



The HuT

Ongoing activities in the Demonstrators n.3

Deliverable D1.8

DEVELOPED WITHIN
WP1 Demonstrators' Arena,
T1.1 Fast-track implementation of DDR actions

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1. Technical references

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1.1. Document history

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2. Table of contents

1. Technical references	2
1.1. Document history	3
2. Table of contents.....	4
2.1. List of Tables	4
2.2. List of Figures	4
3. Introduction	5
4. <i>The HuT for Me and You</i> narrative co-creation and public engagement	6
5. Common ground for sharing and learning for effective early warning.....	10
5.1. Web portals.....	10
5.2. Monitoring.....	10
5.3. Modelling	12
6. Learning from early warning systems and end-to-end evaluation	14
7. Policy-making potentials.....	16
7.1. Nature-based solutions	16
7.2. Climate proofing.....	16
7.3. Multi-Criteria Decision Analysis	17
7.4. Insurance	17
8. Conclusion	18

2.1. List of Tables

Table 1: Overview of stakeholder engagement in the ten Demonstrators.....	8
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2.2. List of Figures

Figure 1: Invitation of the SAFE HAVEN Exhibition.	7
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3. Introduction

This deliverable shows the highlights of implementation work from Demonstrators from April 2025 to date.

The demonstrators have been interacting among themselves, across work packages and tasks, as well as to the external stakeholders (e.g. relevant policy-makers, etc.) where the The HuT activities were co-developed and implemented at the Demonstrator's level. In comparison to the preceding deliverable D1.7 'Ongoing Activities in the Demonstrators n.2', the outcomes at demonstrator level are more specific and more clearly targeted. This synopsis is likewise based on the topic- and user-driven clusters formalised at the HuT General Assembly in 2024 and further described in D1.7. The clusters have been defined as follows: (1) Narratives co-creation and public engagement, (2) Web-portals for effective early warning, (3) Learning from early warning systems and end-to-end evaluation, and (4) Policy making potentials.

The regular reporting from the Demonstrators is based on the two The HuT tools 'Logbook' and 'Amplification' and the DMB Progress Meetings, gathering ongoing activities from the Demonstrators' side. The DMB Progress Meeting has replaced the previous DMB and CDE local desk series of meetings and was held once every two months.



4. *The HuT for Me and You* narrative co-creation and public engagement

There is increasing recognition that local narratives of adaptation can support the contextualization of climate risks to specific settings. Narratives help link social vulnerability, exposure and adaptive capacity with climate data, helping to inform climate risk governance and improve our collective understanding of future risks.

Why is co-creating narratives in societies so important for disaster risk reduction under climate extremes? Because “People live their lives as fulfilling a story and it changes motivation in fundamental ways” (Robert Schiller, Author of Narrative Economics). Narratives summarize a variety of fields of knowledge and can transmit messages in the form of stories which may affect behaviors and prove our ability to anticipate and prepare.

In 2023, within the framework of D1.4 ‘*The HuT for Me and You*’, WP1 created a template for the co-development of narratives at Demonstrator sites. While the template was implemented by the Demonstrators, the resulting narratives showed limited coherence and did not fully achieve the intended level of persuasiveness.

As part of the 2025 follow-up D1.9, ‘*The HuT for Me and You*’ narratives n.2. *How to build your Climate Story* Demonstrators were provided with a set of building blocks, tools, and story prompts to support the development of their Climate Stories. In addition, a sample story was supplied, and a structured co-creation and feedback process was implemented. This approach enabled the Demonstrators to refine and substantially improve their initial narratives.

All Climate Stories share the common characteristic that previously conducted activities at the Demonstrator sites have been consolidated and communicated in a clear and accessible manner. Several stories demonstrate potential for further use at the Demonstrator level, while others are suitable for dissemination as educational material. All Climate Stories have been published in a web-ready format on the HuT webpage, with full versions to be made available in a compiled booklet.

Many Demonstrators have been incorporating art as a format, which has been recommended as a narrative approach and highlight in The HuT activities. For example, Demonstrator 1 collaborated with the UPV in the development of the exhibition “DANAda Diseñando la Adaptación - Experiencias para un Futuro Resiliente” (in English, “Designing Adaptation - Experiences for a Resilient Future”), which brought together artworks damaged by the effects of the DANA (Isolated Depression at High Altitudes) that affected Valencia in October 2024, along with new pieces, to reflect on themes of adaptation, resilience, and the future of sustainable design in the face of accelerating climate change. Demonstrator 1 is currently working on a video of the installation with English subtitles that will serve as a communication medium and further promote public engagement with their efforts.

In a complementary approach, Demonstrator 5 collaborated with the local Art Association within the Palais for Contemporary Art in Glückstadt and selected artists to develop *SAFE HAVEN*, an exhibition that explored how local narratives and storytelling, in conjunction with artistic practice, can activate communities and strengthen local networks, thereby fostering collective action in the context of climate adaptation.

In parallel, an educational programme was successfully implemented in three local schools, within which students developed their own artistic contributions, exploring the interrelations between humans, technology, and climate at the local scale.



The outcomes of *SAFE HAVEN* are intended to be presented in a forthcoming publication that documents the participatory collaboration process and examines the extent to which artistic interventions and art institutions can function as “climate agents.”



Figure 1: Invitation of the SAFE HAVEN Exhibition.

Demonstrator 9 has continued to promote their “What do you see” art-science engagement activity, which involves creating artistic paintings of idealised beach scenes. During the reported period, this activity was showcased at the Sidmouth Science Festival, and the artistic outcomes of the activity have been shared in articles targeted at families to promote coastal safety.

The co-creation of narratives, such as the Climate Stories, and the development of engaging activities, including art exhibitions and participatory approaches carried out by the Demonstrators, continue to highlight the importance of science-art interactions in drawing public attention to Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) beyond traditional scientific audiences. These activities have engaged diverse stakeholders - including children, families, and the wider public - and have proven to be effective means of raising awareness of DRR and CCA across society.

In addition to science-art formats, demonstrators are working with their respective city administrations to gain input when developing their narrative. Table 1 shows the overview of stakeholder engagement in ten Demonstrators.

Table 1: Overview of stakeholder engagement in the ten Demonstrators.

Demonstrator	Stakeholder groups
1 Valencia	Valencia City Council
2 Val d'Aran	Municipality and local administration, universities, high-school students and teachers
3 Monti Lattari	Local governments (Amalfi and Sorrento), Regional Civil Protection, Citizens' associations (e.g. hiking, territorial promotion, and tourist associations), local community
4 Vilnius	Vilnius municipality, civil Protection agency regional branch, Lithuanian agency of hydrometeorology, local communities, NGOs
5 Schleswig-Holstein	Glückstadt Mayor and municipality, local citizen groups, citizens, schools, art associations, media
6 East Fjord	Inhabitants of Seyðisfjörður, local government and municipality civil servants, the local police, the local search and rescue groups, etc.
7 Tisza River Basin	Municipalities, experts of water management, disaster management
8 Ogliastro	Spatial planning, engineers
9 Dorset	Local administrations, Regional Forest Service and Forest management administrations, Civil Protection, Farmers and breeders, Managers of tourist-recreational services, Fire management researchers and experts, Org for the protection and representation of agricultural businesses
10 Bern	Dorset Local Resilience Forum, Met Office Civil Contingency Advisors, tourists

Demonstrators have engaged stakeholders in their activities to identify local needs for their research themes and to gain access to their networks. To mention specific activities, engagement with local civil protection organizations has been carried out by Demonstrator 1 through experts from civil protection, emergency responders and disability organizations, to address the vulnerabilities experienced by people with disabilities in the face of the DANA and promote inclusive emergency planning and response strategies. Demonstrator 6 focused its activities on the Swedish Civil Contingencies Agency to work on civil preparedness, while Demonstrator 9 concentrated efforts on solidifying relationships and exchanging knowledge with the new coastal rangers of the Dorset Council and the British Red Cross in London to improve risk assessment and preparedness

Additionally, Demonstrator 9 aided in the review of the updated "Dorset Landslide and Rockfall protocol" for Dorset Local Resilience Forum to improve these kinds of decision-making instruments. Future collaborations have been explored between BGS and the Met Office for knowledge exchange for landslide forecasting activities.

Demonstrator 4 has been active within the construction and architecture sector through the provision of public lectures, publishing of educational material in mediums relevant to the sectors, and participation in UNESCO's capacity building seminar, "Climate Change and Cultural Heritage: Learning through knowledge and practice".

Furthermore, some demonstrators have developed workshops and focus groups to consult their stakeholders in the evaluation of policies, e.g., Demonstrator 1 with Nature-based Solutions [NbS] and infrastructure measures for urban heat impacts, Demonstrator 8 with the assessment of land

management options in their third stakeholder meeting, and Demonstrator 10 with focus groups that involve forest management involving forest rangers, environmental NGO's and administrative actors.

The Demonstrators have also involved their stakeholders in the production of educational material and websites (e.g., Demonstrator 6 plans to develop focus groups for this purpose), and the development of mobile applications (e.g., Demonstrator 7 presented advances in the VÍZ24 mobile app in their Local DRR nexus Forum and annual meeting with municipalities).

Additionally, several Demonstrators have developed and piloted educational materials. For example, the Serious Game has been adapted to address different hazards: Demonstrator 1 developed a heatwave version, Demonstrator 3 a landslide-focused version, and Demonstrator 8 a fire risk version. In line with these educational activities, Demonstrator 2 has remained particularly active in schools and universities and has successfully established a student collaboration to further enhance public participation in the project. Demonstrators 4 and 7 delivered a guest lecture at Vilnius University (VU) during Demonstrator 7's field visit. Meanwhile, Demonstrator 6 has focused on producing educational videos on avalanche and landslide risks, protective measures, and monitoring technologies.

These educational interventions provide participatory and engaging approaches to addressing climate-related risks across different societal contexts and educational levels, while ensuring relevance to local conditions. Strengthening knowledge on climate risk and adaptation from the ground up is essential for enabling transformative change and for equipping future generations with the knowledge, skills, and awareness required to anticipate and respond to increasingly frequent climate-related hazards.

Alongside these engagement activities, almost all the Demonstrators have performed in public on behalf of The HuT, sharing knowledge about their research area related to The HuT in diverse stages and scientific forums at the national, European, and international levels. Demonstrator 1 presented research on urban morphology, land cover, and Urban Heat Islands at the World Sustainability Forum, while Demonstrator 4 contributed to the national Climate Forum "Edges of Climate-protection" at VU, addressing social tolerance around urban pluvial flooding in Vilnius. Demonstrator 8 presented their participatory mapping approach for wildfire prevention, NbS, and stakeholder engagement across multiple venues, including the TerraEnVision Conference, the International Conference on Integrated Disaster Risk Management, and SISC2025. Demonstrator 9 has made use of more contemporary communication mediums by participating in the "Beyond the Forecast" podcast on people-centered Early Warning Systems, while also presenting on impact-based forecasts, warning effectiveness, and user engagement at more traditional stages, such as the European Meteorological Society conference, the Met Office Operational Meteorologists Conference, the WMO Weather & Society Conference, and Cemaden in Brazil.

A significant milestone in The HuT's public engagement was the third International DRR-Nexus Forum Meeting, held alongside the Systemic Risk Conference in Hamburg in September 2025. The conference connected the Demonstrators with the international systemic risk research community, exposing the wider conference audience to their experiences and innovative approaches through posters designed and presented at the Innovation Lab. This space highlighted The HuT's contributions to innovative, integrated Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) solutions. Ultimately, the event enabled the Demonstrators to connect with a wider, multidisciplinary community working on systemic risk, while also fostering a space for knowledge exchange and promoting transferability among Demonstrators.

5. Common ground for sharing and learning for effective early warning

5.1. Web portals

Demonstrators developing web portals have shared modelling and monitoring expertise with Demonstrators and task leaders to learn from the expertise and experience within The HuT on how to develop effective early warning. This is an active and dynamic group sharing a variety of experiences in visualisation, usability and effectiveness.

Particularly noteworthy is the close collaboration between researchers from Demonstrators 3 and 2, working hand in hand with ARANTEC to develop The HuT's data portal on Early Warning Systems (EWS). This includes the use of freely available data from portals, the provision of data from sensors installed as part of the project, and a web GIS with information from the Civil Protection Plan. This local data portal is online and ready to display the various hazard maps along with all installed sensors and devices. It also integrates weather forecasts, including both the datasets and the visualisation as maps and graphs. The desktop version was presented to the municipality of Amalfi (Demonstrator 3) and tested in early 2025. Further work on the refining and debugging of the desktop version has taken place in the current reported period. Moreover, efforts towards developing the mobile version for Android and iOS have been fruitful, as the applications available in both official marketplaces to registered users with active accounts on the web platform, providing access to the local data portal. Future activities regarding the mobile version include stakeholder testing within the target area, which is expected to provide relevant feedback for usability and accessibility of the applications.

Other Demonstrators have developed their own local databases. For other Demonstrators, the storyline is more about developing an app or data platform that is accessible to all or their specific target group. For instance, Demonstrator 6 has continued to build a platform for Seyðisfjörður based on landslide interviews with the residents and hazard mapping, with the outlook on a new main website and data availability for The HuT data portal. The platform is planned to enable more effective civil protection in the times of extreme events. The exchange has benefited demonstrator 6 to learn how mobile Apps, and IoT monitoring could play a role in civil protection. During the current reporting period, Demonstrator 6 has focused on integrating and displaying real-time weather forecasts and warnings, as well as all emergency response plans relevant to the area and educational materials.

Demonstrator 7 has developed a VIZ24 app and a VIZ24 website. The local data portal is currently only accessible to stakeholders, while another local data portal (<https://viz24.hu/>) has been made available for citizens and to other interested parties.

5.2. Monitoring

The Demonstrators also have reported several advancements in their monitoring activities.

Demonstrator 1 analysed land surface temperature and land cover in the metropolitan area of Valencia using Landsat 9 satellite imagery and found that surface temperature is influenced by the type and proportion of land cover, which further allowed the identification of vulnerable urban zones and holds the potential to provide valuable insights for targeted adaptation strategies and urban planning.



For Demonstrator 2, monitoring activities have included continuous work with the previously reported sensors, including rain gauges, that were installed in the lower areas close to the river in the Aran Valley. These installations have two main objectives: to increase the regional monitoring coverage and to expand the range of variables studied. To add to their monitoring activities, as part of their public engagement with local schools, Demonstrator 2 has begun a collaboration with a high school student, where an analysis of the main types of rain gauges will be performed to compare their accuracy and maintenance requirements to evaluate their suitability for different monitoring contexts. Additionally, this collaboration will involve the capturing of local precipitation data for its integration into The HuT's platform and data infrastructure.

As previously reported, Demonstrator 3 continues the ongoing activities of the installed IoT sensors for soil water content monitoring the water level in Amalfi and Sorrento. A pluviometer has also been installed in a mountainous area to check communication between sensors and remote gateways. Embedding the open-source platform KoBoToolbox in this process to collect information regarding weather-induced events on various areas of the demonstrator. Following the installation of IoT sensors for soil water content for the monitoring of water levels in Amalfi and Sorrento, Demonstrator 3 has begun an in-depth analysis phase of the results to interpret results and assess calibration. Efforts towards attracting potential beta testers of the community monitoring application have been on their way.

The HuT also benefits from exchanging in this cluster through the experience of Demonstrators on other contexts, for instance, Demonstrator 6 has collaborated with the Icelandic Meteorological Office (IMO) and the Norwegian Geotechnical Institute (NGI) to implement the method applied in the case of the Norwegian railway system and adapt it to the monitoring infrastructure in Seyðisfjörður, provided by the IMO's landslide monitoring network. This collaboration enables the enhancement of the existing warning system through automation based on a model that provides near real-time slope safety factors and translates instrument-derived threshold values into warning outputs. Following the refinement of the IoT system, including the definition and implementation of threshold values and the development of data management tools, the system is now operational. Data will shortly be shared via a restricted-access platform with a focus group for evaluation of its relevance for public communication and end-user application.

Demonstrator 7 increased its precipitation data collection from four to nine gauge stations to identify the IDF curve by CMCC and started to collect hourly data. They also began a new use of soil moisture sensors to analyse the relationship between soil water content and pluvial flood events in urban areas, in order to develop a risk map for settlements in the Middle Tisza district. CMCC supervised the IDF curve according to the data and the three climate scenarios RCP2.6, RCP4.5, and RCP8.5, through which a potential arises to assess how flood risk in the Middle Tisza District may evolve under different emission pathways, and to inform adaptation strategies across a range of plausible climate futures.

Demonstrator 9 has begun the analysis of the collected data after the successful installation of a trial weather station at West Bay Dorset. Additionally, the demonstrator evaluated the use of commercially available IoT sensors for monitoring landslide processes in Dorset and their installation in coastal locations. For this purpose, a trial kit was installed to conduct stability tests. As the Demonstrator's expertise grows on IoT monitoring and EWS, they have been able to collaborate with BGS and Demonstrator 2 in the writing of the IoT Factsheet published in The HuT's website (<https://thehut-nexus.eu/wp-content/uploads/2025/06/THT-Factsheet-2-WEB-1.pdf>), and submitted a draft for a paper on IoT EWS being led by NGI.

Demonstrator 10 has carried out continuous monitoring of meteorological variables with a high-resolution meteorological station, and evaluation of high-intensity precipitation events and their variations across time and space within the Zulg river catchment in the Canton of Bern.



The ongoing activities of the monitoring work is the mutual learning across Demonstrators to better explore end-to-end evaluation for effective early warning for all. This is therefore linked to the next key thematic cluster: how to better learn from end-to-end evaluation to improve our early warning system.

5.3. Modelling

In the area of modelling, many Demonstrators refer to existing models and adapt them to their research needs. Findings from modelling activities show that climate projections are useful and that stakeholders are interested in modelling results. The outcomes of the modelling will also be fed into the web portals to support early warning and decision making. Specific activities are described in detail in the following sections.

After extensive modelling and characterisation work within a multi-risk context, Demonstrator 1 has submitted manuscripts to scientific journals to disseminate their findings on heatwave trends, climate projections and local vulnerabilities, as well as the performance of seasonal drought forecasts. Building on the previous surface temperature analysis, the Demonstrator is currently conducting literature and data reviews, including land use, land cover, and surface types, and refining the conceptual framework around urban microclimates to support future modelling activities.

As reported previously, Demonstrator 2 continues the ongoing activities of the implemented ensemble modelling to improve landslide prediction based on machine learning techniques and physically based models, and the multi-hazard (flood and landslide) modelling framework has already been defined. In the current period, the modelling system SCLAM (Snow 17-CREST-LAndslide Modelling) was tested with forecasted data of precipitation and temperature and showed good performance in predicting landslide and flood warnings in the Garona river basin during the evaluated period (2010-2020). The model outputs can now be displayed, and efforts have been made to make the platform more accessible to all kinds of users through simplified risk visualization. Under this context, the Demonstrator has submitted a paper about the SCLAM model, as well as another one regarding the modelling of the multi-hazard EWS.

Demonstrator 3 aims to integrate on-site monitoring and compare this data with atmospheric reanalyses and distributed hydrological modelling outputs, such as the European Flood Awareness System and the Global Flood Awareness System, to identify and analyse trends. The Demonstrator also seeks to contribute to dynamic exposure mapping, through the use of freely available datasets and identifying existing gaps in adequate characterisation of exposure.

Demonstrator 6 has formed a working group for The HuT's WP4 at IMO. During this period, specialists at IMO continued their collaboration with NGI on the analysis of monitoring data from instruments in Seyðisfjörður with the aim of developing a tool for landslide forecasting model, defining threshold values for single-slope failures, and integrating the connection between soil water content and landslides into the framework. Future outlooks include near-real time slope stability forecasting model being deployed within the IMO operational environment.

Demonstrator 7 has been involved in modelling activities during this period for the creation of a daily risk map for settlements in the Middle Tisza District by making use of biophysical factors like soil moisture data, as well as infrastructure and governance factors, such as area at risk of inland flooding, inundation protection levels, completeness of drainage system, among others. The risk map is now available in the VÍZ24 mobile application.

Demonstrator 8 is currently developing activities to refine their fire simulations with CMCC/CNR and IIASA models by integrating feedback from the stakeholder workshops to better represent land



management and adaptation strategies, which were then developed and categorized in three scenarios. The strategies were tested under a range of climatic condition to provide further insight into feasible mitigation measures under different climate future scenarios. Further steps will include modelling new fire behaviour and continue to assess the mitigation effectiveness of the scenarios in terms of wildfire impacts and associated costs in the short and medium term under changing climate conditions.

Under Demonstrator 9, work has advanced across multiple modelling topics and activities, including contributions to the Natural Hazards Partnership (NHP) model, the BGS Water Balance Model, and a pilot landslide rainfall threshold study for England. A collaborative paper was submitted comparing three impact-based forecast and warning methodologies in two case studies, Cyclone Cookin New Zealand and Storm Eunice in the UK, comparing warning levels based on hazard intensity, exposure thresholds for infrastructure and people, and building damage, using RiskScape software for risk modelling. Moreover, RiskScape was successfully deployed on the Met Office systems and is being evaluated as an alternative to current UK impact models for wind and surface water flooding. Furthermore, pilot cluster-based approach for landslide forecast scenario assessment and a BGS with the Met Office collaboration workshop on landslide forecasting within the NHP. Activities moving forward could explore the future wildfires in Dorset by using data from UK Climate Projections Regional Climate Model and engaging with relevant stakeholders.



6. Learning from early warning systems and end-to-end evaluation

Activities related to end-to-end evaluation to learn from working or failing early warning systems become particularly relevant and even urgent in the activities of our Demonstrators after the extreme flood event in Valencia in 2024 and we continue this important work in our final phase of the project. Demonstrator 1 has developed a workshop targeted at risks and disabilities, aiming to share knowledge on the nature of the DANA phenomena, the risk factors associated with increasing climate change, and the exacerbated dangers people with disabilities face, the latter including mobility barriers and their exclusion from standard evacuation or alert protocols, among other factors. The workshop included interviews with experts from Civil Protection, emergency responders, disability organizations, and other relevant entities, and ultimately seeks to underline the lessons learned from the impact of the DANA in 2024 and promote inclusive emergency planning and response strategies that do not leave vulnerable groups behind.

Demonstrator 2, in collaboration with UPC and ARANTEC, has developed the first prototype of an early warning system for the Garona basin and has completed the automation process of the Multi-Hazard EWS, which provides flood and landslide warnings, including hazard levels for each sub-basin, at subbasin level in Garona, as model outputs can now be displayed. The new landing page provides a more user-friendly and simplified risk visualization, improving the accessibility of risk levels for different types of users.

For an integral engagement in end-to-end evaluation processes, the Demonstrators have also engaged with stakeholders to improve the performance of EWS. For example, Demonstrator 3 is currently in dialogue with the Met Office to implement their frameworks for continuous report and monitoring of the events, while Demonstrator 4 participated in a workshop from the Lithuanian Hydrometeorological Service on impact-based forecasts and warnings, which allowed them to connect with parties and stakeholders involved.

To attend the amplification process necessary for this thematic cluster, the British Met Office provided an end-to-end evaluation form to Demonstrator 6, whose purpose is to make use of it to analyse the 2020 landslide event in Seyðisfjörður. At the same time, significant work has been developed by the Demonstrator towards automatic warnings based on data from the monitoring system.

The end-to-end evaluation of warning system will also be conducted in Demonstrator 1, 4, 5, 6, and 9. In Demonstrator 4, the purpose of end-to-end evaluation is to develop technical innovation in flood disaster management in the city and to provide recommendations for city planning.

Demonstrator 9 started an evaluation on a previous end-to-end review of storm Eunice (2022) and carried out a comparative analysis of the warning value chain from storm Ciaran (2023). This process culminated in the submission of a collaborative paper between the Met Office and the BGS, providing valuable insights and recommendations for improving future warning systems in terms of information flow, warning communication and cross-sectional organization. To complement the significant scientific contributions, the Demonstrator recently published a paper titled "Making warnings count: 10 years of research in High Impact Weather" (<https://doi.org/10.1175/BAMS-D-25-0123.1>).

The outcomes of the early warning system and end-to-end evaluation activities are currently being collected for future scientific publications so that communities beyond The HuT may benefit from the lessons learned through the end-to-end evaluation for effective early warning systems. The



UCL Warning Database has been established by joint efforts of WMO, the Australian Bureau of Meteorology and University College London will establish a permanent database of value chain assessments at the UCL Warnings Research Centre: UCL Warning Database | Faculty of Mathematical & Physical Sciences. The work to establish this will be linked to The HuT WP2. This is a milestone for future users to benefit from shared knowledge through end-to-end evaluation.



7. Policy-making potentials

The ten Demonstrators have established networks of stakeholders and policy-makers at local level. To achieve further impact, it is important to be creative and focused in consolidating collective efforts to influence policy-making beyond local levels. This is also mentioned by the evaluators in the first mid-term review. WP1 together with the Coordinators and WP5 have taken up this challenge to explore the potentials in policy-making and we have identified and will continue to capitalize on the following potential: (1) nature-based solutions, (2) climate proofing, (3) multi-criteria decision analysis and (4) insurance.

7.1. Nature-based solutions

WP3 continues the ongoing activities on nature-based solutions and the results of the enablers and barriers of nature-based solutions (NbS) implemented at the Demonstrator level could be presented and used as evidence-based outputs to advocate for policy-making. The unique selling point of the specific activities is the multi-risk focus in implementation and strategies. For instance, Demonstrator 1 explores the drought and heatwave risks, Demonstrator 8 with wildfire risks, and Demonstrator 10 with landslide and flood risks. The work was carried out through focus group and workshop discussions and semi-structured interviews, which were analysed and presented in the final version of the deliverable. Demonstrator 1 produced a summary on barriers and enablers for NbS implementation in Valencia for the Sustainable Urban Planning & Territorial Management and published an article on the potential impacts of climate change on urban heatwaves, which received media coverage in the Valencian Community. Further work is ongoing, including a policy brief and a joint scientific article that will focus on all three case studies of The HuT working with NbS (Ogliastra, Valencia and Bern), and another one with a closer scope on the Bern.

Moreover, Demonstrator 1 organised a workshop entitled "Heat in the neighbourhoods and Nature-Based Solutions" in collaboration with València Sostenible, that involved participatory approaches to assess the feasibility of NbS measures for reducing urban heat impacts. Key outcomes highlighted the need for increased green areas, solar pergolas, and shared maintenance schemes involving public administration and civil society.

Demonstrator 7 compiled a questionnaire on NbS enablers and barriers, with the objective of testing it in its second Local DRR Nexus Forum, identifying strong institutional frameworks and monitoring capacity and innovation as key enablers, and financial constraints, improper land use, lack of knowledge, and changing hazards under climate change as the main barriers.

Demonstrator 10 focused on barriers to the sustainability of forest protection by three focus group workshops with forest rangers, environmental NGO leaders, and policy-oriented stakeholders in the Bern case study region. Next steps involve preparatory work for a literature review and plans towards a publication on economic evidence for NbS.

7.2. Climate proofing

Climate proofing activities continue to play a role in mainstreaming climate-resilient design into infrastructure, which is particularly important to achieve the build back better principle after the extreme event. The Demonstrators are implementing this together with the climate proofing task leader. As part of the climate-proofing planning process, the city of Naples has been adopted as



a second test case by Demonstrator 3, following the previous implementation of the approach Vilnius in Demonstrator 4, to provide a context rich in data that allows to evaluate the framework underlying the climate-proofing guidelines. The pilot case on the Naples sewage system, together with the Vilnius case, offers to demonstrate the potential of the climate proofing guidelines under different climatic conditions. The draft paper from the deliverable has been finalised and submitted by Demonstrator 3.

7.3. Multi-Criteria Decision Analysis

A participatory multi-criteria decision analysis was conducted in Demonstrator 5 in its pilot city of Glückstadt and the results were submitted with D.3.4. Building on this, Demonstrator 5 has shared its interview guideline and survey with Demonstrator 7, which applied the survey within its second Local DRR Nexus Forum. Demonstrator 8 contributed to a chapter on innovative policy and governance enablers for multi-risk DRR, coordinated by IIASA and UNIGE, with a focus on the Ogliastra case study. CNR and CMCC developed an online questionnaire to evaluate three policy options from Deliverable 3.1 and convey the results into Deliverable 3.3. The policy options evaluated encompassed covering integrated fire-smart strategies, permanent territorial laboratories for inclusive governance, and the adoption of wildfire prevention plans integrated with spatial planning instruments. These were then assessed by the respondents based on cost, administrative feasibility, ecological sustainability, and social acceptance.

7.4. Insurance

The role of the insurance sector is increasing its importance, and this activity also shows the cross-demonstrator/institution interactions. The role of insurance and the messages it conveys in personal decision-making and higher-level policy-making is a relevant discussion following the major floods in Germany and Spain and the wildfires in the USA. We are therefore exploiting the policy-making potential of our insurance activities.

Demonstrator 3 has been in dialogue with Leithà S.r.l. | Unipol S.p.A. on the definition of insurance tools based on specific precipitation thresholds and regarding the scope of a second insurance deliverable. In parallel, a catastrophe bond based on the E3CI index is currently under development with an abstract planned for submission to EGU.

On the initiative of Demonstrator 8, meetings continued to happen with Leithà to discuss activities contributing to Deliverable 3.7 on innovative risk transfer and financing for DRR. This work builds on prior efforts to integrate burn probability and vulnerability maps into community-based catastrophe insurance schemes. The *'Fire Safe Community'* product, developed by CNR and CMCC, is undergoing further refinement as a prototype validated by user groups, with a focus on incentivizing communities to implement forest management and wildfire mitigation measures.

The ongoing activity of the Community-based Catastrophe Insurance models developed by CNR and CMCC form the basis of deliverable 3.6, a prototype of an innovative insurance product validated by user groups. The draft was released at the end of 2024 including a product specifically designed to address the risk of forest fires in the demonstrator 8 area. This product, called *'Fire Safe Community'*, provides business coverage against damage to buildings and their contents caused by forest fires. It represents an initial exploration of insurance models that reward communities for implementing forest management and wildfire mitigation activities within a designated area.



8. Conclusion

In summary, the ongoing activities of the important clusters from (1) narrative co-creation and public engagement, (2) web portals for effective early warning, (3) learning from early warning systems and end-to-end evaluation, and (4) policy-making potentials) have continued its important work across Demonstrators, as well as with consortium partners through cross-WP collaborations and eventually to reach to policy-making impact via stakeholders at local, EU and international levels. The Demonstrators were invited by the 2025 International Systemic Risk Conference to present the international disaster risk and climate change adaptation communities as well as key policy-makers such as UNDRR. The Demonstrators are able to show co-developed key innovations at the implementation levels with concrete solutions at the 2025 International Systemic Risk Conference. This has reached the goal of the WP1 spirit to present the bottom-up demand work at implementation from the beginning till the end of project in a co-development manner.

