers, employees, and trainees, that delivers essential concepts, awareness, and reference materials aimed at preventing risks related to climate change and enhancing resilience to natural and man-made disasters. Specifically, tourism SMEs are at the core of the DETOUR project are:

- I5520 — Holiday and other short-stay accommodation
- I5530 — Camping grounds, recreational vehicle parks and trailer parks
- I5610 — Restaurants and mobile food service activities
- I5630 — Beverage serving activities
- N79 — Travel agency, tour operator reservation service and related activities
- R90 — Creative, arts and entertainment activities
- R93 — Sports activities and amusement and recreation activities.

Resilience is defined here as the ability not only to withstand and cope with challenges but also to undergo transitions, in a sustainable, fair, and democratic manner¹. In the tourism sector, resilience primarily focuses on ensuring safety of guests and staff within tourism SMEs, while also maintaining

¹ https://joint-research-centre.ec.europa.eu/projects-and-activities/resilience_en

critical services and facilitating effective recovery after disasters. Strengthening resilience is an ongoing process, requiring organizations to continuously adapt to environmental changes and apply lessons learned to improve planning, preparedness, response, and recovery efforts.

Designed for trainers, SME managers, employees, and trainees alike, the guide serves both as an instructional tool and a practical learning resource.

The **primary purposes of this Risk Management Manual** is to:

- **Increase awareness** and understanding of climate-related, natural and man-made disaster risks impacting tourism SMEs in the Mediterranean.
- **Enhance the capacity of SMEs** to prepare for, respond to, and recover from disasters effectively.
- **Prioritize the safety** of guests and staff while maintaining essential services during crises.
- **Provide practical, adaptable strategies** that foster resilience in diverse local contexts.

2. Key Concepts and Definition in Disaster Risk Management

Disaster Risk Management (DRM) is a systematic process to identify, assess, and reduce disaster risks that involves a shared responsibility across multiple levels of society, from government (national, regional and local authorities) to civil protection and emergency services and communities. According to the United Nations Office for Disaster Risk Reduction (UNDRR), DRM aims to minimize vulnerabilities and disaster risks throughout society by avoiding, limiting, and coping with the impacts of hazards².

A key international framework guiding DRM efforts is the Sendai Framework for Disaster Risk Reduction 2015–2030³, adopted by UN Member States in March 2015. The Sendai Framework emphasizes a shift from disaster response to proactive risk management, placing strong focus on understanding disaster risk, strengthening governance, investing in risk reduction, and enhancing disaster preparedness for effective response and recovery. While the Sendai Framework provides the global blueprint for disaster risk reduction, the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) implements and localizes those priorities in the European context.

2.1 Main Phases of Disaster Risk Management

1. Preparedness and Mitigation

This phase focuses on reducing the likelihood and severity of disaster impacts before they occur:

- **Preparedness** involves planning, training, and resource allocation to ensure that individuals, organizations, and communities are ready to respond to disasters. This includes developing early warning systems, emergency plans, communication protocols, and capacity building.

² <https://www.undrr.org/terminology/disaster-risk-management>

³ <https://www.undrr.org/implementing-sendai-framework/what-sendai-framework>

- **Mitigation** refers to structural and non-structural measures that reduce hazard exposure and vulnerability, such as infrastructure improvements, land-use planning, environmental management, and public awareness campaigns.

2. Response

The response phase involves immediate actions taken during and immediately after a disaster to protect life, property, and critical infrastructure. Key activities include:

- Activation of emergency plans and coordination mechanisms.
- Mobilization of resources and personnel to provide relief, medical care, shelter, and security.
- Communication and information sharing with stakeholders and affected populations.
- Quick decision-making to contain the disaster's impact and ensure safety.

3. Recovery

Recovery focuses on restoring and improving conditions following a disaster, aiming not only to return to normal but to “build back better” by enhancing resilience. This phase includes:

- Reconstruction and repair of infrastructure and facilities.
- Economic and social rehabilitation of affected communities and businesses.
- Psychological support and community rebuilding.
- Evaluation of disaster impacts and lessons learned to inform future risk reduction.



Figure 2. Building Resilience through Risk Management Phases: Preparedness, Emergency Response and Recovery, Copernicus Emergency Management Service

From a bottom-up approach, communities and SMEs are **essential partners** in reducing disaster risk and building resilience. Their active engagement ensures that DRM efforts are grounded in local realities and sustainable over time.

2.2 The European Disaster Resilience Goals and the European Civil Protection Mechanism

In collaboration with EU Member States, the European Commission has identified **five strategic goals**⁴ to strengthen disaster risk management across Europe. Each goal is supported by specific objectives to enhance preparedness, coordination, and resilience:

1. **Anticipate**
Enhance risk assessment, anticipation, and disaster risk management planning to better foresee and mitigate potential threats.
2. **Prepare**
Raise public awareness and improve preparedness to reduce the impact of disasters on communities and infrastructure.
3. **Alert**
Ensure timely and effective warning systems at national, regional, and local levels, so that the right people receive accurate alerts when it matters most.
4. **Respond**
Boost the response capabilities of the EU Civil Protection Mechanism to ensure swift and coordinated action during emergencies.
5. **Secure**
Strengthen the resilience and reliability of civil protection systems, ensuring they remain fully operational 24/7 during and after crises.

In support of these goals, the European Civil Protection Mechanism⁵ plays a vital role by facilitating cross-border cooperation and rapid deployment of assistance among 27 EU member states and 6 participating countries (Iceland, North Macedonia, Norway, Serbia, Moldova and Türkiye) during emergencies. Since 2001, the EU Civil Protection Mechanism has been activated over 770 times to respond to emergencies, including 58 times in 2024.

2.3 Monitoring and Adapting to the Changing World: The Copernicus Programme and its services

A vital role in risk preparedness is played by the **Copernicus Program**⁶, which provides a suite of services designed to monitor and forecast Earth's environmental conditions under six thematic areas: Atmosphere, Marine, Land, Climate Change, Security, Emergency (Figure 1).

⁴https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/european-disaster-risk-management/european-disaster-resilience-goals_en

⁵https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/eu-civil-protection-mechanism_en

⁶<https://www.copernicus.eu/en>

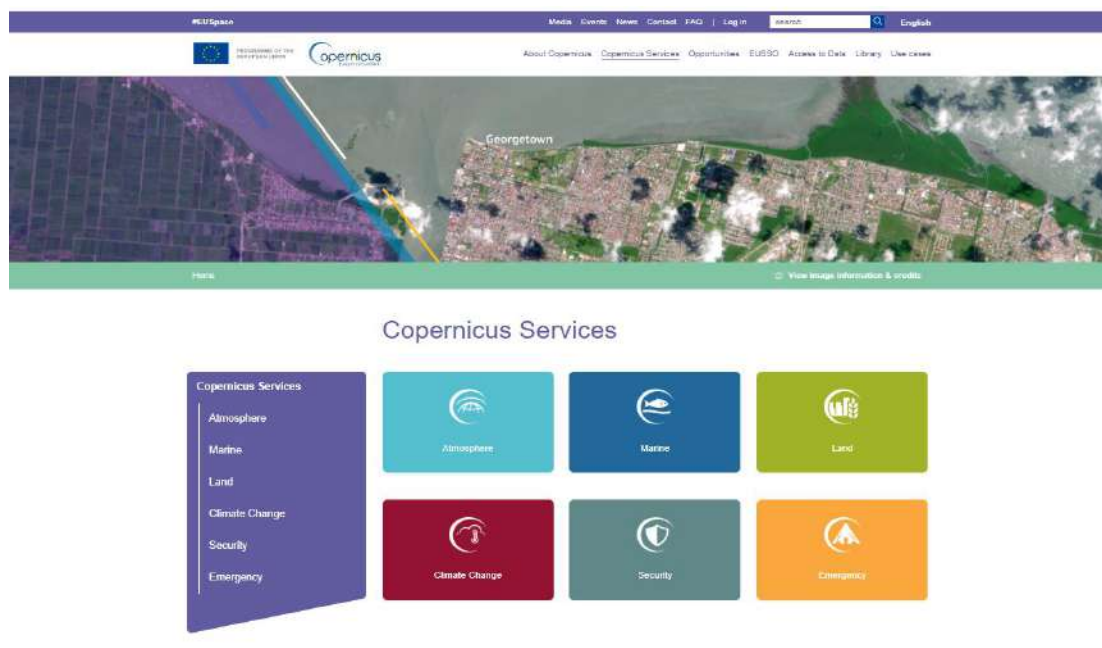


Figure 3. Copernicus Service Homepage

The Copernicus Emergency Management Service (Copernicus EMS) offers critical support in natural disasters, man-made emergency situations, and humanitarian crises. Copernicus EMS consists of two main components:

- **Early Warning and Monitoring Systems:** This component provides continuous observations and forecasts for floods, droughts, and forest fires, facilitating proactive disaster risk management.
 - The European Flood Awareness System (EFAS)⁷ for ongoing and forecasted floods in Europe up to 10 days in advance
 - The European Forest Fire Information System (EFFIS)⁸ for near real-time and historical information on forest fires in European, Middle Eastern and north African Regions
 - The European Drought Observatory (EDO)⁹ for data on different indicators of the hydrological cycle (e.g precipitation, soil moisture, groundwater levels, etc.)
- **On-demand mapping:** Provides detailed, high-resolution maps before, during, and after emergencies (e.g. floods, forest fires, landslides).

For more information about the EMS service, please consult the User Guide for the EMS Service, available at: <https://www.copernicus.eu/en/new-copernicus-emergency-management-user-guide>

2.4 Copernicus Services for the Tourism Sector

⁷ <https://www.copernicus.eu/en/european-flood-awareness-system>

⁸ <https://www.copernicus.eu/en/european-forest-fire-information-system>

⁹ <https://www.copernicus.eu/en/european-drought-observatory>

The Copernicus Climate Change Service (C3S), a component of the European Union’s Copernicus program, offers a set of ready-to-use satellite-based climate indicators and applications that help public and private organisations to adapt and plan actions in our changing world. Currently, the C3S supports sustainable tourism¹⁰ with the following services:

- **Mountain Tourism Meteorological and Snow Indicators (MTMSI):** for operating ski resorts in European mountains successfully.
- **Holiday Climate Index:** for understanding climatic suitability of tourism destinations, particularly coastal cities.
- **Fire Weather Index (FWI):** for estimating fire danger and identifying regions at risk.
- **Marine Environment Monitoring:** Offers data on water quality, salinity, currents, and temperature to help predict harmful algae blooms (e.g. sargassum) and jellyfish outbreaks.
- **Atmosphere Monitoring:** Provides UV forecasts to inform sun safety apps, helping reduce skin cancer risks, and monitors air quality to support outdoor activities and the protection of cultural heritage from acid rain.
- **Land Monitoring:** Supplies geospatial data on protected areas like riparian zones and Natura 2000 sites, aiding sustainable tourism planning.
- **Snow and Ice Monitoring:** Delivers high-resolution, near real-time snow and ice data useful for ski resort management and planning.

Finally, Copernicus services are designed to benefit a wide range of users, from governments and researchers to individual citizens. Information provided by the Copernicus services helps to strengthen the resilience of nations and communities by improving their capacities to be prepared for, to cope with and to recover from major natural and man-made disasters.

Case study: Adapting Tourism to Increased Fire Risk in Crete (Greece)

In Crete (Greece), tourism organisations have used the Copernicus Fire Weather Index to monitor and anticipate fire-prone regions, allowing for better route planning, seasonal adjustments, and risk communication with travelers. Authorities also leverage this data to protect natural heritage and improve emergency preparedness.¹¹

2.5 Risks of the Tourism Ecosystem

The “*Crisis Management and Governance in Tourism*” report highlights key risks affecting the EU tourism sector, including climate change impacts, natural disasters (wildfires, floods, storms), health emergencies (pandemics), geopolitical tensions, and technological disruptions. Strengthening governance and risk management is vital to improve resilience, enabling tourism SMEs to better resist, manage, and mitigate future crises.¹²

As explained in the report¹³, the tourism sector is highly sensitive to a variety of risks, many of which are interconnected and impact natural environments, economies, and social systems. These risks are:

¹⁰ <https://climate.copernicus.eu/european-tourism>

¹¹ <https://www.copernicus.eu/en/news/news/observer-copernicus-sustainable-tourism>

¹² European Commission: European Innovation Council and SMEs Executive Agency, Crisis management and governance in tourism, Publications Office of the European Union, 2024

¹³ Idem, page 44-46

- **Environmental Risks:** Climate change and tourism-related pollution threaten vital ecosystems and degrade air and water quality, impacting destination appeal.
- **Natural Events:** Frequent disasters like wildfires, floods, and droughts damage infrastructure and natural attractions, causing costly disruptions and long-term reputation loss.
- **Labor Shortages:** A lack of skilled workers risks service quality and competitiveness, worsened by pandemic-related workforce challenges.
- **Financial and Economic Crises:** Economic downturns reduce tourist spending and business travel, lowering demand and revenues.
- **Policy and Governance Issues:** Unstable policies and weak coordination hinder sustainable tourism development and resource protection.
- **Overtourism:** Excessive visitor numbers concentrated in space and/or time that strain infrastructure and ecosystems, leading to environmental damage and local dissatisfaction.

The report shows (Figure 1) an overview of the risks most relevant to the tourism ecosystem, based on their perceived likelihood and potential impact. Natural and environmental risks, alongside human-made risks, are considered the most likely to occur and are already affecting the EU tourism sector—examples include extreme weather events, climate change, labour shortages, overtourism, and geopolitical conflicts. Conversely, health-related risks are viewed as less likely, possibly reflecting the assumption that another pandemic is not imminent.

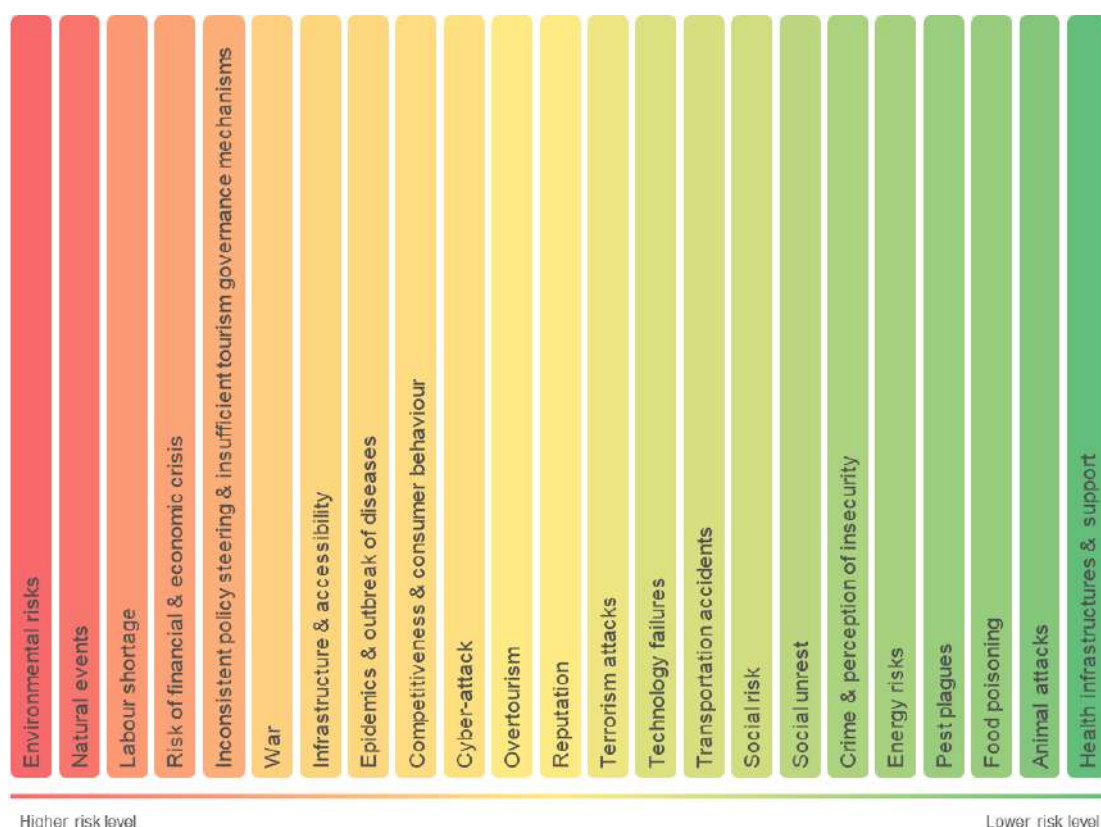


Figure 4. Overview of the risks that are of most concern to the tourism ecosystem, Crisis management and governance in tourism, 2024

This overview helps tourism SMEs recognize key risks and better prepare their businesses for current and future challenges. For further insights, learners are encouraged to explore the full report and

navigate through the Policy Recommendations and Best Practices, which are published on the EU Tourism platform: <https://transition-pathways.europa.eu/tourism/knowledge-and-learning>

3. Know Your Route - Risk Profiles of the DETOUR Walking Routes

3.1 Introduction

The DETOUR Project brings together a diverse consortium of experienced trail managers to provide capacity building activity which also addresses disaster and climate risks across key cultural and nature-based walking routes in the Mediterranean region namely Via Francigena (Italy), Lycian Way (Türkiye), Mount Olympus, Kissavos and Mavrovouni Trails (Greece), and Sultans Trail (Bulgaria).

The following section summarizes the **main risks** identified along these walking routes, organized into four key categories:

- **Environmental risks** (e.g. wildfires, floods, heatwaves)
- **Route conditions** (e.g. erosion, trail marking, physical hazards)
- **Logistics and access** (e.g. remoteness, emergency access, service availability)
- **Security** (e.g. theft, human-wildlife conflict, border issues)

These profiles aim to support tourism SMEs, local authorities, and travelers in improving preparedness, safety, and resilience across the DETOUR trail network.

3.2 The Lycian Way - Türkiye

Route Name	The Lycian Way (Türkiye)
Overview	A 720+ km mountain and coastal trail between Fethiye and Antalya
Risk Profile:	
Environmental Risks:	<i>High Summer Temperatures (June–Sept up to 40 deg C):</i> Risk of heatstroke, dehydration. <i>Wildfires:</i> uncommon but very high impact in summer; monitor local alerts. <i>Water scarcity:</i> Water access becomes particularly critical during summer months, with some natural springs drying completely between July and September.
Route Conditions:	Red-white standard waymarking throughout +250 signposts, some sections well-marked, occasionally overgrown or confusing. But the presence of the route on all apps using Open Street Map means that navigation is available to all.

	Variable terrain mainly over limestone includes narrow paths and occasional eroded sections, so possibility of falls.
Logistics & Access:	Local transport (municipal and private bus services) operates mainly during daylight hours so is somewhat limited in mid-winter. Apart from two high-mountain areas, water, accommodation or supplies are available every day. All mosques have water; most village shops have limited provisions. <i>Communication:</i> Local language barriers present additional challenges, with English comprehension varying widely across the route's rural sections. Many villagers can communicate via translation apps.
Security	Stable overall, urban areas are patrolled by tourist police. Efficient rural rescue services and rural policing are operated by the Gendarmerie.

Table 1. Risk Profile - Lycian Way (Türkiye)

3.3 Via Francigena/Road to Rome - Italy

Route Name	Via Francigena (Italy)
Overview	Historic pilgrimage route (~1,000 km in Italy) from the Canterbury (England) to Rome (Italy), through the Alps, Tuscany, and Lazio region
Risk Profile:	
Environmental Risks:	<i>High Summer Temperatures (June–Sept, over 35°C):</i> Risk of heatstroke, dehydration. <i>Seasonal floods:</i> In spring; trail sections may become impassable. <i>Drought:</i> Water sources are generally reliable year-round, though summer travelers should note that some fountains in smaller villages may be inactive during drought conditions

	<i>Seismic Activity:</i> Parts of the Via Francigena cross areas of moderate seismic risk. Although earthquakes are rare and usually minor, it's advisable to be aware of local emergency procedures, especially in mountainous or tectonically active regions.
Route Conditions:	Waymarking varies — some sections well-marked, others are poorly maintained. Urban approaches to major cities like Florence and Rome involve complex navigation and exposure to urban hazards.
Logistics & Access:	Resource availability generally benefits from the route's proximity to populated areas. Accommodations, including pilgrim hostels (ostelli), are typically available at 20-30 kilometer intervals. <i>Communication:</i> Local language barriers present additional challenges, with English comprehension varying widely across the route's rural sections.
Security	Italy is safe; urban petty theft in tourist cities (Milan, Florence, Rome).

Table 2. Risk Profile - Via Francigena/ Road to Rome (Italy)

3.4 Sultan's Trail - Bulgaria

Route Name	Sultan's Trail (Bulgaria)
Overview	It follows the historic Ottoman expansion route from Vienna to Istanbul, covering approximately 2,500 kilometers across Eastern Europe and the Balkans. The Mediterranean portion primarily encompasses the trail's final segments through Bulgaria, Greece, and Turkey. This cultural route traces the path of Sultan Suleiman the Magnificent's 16th-century military campaigns while connecting diverse communities across former Ottoman territories.
Risk Profile:	
Environmental Risks:	<i>Remote terrain:</i> High risk of getting lost, especially in Rhodope Mountains. <i>Wildfires:</i> High risk of fires in July, August and September, especially in Thrace Region due to heat waves or careless farmers clearing stubble. The central and local authorities declare a fire-dangerous season in agricultural lands, most often in the territory of Haskovo region, from the beginning of June to the end of October. The reason is that the waxy maturity of grain crops occurs, which requires the definition of measures to ensure fire safety. It is not allowed to light an open fire,

	smoke and park motor vehicles in areas with crops and at a distance of less than 50 meters from them from the onset of waxy maturity until the final harvest and plowing of stubble. <i>Seasonal floods:</i> In spring; trail sections may become impassable.
Route Conditions:	Waymarking varies — some sections well-marked, most of them are poorly maintained, outdated signage.
Logistics & Access:	While major towns like Pazardzhik), Plovdiv, Haskovo and Svilengrad (Bulgaria) offer comprehensive services, rural sections may have gaps of 30-40 kilometers between reliable water sources or accommodation. <i>Communication:</i> Local language barriers present additional challenges, with English comprehension varying widely across the route's rural sections, while in bigger cities like Pazardzhik, Plovdiv, Haskovo, Harmanli there is no such issue. Free public Wi-Fi is available in key tourist hubs like city centres, historical sites, cafe's, restaurants etc. The emergency number in Bulgaria is the same as in the EU - 112. This free number can also be used to contact police, fire or emergency medical services when you need immediate help in emergencies such as fires, floods, medical problems and other similar situations.
Security	Border areas near Turkey may have increased surveillance; avoid sensitive zones.

Table 3. Risk Profile - Sultan's Trail (Bulgaria)

3.5 Greek Mountain Routes: Mounts Olympus, Kissavos, Mavrovouni

Route Name	Greek Mountain Routes: Mounts Olympus, Kissavos, Mavrovouni
Overview	It encompasses a series of hiking and canyoning experiences through the landscapes of Mount Olympus (Olympus), Kissavos (Ossa), and Mavrovouni: ● Mount Olympus (Olympus): Olympus, the highest mountain in Greece, features over 80 marked routes catering to various skill levels. Trails range from easily accessible paths to challenging ascents, such as the route leading to Mytikas, the summit at 2,917 meters. Hikers can experience diverse ecosystems and panoramic views. ● Mount Kissavos (Ossa): Situated between Mount Olympus and Mavrovouni, Kissavos stands at 1,978 meters. The mountain is known for its rich biodiversity and dense forests. Hiking routes start near sea level, progressing through varied terrains to the summit. Canyoning enthusiasts can explore gorges such as Kalypso, offering unique experiences amidst lush landscapes. ● Mount Mavrovouni: Serving as a natural extension of Kissavos to the south, Mavrovouni offers rugged terrains and secluded beauty. It hosts the beautiful and protected “royal forest” and the Rakopotamos canyon.
Risk Profile:	
Environmental Risks:	<i>Floods:</i> Recent events demonstrated the high risk of floods in this Greek region and the severe impact caused by the lack of preventive measures and effective emergency plan implementation. <i>Weather Variability:</i> Rapid shifts in mountain zones; snow in higher elevations until late spring; heatwave in Summer and impact on water supply stress, soil erosion and fires. <i>Wildfires:</i> Even less common than in southern Greece, forest fires risk is rising due to heatwaves. <i>Seismic Activity:</i> The region is also susceptible to earthquakes, with significant seismic events in recent years. Ongoing seismic risk calls for continued attention to structural safety and emergency planning.
Route Conditions:	Many are underdeveloped. Marking and maintenance are too often left to private initiatives (local associations in particular). Some parts of O2 or other paths can be hard to follow due to lack of signage or regular cleaning.

	Maps and GPS essential; trail erosion and overgrowth possible.
Logistics & Access:	Some villages depopulated; limited resupply. Access by public transport is poor in many mountain regions.
Security	Greece is generally very safe for hikers; standard caution in tourist areas. Risk associated with sheepdogs on the one hand, and wild boars on the other.

Table 4. Risk Profile - Greek Mountain Routes: Mounts Olympus, Kissavos, Mavrovouni (Greece)

4. Key Disaster Types

4.1 Introduction

Natural and man-made hazards include droughts, desertification, floods, landslides, wildfires, earthquakes, tsunamis or cyclones. The dispersion of radioactive gases in the atmosphere, or technological accidents - like oil plants or gas pipelines damaged by a natural hazard and releasing hazardous materials or gases - can also be accounted for.¹⁴ All these have significant social, environmental and economic impacts which need to be measured to effectively support response strategies and mitigation and adaptation measures.

The **European Commission Disaster Risk Management Knowledge Centre** (<https://drmkc.jrc.ec.europa.eu/>) integrates existing scientific multi-disciplinary knowledge and co-develops innovative solutions for existing needs. Among the available resources and information are: the Risk Data Hub, the Union Civil Protection Knowledge Network, the Copernicus Emergency Management Service.

Recent studies based on the data offered by the Knowledge Center, highlighted that around **87 million Europeans are exposed to multiple natural hazards**. This first-time assessment at the level of local administrative units shows nearly 19% of Europe's population is exposed to multiple natural hazards. Beyond population density, the income level is the primary driver that influences risk status.¹⁵

Natural and man-made/ technological disasters pose significant risks to the tourism sector. Their impacts span from the disruptions to walking routes (closure, damages to paths, infrastructure) to negative impacts on local economy, jobs, and livelihoods.

Understanding these disasters, their origin, potential impacts, and appropriate mitigation strategies is essential for strengthening tourism SMEs resilience. The sections briefly present the key disaster types that may affect tourism SMEs and provide guidance for risk assessment and emergency response planning for tourism operators.

¹⁴ https://joint-research-centre.ec.europa.eu/scientific-activities/natural-and-man-made-hazards_en

¹⁵ https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/around-87-million-europeans-are-exposed-multiple-natural-hazards-2025-02-21_en

For each disaster type, a ready-to-use Disaster Risk Management Checklist with recommended actions and strategies is provided. The checklist is divided into the three main risk management phases: Mitigation and Preparedness, Response and Recovery. Moreover, the tables “Risk Awareness in Action: Learning from Real Events” include recent famous examples of natural and man-made disasters. For more information about natural disasters origin and impact, please see Annex 1. A General Risk Management Checklist for Tourism SMEs is available in Annex 2.

4.2 Type of Natural Disasters (Fire, Floods, Landslides, Earthquake, Heatwaves, Hurricanes)

4.2.1 Fire: Wildfires and forest fires

Wildfires are uncontrolled fires that occur in nature and are often harshened by climatic conditions. Long dry spells particularly increase the risk of wildfires breaking out. Still, other factors also have a huge impact, such as rain and wind, vegetation, the layout of the terrain, and forest management practices¹⁶. **Mediterranean ecosystems are particularly vulnerable to wildfires due to their characteristic hot, dry summers and vegetation adapted to fire regimes.**

Risk Awareness in Action: Learning from Real Events	
What happened?	Wildfires in Attika region, Greece – July 2018 In July 2018, a catastrophic wildfire swept through the Attika region of Greece, particularly affecting the coastal town of Mati. The fire's rapid spread was exacerbated by strong winds reaching 124 km/h and temperatures exceeding 38°C. This disaster resulted in 102 fatalities, making it one of Greece's deadliest wildfires in recent history. This disaster underscored the urgent need for fire risk awareness, especially in densely populated or tourist-heavy coastal zones. It also highlighted how extreme weather — increasingly common in the Mediterranean — can turn natural landscapes into deadly fire traps within minutes.
Discover more	- https://www.theguardian.com/world/2019/jul/20/greek-fires-one-year-on-103-dead-survivors-and-rescuers-look-back - https://www.researchgate.net/figure/mpacts-of-the-devastating-fire-of-2018-at-Mati-Attika_fig3_337359112

This **Disaster Risk Management Checklist: Fire** below is designed to support tourism operators, local authorities, and community stakeholders in preparing for, responding to, and recovering from wildfire events.

Disaster Risk Management Checklist: Fire

¹⁶https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/wildfires_en#:~:text=Wildfires%20are%20uncontrolled%20fires%20that,terrain%2C%20and%20forest%20management%20practices.

Disaster Type	Fire	 Source: Pixabay CC 0
Disaster Risk Management Phase	Actions and strategies	
Mitigation and prevention	● Identify and evaluate wildfire risks specific to your region by analyzing historical data, climate projections, and local vegetation types. ● Construct and maintain fire-resistant facilities, incorporating materials and designs that minimize fire spread and damage. ● Engage in practices that reduce wildfire risks, such as creating defensible spaces around your property by clearing flammable vegetation and implementing controlled burns to reduce fuel loads. ● Work with other tourism service providers, local authorities, neighboring businesses, and community organizations to develop and implement wildfire risk reduction strategies, including public awareness campaigns and sustainable tourism practices. ● Create detailed procedures for wildfire scenarios, including evacuation routes, communication protocols, and roles and responsibilities. ● Regularly train staff on wildfire emergency procedures and conduct simulation exercises to ensure readiness. ● Set up reliable communication systems to receive wildfire alerts and coordinate with emergency services. ● Maintain essential supplies, such as fire extinguishers, first aid kits, and protective equipment, to support both staff and visitors during wildfire events. ● Inform visitors about health and safety measures before and during their stay.	
Disaster Response	● Implement the procedures outlined in your emergency plans promptly when a wildfire occurs. ● Prioritize the protection of guests by providing clear instructions and assistance during evacuations or shelter-in-place orders. ● Maintain communication with local emergency services to receive updates and support during wildfire events.	

	● Keep detailed records of decisions made, actions taken, and resources used during the response phase for later analysis.
Post-Disaster Recovery	● Conduct thorough evaluations of property and infrastructure to determine the extent of wildfire damage. ● Develop a phased plan to resume business activities safely, focusing on critical services first. ● Participate in local recovery efforts by offering resources, services, or financial support to affected communities. ● Analyze the effectiveness of your wildfire response and update plans based on lessons learned.
Resources	● Wildfire Evacuation Checklist, FEMA https://www.usfa.fema.gov/downloads/pdf/publications/wildfire-evacuation-checklist.pdf ● Wildfire risk planning and prevention - Innovations in the Mediterranean and beyond, 2024 https://efi.int/sites/default/files/files/publication-bank/2024/WRPP_02_2024_EN.pdf ● Wildfire Risk Awareness and Communication: analysis of Good Practices 2024 https://civil-protection-knowledge-network.europa.eu/system/files/2024-05/Wildfire%20risk%20awareness%20good%20practice%20note.pdf ● European Forest Fire Information System https://forest-fire.emergency.copernicus.eu/ ● Copernicus Climate Change Service: Wildfires 2023 https://climate.copernicus.eu/esotc/2023/wildfires
Disclaimer	Always check the national regulations to be sure of the specific protocols to follow.

Table 5. Disaster Risk Management Checklist: Fire

4.2.2 Flood: Flash floods, river floods, coastal flooding, and storm surges

A flood is an unusual accumulation of water above the ground caused by high tide, heavy rain, melting snow or rapid runoff from paved areas.¹⁷

Risk Awareness in Action: Learning from Real Events	
What happened?	Flood in Thessaly region, Greece – September 2023

¹⁷ <https://www.eea.europa.eu/help/glossary/gemet-environmental-thesaurus/flood>

	In September 2023, Storm Daniel brought record-breaking rainfall to central Greece, triggering one of the most devastating flood events in the country's recent history. Over 73,000 hectares of land were submerged, particularly in the Thessaly region, resulting in 17 fatalities and causing between €2 to €3.5 billion in damages. The floods washed away key infrastructure, including rail lines, roads, bridges, farmland, and entire village sections. Thick layers of mud covered vast agricultural fields, with experts warning that soil recovery could take years, severely impacting food production and rural livelihoods. For the tourism sector, the impact was especially severe. Flood-damaged infrastructure, inaccessible routes, and widespread disruption led to a sharp decline in tourist activity and significant financial losses for local businesses—many of which rely heavily on seasonal income from walking routes, cultural tourism, and agri-tourism.
Discover more	https://mapping.emergency.copernicus.eu/activations/EMSN184/

This **Disaster Risk Management Checklist: Flood** below is designed to support tourism operators, local authorities, and community stakeholders in preparing for, responding to, and recovering from flood events.

Disaster Risk Management Checklist: Flood

Disaster Type	Flood	 Source: Pixabay CC 0
Disaster Risk Management Phase	Actions and strategies	
Mitigation and prevention	● Identify and evaluate flood risks specific to your region by analyzing historical data, climate projections, and local topography. ● Construct and maintain flood-resistant facilities, such as elevated structures and reinforced barriers, to minimize potential damage. ● Engage in practices that preserve natural flood barriers, such as wetlands and forests, to reduce the impact of floods. ● Work with local authorities, neighboring businesses, and community organizations to develop and implement flood risk reduction strategies ● Create detailed procedures for flood scenarios, including evacuation routes, communication protocols, and roles and responsibilities. ● Regularly train staff on flood emergency procedures and conduct simulation exercises to ensure readiness. ● Set up reliable communication systems to disseminate flood warnings and coordinate with emergency services. ● Maintain essential supplies, such as sandbags, first aid kits, non-perishable food, and water, to support both staff and visitors during floods. ● Inform visitors about health and safety measures before and during their stay.	
Disaster Response	● Implement the procedures outlined in your emergency plans promptly when a flood occurs. ● Prioritize the protection of guests by providing clear instructions and assistance during evacuations or shelter-in-place orders. ● Maintain communication with local emergency services to receive updates and support during flood events. ● Keep detailed records of decisions made, actions taken, and	

	resources used during the response phase for later analysis
Post-Disaster Recovery	● Conduct thorough evaluations of property and infrastructure to determine the extent of flood damage. ● Develop a phased plan to resume business activities safely, focusing on critical services first. ● Participate in local recovery efforts by offering resources, services, or financial support to affected communities. ● Analyze the effectiveness of your flood response and update plans based on lessons learned.
Resources	● Personal Flood Resilience Plan (UK Environment Agency) https://assets.publishing.service.gov.uk/media/65561b0b544aea0019fb2e78/PDF_of_personal_flood_plan.pdf ● Business flood plan checklist (UK Environment Agency) https://www.gov.uk/government/publications/preparing-your-business-for-flooding/business-flood-plan-checklists ● Flood Directive 2007/60/EC https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32007L0060 ● European Flood Awareness System https://european-flood.emergency.copernicus.eu/en ● Copernicus Climate Change Service: Flooding 2023 https://climate.copernicus.eu/esotc/2023/flooding ● Special Report on Climate and Environmental Coastal Risks in the Mediterranean https://www.medecc.org/medecc-reports/med-coastal-risks/summary-for-policymakers-en/
Disclaimer	Always check the national regulations to be sure of the specific protocols to follow.

Table 6. Disaster Risk Management Checklist: Flood

4.2.3 Landslide Disasters

A landslide is the gravitational movement of a mass of rock, earth or debris down a slope. Landslides are usually classified on the basis of the material involved (rock, debris, earth, mud) and the type of movement (fall, topple, avalanche, slide, flow, spread). Thus, the generic term landslide also refers to mass movements such as rock falls, mudslides and debris flows. Volcanic mudflows and debris flows are also called lahars.¹⁸

Risk Awareness in Action: Learning from Real Events	
What happened?	Flood and Landslide in Emilia Romagna region, Italy – May 2023

¹⁸ <https://esdac.jrc.ec.europa.eu/themes/landslides>

	In May 2023, the Emilia-Romagna region in northern Italy faced catastrophic flooding following unprecedented rainfall — over 500 mm in just 36 hours in some areas. The disaster overwhelmed 23 rivers, triggered nearly 1,000 landslides, and caused severe damage across the region, including urban centers and rural walking trails. Infrastructure, homes, agricultural land, and businesses were left submerged or cut off by debris. Regional tourism hubs were particularly hard-hit, with road closures, damage to accommodations, and loss of accessibility due to blocked roads and landslides.
Discover more	https://www.copernicus.eu/en/media/image-day-gallery/historic-floods-hit-emilia-romagna-italy

This **Disaster Risk Management Checklist: Landslide** below is designed to support tourism operators, local authorities, and community stakeholders in preparing for, responding to, and recovering from landslide events.

Disaster Risk Management Checklist: Landslide

Disaster Type	Landslide	 Source: Pixabay CC 0
Disaster Risk Management Phase	Actions and strategies	
Mitigation and prevention	● Identify and evaluate landslide risks specific to your region by analyzing historical data, geological surveys, and local topography. Utilize tools like GIS-based approaches to assess susceptibility. ● Construct and maintain structures using materials and designs that minimize landslide impact. Ensure compliance with local regulations and building codes, especially in areas prone to landslides. ● Engage in land-use practices that reduce landslide risks, such as avoiding construction on steep slopes and preserving natural vegetation that stabilizes soil. ● Work with local authorities, neighboring businesses, and community	

	organizations to develop and implement landslide risk reduction strategies, including public awareness campaigns and sustainable tourism practices. ● Create detailed procedures for landslide scenarios, including evacuation routes, communication protocols, and roles and responsibilities. ● Regularly train staff on landslide emergency procedures and conduct simulation exercises to ensure readiness. ● Set up reliable communication systems to receive landslide alerts and coordinate with emergency services. ● Maintain essential supplies, such as first aid kits and emergency tools, to support both staff and visitors during landslide events. ● Inform visitors about health and safety measures before and during their stay.
Disaster Response	● Implement the procedures outlined in your emergency plans promptly when a landslide occurs. ● Prioritize the protection of guests by providing clear instructions and assistance during evacuations or shelter-in-place orders. ● Maintain communication with local emergency services to receive updates and support during landslide events. ● Document Actions: Keep detailed records of decisions made, actions taken, and resources used during the response phase for later analysis.
Post-Disaster Recovery	● Conduct thorough evaluations of property and infrastructure to determine the extent of landslide damage. ● Develop a phased plan to resume business activities safely, focusing on critical services first. ● Participate in local recovery efforts by offering resources, services, or financial support to affected communities. ● Analyze the effectiveness of your landslide response and update plans based on lessons learned.
Resources	● Landslide Preparedness checklist, American Red Cross 2023 https://www.redcross.org/content/dam/redcross/atg/PDF_s/Preparedness_Disaster_Recovery/Disaster_Preparedness/Landslide/Landslide-Preparedness-Checklist-R2.pdf ● European Ground Motion Service https://land.copernicus.eu/en/products/european-ground-motion-service ● European State of the Climate - Soil Data moisture, 2023 https://climate.copernicus.eu/esotc/2023/soil-moisture
Disclaimer	Always check the national regulations to be sure of the specific protocols to follow.

Table 8. Disaster Risk Management Checklist: Landslide

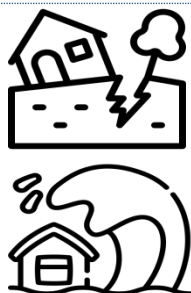
4.2.4 Earthquake and Tsunamis

An earthquake is a violent shaking of the ground produced by deep seismic waves, beneath the epicentre, generated by a sudden decrease or release in a volume of rock of elastic strain accumulated over a long time in regions of seismic activity (tectonic earthquake).

Risk Awareness in Action: Learning from Real Events	
What happened?	Earthquake in Central Greece – March 2021 In March 2021, a powerful earthquake of magnitude 6.3 struck central Greece near the town of Tyrnavos, in the Thessaly region. It occurred on March 3rd and was followed by several strong aftershocks, including one of magnitude 5.9. The quake caused structural damage to buildings, particularly in villages close to the epicenter such as Damasi and Elassona. Schools, homes, and historic structures were affected, but no fatalities were reported. The event highlighted the region's ongoing seismic risk and the need for preparedness in citizens and public authorities.
Discover more	https://www.researchgate.net/publication/353091790_The_March_2021_Thessaly_earthquakes_and_their_impact_through_the_prism_of_a_multi-hazard_approach_in_disaster_management

This **Disaster Risk Management Checklist: Earthquake and Tsunamis** below is designed to support tourism operators, local authorities, and community stakeholders in preparing for, responding to, and recovering from these events.

Disaster Risk Management Checklist: Earthquake and Tsunamis

Disaster Type	Earthquake and Tsunamis	
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		Source: Pixabay CC 0
Disaster Risk Management Phase	Actions and strategies	
Mitigation and prevention	● Identify and evaluate earthquake risks specific to your region by analyzing historical seismic data, geological surveys, and local infrastructure vulnerabilities. This assessment should inform all subsequent planning and mitigation efforts. ● Maintain buildings and facilities using earthquake-resistant materials and designs to minimize damage. Regularly inspect and retrofit existing structures to comply with current seismic safety standards. Notably, the extensive construction on Santorini's steep volcanic cliffs has raised safety concerns, emphasizing the need for stringent building practices in seismically active areas. ● Implement land-use practices that reduce earthquake risks, such as avoiding construction on unstable slopes and preserving natural barriers that can mitigate seismic impacts. ● Engage with local authorities, neighboring businesses, and community organizations to develop and implement earthquake risk reduction strategies. This includes participating in public awareness campaigns and adopting sustainable tourism practices that consider seismic risks. ● Create comprehensive emergency procedures tailored to earthquake scenarios. These should include clear evacuation routes, communication protocols, designated roles and responsibilities, and coordination mechanisms with local emergency services. ● Regularly train staff on earthquake emergency procedures and conduct simulation exercises to ensure readiness. Familiarity with safety protocols can significantly reduce panic and confusion during actual events. ● Set up reliable communication systems to receive earthquake alerts and coordinate with emergency services. This includes having backup power sources and satellite phones in case of infrastructure failure. ● Maintain essential supplies, such as first aid kits, emergency food and water, and protective equipment, to support both staff and visitors during and after an earthquake. ● Inform visitors about health and safety measures before and during their stay.	
Disaster Response	● Implement the procedures outlined in your emergency plans promptly when an earthquake occurs. This includes initiating evacuation, accounting for all individuals, and establishing communication with authorities. ● Prioritize the protection of guests by providing clear instructions	

	and assistance during evacuations or shelter-in-place orders. Address any immediate medical needs and ensure that visitors are informed about safety measures. ● Maintain communication with local emergency services to receive updates and support during earthquake events. This coordination ensures that your response aligns with broader community efforts and resources. ● Keep detailed records of decisions made, actions taken, and resources used during the response phase. This documentation is vital for post-disaster evaluations and future planning.
Post-Disaster Recovery	● Conduct thorough evaluations of property and infrastructure to determine the extent of earthquake damage. This assessment informs repair priorities and resource allocation. ● Develop a phased plan to resume business activities safely, focusing on critical services first. Communicate transparently with customers about service availability and safety measures. ● Participate in local recovery efforts by offering resources, services, or financial support to affected communities. This involvement fosters goodwill and strengthens community ties. ● Analyze the effectiveness of your earthquake response and update plans based on lessons learned. Incorporate feedback from staff, visitors, and emergency services to enhance future preparedness.
Resources	● Global Disaster Alert and Coordination System (GDACS) https://www.gdacs.org/ ● Earthquake Safety Checklist, 2023, FEMA ● https://www.fema.gov/sites/default/files/documents/fema_b-526-eq-safety-checklist.pdf ● Euro-Mediterranean Seismological Centre https://www.emsc.eu/Earthquake_map/ ● Tsunami Preparedness Checklist https://www.redcross.org/content/dam/redcross/atg/PDF_s/Preparedness_Disaster_Recovery/Disaster_Preparedness/Tsunami/Tsunami-Preparedness-Checklist.pdf ● Climate Change Service: Sea level 2023 https://climate.copernicus.eu/climate-indicators/sea-level
Disclaimer	Always check the national regulations to be sure of the specific protocols to follow.

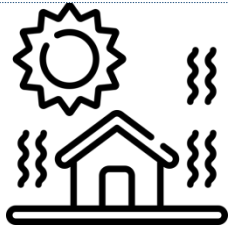
Table 9. Disaster Risk Management Checklist: Earthquake and Tsunamis

4.2.5 Heatwaves

A heatwave is a prolonged period of much-warmer-than-average weather. **Heatwaves represent an increasingly significant threat in the Mediterranean basin as climate change intensifies summer temperature extremes.** According to the World Health Organization (WHO), heat stress is the leading cause of weather-related deaths and can exacerbate underlying illnesses including cardiovascular disease, diabetes, mental health and asthma, and can increase the risk of accidents and transmission of some infectious diseases. The human body can struggle to regulate its temperature when faced with prolonged (prolonged may be as little as a few hours) exposure to high temperatures, resulting in heat stress. Healthcare systems also come under increased pressure from the increased incidence of heat-related illnesses ¹⁹.

This **Disaster Risk Management Checklist: Heatwave** below is designed to support tourism operators, local authorities, and community stakeholders in preparing for, responding to, and recovering from heatwave events.

Disaster Management Checklist: Heatwaves

Disaster Type	Heatwaves	 Source: Pixabay CC 0
Disaster Risk Management Phase	Actions and strategies	
Mitigation and prevention	● Identify and evaluate heatwave risks specific to your region by analyzing historical data, climate trends, and local factors such as urban heat islands and socio-economic vulnerability. This assessment should inform all subsequent planning and mitigation efforts. ● Retrofit buildings using materials and designs that can withstand extreme heat, such as installing reflective roofing materials and creating shaded outdoor spaces. Ensure compliance with local building codes, especially in heat-prone areas. ● Implement land-use practices that reduce heat risks, such as planting drought and heat resistant yet flame resistant trees, (for example, planting with eucalyptus, which grows quickly and is drought and heat resistant, is unsuitable because natural oils make it burn fiercely) increasing green spaces, and preserving natural cooling systems like wetlands. Promote urban greening initiatives to reduce the urban heat island effect. ● Ensure all visitors are informed about current ambient conditions and safety measures on or before their arrival,	

¹⁹ <https://climate.copernicus.eu/heatwaves-brief-introduction>

	including clear communication about heat risks and hydration recommendations can save lives and enhance visitor experience.
Disaster Response	● Implement the procedures outlined in your heatwave emergency plans when heat advisories are issued. This includes activating cooling centers, distributing water, and ensuring communication with local authorities for updates. ● Prioritize the protection of vulnerable groups such as the elderly, children, and those with underlying health conditions. Offer accessible cooling areas, hydration stations, and medical support for those at risk of heat-related illnesses. In the case of walking routes, tourism operators need to know basic emergency procedures which involve cooling, electrolytes and hospitalization. ● Maintain communication with local emergency services, health departments, and weather agencies. Coordination ensures that responses are aligned with community-wide heatwave management efforts and resources
Post-Disaster Recovery	● Conduct evaluations to assess the health and infrastructure damage caused by the heatwave, such as hospitalizations for heat-related illnesses or damage to critical infrastructure like power grids or water supplies. ● Develop a phased recovery plan to restore normal operations, focusing on critical infrastructure like healthcare and water systems first. Provide clear communication with the public about recovery timelines and available services. ● Participate in the long-term recovery efforts by offering resources or financial support to the affected communities. Strengthen community resilience through educational programs on preparing for future heat events. ● Analyze the effectiveness of your heatwave response and recovery efforts. Update and revise emergency plans based on lessons learned and feedback from the community and emergency services to enhance future preparedness.
Resources	● Climate adaptation in the Mediterranean: heat waves http://www.serena.unina.it/index.php/tema/article/view/9263 ● Heat and Sun related Use Cases - Copernicus https://health.hub.copernicus.eu/heat-and-sun-related-use-cases ● Heat and health in the WHO European Region: updated evidence for effective prevention (2021) https://www.who.int/europe/publications/i/item/9789289055406

	- Heatwave Plan - NHS (UK) https://www.uhd.nhs.uk/uploads/news/docs/bulletin/Heatwave-Plan.pdf - Things to consider while trekking in summer (CRS) https://culturerolesinturkey.com/lycian-way-news-blogs/things-to-consider-while-trekking-in-summer/
Disclaimer	Always check the national regulations to be sure of the specific protocols to follow.

Table 10. Disaster Management Checklist: Heatwave

4.2.6 Hurricanes and Sandstorm

While hurricanes — also known as tropical cyclones or typhoons, depending on the region — are rare in the Mediterranean, warmer-than-average Sea Surface Temperatures (SSTs) ($\geq 27^{\circ}\text{C}$) can fuel Mediterranean tropical-like cyclones, also referred to as "**Medicanes**". These systems can bring intense winds, heavy rainfall, and coastal flooding, particularly in autumn. Moreover, Saharan sandstorms — also known as **Saharan dust events**—are affecting Mediterranean air quality and visibility. These occur several times per year, especially during spring and summer, when hot, dry winds (e.g., Sirocco) carry fine desert dust across southern Europe, reaching Greece, Italy, Spain, and beyond.

This **Disaster Risk Management Checklist: Hurricanes and Sandstorms** below is designed to support tourism operators, local authorities, and community stakeholders in preparing for, responding to, and recovering from hurricanes and sandstorms.

Disaster Risk Management Checklist: Hurricanes and Sandstorms

Disaster Type	Hurricanes and Sandstorms	 Source: Pixabay CC 0
Disaster Risk Management Phase	Actions and strategies	

Mitigation and prevention	● Identify and evaluate hurricane risks specific to your region by analyzing historical storm tracks, wind patterns, flood-prone zones, and storm surge vulnerabilities. Consider socio-economic factors such as population density and infrastructure resilience to prioritize areas for preparedness and investment. ● Build and retrofit structures to withstand hurricane-force winds and flooding. This includes reinforcing roofs, elevating buildings in flood zones, securing power lines, and installing hurricane shutters or impact-resistant windows. Ensure critical facilities like hospitals and shelters meet disaster-resilient building standards. ● Preserve and restore natural barriers like mangroves, wetlands, and dunes that help absorb storm surges and reduce coastal erosion. Promote sustainable land-use planning to avoid development in high-risk areas and support the long-term resilience of ecosystems that protect communities. ● Inform visitors about health and safety measures before and during their stay.
Disaster Response	● Initiate pre-established hurricane emergency protocols when watches or warnings are issued. This includes setting up emergency shelters, issuing evacuation orders, pre-positioning supplies, and activating emergency operation centers (EOCs). ● Identify and assist at-risk populations such as the elderly, disabled, and low-income families. Provide accessible transportation for evacuations, medical care, and support for shelters. Use targeted communication to ensure everyone receives timely information. ● Maintain robust communication and coordination with local and national emergency management agencies, the National Weather Service, public health departments, and first responders. Share real-time information and allocate resources effectively across jurisdictions.
Post-Disaster Recovery	● Conduct comprehensive assessments of storm impact, including structural damage, flooding, loss of life, and service disruptions. Use aerial imagery, field surveys, and community reports to document the extent of destruction and identify urgent needs. ● Prioritize restoration of essential services like electricity, water, healthcare, and transportation. Mobilize crews and resources for debris removal and utility repair. Provide timely updates to the public about progress and available assistance. ● Offer financial aid, housing support, and mental health resources to affected communities. Encourage community involvement in rebuilding efforts and invest in long-term housing and infrastructure improvements to reduce vulnerability in future

	hurricanes. ● Evaluate the effectiveness of hurricane response and recovery strategies. Conduct after-action reviews, collect community feedback, and update emergency plans to address identified gaps and enhance preparedness for future hurricane seasons.
Resources	● Hurricane safety - American Red Cross https://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/hurricane.html?srltid=AfmBOor3X4RrCrfJcT4UaQOTTCq_dHiw01YkJpmFTrAdN92FWZPi8_N3
Disclaimer	Always check the national regulations to be sure of the specific protocols to follow.

Table 11. Disaster Risk Management Checklist: Hurricanes and Sandstorm

4.3 Type of Man-Made/ Technological Disasters

Unlike natural hazards, man-made disasters typically involve socio-political factors, complex human decision-making, and varied response mechanisms. The **United Nation Sendai Framework for Disaster Risk Reduction 2015-2030**²⁰ divide these hazards into 2 classes:

- **Man-made** (i.e., anthropogenic, or human-induced) **hazards** are defined as those “induced entirely or predominantly by human activities and choices”.
- **Technological hazards** are normally considered a subset of man-made hazards. Technological hazards also may arise directly as a result of the impacts of a natural hazard event. A technological accident caused by a natural hazard is known as a **Natech**, namely Natural-hazard-triggered technological accident (Kraussmann et al., 2017a).
- **Chemical, nuclear and radiological hazards**, as well as transport hazards are defined as those "originate from technological or industrial conditions, dangerous procedures, infrastructure failures or specific human activities. European legislation, such as the Seveso Directive²¹, regulates the control and prevention of major accident hazards involving dangerous substances, aiming to protect people and the environment from industrial disasters.

These man-made and technological disasters can severely impact tourism activities by causing immediate physical threats to visitors and staff, disrupting operations and infrastructure, and damaging the long-term reputation and attractiveness of affected destinations.

4.3.1 Pandemics

Global health crises such as pandemics can fundamentally alter the operation of walking routes and associated tourism businesses. Unlike localized disasters, pandemics affect entire regions simultaneously, creating both operational challenges and potential opportunities for outdoor recreation activities.

The COVID-19 pandemic (2020-2023) demonstrated how global health emergencies impact walking routes through:

- Implementation of travel restrictions limiting access to international routes
- Capacity limitations for accommodation and transportation services
- Enhanced hygiene and safety protocols for all customer touchpoints
- Changed customer preferences emphasizing outdoor activities and social distancing

For more information about best practices implemented by tourism organizations and destination in response to the pandemic, see “Crisis management and governance in tourism” 2024 report by the European Commission: European Innovation Council and SMEs Executive Agency, <https://transition-pathways.europa.eu/tourism/knowledge-and-learning>.

4.3.2 Riots and Civil Unrest

Civil unrest events can significantly impact walking routes and tourism operations in affected regions. While typically concentrated in urban areas, the broader security concerns and infrastructural

²⁰ <https://www.undrr.org/implementing-sendai-framework/what-sendai-framework>

²¹ <https://eur-lex.europa.eu/eli/dir/2012/18/oj/eng>

disruptions can affect rural and remote trails through transportation limitations, supply chain disruptions, and decreased visitor confidence.

Civil unrest affects walking routes through:

- Direct security concerns in urban sections or trail access points
- Transportation disruptions limiting route accessibility
- Emergency service limitations affecting safety response capabilities
- Reduced visitor confidence in regional stability

4.3.3 Terrorist Attacks

Terrorist incidents, while rare, can have profound impacts on tourism activities including walking routes. The direct physical risk is typically limited in geographical scope, but the psychological impact and security response can affect entire regions for extended periods.

Terrorist attacks can impact walking routes through:

- Direct security concerns in affected areas or potential target locations
- Implementation of enhanced security measures affecting access and movement
- Decreased visitor confidence in destination safety
- Long-term changes to travel patterns and preferences

4.3.4 Wars and Military Aggressions

Armed conflicts represent the most severe form of man-made disaster affecting tourism operations. While typically preceded by escalating tensions allowing for some preparation, the scale and duration of disruption can be catastrophic for tourism businesses in affected regions.

Military conflicts impact walking routes through:

- Complete cessation of tourism activities in directly affected areas
- Long-term physical damage to trail infrastructure and cultural sites
- Extended security concerns limiting regional access
- Fundamental changes to destination image and visitor perceptions

To better understand and mitigate these impacts, tourism stakeholders can benefit from scientific insights and resources provided by initiatives such as the **Science for Peace** platform²² by the **European Commission's Joint Research Centre (JRC)**. This initiative supports conflict analysis, peacebuilding, and resilience by providing research-based knowledge on the causes, consequences, and prevention of armed conflicts in Europe and beyond. Integrating such evidence-based tools and data into tourism risk management can improve preparedness, guide contingency planning, and support recovery efforts in conflict-affected areas. Learn more about the Science for Peace initiative here: <https://science4peace.jrc.ec.europa.eu/>.

²² <https://science4peace.jrc.ec.europa.eu/>

Risk Awareness in Action: Learning from Real Events

What happened?	War in Ukraine Impact in Poland, Lithuania and Latvia – February 2022 Russia’s military offensive in Ukraine caused a disruption of travel, particularly in Eastern Europe which was slowly recovering after the COVID pandemic. As reported by the UN Tourism, before the invasion, Russian & Ukrainian outbound travel accounted for 3% of global tourism spending (worth US\$ 14 billion in 2020). In Europe, Russian visitors accounted for 10-20% in the neighbouring countries (Latvia, Estonia, Lithuania, Finland, Moldova) and in coastal destinations such as Cyprus, Montenegro and Turkey.
Discover more	Crises in Tourism: Impacts and Lessons from European Destinations, European Travel Commission, September 2024 https://etc-corporate.org/reports/crises-in-tourism-impacts-and-lessons-from-european-destinations/

4.3.5 Transport Disasters - Air, Road and Water

Transport-related disasters—whether caused by mechanical failure, human error, extreme weather, or infrastructure issues—pose significant safety risks to both tourists and tourism service providers. These incidents can include **road traffic collisions, ferry or boat accidents, airport shutdowns, or mass transport disruptions**, often with implications for emergency response, liability, and business continuity. Also, **cable transport systems**, particularly in mountainous or remote tourism areas, are increasingly used for both access and attractions. However, technical malfunctions, power outages, or adverse weather conditions can lead to dangerous stoppages or evacuations, sometimes requiring complex rescue operations.

Especially for tourism SMEs such as travel agencies, tour operators, and other reservation services and related activities, such disruptions directly **affect customer satisfaction, operational continuity, and financial stability**. Proactive risk assessments, contingency planning, and clear communication protocols are essential to ensure client safety, uphold contractual obligations, and maintain trust during transport-related emergencies.

Among the most significant impacts of such disasters are:

- Tour Disruptions & Delays
- Customer Stranding
- Logistical Breakdown
- Reputational Impact

Insurance plays a central role in mitigating these risks, serving as both a financial safety net and a risk management tool. Comprehensive travel and business interruption insurance can help SMEs recover from direct losses caused by transport disruptions, cover liabilities in the event of accidents or stranded customers, and support continuity through crises. For clients, travel insurance provides protection against cancellations, delays, and medical emergencies, which enhances their confidence in travel providers.

4.4 Conclusion

In conclusion, unlike natural hazards, man-made and technological disasters stem from complex human decisions, socio-political dynamics, and industrial systems, requiring distinctly different preparedness and response strategies. These hazards—ranging from pandemics and civil unrest to terrorist attacks, military conflicts, and transport-related accidents—pose immediate physical risks, disrupt essential infrastructure, and can inflict long-term reputational damage on tourism destinations and businesses.

Tourism SMEs are particularly vulnerable to these disruptions. Events like the **COVID-19 pandemic** revealed how global health crises can simultaneously immobilize entire regions, while **civil unrest, terrorism, and war** can deter visitors, disrupt walking routes, and reshape travel patterns for years.

Insights emerging from the diverse experiences of DETOUR project partners showed the critical importance of a multi-layered approach to risk preparedness. Effective risk management is only possible when viewed as a system of collaborating actors. This includes not only SME managers, employees, and tourism professionals, but also the visitors themselves. Raising awareness, building capacity, and fostering shared responsibility across all stakeholder levels enhances the overall resilience of tourism systems. Visitors, in particular, must be empowered with clear information and behavioural guidance, as their decisions and actions directly influence the success of emergency responses and continuity efforts.

To effectively mitigate these risks, tourism SMEs must prioritize:

- **Proactive risk assessment and contingency planning**, customized to each hazard type.
- **Integration of comprehensive insurance** to serve both as a financial buffer and strategic risk management tool.
- **Reliable crisis communication protocols** to protect client trust and safety of guests.
- **Awareness building** from internal staff to guests, to ensure preparedness.
- **Collaboration with tourism stakeholders, scientific and policy institutions**, such as the European Commission's **Science for Peace** platform, to access conflict-sensitive planning tools and data-driven guidance.

This **Disaster Risk Management Checklist: Man-made/ Technological disasters** below is designed to support tourism operators, local authorities, and community stakeholders in preparing for, responding to, and recovering from these events.

Disaster Risk Management Checklist: Man-made/ Technological Disaster

Disaster Type	Man-made/ Technological Disasters	 Source: Pixabay CC 0
Disaster Risk Management Phase	Actions and strategies	

Mitigation and prevention	● Pandemics: Implement hygiene protocols, provide PPE, adopt flexible booking and cancellation policies, and establish health screening procedures. Collaborate with health authorities for up-to-date guidelines. ● Riots/Civil Unrest: Monitor local socio-political developments, train staff in conflict de-escalation, and establish secure evacuation routes and safe zones for staff and guests. ● Terrorist Attacks: Conduct threat assessments, install surveillance and access control systems, and train staff in emergency lockdown procedures. Maintain close contact with local law enforcement. ● Wars/Military Aggressions: Prepare contingency business plans for operational suspension or relocation. Ensure data backups and essential asset protection. Maintain a crisis communication strategy and staff safety protocols. ● Tourists Awareness and Information: Inform visitors about health and safety measures before and during their stay. ● Provide clear instructions on hygiene practices and symptoms monitoring.
Disaster Response	● Pandemics: Enforce health and safety protocols, isolate symptomatic individuals, suspend non-essential services, and communicate clearly with guests. Coordinate with health services and comply with government mandates. ● Riots/Civil Unrest: Secure premises, avoid confrontational zones, suspend operations if safety is at risk, and inform staff and guests about safe conduct and shelter-in-place instructions. ● Terrorist Attacks: Follow lockdown or evacuation procedures, alert authorities, provide medical aid if needed, and avoid spreading unverified information. Ensuring staff and guest safety is the top priority. ● Wars/Military Aggressions: Cease operations if required, ensure evacuation of staff and guests, protect essential records, and maintain contact with embassies and national emergency agencies.
Post-Disaster Recovery	● Pandemics: Gradually resume services based on health authority guidance, assess financial and operational impact, adapt business models (e.g., digitization), and update emergency health protocols. ● Riots/Civil Unrest: Repair any damages, support affected staff, review and improve security policies, and reconnect with local communities to foster resilience. ● Terrorist Attacks: Coordinate with authorities for investigation and recovery, provide counselling to staff and guests, and rebuild trust through transparent communication and strengthened

	safety measures. • Wars/Military Aggressions: Re-establish operations if safe, seek financial and logistical support from national and international recovery funds, and engage in long-term strategic planning for resilience.
Resources	• United Nations Economic Commission for Europe (UNECE) - Words into Action Guidelines: Implementation Guide for Man-made and Technological Hazards (2018) https://unece.org/environment-policy/publications/words-action-guidelines-implementation-guide-man-made-and • National and regional disaster/emergency agencies (e.g., Health Ministries, Civil Protection, Police) • Local embassies and consulates • Insurance providers, business continuity consultants • Local business associations and chambers of commerce • Public-private partnerships and funding schemes for SME resilience
Disclaimer	Always check the national regulations to be sure of the specific protocols to follow.

Table 12. Disaster Risk Management Checklist: Man-made/ Technological Disaster

5. Digital Resilience and Cyber Risk Preparedness

5.1 Introduction

Digital resilience relates to how prepared a business is to withstand and recover from digital threats. For tourism SMEs - many of which now depend heavily on digital platforms for bookings, communications, navigation, and customer engagement — these threats can be just as disruptive as physical disasters.

Common digital threats are:

- Cyberattacks (e.g. phishing, ransomware)
- Loss of internet or telephone services. This risk is particularly high in areas where communication cables are unsecured and/or exposed to harsh weather conditions, theft and vandalism.
- Data loss (e.g. due to hardware failure or poor backup practices)
- Disruptions to online services (e.g. booking systems, payment platforms)
- Reputational harm due to social media hacks or misinformation

These risks don't fall under traditional natural or man-made disasters, but they can disrupt SME operations (e.g. digital mapping and booking systems) and/or lead to loss of customer trust or bookings. Moreover, they expose legal risks due to data breaches, especially under **General Data Protection Regulation (GDPR)**²³.

5.2 Main Digital Risks for Tourism SMEs

As digital tools become central to tourism operations, the risks tied to cyber threats, data loss, and service interruptions grow in parallel. These risks, while not visible or tangible, can be **costly, reputation-damaging, and legally significant** (Table 13).

Risk Type	Description
Cyberattacks	Phishing emails, ransomware, and malware can target SMEs and disrupt operations.
Data Loss	Accidental deletion, hardware failure, or poor backup practices can cause loss of customer or business data.
Platform Dependency	Over-reliance on third-party booking or social media platforms can expose SMEs to outages or policy changes.
Reputation Damage	Negative reviews, misinformation, or social media account hacks can harm your brand.

²³https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.119.01.0001.01.ENG&toc=OJ.L:2016:119:TOC

Financial Theft & Fraud	SMEs may face direct money theft through business email compromise (BEC), fake invoices, or fraudulent transactions, leading to significant economic losses.
Low Digital Awareness	Staff may lack training in safe online practices, increasing vulnerability.

Table 13. Main Digital Risks for Tourism SMEs

In this context, strengthening **digital resilience is another essential to protect business continuity**, customer trust, and long-term sustainability in the tourism sector.

5.3 Supporting Digital Resilience: Role of ENISA and Basic Cyber Hygiene Practices

The **European Union Agency for Cybersecurity (ENISA)** plays a central role in supporting digital resilience across Europe, particularly for small and medium-sized enterprises. ENISA develops cybersecurity policies, fosters cooperation among EU Member States, and provides accessible, practical resources tailored to SMEs.

Two essential ENISA tools for SMEs are:

- **ENISA Cybersecurity Guide for SMEs²⁴**

This guide offers clear, actionable steps to help SMEs identify vulnerabilities and adopt basic cybersecurity practices, such as strong password management, phishing detection, regular backups, and secure access protocols.

- **Cybersecurity Maturity Assessment for Small and Medium Enterprises²⁵**

This interactive tool enables SMEs to evaluate their current cybersecurity maturity and provides a customized, progressive plan to improve resilience over time. It is especially helpful for organizations with limited technical resources and no in-house cybersecurity experts.

5.4 Entry-level Cybersecurity Solutions

Even in rural settings, tourism businesses like guesthouses, walking tour operators, or B&Bs rely on digital tools: email, websites, social media, online bookings, or digital payments. ENISA's **basic cyber hygiene practices²⁶** helps both individuals and businesses prevent problems like data loss, account hacks, or scams. Implementing those habits can make a big difference in increasing digital resilience. The following infographic summarises the **ten cyber hygiene habits**.

²⁴ <https://www.enisa.europa.eu/publications/cybersecurity-guide-for-smes>

²⁵ <https://tools.enisa.europa.eu/cybersecurity-maturity-assessment-for-small-and-medium-enterprises>

²⁶ <https://www.enisa.europa.eu/topics/cyber-hygiene>

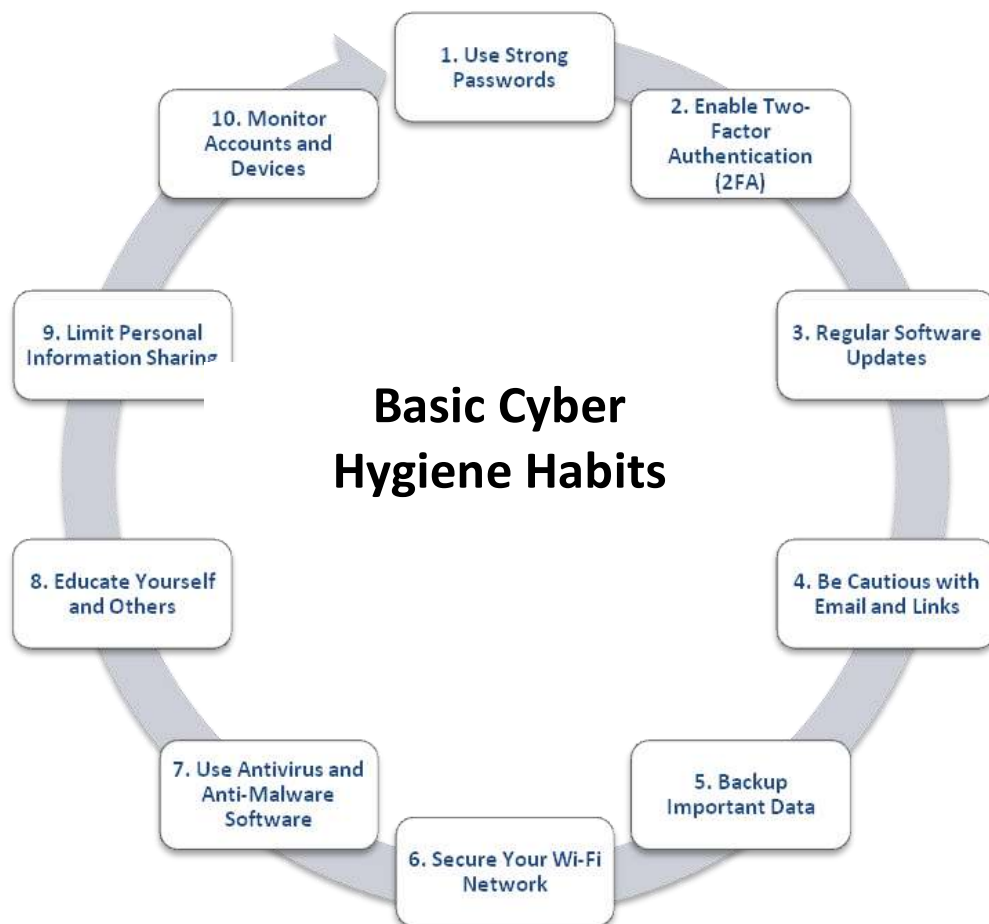


Figure 5 Adapted from Basic Cyber Hygiene Practices, ENISA

In particular, small tourism businesses can implement the previous habits in the following way:

1. Use Strong & Unique Passwords.

- Mix letters, numbers & symbols.
- Don't reuse passwords.
- Use free password managers (e.g., Google) or write them down safely, preferably in a locked drawer.

Example: If you run a small guesthouse, each week, it is recommended that you check and update passwords for your Wi-Fi, email, Online Travel Agency (OTA), Digital Mapping platforms and store them safely.

2. Enable Two-Factor Authentication (2FA)

- Add Two-Factor-Authentication on email & key accounts.
- Use free apps (Google Authenticator, Authy) or SMS codes.

Example: If you manage a rural eco-lodge, it is recommended to add the 2FA for your business email so even if your password is leaked, your account remains protected.

3. Keep Software Updated

- Enable auto-updates or check weekly

Example: As a hiking guide using GPS apps, it is recommended that you keep your navigation tools and devices updated to avoid bugs or system failures on the trail.

4. Be Careful with Emails & Links

- Don't click suspicious links or attachments
- Verify sender before replying

Example: As a guide who receives bookings through email, it is recommended that you double-check sender addresses before opening attachments.

5. Backup Important Data

- Use free cloud storage (e.g., Google Drive, Dropbox) or external drives (e.g. USB stick) to be kept in a safe place.
- Once a month, open your backup files and make sure they can be opened and are up-to-date.

Example: If you run a small guesthouse, it is recommended that each week you back up important data such as guest bookings (from phone or booking system), ID scans (if collected), receipts, marketing photos and social media content. Save them to Google Drive and a USB stick in your desk. Once a month, open a few files to make sure they work.

6. Secure Your Wi-Fi Network

- Change default router password
- Use Wi-Fi Protected Access 2 or WPA3 encryption. WPA2 helps keep your Wi-Fi connection safe from hackers by scrambling your data so only authorized devices can understand it.
- Disable remote admin. If remote admin is enabled, anyone (even hackers) could try to log in to your router from anywhere in the world.

Example: Check your router's manual or online guide to change settings.

7. Use Antivirus & Anti-Malware

- Install antivirus (Avast, Microsoft Defender) and keep it updated during your online visits.
- Run scans regularly.

How to Start: If you use a laptop and computer, you can use the built-in antivirus to schedule weekly scans.

8. Educate Yourself and Others



Co-funded by
the European Union

- Consult free resources such as the ENISA's Cybersecurity for SMEs- Challenges and Recommendations²⁷ and/or navigate European Cybersecurity Month (ECSM) website²⁸ to find more useful materials, practical advice and tips on staying safe online.

Example: If you have seasonal staff at your guesthouse, spend 15 minutes during onboarding explaining how to spot and report phishing emails.

9. Limit Personal Info Sharing Online

- Adjust privacy settings on social media.
- Avoid sharing sensitive info publicly.

Example: If you run a B&B, avoid posting when your property is empty ("Closed this weekend!") to reduce burglary risks. It is also recommended to review your social media privacy settings.

10. Monitor Accounts & Devices

- Enable alerts for email and booking accounts.
- Look for login alerts or unrecognized devices.

Example: If you run a rural guesthouse, it is recommended that you check once a month/ week for unfamiliar devices accessing your Gmail or Online Travel Agency portal (e.g., Booking, Airbnb).

By embedding these habits into daily operations and using ENISA's tools as a guide, tourism SMEs can significantly enhance their cyber preparedness and protect their customers, operations, and reputation from preventable digital threats.

6. Build Tourism SMEs Resilience: Practical Strategies

Most tourism SMEs (e.g. accommodations, food services, or travel providers) face similar risks: extreme weather, fire, floods, disruptions in access and communication, supply chain issues, and guest safety responsibilities. The following strategies apply to all SMEs and individual businesses (e.g., hotels, restaurants, tour operators) with the **need to adapt specific tools and responsibilities based on their operations, location, and exposure to risk and national regulations**.

6.1 Develop a Business Continuity Plan

Create a comprehensive **business continuity plan (BCP)**²⁹ that outlines how your business will maintain operations and recover swiftly from disruptions. This plan should address:

- Identification and assessment of key risks and vulnerabilities
- Clear roles and responsibilities for staff during emergencies
- Communication protocols for guests, employees, suppliers, and authorities
- Procedures for maintaining critical functions such as bookings, payments, and guest safety

²⁷ <https://www.enisa.europa.eu/publications/enisa-report-cybersecurity-for-smes>

²⁸ <https://cybersecuritymonth.eu/>

²⁹ <https://eimf.eu/business-continuity-management/>

- Data protection and backup strategies to secure essential information

The Economics for Disaster Prevention and Preparedness website highlights the importance of investing in disaster prevention and preparedness as economically beneficial, reducing recovery costs and business interruptions significantly. Recent study such as the report “*From Data to Decisions – Tools for Making Smart Investments in Prevention and Preparedness in Europe*” (2024)³⁰ presents successful examples of how countries have prioritized prevention and preparedness investments through a risk-based and targeted approach.

6.2 Collaborate with Local Authorities

- Partner with local government bodies, national authorities, trail maintenance managers, other tourism operators, and community organizations to **share information, resources, and support in disaster planning**.
- **Advocate for disaster-resilient infrastructure** in local planning and development policies.
- **Report trail maintenance issues**. Advocate for better trail maintenance and annual checks on accident prevention equipment (e.g. handrails, steps and stairs, safety ropes/chain. Participate in trail maintenance activities or assume responsibility for carrying out minor maintenance on one section of a trail.
- Engage with **tourism associations, hospitality federations, or service provider networks** to share risk information, training opportunities, and policy updates. At European level, there is the **European Tourism Association**³¹
- Ensure alignment with **national licensing authorities**, which may also provide risk-related standards, insurance coverage, or post-disaster support.
- **Encourage trade bodies to promote risk preparedness** among members and facilitate access to resilience tools and certification programs.

6.3 Use Risk Monitoring and Preparedness Tools

- Tourism SMEs managers and employees can leverage **Copernicus Emergency Management Services** and the **Climate Change Service (C3S)** for real-time data on wildfires, floods, and heat risks and tourism-relevant risk preparedness activities. Hotels and travel agencies can use real-time data for informing guests and planning.
- In the case of hotels, the **HOTREC (European Hotel & Restaurants Association)** prepared a tool for practical risk self-assessment, emergency planning, and staff training: **Crisis Resilient Guidelines for Hotels, restaurants, cafès, and night-life entertainment venues**³².
- Tourism SMEs managers can pursue regional or local **certification** to demonstrate preparedness and enhance credibility with guests and partners

6.4 Raising Awareness among Locals and Tourists

³⁰ https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/european-disaster-risk-management/economics-disaster-prevention-and-preparedness_en

³¹ <https://www.etoa.org/>

³² https://www.hotrec.eu/en/policies/crisis_resilient_guidelines_for_hospitality_sector.html

- **Promote environmental sustainability** to reduce the overall impact of climate change and disasters (e.g., encouraging responsible tourism, reducing waste). Useful examples of free online training resource for accommodations in natural areas are:
 - For Tourism Managers: **Self-diagnosis Booklet for Managers of Tourism Accommodation in Natural Areas**³³
 - For Tourist: **Training content for environmental management of tourist accommodation**³⁴
- **Engage tourists** in disaster preparedness initiatives and promote **local emergency awareness programs**. It includes awareness and respect of local policies for **environmental protection** such as: no-picnic, no-camping, no-campfire, no-smoking areas, reporting on illegal behaviour.

6.5 First Response and Incident management

- **Be Prepared as First Responders:** Guides and tourism operators, especially in Mediterranean countries, are often the first on the scene during incidents such as heatstroke, injuries, vehicle accidents, or sudden illness.
- **First Aid Training:** Ensure that all guides and frontline staff receive certified first aid training, including CPR and emergency response protocols tailored to common tourism-related incidents. Regular refresher courses are essential.
- **Risk Awareness and Prevention:** Inform tourists in advance about environmental risks (e.g., heat exposure, difficult terrain) and safety measures to minimize the chance of accidents.
- **Safety Equipment:** Carry necessary first aid kits and safety gear on all tours, and ensure they are regularly checked and replenished.

6.6 Resource for Broader Resilience: GSTC Destination Self-Assessment Tool

Tourism destinations must consider broader systemic vulnerabilities. A new tool developed by the **Global Sustainable Tourism Council (GSTC)**³⁵ supports this with a focus on **resilience through sustainability**.

The **GSTC Self-Assessment Tool to Empower Destinations**³⁶ is a user-friendly online tool that helps destinations measure and improve their sustainability and resilience using the **GSTC Destination Standard**. It evaluates progress across four sustainability pillars:

1. **Sustainable Management** – Governance, stakeholder engagement, visitor management, and risk preparedness

³³ https://www.ecohostingnet.eu/wp-content/uploads/2023/09/IO1_EN_EcoHosting-Audit-booklet-for-MANAGERS-OF-TOURIST-ACCOMMODATION-IN-NATURAL-AREA.pdf

³⁴ https://www.ecohostingnet.eu/wp-content/uploads/2023/09/IO2_ECOHOSTING-Training-content-for-tourists-EN.pdf

³⁵ <https://www.gstc.org/>

³⁶ <https://www.gstc.org/self-assessment-tool-empowers-destinations/>

2. **Socioeconomic Impacts** – Ensures tourism benefits local communities
3. **Cultural Impacts** – Safeguards heritage and local identity
4. **Environmental Impacts** – Addresses pollution, resource use, and biodiversity

Users respond with "Yes," "No," or "In Progress" across standardized criteria. The system calculates a percentage score and provides insights on where improvements are needed.

This self-assessment does **not imply certification**, but it acts as a long-term guide for responsible, resilient destination management. It supports destinations of all types and sizes in aligning with global sustainability standards and building trust with responsible travelers.

7. Other risks related to Tourism SMEs along Mediterranean Walking Routes

7.1 Damage to Tangible Cultural Heritage

Damage to tangible cultural heritage is a significant risk, especially in Mediterranean regions where archaeological sites and historic artifacts are abundant. For example, in countries like Turkey, newly discovered artifacts are frequently at risk of theft, while registered cultural assets may suffer damage or removal. Additionally, ancient roads and historic landscapes can be ploughed up or otherwise altered, threatening the preservation of invaluable heritage.

In Europe, national authorities maintain a **registration system for cultural assets**, which catalogues and protects important archaeological and historical sites. There are strict rules and protocols for reporting any damage or suspicious activity related to these assets. Prompt reporting ensures timely intervention and protection by the relevant authorities.³⁷

Local communities play a crucial role in safeguarding heritage. It is important to raise awareness among locals and visitors alike about the importance of reporting any signs of illegal digs or damage to cultural heritage to the proper authorities, helping preserve these irreplaceable assets for future generations.

7.2 Lack of First Aid Training Among Tourism Staff

In tourism environments—particularly those involving outdoor activities such as hiking, cycling, or nature-based excursions — the absence of properly trained personnel in basic first aid represents a serious operational risk. In the event of injury, dehydration, allergic reactions, or sudden illness, a delay in providing initial care can have severe consequences.

Tourism SMEs, guides, and support staff should have **at least a basic level of first aid knowledge**, as well as the **minimum required equipment** defined by national regulations. For example, in Italy, certified trekking guides must complete a first aid course and carry essential medical supplies during their activities. However, there is no obligation to be trained in the use of defibrillators (AEDs), and such requirements vary from country to country.

Key recommendations:

³⁷ https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C_202400906

- All tourism operators should **comply with their national health and safety requirements** for first aid.
- **Voluntary training** should be strongly encouraged, especially for those in direct contact with visitors in remote or physically demanding contexts.
- Businesses should regularly **check and maintain first aid kits**, and ensure they are accessible in vehicles, accommodations, and along frequently used routes.

A lack of basic first aid preparedness increases legal liability, undermines visitor confidence, and may exacerbate the severity of otherwise manageable incidents. Tourism operators play a key role in promoting a **culture of safety and readiness** that can prevent emergencies from escalating.

7.3 Limited Awareness of Insurance Options and Obligations

Within the general scope of crisis preparedness, the lack of awareness or understanding of insurance coverage, both for businesses and their clients, is another risk. Many tourism SMEs either underestimate the importance of comprehensive insurance or are unaware of what is required under national or local laws. This can leave businesses vulnerable in the event of:

- Accidents involving clients or staff
- Natural disasters damaging infrastructure or interrupting operations
- Civil liability claims are due to perceived negligence or unsafe conditions.

List of Figures

Figure 1 - Key steps for increasing resilience in tourism SMEs - Infographic

Figure 2. Building Resilience through Risk Management Phases: Preparedness, Emergency Response and Recovery, Copernicus Emergency Management Service

Figure 3 Copernicus Service Homepage

Figure 4 Overview of the risks that are of most concern to the tourism ecosystem

Figure 5 Adapted from Basic Cyber Hygiene Practices, ENISA

Figure 6 Type of flooding Infographic, <https://levees.sec.usace.army.mil/flood-basics/about-flooding/>

Figure 7 A normal (dip-slip) fault, Usgv.gov Programs, Earthquake Hazards

Figure 8 Earthquake hazard map of Europe, European Facilities for Earthquake Hazard and Risk EFEHR

Figure 9 How a heat dome forms, adapted from AFP, 2021 and Hills and others, 2021. Source: Eberle, Caitlyn & Higuera Roa, Oscar & Sparkes, Edward. (2022). Technical Report: British Columbia heatwave.

List of Tables

Table 1- Risk Profile - Lycian Way (Türkiye)

Table 2- Risk Profile - Via Francigena/ Road to Rome (Italy)

Table 3- Risk Profile - Sultan's Trail (Bulgaria)

Table 4- Risk Profile - Greek Mountain Routes: Mounts Olympus, Kissavos, Mavrovouni (Greece)

Table 5 Disaster Risk Management Checklist: Fire

Table 6 Disaster Risk Management Checklist: Flood

Table 7 Disaster Risk Management Checklist: Landslide

Table 8 Disaster Risk Management Checklist: Earthquake and Tsunamis

Table 9 Disaster Management Checklist: Heatwave

Table 10 Disaster Risk Management Checklist: Hurricanes and Sandstorm

Table 11 Disaster Risk Management Checklist: Man-made/ Technological Disaster

Table 12 Main Digital Risks for Tourism SMEs

Table 13 Classification of Landslide (Hungar et al., 2014; Turner, 2018)

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Annex 1 Natural disasters: Origin and Impact

1. Wildfire

Climate change has intensified this risk in the Mediterranean basin, extending fire seasons and increasing the frequency of extreme fire weather conditions. Tourism often increases fire risk due to visitors smoking or lighting barbecues in vulnerable areas, leaving litter (glass can concentrate sun's rays), or using motorcycles etc. in woodland areas.

The forestry authorities in Mediterranean countries are very active in firefighting including manning of hilltop fire-watch stations, provision of fire-pools for firefighting, provision of local equipment in isolated villages, sharing of fire-fighting planes and helicopters with neighbouring countries. But fires can only be fought from the air if there is a nearby lake/sea from which planes can scoop water, so trails through inland mountainous regions are at the most risk if fire breaks out. Some forestry areas including trails may be closed at times of high risk, impacting tourism planning.

Wildfires pose multiple threats to walking routes, including:

- Direct danger to hikers through rapid fire spread, which can exceed 10-15 km/h in extreme conditions
- Smoke inhalation risks, which can affect areas up to 100 km from the fire source
- Post-fire hazards such as unstable terrain, falling trees, and flash flood vulnerability
- Infrastructure damage to trails, signage, and emergency shelters
- Infrastructure damage to inhabited areas including accommodation and other trekker services
- Road closures, which can change very rapidly, impeding evacuation or access by firefighters.

2. Flood

A flood is an unusual accumulation of water above the ground caused by high tide, heavy rain, melting snow or rapid runoff from paved areas.



Figure 6. Type of flooding Infographic, <https://levees.sec.usace.army.mil/flood-basics/about-flooding/>

The Mediterranean region experiences various flood types, each presenting unique challenges for walking routes. These include:

- Flash floods: Sudden, intense rainfall events that can transform dry riverbeds (wadis) into dangerous torrents within minutes.

- River floods: Prolonged rainfall causing rivers to exceed their banks, potentially affecting low-lying trail sections.
- Coastal flooding: Temporary inundation of coastal trails due to high tides, storm events, or tsunamis.
- Storm surges: Abnormal rises in sea level during storms, particularly affecting coastal sections.

Floods threaten walking routes through:

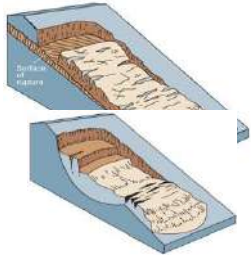
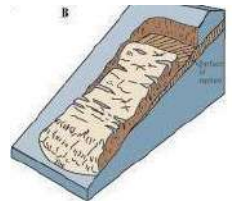
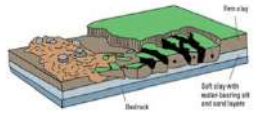
- Direct physical danger to hikers caught in rising waters.
- Trail damage including erosion, washouts, and structural failures.
- Contamination from floodwaters carrying pollutants or sewage.
- Isolation of trail sections when bridges or crossings are damaged.

3. Landslide

A landslide is the gravitational movement of a mass of rock, earth or debris down a slope. Landslides are usually classified on the basis of the material involved (rock, debris, earth, mud) and the type of movement (fall, topple, avalanche, slide, flow, spread). Thus, the generic term landslide also refers to mass movements such as rock falls, mudslides and debris flows. Volcanic mudflows and debris flows are also called lahars.³⁸

Types of Landslide	Occurrence and relative size/range	Triggering mechanism	Schematic view
Falls	Prevalent in steep or vertical slopes globally, also in coastal regions and rocky riverbanks. The size of material involved in a landslide can range greatly, from small rocks or soil clumps to large blocks measuring thousands of cubic meters.	Undermining of slope by natural phenomena like streams, rivers, and differential weathering (such as the freeze/thaw cycle), as well as human activities such as excavation for road construction or maintenance. Additionally, earthquakes and strong vibrations can also contribute to the destabilization of slopes.	
Topple	Observed worldwide and are frequently found in volcanic regions characterized by columnar jointing. They also commonly occur along the steep banks of streams and rivers.	can be triggered by various factors, including the gravitational force exerted by material located uphill from the displaced mass. They can also be influenced by the presence of water or ice within cracks in the mass. Other factors such as vibrations, undercutting, differential weathering, excavation, or stream erosion can also contribute to the occurrence of topples.	

³⁸ <https://esdac.jrc.ec.europa.eu/themes/landslides>

Slide	Rotational	The most common type of landslide in "fill" materials due to their occurrence in homogeneous materials. These are typically linked to slopes ranging from approximately 20 to 40 degrees.	Intense rainfall, rapid snowmelt, and other factors like changes in river and groundwater levels can saturate slopes and contribute to landslides. These events can also be triggered by earthquakes.	
	Translational	One of the most widespread types of landslides globally. They are typically shallower than rotational slides. The surface of rupture has a distance-to-length ratio of less than 0.1 and can vary in size from small residential failures to large regional landslides spanning kilometres.	Intense rainfall, rising groundwater levels from rainfall, snowmelt, flooding, irrigation, or water leakage, as well as human-related factors like undercutting, can trigger this type of landslide. They can also be induced by earthquakes.	
Spreads		Typically happens in regions with soils prone to liquefaction. While they are commonly associated with seismic activity, their occurrence is not limited to such areas. Initially, the affected area may be small with a few cracks, but these cracks can rapidly expand, impacting areas hundreds of meters wide.	Triggers for destabilizing the weak layer include liquefaction caused by earthquake shaking, overloading of the ground above an unstable slope due to natural or human factors, saturation of the underlying weaker layer from precipitation, snowmelt, or groundwater changes, liquefaction of sensitive marine clay following erosion at the base of a riverbank or slope, and plastic deformation of unstable material at depth (such as salt).	

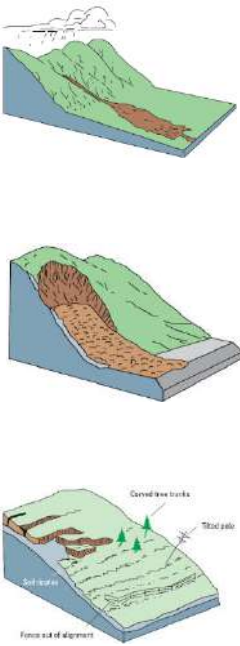
Flows	Debris flows are widespread and often found in steep gullies and canyons. They can be exacerbated when occurring on slopes or in gullies stripped of vegetation due to wildfires or logging. Volcanic regions with weak soil commonly experience such flows. They vary in thickness and can be thin and watery or thick with sediment and debris, typically staying within the dimensions of the steep gullies that guide their movement. The flows are generally shallow and have a long and narrow runoff, sometimes extending for kilometres in steep terrain.	Debris flows often result from intense surface-water flow caused by heavy precipitation or rapid snowmelt. This flow erodes and mobilizes loose soil or rock on steep slopes. Additionally, debris flows can originate from other types of landslides on saturated steep slopes, involving a significant amount of silt and sand-sized material.	
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Table 13. Classification of Landslide (Hung et al., 2014; Turner, 2018)

The Mediterranean region's combination of mountainous terrain, seasonal precipitation patterns, and increasing extreme weather events creates significant landslide vulnerabilities. It is important to note that some walking routes are exposed not only to landslide risks but also to snow avalanches. While landslides involve the movement of soil, rock, or debris down slopes, snow avalanches specifically refer to rapid flows of snow and ice.

Landslides threaten walking routes and surrounding ecosystem through:

- Direct physical danger to hikers from rapidly moving earth or rock
- Trail destruction including complete obliteration of path segments
- Long-term access restrictions due to unstable slopes
- Secondary hazards such as damming of waterways leading to flash flood risks

4. Earthquake and Tsunamis

An earthquake is a violent shaking of the ground produced by deep seismic waves, beneath the epicentre, generated by a sudden decrease or release in a volume of rock of elastic strain accumulated over a long time in regions of seismic activity (tectonic earthquake). The magnitude of an earthquake is represented by the Richter scale; the intensity by the Mercalli scale.³⁹

³⁹ <https://www.eea.europa.eu/help/glossary/eea-glossary/earthquake>

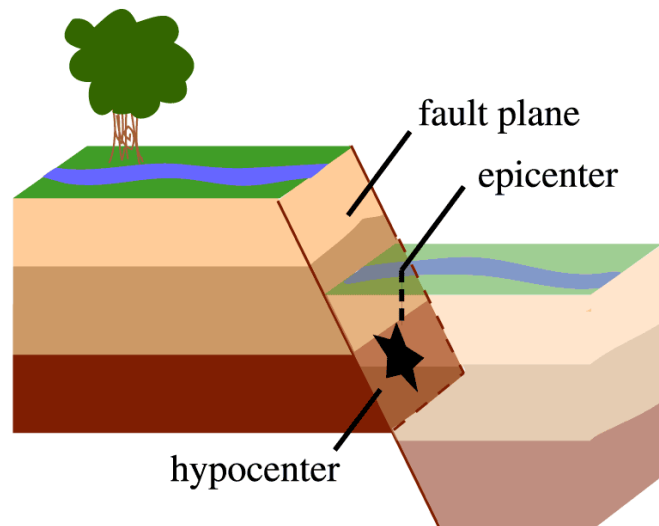


Figure 7. A normal (dip-slip) fault, Usgv.gov Programs, Earthquake Hazards

Earthquakes can neither be prevented nor precisely predicted. Therefore, they have a great potential to cause damage and affect the well-being of society: During the 20th century, earthquakes in Europe accounted for more than 200,000 deaths and over 250 billion Euros in losses (EM-DAT).⁴⁰ The Mediterranean basin sits at the convergence of the African and Eurasian tectonic plates, making it one of Europe's most seismically active regions. Specifically, Turkey, Greece, Albania, Italy, and Romania are the countries with the highest hazard in Europe, followed by the other Balkan Countries. In the **Earthquake Hazard Map of Europe** below (Figure 7), low hazard areas are coloured in white to green, moderate hazard areas in yellow to orange and high hazard areas in dark red to purple. According to current design codes, earthquake-resistant residential or office buildings are designed to withstand expected ground shaking levels with a 10% probability of being exceeded in a specific time interval (i.e. 50 years). This is the average expected lifetime of a standard residential building and can also be described as the ground shaking that is expected to be exceeded every 475 years (the so-called return period of the hazard).

⁴⁰ <http://www.efehr.org/start/>

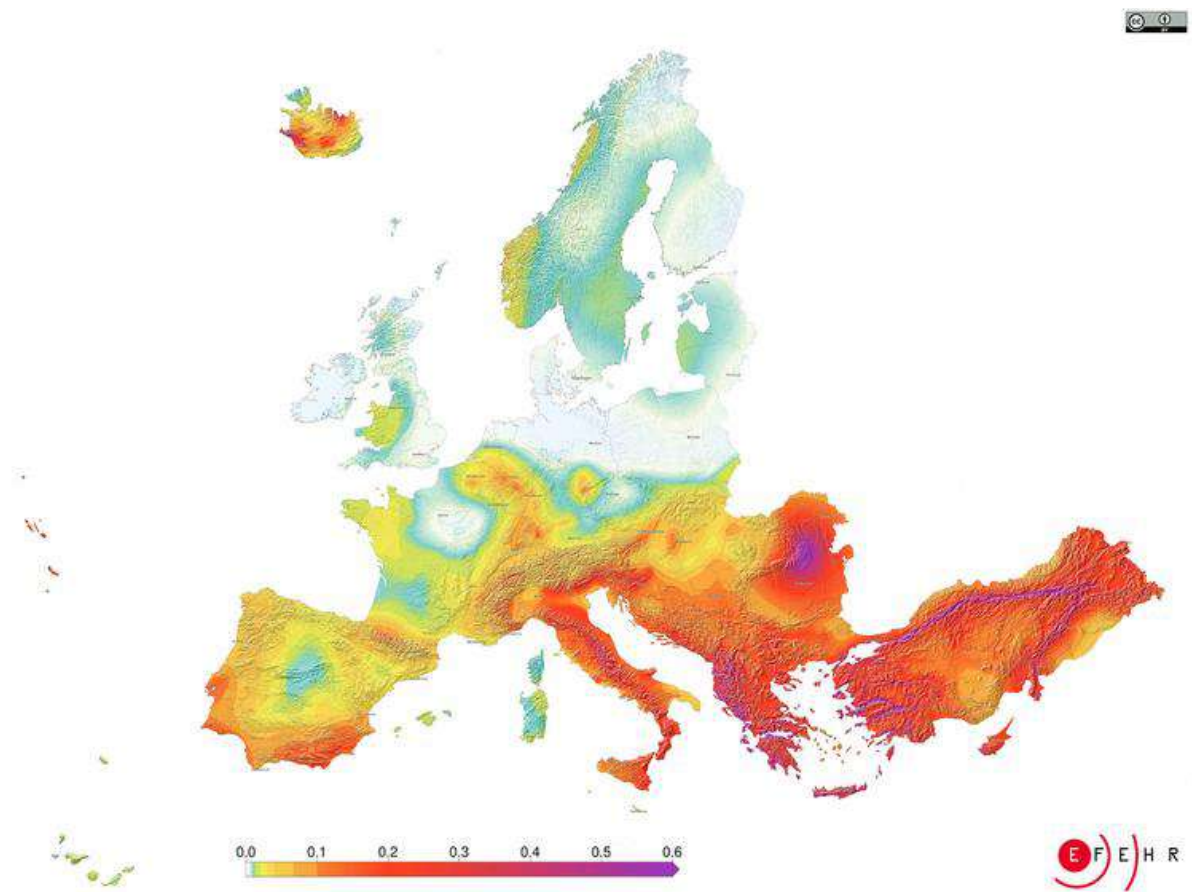


Figure 8. Earthquake hazard map of Europe, European Facilities for Earthquake Hazard and Risk EFEHR

Earthquakes pose multifaceted threats to walking routes through direct ground shaking, triggering secondary hazards such as landslides, and creating long-term changes to landscapes and infrastructure. Earthquake hazards for walking routes include:

- Direct physical danger to hikers from falling debris or ground rupture
- Trail damage including surface fissures, offset paths, and landslide-blocked sections
- Destruction of support infrastructure such as bridges, shelters, and water sources
- Disruption to emergency response capabilities during critical periods

A tsunami is a large seismically-generated sea wave which is capable of considerable destruction in certain coastal areas, especially where submarine earthquakes occur. Although in the open ocean the wave height may be less than one meter it steepens to heights of 15 metres or more on entering shallow coastal water. The wavelength in the open ocean is of the order of 100 to 150 km and the rate of travel of a seismic sea wave is between 640 and 960 km/h ⁴¹.

While less frequent than other natural hazards in Mediterranean regions, tsunami potential for catastrophic impact requires dedicated consideration in risk management planning. Tsunamis can be triggered by underwater earthquakes, volcanic eruptions, or submarine landslides, with minimal warning time for coastal areas.

⁴¹ <https://www.eionet.europa.eu/gemet/et/concept/7579>

Tsunami hazards for walking routes include:

- Extreme danger to hikers in low-lying coastal areas with limited evacuation options
- Destruction of coastal trail infrastructure including bridges, boardwalks, and facilities
- Contamination of water sources and natural areas with saltwater and debris
- Long-term alteration of coastal landscapes affecting trail viability

5. Heatwaves

A heatwave is a prolonged period of much-warmer-than-average weather. These high-pressure systems, also known as anticyclones, create a dome of heat by forcing air to sink and compress, which increases temperatures at the surface. The lack of cloud cover under these high-pressure systems allows for greater solar radiation, further heating the ground and the air above it. This combination of factors can result in prolonged periods of excessively high temperatures, often lasting several days to weeks.

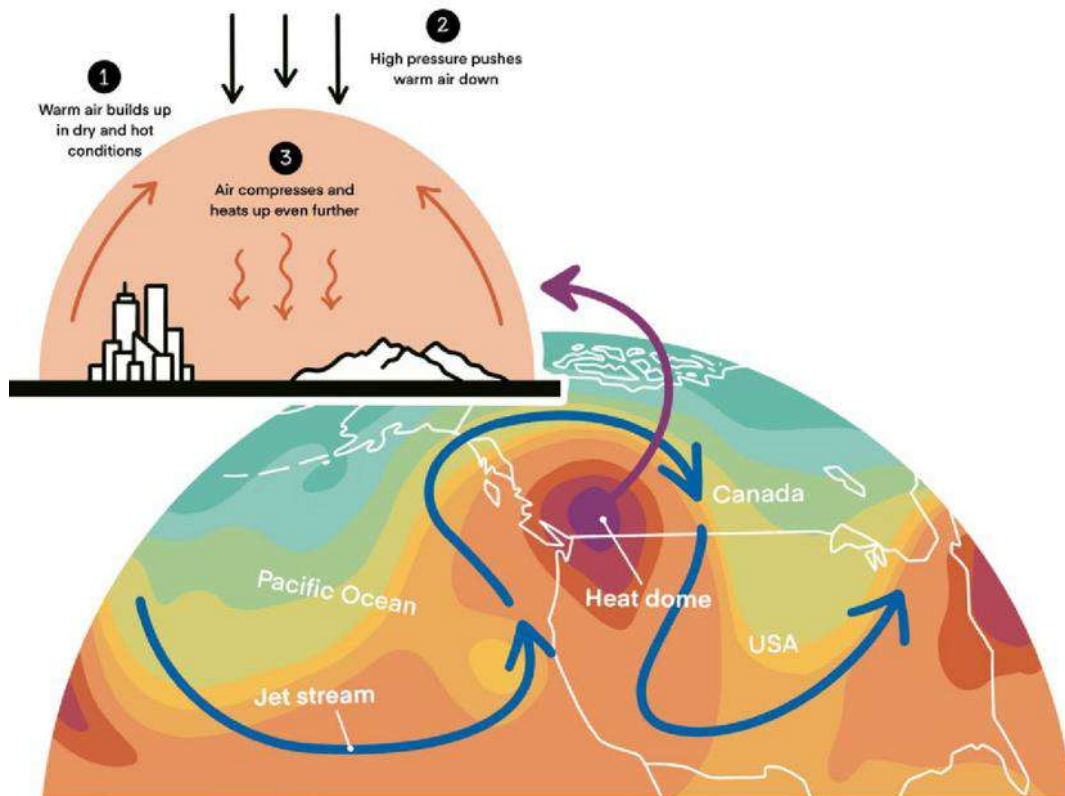


Figure 9. How a heat dome forms, adapted from AFP, 2021 and Hills and others, 2021. Source: Eberle, Caitlyn & Higuera Roa, Oscar & Sparkes, Edward. (2022). Technical Report: British Columbia heatwave.

Heatwaves threaten walking routes through:

- Direct physiological danger to hikers from heat stress, dehydration, and heat stroke
- Increased wildfire risk during prolonged hot and dry periods
- Damage to trail infrastructure through extreme temperatures and drought conditions
- Depletion of water sources critical for trail sustainability

The summer of 2024 was officially the warmest on record for Europe, according to the Copernicus Climate Change Service. Mediterranean regions—including Greece, southern Italy, Spain, and Turkey—experienced prolonged periods of extreme heat, with daytime temperatures consistently exceeding 40°C. These conditions created hazardous environments for outdoor activities, particularly for hikers and long-distance walkers.

In spite of this risk being the most likely to cause death to summer trail users, few trekkers are aware of it and of the precautions they should take to mitigate the effects of heat. As there are no statistics on deaths from heat exposure, authorities don't like to discourage visitors. For example, at least one trekker dies every year on the Lycian Way in Turkey (See Culture Routes Society annual travel advisory https://docs.google.com/document/d/1CTrfWPfGhMYsII5df67XZq4_cdFuLi6F/edit).

6. Hurricanes and Sandstorms

As climate change continues to influence global and regional weather systems, the Mediterranean basin is experiencing a rise in extreme and unpredictable atmospheric events that can impact outdoor tourism.

One key climate interaction is between marine heatwaves and tropical systems. While hurricanes — also known as tropical cyclones or typhoons, depending on the region — are rare in the Mediterranean, warmer-than-average Sea Surface Temperatures (SSTs) ($\geq 27^{\circ}\text{C}$) can fuel Mediterranean tropical-like cyclones, also referred to as "**Medicanes**". These systems can bring intense winds, heavy rainfall, and coastal flooding, particularly in autumn.

Moreover, Saharan sandstorms—also known as Saharan dust events—are affecting Mediterranean air quality and visibility. These occur several times per year, especially during spring and summer, when hot, dry winds (e.g., Sirocco) carry fine desert dust across southern Europe, reaching Greece, Italy, Spain, and beyond.

These events pose threats to routes through:

- Reduced visibility and dangerous air quality, particularly for individuals with respiratory conditions
- Trail discomfort and increased dehydration risk due to hot, dry, particle-laden air
- Disruption of transport (e.g., ferry and air services) and supply chains for trail-related SMEs
- Contamination of water sources or gear when exposed to airborne particles

Annex 2 General Risk Management Checklist for Tourism SMEs

GENERAL RISK MANAGEMENT CHECKLIST FOR TOURISM SMEs	Responsible
1. Mitigation & Preparedness	
☐ Identify local disaster risks (wildfires, floods, terrorist attacks, war/military aggression, etc.) using historical and satellite data (e.g Copernicus, national civil protection departments and tools).	
☐ Ensure tourism infrastructure and equipment meet safety and environmental standards (e.g., fire-resistant materials, proper drainage).	
☐ Apply location-specific mitigation measures at infrastructure with (flammable materials, blocked exits, exposed wiring, etc.) and governance level (e.g staff training on crisis protocols)	
☐ Assess and secure your business IT systems with firewalls, backups, and strong passwords.	
☐ Draft a clear emergency plan with evacuation routes and assembly points, staff roles (evacuation leader, communicator, first aid), essential contacts (fire/police, local authorities, insurance).	
☐ Promote sustainable practices (e.g. water management, waste management, sustainable consumptions, biodiversity, etc.) among guests and locals as systemic forms of Climate Action.	
☐ Develop a Business Continuity Plan (BCP) that outlines how your SME will maintain or quickly resume operations during and after a disaster (e.g., alternative suppliers, staff backup, data recovery, communication with guests).	
☐ Participate in community-wide risk awareness and prevention efforts and collaborate with trail managers or local associations.	
2. Response	

☐ Activate your evacuation plan and system safely evacuate all potential occupants from multiple types of hazards, considering diverse hazard scenarios and covering all locations in and outside of the building.	
☐ Communicate clearly and calmly with guests and staff—provide instructions and assist vulnerable individuals.	
☐ Maintain ongoing contact with emergency services and strictly follow their instructions.	
☐ Document key actions taken, resources used, and any incidents for post-event reporting.	
3. Recovery	
☐ Assess physical damage to infrastructure, equipment, and trails; prioritize repairs to resume safe operations quickly.	
☐ Communicate transparently with guests, partners, and the local community about recovery efforts and timelines.	
☐ Review financial impacts and explore available support such as insurance claims, government aid, or community funds.	
☐ Support community recovery efforts if possible (e.g., donations, shared resources, participation in clean-up).	
☐ Update your business continuity plans (BCP) based on lessons learned.	
☐ Rebuild trust by demonstrating improved safety measures and resilience practices.	