



The HuT

Feedback on Field Visits

Deliverable D5.4

DEVELOPED WITHIN

WP5 Transferability and scalability, T5.2 International DRR nexus Forum

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- * PU = Public
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1.1. Document history

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3. Introduction

3.1. Purpose and scope of deliverable

The field visits represent an approach to promote peer-to-peer learning and exchange of good practices amongst the demonstrators arenas (DEMs). The goal of deliverable D5.4 is to present a report on the feedbacks collected during the field visits and virtual field visits of the DEMs. This report aims to analyse the good practices and identify the enablers and barriers in replicating the DEMs' specific disaster risk reduction (DRR) solutions.

3.2. Field visits in WP5: role, constraints, and learning rationale

The field visits can operate as tools for transferability and contribute to the replication mechanisms within the project consortium, outside the consortium and beyond the project. The major challenge of the field visit is that it could not be conducted in-person for all DEMs due to resource constraints. Therefore, the learning is conducted through in-person field visits for 3 DEMs and virtual field visits for 9 DEMs.



4. Field visits approach and methodology

4.1. Physical and virtual field visits: scope and roles

To support transfer and replication mechanisms outside the consortium and beyond the project, peer-to-peer learning was conducted for the Demonstrators Arena. During the consortium annual meetings, held physically at partners' premises, field visits were conducted respectively in Zulg Valley (part of DEM10) and in Gluckstads (part of DEM5). A field visit was also conducted by DEM7 team in Vilnius city, Lithuania (part of DEM4).

In addition to in-person field visits, a virtual platform was built in Zenodo to facilitate the cross-fertilization and properly document DRR solutions transfer.

4.2. Virtual field visits as the primary learning instrument

To foster reciprocal learning across demonstration sites and improve the transferability of DRR solutions, each DEM had to assign at least two persons to review all Virtual Field Visit content ([records on ZENODO](#)) developed by other DEMs. 9 DEMs participating in the Virtual Field Visits have been engaged in the review process.



5. Summary of field visits

5.1. Physical field visits

5.1.1. DEM7 visiting DEM4

Between May 5 and 9, 2025 DEM7 visited DEM4 in Vilnius city, Lithuania. The visit addressed challenges related to intense rainfall events, urban drainage capacity, and the need for climate-proof design of infrastructure in a large urban environment.

The visit included technical exchanges with Vilnius University and site visits to key infrastructure, including rainwater treatment facilities, accumulation basins, and monitoring systems for heavy rainfall. Particular attention was given to integrated approaches combining structural measures, monitoring, and operational management.

Key practices observed included the use of accumulation basins designed not only to reduce peak flood discharge but also to improve water quality through sedimentation and filtration processes, supported by underground sand and oil traps. These systems illustrated a multifunctional approach to urban flood management, combining risk reduction with environmental benefits.

The main takeaways from the visit:

- the scale and design of accumulation basins are critical for effectively reducing urban flood peaks;
- flood management infrastructure can be designed to simultaneously address water quality through nature-based and hybrid solutions;
- the integration of bypass systems is essential to ensure system functionality during extreme or failure conditions.

From an amplification perspective, the visit highlighted several **opportunities** for applying similar approaches within DEM7. Both demonstrators address urban flood risks, and the concept of using storage capacity to manage peak flows was identified as particularly relevant. However, the implementation would require adaptation to local conditions, especially considering differences in topography, as Vilnius is characterized by hilly terrain while DEM7 operates in a predominantly flat region of Middle Tisza.

Constraints for amplification include differences in geographical conditions, regulatory frameworks, and infrastructure design standards. These factors influence both the feasibility and the design requirements of similar systems in other contexts.





Figure 1: Photos from DEM7 visiting DEM4.

5.1.2. Consortium field visit to Zulz Valley in DEM10

In autumn 2024, the DEM10 leads (Mario Roher, Anna Scolobig, and Markus Stoffel) organised a technical field visit which was attended by the project coordinator and the deputy coordinator. On one side, the objective of the visit was to showcase the high-tech instrumentation deployed to fill potential spatial gaps in the monitoring network, as cutting-edge technology can support improved characterisation of short-duration events. On the other side, the visit covered the area where forest management activities are carried out, considered within WP3 as a nature-based solution. Held ahead of the annual meeting, the visit proved to be highly valuable in understanding how the integration of different monitoring tools and networks can be made to work in practice, and what the real implications may be for the implementation of management measures and nature-based solutions.

5.1.3. Consortium field visit to the city of Gluckstadt in DEM5

A day-long field visit was organized in the city of Gluckstadt during the 2025 annual meeting. The main issue in Gluckstadt is high magnitude river floods forced by sea tides. The field visit presents a historically developed approach to manage river floods and tidal risks. This solution focuses on



understanding and anticipating flood events through long-established practices. The old and new coastal and city protection facilities guarantee the city's safety from floods. A potential replicable element to be considered is the integration of the flood management system with a clear risk communication strategy. Adapting this approach could help ensure that communities and authorities in other regions receive timely, coordinated information during flood events, improving preparedness and response. The main challenge in replication is the coordination between scientists and decision-makers. Interest and strong political commitment from the local administration in risk management measures is essential. Effective communication, coordination and collaboration among scientists, flood management experts, and local authorities are keys to implement successful risk management and ensure timely, informed decisions.



Figure 2: Photos from The HuT consortium visit to the city of Gluckstadt (DEM5).

Virtual field visits

A summary of the virtual field visits (VFV) is reported in Table 1. More details are reported in the subsequent subsections.

Table 1: Summary of Virtual Field Visits.

DEM	Focus of the virtual field visit	Innovation or practice showcased
DEM 1	Monitoring instruments	Simple and affordable heat monitoring in the city
DEM 2	Monitoring and modelling	Real-time and centralised monitoring and operational risk management decision-making.
DEM 3	Monitoring instruments	IoT Monitoring
DEM 4	Monitoring and communication	Educational and explanatory approach combining monitoring insights with communication of spring flood dynamics and preconditions
DEM 6	Monitoring instruments	Avalanche barriers and landslide monitoring instruments
DEM 7	Monitoring instruments	Hydrometeorological station and water level gauges
DEM 8	Participatory social research	Combination of wildfire technical modelling, participatory social research and innovative insurance.
DEM 9	Monitoring instruments	Solar-powered weather station which links the recent events to any meteorological factors and their impacts on the cliff
DEM 10	Monitoring and mitigation	The combination of monitoring systems and forest protection.

5.1.4. DEM1: Valencia City - Spain

The VFV presents a monitoring approach to study heat waves and the urban heat island effect in Valencia City. Air and surface temperatures are measured in different spots of the city using meteorological stations, thermometers under umbrellas, and infrared thermometers. The monitoring is strategic to address urban heat risk by providing an urban thermal diagnosis: it helps detect vulnerable areas, identify deficits in green spaces, and support the design of public spaces and the implementation of heat adaptation measures. Green infrastructure, as presented in the virtual field visit, can reduce the urban heat island effects, cool temperatures and provide other co-benefits.



 DEM 1 Heat in the city: how to measure it?
Measure surface temperature



Figure 3: DEM1 VFF showing temperature measurement.

Potential replicable elements:

1. The use of simple and affordable monitoring tools contribute to better understanding local environmental conditions and supporting evidence-based adaptation and risk management strategies.
2. The use of spatial analysis to support water management hot spots, complement local monitoring networks and improve the understanding of local environmental conditions.
3. The monitoring approach could be adapted to support hydrogeological risk assessment, particularly for landslides.

Potential constraints for replicability:

1. Direct applicability of this type of monitoring may be limited for floods, landslides, avalanches or snow melt as spatial conditions and safety would need to be considered. Installing and maintaining sensors can be difficult in a larger, harsh high mountain region and more dispersed than an urban environment.
2. Regular data collection and long-term monitoring may require dedicated human resources, funding and stronger coordination among local authorities and institutions.
3. Creating new green spaces might conflict with heritage preservation.

Enablers for replicability:

1. Similar spatial conditions (urban layout, paved and green areas) and availability of appropriate technical tools.

2. Compliant legal framework including heritage and environmental regulations.
3. Dedicated human resources and technical expertise to implement regular data collection and long-term monitoring
4. Stronger coordination among local authorities and institutions and data-driven decision making by decision-makers.
5. Stakeholder engagement (e.g., citizen science) to ensure successful implementation and long-term sustainability.

5.1.5. DEM2: Val d'Aran region – Spain

The VFV presents a monitoring and modelling system designed to identify areas at risk of landslides and avalanches. It combines environmental variables such as temperature, humidity, soil moisture and river level, with a digital platform that collects real-time data, supports modelling, and manages alerts through a dashboard. The solution functions as a monitoring and decision-making support system and support for operational risk management. It enables early warning actions, such as evacuations or preventive safety measures and support first responders through live information on hazard conditions. Additionally, the approach helps address data gaps and improves the understanding of the environmental conditions that can trigger these hazards, leading to more accurate risk modelling.



DEM 2 "Monitoring and Modelling"



What: Operational management of natural hazards in Aran Valley
Where, When: SC Aran, 04/12/2025 ([google maps](#))
Who: Felipe Martinez (SC Aran)



What: Dashboard prototype
Where, When: ARANTEC, 29/10/2025 ([google maps](#))
Who: Francis Nieto (ARANTEC)

Figure 4: DEM2 VFV showing monitoring platform and modelling.



Potential replicable elements:

1. This monitoring and modelling system can be adopted in other contexts such as: management plans for urban vegetation, plan for irrigation needs and long-term maintenance of green infrastructure, monitoring hydrogeological conditions related to landslides and floods.
2. Combining environmental monitoring with health data (such as heat-related hospitalisations) could help identify urban areas most affected by extreme heat.

Potential constraints for replicability:

1. Installing and maintaining the full set of monitoring devices would require technical personnel and financial resources that may not be fully available in other contexts.
2. Legal and regulatory constraints may limit data sharing or require approvals for operational alerts.
3. A centralized emergency control center with real-time monitoring and integrated response coordination is also challenging as in other context responsibilities remain fragmented across multiple agencies.

Enablers for replicability:

1. Reliable monitoring infrastructure is required, including sensors and data collection systems for environmental variables, along with data-sharing mechanisms and technical capacity to process and model the information.
2. Strong institutional coordination among monitoring agencies, emergency services, scientific institutions and local authorities to ensure coordinated response and ensure long-term system sustainability
3. Sustained political support, long-term funding, stakeholder trust and engagement, together with policy incentives are essentials to promote proactive risk management, further enable effective adoption and long-term sustainability.

5.1.6. DEM3: Lattari Mountains – Italy

The VFV presents an IoT-based landslides monitoring system in the 'Cava Salerno' area. The environmental monitoring system uses various sensors to measure variables such as soil moisture and temperature, water content, radar level and weather station. Sensors were installed to measure different soil and weather parameters at different locations and soil parameters also at different depths. It has direct connectivity with data loggers and the software enabling real-time and continuous data collection with remote access as a practical technical tool. The data is used for modelling of different hazards relevant in the Lattari Mountains region. It improves the understanding of environmental conditions related to natural hazards such as floods, landslides, and extreme weather events. Continuous monitoring helps provide data to support risk assessment and decision making in landslide early warning, preparedness, and risk management.



 DEM 3 "IoT monitoring"
Installing sensors: "Cava Salerno" site (google maps)



What: Preparing to install METER TEROS 10
Where, When: "Cava Salerno" site, 31/01/2025
Who: Rosa Menichini, Gaetano Pecoraro (UNISA)

COMMENT
At the end we did not use the TEROS Borehole Installation Tool to install the sensors, because the borehole shown in the video was not large enough. When a larger borehole (a small trench) was excavated, the tool was no longer useful, as the maximum depth of installation was 60 cm below ground surface.



What: Excavating a larger borehole
Where, When: "Cava Salerno" site, 31/01/2025
Who: Rosa Menichini, Gaetano Pecoraro (UNISA)

Figure 5: DEM3 VFX showing preparation for IoT device installation.

Potential replicable elements:

1. The use of soil moisture and water content sensors could be useful in Mediterranean cities to monitor environmental conditions related to urban green infrastructure and irrigation needs. These variables could help identify suitable locations for the development of urban green spaces and support better water management strategies.
2. The use of IoT sensors for continuous environmental monitoring to improve the understanding of local conditions and support model validation.
3. The single depth soil moisture sensors (instrument from Sensoterra) will add to the reliability of the monitoring network
4. Establish a monitoring test area or experimental site where different variables such as surface temperature and air temperature could be measured to analyse how different urban surfaces respond to seasonal changes and how their temperatures vary during summer heat conditions in Valencia. Such a setup could support research on urban climate and heat mitigation strategies.
5. The organization of the monitoring network is suitable to be replicated in a rain gauge network in urbanized areas.

Potential constraints for replicability:

1. The differences in hazard types, scale and dynamics. Monitoring systems for heatwaves would be used more for long-term environmental analysis and identification of vulnerable areas, rather than for immediate emergency interventions.
2. Some monitoring systems may be more difficult to implement in high mountain areas due to accessibility constraints and the need for maintenance of sensors in remote locations.

3. The instruments that require solar panels would be difficult to apply due to capacity limitations and scale differences, as the instrument would have a lot of downtime due to weather conditions and not have consistent enough data transmission.
4. Well optimized (IoT) sensors network is difficult to implement due to funding issues, legal aspects of land use in urban areas and other factors
5. It is also relevant to consider potential vandalism actions, as the sites are open and exposed publicly, if these sensors and cables are not properly protected. We do consider this with other installations.

Enablers for replicability:

1. Adequate funding schemes to support the installation and maintenance of monitoring equipment.
2. Technical expertise to manage sensors and data processing.
3. Institutional support, regulatory framework and collaboration between research institutions, local authorities, and technical experts would also be important to ensure that the monitoring data can be effectively used for research and decision-making.
4. Similar geological conditions, appropriate and accessible sites.
5. Reliable technical infrastructure, including sensors, stable data transmission systems and communication networks, and data management platforms.

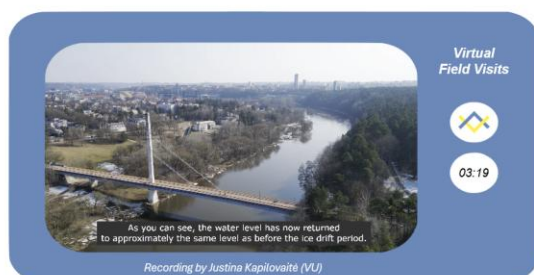
5.1.7. DEM4: Vilnius – Lithuania

The VFV presents an educational and explanatory approach to understanding spring runoff floods in Vilnius. It focuses on the environmental and climatic processes that lead to flooding events, including snow accumulation, snowmelt, and river ice formation. The video, as presented in the virtual field visit, explains how these factors interact and contribute to increased flood risk during the spring season, particularly after very cold winters when rivers freeze and large snow reserves accumulate. The approach aims to improve awareness and understanding of flood risks by clearly communicating the underlying processes and conditions that trigger these events.





DEM 4 "Spring runoff flood"
Spring runoff flood



What: Spring runoff flood due to ice drift

Where, When: Vilnius, 21/03/2026

Who: Gintautas Stankūnavičius, Ričardas Skorupskas (VU)

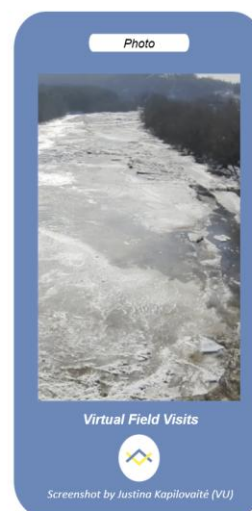


Figure 6: DEM4 VUF showing urban flood hazard.

Potential replicable elements:

1. The development of educational and communication materials to explain hazard dynamics to the public in an accessible way.
2. The use of explanatory videos and visual storytelling (including field observations and drone footage) to translate scientific concepts into understandable messages.
3. The identification and communication of key preconditions leading to hazard events, such as snow accumulation, snow water equivalent (SWE), and ice formation.
4. The application of similar communication approaches to other hazards, such as heatwaves, floods, or landslides, by explaining risk conditions and recommended response actions.
5. The integration of observational understanding of environmental processes with forecasting and early warning communication.

Potential constraints for replicability:

1. The approach focuses primarily on education and communication rather than on a specific technical solution, which may limit direct application in contexts requiring operational monitoring or modelling systems.
2. Environmental processes such as river ice formation, snow accumulation, and ice jam dynamics are highly context-specific and not directly relevant in many regions.
3. Effective dissemination of educational content requires strong communication strategies, coordination across media channels, and sustained engagement efforts.
4. Limited funding, technical capacity, and human resources may constrain the production and distribution of educational materials.



Enablers for replicability:

1. Availability of reliable environmental and scientific data on local hazard conditions.
2. Collaboration between research institutions, local authorities, and communication specialists to translate technical knowledge into accessible formats.
3. Access to communication platforms, including social media and public information channels, to ensure wide dissemination.
4. Funding schemes and institutional support to develop and sustain communication and awareness-raising activities.

5.1.8. DEM6: East Fjords – Iceland

The VFF presents both structural protection measures and monitoring instruments used to reduce landslide, slush flow and avalanche risk in East Fjords, Iceland. Ice and snow can threaten urbanized areas, and early detection along with protection dams help prevent casualties and reduce risk to communities. It includes monitoring instruments (e.g., total stations, GNSS/GPS stations, ground-based InSAR, prisms, soil moisture and temperature sensors, water level loggers) and physical protection measures such as deflecting and catching dams. The system aims to detect surface movements and groundwater changes and reduce hazard impacts on urbanized areas.



What: This video is part of the educational material produced by DEM 6 as a part of the HuT project. It aims to share knowledge on the avalanche barriers in Bjölfur, as means of DRR.

What: Description of avalanche hazard and avalanche barriers in Bjölfur.
Where, When: Seyðisfjörður, 16/11/2025.
Who: Video editing by Hlynur Sveinsson and Unnur Blær A. Bartsch (IMO).

Figure 7: DEM6 VFF showing barriers against avalanches.

Potential replicable elements:

1. Apply the principles that risk mitigation infrastructure can be supported by legal or administrative requirements for the implementation of urban adaptation.
2. Use of monitoring instruments to detect slope movements and subsurface changes.

3. Combining monitoring data with hazard assessment where rainfall and snowmelt influence floods and landslides.
4. Monitoring techniques such as soil moisture and water level sensors, surface movement detection with prisms, and early-warning procedures could be adapted to support hydrogeological risk management for landslides and floods.
5. Physical protection measures using locally available material for mitigation.

Potential constraints for replicability:

1. Differences in hazard perception can create challenges for establishing legal frameworks or mandatory protection measures, such as requiring the development of urban green spaces or climate shelters as part of urban planning and civil protection strategies.
2. Large structural measures such as avalanche or deflection barriers may be technically challenging and expensive due to site-specific design requirements, and the wider spatial scale of territory. Mountain areas and slopes are often steep, narrow, and located in remote or hard-to-access and to be maintained.
3. Limited capacities and technical complexity for smaller municipalities to handle high resolution meteorological data and translate it for all hazards.
4. Good community engagement and buy-in.

Enablers for replicability:

1. Higher exposure and the necessary space for building the protection dams.
2. Strong political support, legal/policy framework, and funding scheme to support the implementation and maintenance of adaptation infrastructure.
3. Community engagement to ensure that the system can be placed and remains in place.
4. Technical expertise, reliable monitoring data, suitable mountain locations, and sufficient funding for both installation and long-term maintenance.
5. Institutional support and coordination with local authorities would be needed to integrate data into operational early-warning and risk reduction systems.

5.1.9. DEM7: Tisza River Basin – Hungary

The VFV presents a monitoring system paired with a flood training centre designed to improve flood risk management and preparedness in the Tisza River Basin. This center enables real-conditions flood simulations and allows flood management experts to test intervention solutions. The hydrometeorological station measures 7 parameters (water level, air and soil temperature, precipitation, humidity, pressure, and wind speed) and shares data every hour. It allows for sustainable water management on multiple levels (floods, droughts, weather/climate monitoring, agricultural planning). The water level gauges installed on the Tisza river provide automatic hourly water level monitoring thanks to a pressure sensor. It addresses flood and drought risks in an area with extensive water management infrastructure. The monitoring systems provide two different measurements: (1) Meteorological data for flood and drought management, water resource management, weather and climate understanding and agricultural planning and (2)



water level measurements that are important for early warning against flood hazard, but it also allows for better water management through hourly water level monitoring on the Tisza river.

 DEM 7: Water level gauges



What: Water level gauges installed by KÖTIVIZIG
Where: Szolnok, at top of the dike
 Google location (<https://maps.app.goo.gl/La3FpseQt8HwWUDU9>)

- Pressure sensor DA-L SMART (from pressure transform to water level)
- Communication equipments GSM/GPRS
DA-SMDMv32-D 12 VDC (send the data every hour to KÖTIVIZIG headquarter)
- Battery 12V 7Ah

When: Video taken December 2025
Who: Péter Gergő Katona, Sándor Papp, Melinda Váci KÖTIVIZIG

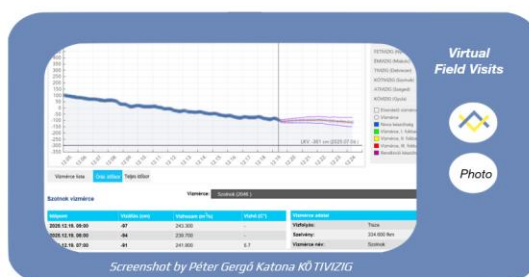


Figure 8: DEM7 VFF showing automated water level measurement device.

Potential replicable elements:

1. Real-time, automated water level monitoring, precipitation and soil moisture measurements, and hourly data transmission to improve early warning and disaster risk management.
2. Water levels need to be transformed into discharge for application in DEM 2.
3. Install a pressure sensor to measure and forecast water level more precisely.
4. Training center to simulate real-world scenarios and implement training activities to help local authorities and emergency responders improve preparedness, decision-making, and coordination during hazards events. For example, develop an experimental “climate shelter training site” where different nature-based solutions could be tested to mitigate extreme heat and examine how vegetation influences the amount of heat reaching buildings.
5. Extending water level measurements at key points of a river for early flood warnings.

Potential constraints for replicability:

1. Establishing a physical experimental facility similar to a training centre would require long-term institutional support, collaboration and funding to develop the necessary infrastructure.
2. Limited internal IoT expertise and faces connectivity risks during emergencies that complicate real-time data transmission.

3. Municipalities with smaller staff may struggle to handle hourly meteorological and water level data, while simultaneously communicating it to the relevant stakeholders for timely decision-making in the face of an extreme weather event.
4. It would not be the most accurate and cost-effective early warning solution in the case of flash floods.

Enablers for replicability:

1. Political support and dedicated funding schemes to finance the development of facilities, monitoring systems and warning covering multiple hazards.
2. Inter-institutional cooperation and effective communication mechanisms with other relevant stakeholders for interoperability of early response and warnings.
3. Technical expertise would be essential for designing and managing the research infrastructure.
4. Access to suitable physical space and infrastructure would also be crucial for creating experimental environments where climate adaptation strategies can be tested.

5.1.10. DEM8: Ogliastro – Italy

The province of Ogliastro is facing recurrent wildfires which are expected to intensify with climate change. These hazards threaten human lives, infrastructure, forests, animal farms, and tourism. Scientific models often rely on environmental and climatic data, but they may not fully capture local conditions or historical knowledge about how fires behave in specific areas. The VFV presents a wildfire behavior modelling framework combined with a stakeholder engagement process using a Public Participation Geographic Information System (PPGIS). This participatory approach allows the model to reflect not only scientific analysis but also local observations and knowledge, improving the understanding of wildfire risk. It assesses wildfire impacts and costs, co-defining adaptation and mitigation strategies with stakeholders. The process also includes an insurance product component to support wildfire risk reduction. By combining scientific data with community-based knowledge, local knowledge (land, resources, challenges, areas to protect, fire prevention strategies), it improves the accuracy and relevance of the hazard models and predictions, makes adaptation strategies more inclusive and strengthens local awareness and participation in risk management.



DEM 8 « PPGIS – Public Participation Geographic Information System »
Participatory activities in Ogliastra ([LINK to web page](#))



What: Public Participation Geographic Information System
Where, When: Tortolì, 14/02/2025
Who: Michela Bazzoni (CMCC)



DEM 8 « Towards an integrated approach combining modelling and participatory social research »
Participatory activities in Ogliastra ([LINK to web page](#))



What: Description of the integrated approach combining modelling and participatory social research
Where, When: Tortolì, 9/11/2023, 29/09/2024, 14/02/2025
Who: Alessio Menini (CMCC)

Figure 9: DEM8 VFF showing participatory approaches.

Potential replicable elements:

1. The participatory mapping approach could complement scientific modelling in heat, hydrological and geological hazards. The information collected through community participation could help validate and refine risk areas – especially at neighborhood scale that may not be fully captured by environmental data alone, help better understand wildfire implications for local communities as well as local adaptation practices to improve models and support relevant adaptation measures
2. Modelling results can be further interpreted by local stakeholders to recommend mitigation strategies for floods and landslides.
3. Using GIS-based tools to translate local knowledge into spatial data could improve hazard mapping and decision-making in other regions prone to natural hazards.

Potential constraints for replicability:

1. Participation requires time, trust, and well-designed activities. It can be challenging to ensure broad and representative involvement, especially without sufficient funding and organisational support for organising workshops, communication materials, and facilitation.
2. Coordinating a shared modelling and mapping exercise at large scale would require significant coordination effort.
3. The element of making high-resolution modelling could be difficult to apply as it would need funding, data accessibility and technical expertise.
4. Limited capacity and the complexity of developing context-specific insurance products.
5. Not all stakeholders may be familiar with online mapping tools or willing to actively participate in such processes. Additionally, GIS needs to be constantly managed and updated.

Enablers for replicability:



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101073957

1. Local communities are willing to cooperate and participate and contribute to the mapping workshops. It is also important to create inclusive and well-structured participatory processes, ensuring that participants feel comfortable sharing their knowledge.
2. Funding schemes could be necessary to support the organisation of participatory workshops and engagement activities. Accessible digital platforms and appropriate technical infrastructure would also be needed to support participatory mapping.
3. Technical expertise would be needed to design and manage the PPGIS platform and analyse the information collected through the participatory process.
4. Inter-institutional cooperation, involving universities/research partners, local authorities, and community organisations. This collaboration is fundamental to implement the modelling component and ensure broad participation of a diverse group of residents.
5. Institutional willingness to integrate local knowledge into formal planning processes.

5.1.11. DEM9: Dorset Coast – United Kingdom

The VFV presents a solar-powered weather station installed in West Bay, Dorset, at the top of a cliff that is regularly subject to cliff/rock fall events. Although rockfall warning signs are present near the cliff and where the footpath is closed, people are disregarding those signs and continue to hike along the top of the cliff as well as along the beach in the potential hazard zone. While the rock falls are mainly attributed to geological and coastal factors, the weather station is used to try and link the recent events to any meteorological factors and their impacts on the cliff. It measures a comprehensive set of meteorological variables (temperature, wind, solar radiation, atmospheric pressure, vapor pressure, lightning) to explore meteorological relationships with geological and coastal hazard processes such as rockfall and landslide. The monitoring system helps identify meteorological conditions that may increase slope instability, allowing authorities to warn the population during periods when these hazards are more likely to occur.



DEM 9: Weather station



What: BGS managed Weather Station installed at West Bay, Dorset.
 Google location <https://maps.app.goo.gl/n9s7ie6w62Nzur2k8>
☐ Atmos 41 ([LINK to web page](#))
☐ Z6 logger ([LINK to web page](#))
☐ Mobile licence ([LINK to web page](#))
Where, When: Installed October 2024. Video taken October 2025
Who: Katy Freeborough and Catherine Pennington (BGS)



What: The problem. Geological and coastal controlling factors at play but we are also trying to understand any meteorological relationships to support local stakeholder understanding.
Where, When: Photo taken; site visit October 2025

Figure 10: DEM9 VFV showing installed weather station on top of a coastal cliff.



Potential replicable elements:

1. The use of public information systems such as urban media/ advertising screens, or public information displays/signs, to raise public awareness and encourage preventive behavior for heatwave and other hazards.
2. The use of solar-powered, autonomous monitoring stations, where sensor installations in remote valleys and coastal areas may have limited grid connectivity.
3. Installing meteorological data specifically in highly exposed areas and linking meteorological data to hazard triggering conditions to understand rainfall conditions for flash floods and landslides triggering.

Potential constraints for replicability:

1. A similar weather station is already installed.
2. Due to scale difference, it is not feasible to install and maintain monitoring stations at very high spatial resolution. It must rely on a limited number of monitoring points.
3. The single-station approach is insufficient to monitor a dispersed network across different municipalities.
4. Developing public awareness campaigns during heatwave periods and expanding a network of urban weather stations would also require significant financial resources.
5. Coordination and collaboration across institutions.

Enablers for replicability:

1. Political support would be essential to prioritise investments in urban climate monitoring and risk communication.
2. Funding schemes would be necessary to install and maintain the network of meteorological stations across the areas and to support communication campaigns.
3. Inter-institutional cooperation between local authorities, research institutions, and communication platforms would be important to ensure that monitoring data can be effectively translated into public awareness, prevention strategies and actions.
4. Effective transfer requires identifying specific hazard-prone locations where meteorological monitoring adds clear predictive value.
5. Technical capacity and expertise to maintain solar-powered equipment, manage data collection and analysis.
6. Stakeholder awareness of the link between weather conditions and hazard risk is also essential to translate monitoring data into behavioral change.

5.1.12. DEM10: Zulg Valley – Switzerland

The VFV presents a combination of monitoring and structural mitigation measures along a mountain river in the Berne Canton. It addresses flash floods, landslides, and cascading debris/wood mobilization in an Alpine catchment that feeds directly into a densely populated urban area where floods can occur even in good weather due to localized upstream precipitation. Heavy



precipitation in higher elevation areas can generate sudden flooding or slope instability that may affect lower areas where people may not immediately perceive the risk, making risk communication to tourists and residents particularly difficult. Meteorological information is used to detect conditions that may lead to snowfall events, flash floods, or landslides. Based on this information, early warnings are issued to alert the population about possible risks and encourage precautionary behavior in exposed areas. The key infrastructure consists of barriers designed to retain wood debris while allowing water and sediment to flow freely, addressing the cascading hazard of wood mobilization that can cause damage downstream. Similarly, Nature based Solutions (NbS), like forest protection, can safeguard communities and infrastructure in the face of floods, landslides and snow avalanches.



The hazards: Floods and driftwood



What: Built infrastructure: Wood catcher
Where, When: Steffisburg, BE, 26/01/2026
Who: Text: Mario Rohrer, Speaker: Elsa Meisburger



What: Built infrastructure: Wood catcher
Where: Steffisburg, BE

Figure 11: DEM10 VFW showing installed wood catchers.

Potential replicable elements:

1. Providing early warning and clear information in public spaces could help encourage preventive behaviors and improve public awareness during heatwaves.
2. Using a distrometer to measure rainfall drop size and velocity allows better precipitation characterization in snow-dominated mountainous regions as well as in the city.
3. The cascading hazard logic (upstream events triggering downstream impacts) and the concept of targeted structural mitigation combined with hazard communication in touristic river environments.
4. Combining hazard information with monitoring data could improve decision-support systems used in operational water management

Potential constraints for replicability:



1. The system is designed for localised scale/single river, making it challenging to transfer large urban areas or larger and denser river networks. Additionally, the intervention requires regular maintenance, especially after large events, which would be difficult to replicate due to funding and administrative constraints.
2. Physical measures like wood catchers or large protection forests require funding availability. Limited capacities and technical complexities due to the hazards' types and geographical context, i.e: terrain and deep valleys are also the challenges for replication.
3. Institutional fragmentation, where management of hazards is siloed.

Enablers for replicability:

1. Public awareness campaigns targeting tourists are essential given the shared challenge of risk perception in attractive natural environments.
2. Technical expertise in geographic information systems (GIS), hazard analysis, and risk assessment would be necessary to carry out the analyses.
3. Clear institutional mandates and effective interinstitutional collaboration to address cascading effects that cross administrative boundaries. It includes: (1) data-sharing agreements between municipalities, the state or other relevant stakeholders, (2) standardized reporting formats (3) the establishment of a dedicated liaison role within governmental and civil protection institutions to improve the usability of the weather data towards effective response.
4. Political support, sustained funding for structural maintenance and policy incentives.



6. Implications for Amplification

6.1. Field Visits as a Tool for Amplification

Field visits, both physical and virtual, have demonstrated their value as a practical mechanism to support the amplification of Disaster Risk Reduction (DRR) solutions across the Demonstrator Areas (DEMs). In the context of The HuT project, amplification refers to the process through which DRR solutions developed in one demonstrator are extended, adapted, or scaled to other contexts, encompassing replication, transfer, and context-specific adaptation.

Through direct peer-to-peer exchange, field visits enabled demonstrators to explore how solutions implemented in one setting can inform approaches in another, while also highlighting the importance of contextual factors in shaping their applicability. The experiences gathered confirm that amplification is not a linear or straightforward process of copying solutions, but rather a structured learning process involving interpretation, adaptation, and, in some cases, recombination of elements from different approaches.

The virtual field visits (VfV), in particular, played a central role in facilitating this process. By enabling all DEMs to access and review a diverse set of DRR solutions, VfVs supported a systematic comparison across different hazard types, including floods, landslides, wildfires, and heatwaves. This exposure encouraged demonstrators to reflect on how specific practices could be amplified within their own contexts.

The feedback collected across the field visits highlights several key dimensions influencing amplification processes:

- **Technical aspects**, including the availability and compatibility of monitoring systems, modelling tools, and data infrastructures;
- **Institutional and governance factors**, such as coordination mechanisms, legal frameworks, and policy support;
- **Socio-economic and cultural dimensions**, including stakeholder engagement, risk perception, and community participation;
- **Environmental and geographical conditions**, which determine hazard characteristics and influence the feasibility of implementation.

Across the DEMs, different amplification pathways can be observed. In some cases, solutions can be replicated with limited adjustments where similar conditions exist. In other cases, amplification occurs through transfer and adaptation, where core principles are retained but implementation is tailored to local needs. In more complex situations, field visits have inspired hybrid approaches, combining elements from multiple DEMs to address specific challenges.

Overall, field visits have functioned as a structured learning environment supporting amplification processes by enabling demonstrators to critically assess the relevance, feasibility, and limitations of DRR solutions. They contribute to building a shared understanding of how solutions can evolve and be applied across different contexts, strengthening the overall capacity of the consortium to amplify DRR innovations.

6.2. Contribution of field visits to D5.5 Replication Roadmap development

The insights generated through field visits provide a meaningful contribution to the development of the Replication Roadmap (Deliverable D5.5), while constituting one component within a broader analytical framework established in WP5. Rather than serving as a primary input, field visits act as a supporting and complementary source of empirical evidence, enriching the understanding of amplification processes across the DEMs.

Through both physical and virtual exchanges, field visits have enabled demonstrators to identify and reflect on potential amplification opportunities, including solutions that may be relevant for uptake in other contexts. These interactions have supported early exploration of where replication may be feasible, where adaptation is required, and where solutions may need to be reconfigured to fit different environmental or institutional settings.

Field visits have also contributed to the identification of common enablers and barriers influencing amplification processes. These include:

- Enablers such as effective institutional collaboration, stakeholder engagement, technical expertise, and sustained political and financial support;
- Barriers such as data limitations, fragmented governance structures, resource constraints, and context-specific technical challenges.

These observations are consistent with findings from other WP5 activities and reinforce the understanding of conditions necessary for successful amplification.

In addition, field visits have provided practical insights into how amplification processes occur in practice, illustrating both formal and informal mechanisms of knowledge exchange. The use of virtual platforms, such as the VFV repository, has highlighted the importance of accessible and well-structured tools for continuous learning and interaction across demonstrators.

Importantly, field visits have supported a more comparative and integrative perspective across the DEMs. By enabling demonstrators to examine solutions beyond their own context, they have contributed to identifying thematic linkages and similarities across cases. This perspective is relevant for structuring replication pathways and clustering approaches within the Replication Roadmap.

At the same time, it is important to recognise that the development of the Replication Roadmap is informed by multiple sources, including monitoring of amplification activities, documentation of replication cases, and analytical synthesis across the project. Within this broader framework, field visits contribute by:

- enriching the evidence base with concrete, practice-oriented insights;
- supporting the validation and contextualisation of identified amplification opportunities;
- illustrating real-world challenges, trade-offs, and enabling conditions for implementation.

In this sense, field visits act as a bridge between demonstrator-level experiences and the strategic orientation of the Replication Roadmap. They help ensure that the roadmap is grounded in practical realities, reflects the diversity of contexts across the project, and captures the complexity of amplifying DRR solutions beyond their original setting.

7. Conclusions

This deliverable has presented the feedback collected from physical and virtual field visits conducted across the Demonstrator Areas (DEMs) within The HuT project. The field visits have served as a practical mechanism for peer-to-peer exchange, enabling demonstrators to share knowledge, showcase Disaster Risk Reduction (DRR) solutions, and reflect on their potential applicability in different contexts.

The analysis of field visits confirms their relevance as a tool to support the amplification of DRR solutions, by facilitating learning processes that go beyond simple knowledge transfer. Through exposure to a wide range of approaches addressing different hazards, including floods, landslides, wildfires, and heatwaves, demonstrators were able to assess how solutions can be replicated, adapted, or combined to address context-specific challenges.

The findings highlight that amplification processes are influenced by multiple interconnected factors. Technical feasibility, including the availability of monitoring systems, modelling tools, and data infrastructures, plays an important role. At the same time, institutional and governance conditions, such as coordination among stakeholders, policy frameworks, and regulatory environments, are equally critical. Socio-economic and cultural aspects, including stakeholder engagement, public awareness, and local capacities, further shape the success of implementation. Environmental and geographical conditions also determine the extent to which solutions can be transferred or adapted across different contexts.

The virtual field visits, in particular, have proven to be an effective and scalable approach to support cross-demonstrator learning. By enabling systematic access to documented practices and structured feedback, they have broadened participation and ensured that all DEMs could engage in the exchange process despite resource and logistical constraints.

Overall, the field visits have contributed to building a shared understanding of the opportunities and limitations associated with amplifying DRR solutions. They have provided concrete examples of how knowledge can be exchanged, adapted, and applied in practice, while also highlighting common barriers and enabling conditions across different contexts.

While field visits represent one component within the broader set of activities under WP5, their outcomes provide valuable empirical insights that complement other analytical efforts within the project. In particular, they support the identification and validation of amplification opportunities and contribute to grounding the development of the Replication Roadmap (D5.5) in real-world experiences.

In conclusion, field visits have demonstrated their value as a flexible and effective mechanism to support learning, exchange, and reflection within The HuT project. Their contribution lies in strengthening the capacity of demonstrators to engage with amplification processes in a structured and informed way, ultimately supporting the wider objective of scaling and adapting DRR solutions beyond their original contexts.