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eNOTICE-2
EU Network of Training Centres for preparedness to CBRN Events

D6.1 End-user and stakeholder engagement plan

Leading authors:

Olga Vybornova (UCLouvain – CTMA)
Marie Dauvrin (UCLouvain – IRSS)

Contributors:

Maaike van de Vorst (VESTA)
Luc Calluy (VESTA)
Sylvia Pratzler-Wanczura (FDDO)
Wolfgang Karl-Heinz Reich (JCBRND COE)
Daniele Di Giovanni (UNITOV)
Grace Xerri (UNITOV)
Elif Surer (METU)
Stefano Mazzaro (SAFE)
Liz Benson (WMP)

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Executive Summary

This document is Deliverable 6.1 End-user and stakeholder engagement plan of eNOTICE-2, a UCPKN funded project, under the Grant Agreement n° 101139905.

The necessity of active engagement of the end users and stakeholders is high, and the inputs of first, second, third responders, crisis management authorities, civilian volunteers (disabled people, caregivers, health providers) will guide the decontamination SOPs, and recommendations will be integrated into existing and new capacity strengthening activities. The point of view of national authorities who will benefit from reviewed and updated procedures and guidelines that suit the need of health crisis preparedness (prevention of infection in public spaces and infrastructure, CBRN decontamination; assistance to disabled people); the viewpoint of policy-makers who will have access to a scientifically-controlled information and the inputs of multi-expertise group of experts and stakeholders and pre-normative guidelines to propose an EU harmonisation aiming to safer, quicker and more efficient decontamination (WP5), and with a perspective of standardisation of well-defined procedures or guidelines will be:

- Integrated into teaching courses and training modules (WP1)
- Integrated via the SimEx during the project (WP4), with regular academic updates for new breakthroughs, validated methods, and new promising technology/tools from industrial supplier platform, which is fertile ground for updating CBRN course and teaching
- Integrated via synthetic operational data – SDS (WP3),
- Integrated via the digital library of CBRN resources developed and collected for the benefit of the community (WP2)

This document provides the plan on eNOTICE-2 corresponding dissemination, communication and results exploitation activities aimed at description of the groups of stakeholders relevant to the project, to the network of CBRN training centres, and identification of their needs, expectations, interests in the network, as well as obstacles and challenges for their active engagement in the project.

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List of abbreviations used in the document

CBRN	Chemical, Biological, Radiological, Nuclear
CERIS	Community for European Research and Innovation for Security
CP	Civil Protection
CSNPH	Belgian National Council for Persons with Handicap
DRM	Disaster Risk Management
ENCIRCLE	European CBRN Innovation for the Market Cluster
eNOTICE	European Network of CBRN Training Centres
eNOVATION	Extended Network of CBRN Training Centres for Innovation
ERCC	Emergency Response Coordination Centre
FDDO	Fire Department of (the City of) Dortmund
FR	First Responder
HSR	Health Services Research
IAEA	International Atomic Energy Agency
JCBRND COE	Joint CBRN Defence Centre of Excellence
KCE	Belgian Health Care Knowledge Centre
LUSS	Ligue des Usagers des Services de Santé (League of health services users)
METU	Middle East Technical University
PPE	Personal Protective Equipment
PCEP	Person-Centred Emergency Preparedness
PRT	Patient Rat und Treft (Patient advice and meetings)
RAP	Rapid Assessment Procedure
SICC	Scientific International Conference on CBRNe
SDS	Safety Data Sheet
SOP	Standard Operating Procedure

TC	Training Centre
UCLouvain	Université catholique de Louvain
UCPM	Union Civil Protection Mechanism
UNITOV	University of Rome Tor Vergata
VESTA	Campus Vesta APB
VPP	Vlaamse Patientenplatform (Flemish patient platform)
UNDRR	United Nations Office for Disaster Risk Reduction
WHO	World Health Organisation
WMP	West Midlands Police

1 Objectives and scope

This Deliverable 6.1 presents the current results and ongoing work under Task 6.1 Mapping of end-users and stakeholders, gaps and needs analysis, and Task 6.2 End-users and stakeholders engagement in the project activities, dissemination. The scope of the work comprises the findings on the CBRN stakeholders categorization, dissemination and communication channels to reach out to every category of stakeholders, completed and yet planned dissemination activities, presentation of the information on the collected needs and challenges related to the creation of the network of CBRN training centers, systematization and interpretation of the results, outlining the way forward on how to overcome the obstacles on the way of building a successful European network of CBRN training centres.

Task 6.1 identifies the profile of the project results end-users and stakeholders, including CBRN TC of the network, training professionals, CP, DRM practitioners, security stakeholders in search for innovations, researchers, industry and service/technology/process innovation providers, civilian population, representatives of patients organisations and organisations dealing with vulnerable groups of population, people with disabilities, competent authorities, etc. These stakeholders can be local, regional, national, European or international players. According to the profile and category, the interest of the stakeholders in the project results, their needs and expectations are analysed. The results and inputs are linked to the work in Task 3.1 End user requirements and topics, and Task 5.1 Analysis of the state of the art. Task 6.2 sets the activities on end-users and stakeholders engagement in the project activities and dissemination of the project results, ensuring awareness of the first responders CP and DRM end-users and stakeholders, and general public vulnerable and disabled people, active participation in the project activities.

The mapping and profiling of the eNOTICE network stakeholders in general and users of the eNOTCE-2 results in particular is actually continuation, detailing and updating of the comprehensive mapping and profiling of stakeholders performed in eNOTICE-1 project (Deliverable 2.1).

The knowledge of the needs and concerns of different groups of stakeholders is necessary for:

- Expectations of the training professionals, first and second responders, technology developers and operators, crisis managers and authorities from the training provided by training centres, the contents of theoretical and practical courses delivered (WP1), the contents of the CBRN resources used by the stakeholders (WP2), the contents, size and nature of synthetic operational information used in the field (WP3)
- Understanding the physical and psychological requirements of vulnerable groups of population, people with disabilities for the CBRN response, decontamination process and their interaction with first responders (WP5);
- Elaboration of the more efficient mechanism of the network organisation, framework and collaboration between its members, so that the needs and expectations of stakeholders are met, better focused dissemination, adaptation of dissemination materials targeting precisely the audience needs (WP6);

This report is structured as follows: after presenting the scope and objectives of the work in Section 1, Section 2 presents the main identified categories and subcategories of stakeholders, explains the reasons behind their distinction, discusses their profiles and needs, while also noting that a new category of project results end users are distinguished in eNOTICE-2, and Section 3 explains in detail the rationale of involvement of patients with disabilities, caregivers and health providers in the work, the methodology of their engagement and current results of interaction with them. Section 4 puts forward the dissemination and communication strategy allowing to reach out to every group of stakeholders and make the most of the project results.

2 Profiles and needs of the CBRN stakeholders related to the eNOTICE-2 project

Key groups of stakeholders who have a role and interest in the objectives and implementation of the eNOTICE-2 project, and the network of CBRN training centres in general include the following main categories:

1. The first category is **eNOTICE-2 partners/beneficiaries**. This group is distinguished temporarily for the two years of the project duration, for the internal purposes of self-assessment, of initial analysis of the needs and gaps, while later on all eNOTICE-2 partners will be considered as Customers of the larger eNOTICE network, as it should be sustainable and enduring over the project's end. The eNOTICE-2 beneficiaries are:

- **Training centres and training professionals**, who have profound knowledge and experience in various aspects of CBRN training. The needs of these partners, their opinions and expectations from the network, their understanding of the goals, of the challenges, of the existing gaps and the possible ways to fill the gaps, largely reflect the needs of the network.

- **Partners with a combined profile**: UCLouvain Centre for Applied Molecular Technologies (UCLouvain-CTMA) is the eNOTICE-2 Coordinator. UCLouvain-CTMA is a mixed academic-clinical biotechnological platform, it fosters knowledge and expertise in the areas of biothreats assessment and biorisk management, rapid identification of intentional, unintentional or natural emerging biological threats. UCLouvain-CTMA has developed and owns an operational light deployable analytical capacity B-LiFE (Biological Light Fieldable Laboratory for Emergencies), which is a Rapid Response Mobile Laboratory (RRML) of Type II according to WHO classification, used in response to major health crises and international exercises to identify life-threatening pathogens: among others - Monkeypox outbreak in Kasai, DRC, 2009; Ebola outbreak in West Africa in 2014-2015, N'Zerekore, Guinea; COVID-19 pandemic response in Piedmont Region, Italy, in June-July 2020, and international training exercises: DG ECHO ERCC EUCPM MODEX in 2017, Sweden; a series of WHO-GOARN exercises for Rapid Response Mobile Labs (RRML) in 2021-2024. Thus UCLouvain-CTMA combines the vast experience as a practitioner and training activities related to the mobile capacity, the related technology development expertise, has internal expertise and receives extensive support of the university administration in EU collaborative projects management. UCLouvain Institute of Health and Society (IRSS) supports the project with the high-quality, multidisciplinary research and scientific capacity building aimed at improving both the quality of life of individuals and also population health through innovation in public health and healthcare that is both socially responsible and evidence-based, and is linked to national health care actors. IRSS strongly collaborates with the Faculty of public health and the Faculty of medicine of the UCLouvain in master programs, certificates for professionals and PhD programs in the different areas of public health, nursing sciences and medicine.

VESTA, the eNOTICE-2 Technical coordinator, is a large training centre with an established research department. METU and SAFE are research and development partners bringing their expertise and developments in simulations and serious gaming as well as their CBRN training network.

These combined profiles of some eNOTICE-2 beneficiaries prove that strict categorisation referring an organisation to a particular type of stakeholders is often not possible, while many organisations can be related to different categories at the same time. Specific profiles that fit in multiple categories should also be taken into account.

2. Customers (results beneficiaries, users). This group consists of several sub-groups of the stakeholders who benefit from the results of eNOTICE-2 project and eNOTICE network:

a) **Training centres**. Currently this group involves the CBRN training centres located in Europe and outside the EU, who are not partners of eNOTICE-2 consortium. However, after the end of the project, the consortium TCs will move to this group, being the core of the network. Naturally, the TCs are the main targeted focus of attention of eNOTICE network, it is exactly the TCs who are being contacted by eNOTICE-2 partners to describe their training facilities, perspectives and to express their needs and hopes for the network participation. TCs have all the necessary infrastructure and resources to train users of all disciplines.

The current status of the network: 53 TC from 22 countries have filled the comprehensive questionnaire designed by eNOTICE-1 consortium training centres for external

TC, having stated their wish to join the network and described their type of organisation, thematic expertise, capabilities, facilities, specificities, geographical location, as well as their professional, economic and legal links. The information on these 53 TC is collected in the eNOTICE Catalogue and placed on the eNOTICE Community Centre https://www.h2020-enotice.eu/static/catalogue.html . eNOTICE-2 takes over completely the management of the network, the training centres of the network are being regularly informed about the project activities, findings, and they participate in the discussions, e.g. recently they provided valuable inputs for the CBRN priority topics in D1.1.

b) **Practitioners and operators.** Training centres and training professionals are tightly connected to practitioners and technology operators, as they organize trainings for them. TCs work with practitioners every day. Practitioners of all disciplines – fire brigades, rescue teams, police forces, medical services, DRM, civil protection, security and defence experts, logistic services deployed for incident management, competent authorities, information and communication experts, specialized services (water management, hazmat, etc.) they all benefit from trainings organized at TCs, thus they are an integral part of the eNOTICE network. Practitioner organisation, associations, EU Networks of Practitioners and their continuation projects such as IFAFRI, INCLUDING, FIRE-IN – DIREKTION, NO FEAR – KnowEMS, iProcureNet - iProcureSecurity belong to this category. Practitioners, first responders will require up-to-date decontamination procedures and guidelines to work safely and effectively in a cross-border environment contaminated with CBRN agents (a current gap!). eNOTICE-2 is a network that provides a structure (open access library, updated and targeted safety data sheet, updated CBRN courses focused on FRs' own priorities) that serves as a very effective learning and knowledge sharing channel dedicated to FRs.

c) **Technology suppliers, research and innovation providers**. These are representatives of research and development organisations, large industry, small and medium enterprises (SMEs), academia, research institutes, research units linked to ministries or agencies, etc. – all those who design and develop technologies used by practitioners and operators in their everyday work. TCs, testing and demonstration sites are an excellent testing playground for practitioners to test new technologies, products, services and provide immediate feedback to the technology suppliers. eNOTICE-2 follows the promising technological innovations related to the project objectives – in the field of CBRN decontamination and CBRN response and preparedness in general. The input of industries active in the field of CBRN is deemed critical, and associated through the eNOTICE-2 Supplier Platform, to which technology developers are selected for simulation exercises from the H2020-ENCIRCLE Dynamic Catalogue of Technologies (of which the eNOTICE-1 and eNOTICE-2 coordinator is custodian), from current CBRN R&D&I projects, and newly obtained contacts with industry and research.

Five companies from the External Supplier Platform were invited to the first SimEx 1 and workshop in Dortmund, Germany, April 19-20, 2024 to present their own CBRN decontamination technologies. They are Cleamix Oy (Finland), Hispano Vema (Spain), LDI Innovation OÜ (Estonia), OUVRY (France) and IBATECH (Spain). Further collaboration with them is ongoing.

d) **Policy-makers**. Policy makers and regulators – regional, national, EU authorities, agencies - members of European, intergovernmental and/or governmental regulatory agencies that ensure compliance with laws, regulations, established rules, as well as individuals who set the plan pursued by a European, intergovernmental and/or governmental institution level, having the authority to set the policy framework of an organization. Especially those who influence the decisions to use CBRN TCs services, technology or facilities as field capacities in CBRN preparedness activities to fund research and use of the TCs. Regulatory bodies underpin all the groups and activities. The concept and activities of the network of CBRN training centres are in line with the EU CBRN Action Plan objectives (in particular, for the necessity of mapping of available training facilities and for cross-border trainings), have proved strategic for MS CBRN preparedness and development, and are interfacing CBRN themes of EC DGs and agencies – ECHO (the UCPKN, naturally, as well as rescEU), HOME, HERA, SANTE, INTPA, JRC, FPI.

Policy-makers will have access to practitioners-validated and scientifically-controlled information, the inputs of multi-expertise group of experts and stakeholders and pre-normative guidelines to propose an EU harmonisation aiming at safer, quicker and more efficient decontamination, with perspective of standardisation of well-defined procedures or guidelines. Public health authorities will benefit from reviewed and updated procedures and guidelines of health crisis preparedness (prevention of infection in public spaces, CBRN decontamination; assistance to vulnerable people).

eNOTICE-2 is an active participant of DG HOME Community of European Research and Innovation for Security (CERIS), it regularly participates in all CBRN thematic days, the coordinator and partners chair sessions on technology uptake, interaction of technology developers and end users, research priorities, civil-military cooperation, the coordinator is member of CERIS DRS Expert Group, - these activities and many others, like participation in various policy meetings (see Section 4 for particular examples), following the high interest of stakeholders in the eNOTICE activities, facilitate awareness of the panorama of policies, establishing, maintaining and deepening contacts with all relevant policy makers.

3. General public, society including vulnerable groups of population. This group are EU citizens who benefit from the security technologies, products, services and processes and pay for them indirectly (e.g. through paying taxes, buying products, paying for health care services, drugs and vaccines, etc.) and are ultimate end-user for all security-related activities. These are public at large, NGOs, Civil Society Organisations, education (schools) and training organizations. General public includes everyone who wants to know more about the project according to their own personal interests and concerns, be it an interested citizen, an end-user that has not been identified yet as a stakeholder by the project, or be it other projects that are dealing with similar issues and where synergies might be explored. Volunteers from the general public have participated in eNOTICE exercises in Germany, Italy and Belgium, where their involvement as real people, not actors, interacting with first responders brought invaluable insight in the CBRN response and decontamination procedures.

Following these lessons learnt from eNOTICE exercises, in eNOTICE-2 we distinguish a new significant group of stakeholders within the larger Society group – these are disabled patients,

their caregivers and health providers who are direct beneficiaries and users of the project results generated in WP5 and WP1. While liaising with and engaging CBRN and security stakeholders or all groups are rather "habitual" for eNOTICE-2 consortium - with plenty of connections, vast dissemination list of contacts, precise knowledge of their needs and requirements and lots of practical experience with them, - but this "new" group of end users requires special detailed description. Section 3 below focuses on the importance of these end-users engagement, methodology of approaching them, collection of their needs, requirements and expectations, and their active involvement in the project.

eNOTICE-2 integrates scientific expertise for first-responders (FR), industrial and policy stakeholders in the preparedness phase, making research activities more visible to a large community of these multidisciplinary stakeholders, thereby increasing the uptake of academic expertise and work of research and technology organisations (RTO) by the industrial sector (small or large industries) and by FR and creating a dynamic flow of relevant, cross-fertilizing and controlled (non-confidential) sources of CBRN information initially focused on efficient decontamination measures.

The eNOTICE-2 project and eNOTICE network stakeholders are illustrated in Figure 1.

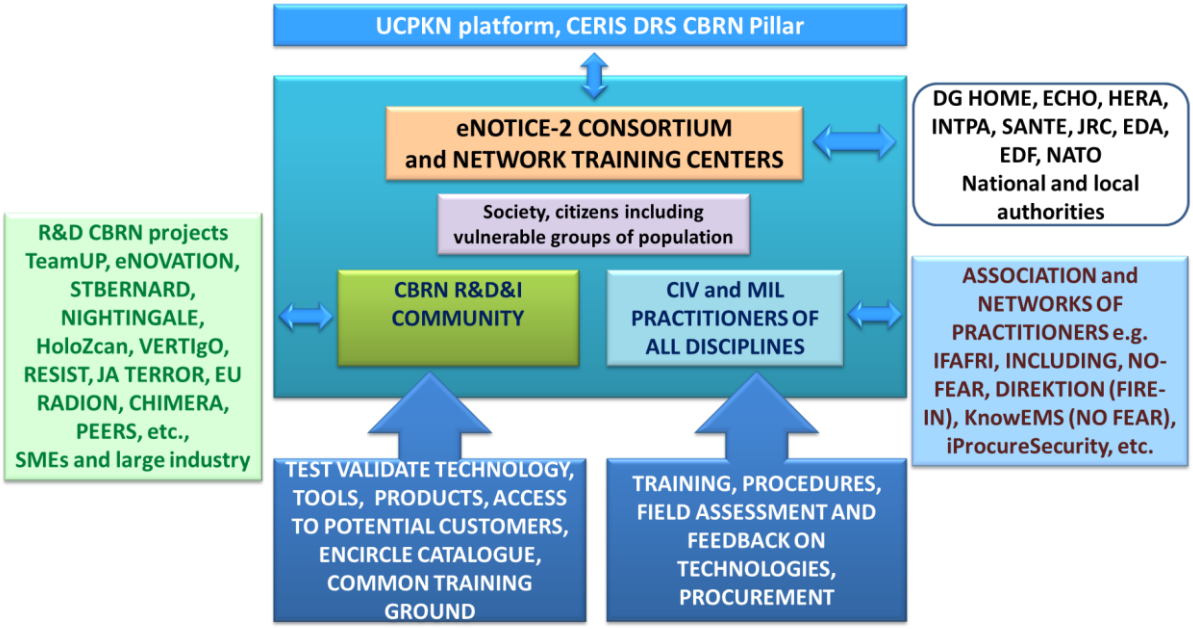

Figure 1. Stakeholders of the eNOTICE-2 project and eNOTICE network of CBRN training centres

The list of particular stakeholder organisations from all groups that we target is presented below. It has to be noted that some organizations might have activities that span across multiple categories, but the classification below is based on the primary activities or focus areas of each organization. The list is **not exhaustive**, it is dynamically updated, with more organizations to be approached when new connections are established during the project, and with the changing contacts.

Fire Brigades:

- National Fire Chiefs Council, UK
- Fire Brigade in Olomouc, Czech Republic
- Fire Brigade Zaventem, Belgium
- Fire Department Dortmund, Germany
- Fire Department Frankfurt/VFdB, Germany
- Fire Department Münster, Germany
- Fire Fighting Zone Antwerp, Belgium
- Fire Rescue Service of the Czech Republic
- Scottish Fire and Rescue Service
- The National Fire Corps, Italy
- Verband der Feuerwehren (VdF) Nordrhein-Westfalen (NRW), Germany

National and Academic Health Institutions:

- Belgian Ministry of Public Health
- VFdB, Germany
- Epidemiological Response Centre of The Polish Armed Forces
- Italian National Health Service
- UK Health Security Agency, Public Health Response
- UK National Ambulance Resilience Unit
- University Hospitals Leuven, Belgium
- Università Cattolica del Sacro Cuore, Italy

CBRN (Chemical, Biological, Radiological, Nuclear) Defence:

- Armed Forces Scientific Institute for Protection Technologies, Germany
- Bundeswehr CBRN Defence Command, Germany
- CBRN Area Control Centre, Poland
- Estonian Rescue Board
- Fuerzas Navales (FN) La Maranosa, Ministerio de Defensa, Spain .
- The 7th CBRN Defence Regiment “Cremona”, Italian Army
- University of Defence, Faculty of Military Health Sciences, Czech Republic
- UK Defence CBRN Centre

Civil institutions dedicated to Safety and Security (e.g. civil protection):

- ATF (Analytischen Task Force) Fire Department Dortmund, Germany
- Association Pegase, SAFE Cluster
- Belgian National Crisis Centre
- Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (BBK), Germany
- Institut der Feuerwehr NRW, Münster, Germany
- Centre for Biosecurity and Biopreparedness, Denmark Statens Serum Institut
- Direction générale de la Sécurité Civile SPF Intérieur, Belgium
- Estonian Academy of Security Sciences
- Europol
- Italian Civil Protection Department (ICPD)
- International Emergency Management Society
- Interpol
- Ministry of Home Affairs, Belgium

- Ministry of Interior - Department of Firefighters, Public Rescue and Civil Defence
- Population Protection Institute, Czech Republic
- Protection and Guard Service, Spain
- Secrétariat Général de la Défense et de la Sécurité Nationale, France
- Spiez Laboratory, Federal Office for Civil Protection FOCP, Switzerland
- The Disaster and Emergency Management Authority (AFAD) of Turkey
- THW Iserlohn, Germany
- UNICRI

Police:

- National Police Cheifs Council, UK
- Association of Chief Police Officers Scotland, UK
- Carabinieri, Italy
- Belgian Federal Police
- Netherlands National Police
- Police Service of Northern Ireland, UK
- Spanish National Police

3 Rationale for involvement of end users – patients with disabilities, caregivers and health providers

The UN Office for Disaster Risk Reduction stresses that "*The failure to include persons with disabilities in the world's efforts to reduce the risks of disasters has dramatic consequences. Due to inaccessible disaster preparedness plans, systemic discrimination, and widespread poverty, persons with disabilities are often left behind in relief and response efforts*" (from UNDRR website). In 2023, the UNDRR conducted a global survey on Persons with Disabilities and Disasters. It aimed to "*identify if persons with disabilities are prepared for potential disasters, whether early warning and risk information is available and accessible, if persons with disabilities are aware of DRR plans at national and local levels, and if persons with disabilities are participating in DRR decision-making and planning*" (from UNDRR website). A total of 132 countries participated (137 countries participated in the 2013 study). **The results show limited progress in disability inclusion over the past 10 years, with no significant differences across the regions[1].** One needs therefore to keep in mind that UNDRR mainly focuses on disasters such as heat waves, floods, or wildfires[2].

At risk

- An estimated 1.3 billion people – or 1 in 6 people worldwide – experience significant disability (WHO)
- 71% of persons with disabilities do not have an individual preparedness plan for disasters (UNDRR, 2013). This raised to 84% in 2023.

[1]https://www.undrr.org/report/2023-gobal-survey-report-on-persons-with-disabilities-and-disasters?source=canonical

[2] https://www.undrr.org/media/95095/download?startDownload=20240518

- In 2023, 56% reported not being aware of or not having access to disaster risk information in accessible formats in their communities (UNDRR, 2023).
- 13% of persons with disabilities have no one to help them to evacuate (UNDRR, 2013).
- About 85% of persons living with disabilities have not participated in community disaster management and risk reduction processes in their communities (UNDRR, 2013).
- Only 20% of persons with disability say they would be capable of evacuating immediately in the event of a sudden disaster (UNDRR, 2013). From the 2023 survey, it appears that "*even with sufficient advance warning 17% (1,098) would still face a lot of difficulties evacuating, and 6% (357) would be unable to evacuate independently at all*". (UNDRR, 2023).
- Only 11% of persons with disabilities report being aware of DRR plans at national and 14% at subnational levels (UNDRR, 2023).
- Only 8% reported that local DRR plans addressed the specific needs of persons with disabilities (UNDRR 2023).
- Persons with disabilities were twice as likely to die in the Great East Japan Earthquake of 2011 (Disability Information Resource, 2012).

Sources :
https://www.undrr.org/partners-and-stakeholders/disability-inclusion-disaster-risk-reduction
https://www.undrr.org/report/2023-gobal-survey-report-on-persons-with-disabilities-and-disasters?source=canonical

Based on these data, the UNDRR stresses the need for expanding the concept of: "Disability Inclusive Disaster Risk Reduction"[3], including giving voice to users themselves. Following the UNDRR recommendation, this project aims to include users' perspectives in developing decontamination procedures as it provides unique views of the needs and preferences of the patients.

Including user perspectives is more and more considered as key in the development of the health care services – including in the development of clinical guidelines or procedures. Previous studies largely documented this added value[4,5678]. Therefore, to our knowledge, including end users' perspectives in the development of procedures in emergency medical care and

[3] https://www.undrr.org/partners-and-stakeholders/disability-inclusion-disaster-risk-reduction
[4] Kohn L, Dauvrin M, Cleemput I. Process note: patient involvement in KCE research. Method Brussels: Belgian Health Care Knowledge Centre (KCE). 2021. KCE Reports 340. D/2021/10.273/09.
[5] Abma TA, Pittens CA, Visse M, Elberse JE, Broerse JE. Patient involvement in research programming and implementation: A responsive evaluation of the Dialogue Model for research agenda setting. Health Expect. 2015 Dec;18(6):2449-64. doi: 10.1111/hex.12213. Epub 2014 May 30. PMID: 24889933; PMCID: PMC5810623.
[6] The Lancet Healthy Longevity. Increasing patient and public involvement in clinical research. Lancet Healthy Longev. 2024 Feb;5(2):e83. doi: 10.1016/S2666-7568(24)00010-2. PMID: 38310896.
[7] Price A, Clarke M, Staniszewska S, Chu L, Tembo D, Kirkpatrick M, Nelken Y. Patient and Public Involvement in research: A journey to co-production. Patient Educ Couns. 2022 Apr;105(4):1041-1047. doi: 10.1016/j.pec.2021.07.021. Epub 2021 Jul 19. PMID: 34334264.
[8] Hoddinott P, Pollock A, O'Cathain A, Boyer I, Taylor J, MacDonald C, Oliver S, Donovan JL. How to incorporate patient and public perspectives into the design and conduct of research. F1000Res. 2018 Jun 18;7:752. doi: 10.12688/f1000research.15162.1. PMID: 30364075; PMCID: PMC6192439.

decontamination appears less frequent[9]. A rapid search on PubMed allowed to identify studies where the needs of the victims are considered but none seems to be relying on user involvement although previous projects, such as H2020 PROACTIVE, attempted at integrating user needs and requirements[10]. User involvement (or patient involvement) goes beyond the participation to an interview of a focus group: it is establishing a research partnership with users, giving them the possibility to add their perspectives to those of the researchers and professionals.

> *Patient Involvement in research differs from data collection in patient. Patients can be involved as PARTNERS in research at different times. The aim is to involve them in the implementation of the research (e.g. to choose or help develop tools for collecting data from patients) and not as 'subject/object of data collection' (i.e. not as participants in a survey or focus group, for example). Kohn, Dauvrin and Cleemput, 2021, page 16.*

By considering these needs and giving users opportunities to discuss on the recommendations, the procedures will be more adapted to the victims' reality and are more likely to be accepted. It will improve victims-respondents communication, better adhesion to instructions (also for the relatives of the victim) and ensure a faster management of the decontamination procedures. In the context of a CBRNe incident, end users are those directly affected by this incident. They will be considered as "victims" during the duration of the incident and will be needing assistance from the first responders, namely emergency medical care, and decontamination. Current decontamination procedures are developed for an adult population without any physical limitations. This could be seen as a simplistic way of considering the victims: it therefore corresponds to the requirements of a collective emergency. First responders need to treat the highest number of victims in a short period of time.
Victims constitute a heterogeneous group, reflecting the heterogeneity of the population affected by the incidents. Among this group, some are more vulnerable because of additional factors of complexity and, consequently, need specific attention when it comes to decontamination procedures. In this project, the focus is on persons living with a handicap and an assistive device. We aim at both involving these persons as actors of the research process through the creation of a Patient Support Committee and at collecting their perspectives through field work.

3.1 Research questions and objectives

The main research question for this work package is "What are the needs and preferences of persons living with assistive devices in case of decontamination?"

The objectives are:

- **To identify attention points in decontamination procedures from the perspective of users**

[9] Hirst E, Irving A, Goodacre S. Patient and public involvement in emergency care research. Emerg Med J. 2016 Sep;33(9):665-70. doi: 10.1136/emermed-2016-205700. Epub 2016 Apr 4. PMID: 27044949.
[10] https://proactive-h2020.eu/

This will be achieved through consultations with users and knowledgeable stakeholders on the needs of persons living with assistive devices. Additionally, objectives were:

- To understand the degree of preparedness of citizens and institutions regarding emergencies (in general)
- To assess the degree of knowledge regarding CBRNe and decontamination
- To identify attention points in decontamination procedures from the perspective of users

- **To integrate the needs of the users in the decontamination procedures**
  This will be achieved through structured feedback by users on the exercises and on the decontamination procedures.

3.2 Methods

3.2.1 Overall design

For the field work, we opted for a qualitative approach with a purposive sample stakeholders active in the field of disability and / or chronic diseases. Qualitative approach was chosen because of the complexity of the topic and the lack of familiarity of citizens with decontamination and CBRN incidents. It also allowed for better understand the rationale beyond a physical or a psychological requirement.
For the user involvement, we relied on the Process Note of the Belgian Health Care Knowledge Centre[11]. We opted for a Patient Support Committee whose missions and roles were to be defined collaboratively.

3.2.2 Target groups

We identified three distinct target groups for the interviews.

- Representatives of persons living with an assistive device ("patient representatives"): the presence of the assistive device can be related to a disability (e.g. hearing loss related to aging) or to a chronic disease (e.g. Amyotrophic Lateral Sclerosis, Multiple Sclerosis).
- (Representatives of) relatives of persons living with an assistive device: these relatives can be informal caregivers that play a major role in their daily life and, consequently, can also share experiences related to the needs of the persons, especially when these persons are not able to express themselves. Relatives can be spouses, parents or children and friends of persons living with disabilities.
- (Representatives of) professionals working with persons living with an assistive device (i.e., educators working in institutions for people with handicap). Specifically, their experiences can inform us about then needs of persons with handicap in institutions. We hypothesize that these professionals may already have some best practices that can be shared with first responders as part of their training.

[11] Kohn L, Dauvrin M, Cleemput I. Process note: patient involvement in KCE research. Method Brussels: Belgian Health Care Knowledge Centre (KCE). 2021. KCE Reports 340. D/2021/10.273/09.

3.2.3 Recruitment procedures

To maximise the recruitment, we combined several channels for contacting potential participants, with an adapted strategy for each channel.

- We first engaged − during the submission process of the project − in a collaboration with the Belgian Disability Forum. This federal council gathers representatives of persons living with handicap (all sorts of handicaps). It has a consultative role and can also provide advice on its own initiative. Most of EU countries has a national council for persons living with handicap: delegates of these national councils constitute the European Disability Forum. We expected that this National Council could act as a supporting committee thorough the project.
- We also contacted the Belgian umbrella patient associations. These 4 platforms gather almost all patient associations in Belgium and were solicited to act as intermediary for the recruitment of patients for workshops. There are 4 umbrellas: *Vlaamse Patientenplatform* (VPP), *Ligue des Usagers des Services de Santé* (LUSS), RadiOrg (specialised for rare diseases), *Patient Rat und Treft* (PRT). It was decided to first engage with the LUSS for practical reasons as none of the UCLouvain team member can conduct fluent interviews in German or in Dutch[12]. Moreover, it would have required translations of the transcripts. These umbrella associations were solicited for 1) disseminating the invitation to participate; 2) participating to an interview. For the LUSS, we also solicited them to participate to the feedback mechanism. After the dissemination by the LUSS, 16 patient associations registered for an interview.
- Based on the selection of assistive devices done in WP5.1, we used the official repository of the umbrellas to identify patient associations whose members are likely to experience handicap. A total of 33 patient associations across Belgium were identified: 16 for neurological and neuromuscular diseases (e.g. SLA, MS), 6 for hearing-impaired and deaf persons, 5 for respiratory diseases and their consequences (e.g. tracheotomy), 3 for persons with multiple handicaps and 1 for persons with amputated members. But, after these direct invitations, only 2 patient associations registered for an interview. This illustrates the need for having an intermediary such as umbrella patient associations when it comes to involving patients, as they are better known to the associations.
- As one of the UCLouvain researchers was previously involved on a research project on access to health care for persons with disabilities, we also contacted several expertise centres for disability (n=5), particularly to invite them to participate to the feedback on the exercises. Moreover, the researchers also informed their personal network about the study: 7 participants expressed their interest for the study through this channel.
- As the recruitment was difficult to start, we also attempted to involve citizen responders as a proxy for persons living with handicap. Indeed, over the last years some Belgian municipalities established a civil response mechanism to contribute to the emergency

[12] From experience, interviews are more efficient when conducted by a native speaker. It also allows for better understanding of cultural and local nuances within the language spoken (e.g. jargon words that are familiar to the interviewees).

response[13][14]. Contact was made with the municipality of Woluwé-Saint-Pierre: a total of 80 citizens are involved in the civil response, most of them being retired. Despite a positive first contact with the municipal coordinator, privacy regulations prevent us to disseminate our appeal for participants. As we expected the same refusal from the other civil response centres, we did not further investigate this channel of recruitment.

3.2.4 Ethical aspects

Participation was voluntary. Participants are not required to share a personal experience, data related to their health or other personal data but rather to share their reflections on how to improve training of first responders. The Ethics Committee was informed about the project. Participation is voluntary, no financial incentive is offered to the participants. For those choosing a face-to-face interview, reimbursement of travel costs was planned.
Before the interview, participants received an informed consent form, with the data privacy policy.
Interviews were audio recorded with the consent of the participants. Data were anonymised after the interview. In the informed consent form, participants can choose to disclose the name of their patient association or of their institution (it should be noted that not all participants opted for this possibility). All recordings are stored on a secured server of the UCLouvain and only the researcher on charge of the data collection has access to the full recording. Recordings will be deleted at the end of the eNOTICE-2 project.
At the end of the interview, participants received official information regarding personal preparedness: the personal emergency plan checklist developed by the Belgian National Crisis Centre[15] and the 112 application for calling emergency services and prerecording medical information (e.g. deafness, medication scheme). This was done to reassure participants that may feel anxious after they were asked to envision difficult situations.

3.2.5 Instrument for data collection

Interviews were supported by a semi-structured discussion guide.
The final guide was divided in 5 parts:

1) presentation of the participant & icebreaker,
2) preparedness for emergencies,
3) knowledge and representations about CBRNe & decontamination,
4) needs regarding the decontamination of assistive devices,
5) closing.

[13] https://safe.brussels/fr/bru-response-un-label-pour-integrer-les-bruxellois-dans-la-gestion-de-cris
[14] https://bwresponse.be/
[15] Link to the webpage of the National Crisis Centre: https://centredecrise.be/fr/que-pouvez-vous-faire/preparez-vous/un-plan-durgence-personnel

The section on preparedness was based on the content of this guide was based on the Person-Centred Emergency Preparedness tool[16] developed by the University of Sidney[17].
The interview guide included the EU definitions of CBRNe and of decontamination to help participants to understand the situations. We also selected videos of CBRNe decontaminations in case the participants needed a visual support to better understand the procedure.

The interview guide was tested with 2 colleagues of the UCLouvain − without any expertise in the field of CBRNe and emergency - for clarity, length and structure: no adaptation was made after the test.
After 20 interviews, additional questions were progressively added to further explore the acceptability of solutions proposed in the first interviews.

3.2.6 Preparation of the interviews

When registering in the online form for the interview, participants can indicate their preferences for the practical aspects of the interviews (face-to-face or online). They were also invited to indicate if they are personally affected by a handicap, and if they are participating as relatives or as professionals (multiple choices allowed). Participants could also participate to the interview with other members of the association / institution.
Succinct information was provided before the interview to prevent knowledge bias.

3.2.7 Practical aspects

On July 13, 2024 we had contact with 47 patient representatives and professionals: 2 participants declined participation after registering, 2 participants did not show up for the interviews and 7 participants never confirmed the appointment after registering.
On July 13 and 27, 30 interviews were held. There were 27 individual interviews and 3 group interviews, totalising 32 participants. Twenty-three interviews were held online (Microsoft Teams or Zoom), the 2 group interviews and 1 individual interview were held face-to-face on the campus of the UCLouvain in Brussels. One interview was done by phone. One individual interview was held at the participant workplace in Brussels. As of now, 2 interviews are still pending.
In parallel, we also had contact with expertise centres for persons living with disabilities: these contacts were useful to identify potential actors to be involved in the feedback on the exercises or on the final recommendations

Interviews were held in French and guided by experienced researcher in public health (Marie Dauvrin). The interviewer is trained as community health nurse and has an experience as first

[16] *The PCEP tool is designed for use by community health and disability providers to enable emergency preparedness in others. The PCEP can be used to facilitate meaningful conversations with clients in the community that raise awareness about emergency preparedness to:*
• improve emergency preparedness for people with chronic health conditions and disability
• reduce negative consequences of disaster triggered by natural hazard emergencies, and
• improve recovery following a natural hazard event
[17] Villeneuve, M., Sterman, J., & Llewellyn, G.L. (2018). Person-Centred Emergency Preparedness: A process tool and framework for enabling disaster preparedness with people with chronic health conditions and disability. Centre for Disability, Research and Policy, University of Sydney, NSW 2006

responder with the Belgian Red Cross since 2011. She was involved in collective emergencies (i.e. bombing in Maelbeek, Brussels) and has previously conducted research on access to health care for persons with disability[18] and on preparedness of the health care system regarding CBRNe incidents[19]. She is also hearing impaired and lives with audio prothesis.

3.2.8 Data analysis

After each interview, a short descriptive synthesis was elaborated based on the researcher' notes, as a first step of analysis. Interviews were transcribed in full by the researcher, using the automated transcription of Microsoft Teams as a basis. Elements from the interviews were then added to a Rapid Assessment Procedure (RAP) sheet20. Using a RAP sheet allowed to quickly compile all the elements pertaining to psychological and physical requirements necessary for the deliverable 5.1. while continuing conducting the interviews.
RAP sheets are more and more used as part of Expedited Qualitative Research[21]. It allows, among others, the quick identification of emerging findings, triangulating the data and highlighting topics needing more investigation. The interview guide was adapted accordingly (see above).

3.3 Results

3.3.1 Participants to the interviews

There were 23 women and 9 men participating in the interviews. Age ranged from 20 to 80 years old, participants lived or worked in the Brussels region or in Wallonia. Among the professionals (n=14), 6 of them have experience of collective emergencies as volunteer first responders for medical and psychosocial care (e.g. Heysel 1985, gas accident in Schaerbeek, train accident in Buizingen, terrorist attacks in Maelbeek and Zaventem, COVID period, floods in Liège). It is interesting that, among the patient representatives, 2 of them were also active as first responders when their condition still allowed it.

Professionals belonged to the field of handicap, health or social care: psychosocial manager, director of a nursing home, director of a childcare centre, specialized educators (n=3), director of services for persons with disabilities (n=2), project coordinator in an association for persons

[18] Ricour, Céline, Desomer Anja, Dauvrin Marie, Devos Carl. *How to improve Access to health care for people with intellectual disabilities?* Health Services Research (HSR). Brussels. Belgian Health Care Knowledge Centre (KCE). 2022. KCE Reports 361C. DOI: 10.57598/R361C.
[19] Cornelis, Justien ; Dauvrin, Marie ; Desomer, Anja ; Gerkens, Sophie ; Primus-de Jong, Célia ; Christiaens, Wendy. *Organisation of medical care in CBRNE incidents – a guidance*. Health Services Research (HSR). Brussels. Belgian Health Care Knowledge Centre (KCE). 2023. KCE Reports 374C. DOI: 10.57598/R374C.
[20] https://www.rapidresearchandevaluation.com/_files/ugd/e7949e_98b9fe553719481bb860025be83cd588.pdf
[21] Roberfroid Dominique, Castanares-Zapatero Diego, Chalon Patrice, Costa Elena, Dauvrin Marie, de Meester Christophe, Desomer Anja, Fairon Nicolas, Hourlay Luc, Jonckheer Pascale, Kohn Laurence, Lefèvre Mélanie, Levy Muriel, Ombelet Sien, San Miguel Lorena, Schönborn Claudia, Van de Voorde Carine, Van den Heede Koen. Expedited Scientific Research and Reporting (ESRO) at KCE. Method. Brussels. Belgian Health Care Knowledge Centre (KCE). 2024. KCE Reports 386C. DOI: 10.57598/R386C

with handicap (n=1), project coordinator in an umbrella patient association (n=1), volunteer paramedics (n=2), psychologist in a support service (n=1), speech therapist in a day care centre (n=1). Those with a direct connection with the handicap sector were working with persons living with behavioural and cognitive problems (e.g. autism), poly handicap, hearing problems and deafness, visual impairment and blindness, or acquired cerebral palsy (e.g. after a traumatism).

Among the patient representatives, some were professionally active at the moment of the interview while other were not able to work or were retired. As some are deeply involved in the activities of their association, it can therefore be envisioned as a professional activity (although volunteer). Five patient representatives are also experienced as patient educators / patient experts: they are regularly involved in training activities for (future) health care professionals. One interview was held with the mother of a disabled child (hearing-impaired girl with cochlear implants) and one was help with the parents of a young man with acquired cerebral lesions. The following patient associations participated:

- Ligue des Usagers des Services de Santé https://www.luss.be/
- Groupe d'Entraide du Syndrome d'Ehlers-Danlos https://www.gesed.com/
- Ligue nationale de la Sclérose en Plaques https://ms-sep.be/
- Association Francophone Belge de l'Ostéogenèse Imparfaite https://afboi.be/
- Association Belge contre les Maladies neuro-Musculaires http://www.abmm.be/
- Autistes Associé·es asbl https://autistesassociees.be/
- Le Noyau. https://gamp.be/associations/le-noyau/

Disabilities were caused because of a neurological problem (e.g. multiple sclerosis, neuromuscular diseases, cerebral palsy), a rare disease (e.g. Ehlers-Danlos syndrome or Osteogenesis imperfecta "brittle bone disease) or cognitive problems (e.g. autism, bipolar disorders). One can be surprised that patients with this kind of problems were included as part of this study. As mentioned in the deliverable 5.1., from the beginning, participants (professionals and patient representatives) pointed the complex nature of disabilities: persons requiring assistive devices such as those with multiple disabilities can also have cognitive and /or behavioural problems. Moreover, several participants mentioned that some persons with cognitive and / or behavioural problems rely on assistive devices for communicating and expressing their needs. In that sense, it was perceived as relevant to also consider their perspectives. One interview was also held with a type 1 diabetic patient: although diabetes is not per definition a "disability", it therefore requires assistive devices which cannot be decontaminated with the persons themselves. This was also further mentioned in interviews with professionals as diabetes is a frequent comorbidity for persons living with intellectual disabilities.[22]

[22] Ricour C, Desomer A, Dauvrin M, Devos C. How to improve access to health care for people with intellectual disabilities?. Health Services Research (HSR) Brussels: Belgian Health Care Knowledge Centre (KCE). 2022. KCE Reports 361. D/2022/10.273/63. https://doi.org/10.57598/R361C

3.3.2 Reasons for participating to the interviews

Once the call for participation was put online through the umbrella patient association, a first surprising result was the number of patient associations willing to share their experiences. Members of patient associations stated that they were happy about this topic being investigated. A participant shared his concern that, after the floods in Belgium, he – with other associations – interpellated the Internal Affairs to take more actions about taking care of people with disability but they never received a reply. Other participants reported negative experiences during COVID, stating that they do not want to be confronted again to such experiences. A participant shared her experience of being in Brussels during the attacks of Maelbeek and Zaventem and finding herself in her wheelchair without any possibility of leaving the area. Also, some patient representatives reported negative experiences in their daily interactions with first responders: misunderstanding because of communication problems, misinterpretation of behaviours (e.g. persons with neurological disorders are suspected of being drunken or under influence), lack of knowledge of the disease by health care professionals or inadequate behaviours of the FR (e.g. not listening to the patients). It seems that, overall, the implicit motivation to participate is to ensure that persons living with disabilities are better integrated into the emergency response. There was also a strong willingness to better inform the first responders about the diseases, especially when this disease cannot be seen at first sight (concept of "invisible" handicaps).

Among professionals, some had experience of emergency situations with their beneficiaries: a person who sets his room on fire, a person who did not realise that there was a fire starting in his apartment or being locked down during a search for a terrorist. These situations often triggered awareness for better preparation and adaptation of the institutions to anticipate further incidents. But, similarly to patient representatives, they often reported situations where the interactions between the persons living with a disability and the FR were not perceived as adequate. In that sense, some expressed their motivation to participate to share their knowledge and expertise.

3.3.3 Patient Support Committee

To facilitate the set-up of the Patient Support Committee, we decided to rely on the existing advisory group for persons living with disabilities in Belgium: the Belgian National Council for Persons with Handicap[23] (Nationale Hoge Raad Personen met een Handicap - Conseil Supérieur National des Personnes Handicapées°. We approached them during the preparation of the call (in 2023) and they accepted to collaborate for the recruitment of the participants and to collaborate with the research team for the feedback after the exercises. As recommended, we proposed a collaboration charter to clarify expectations and roles during the project. Therefore, despite first positives exchanges, due to unforeseen events, it was therefore not possible to rely on the NHRPH-CSNPH for these two activities and we were not able to make this collaboration effective. This was a major set-back in our willingness to involve persons with disabilities in a participative dynamic.

[23] https://ph.belgium.be/

This was an opportunity to critically think about the user involvement. Indeed, user involvement is more and more present in public health services but one should avoid tokenism, that is having symbolic involvement of participants, without giving the proper opportunities to contribute to the research. We remain convinced that user involvement is a key asset for a research project, but we should not force it. We are also aware that user involvement lies on a sustained and regular relation between the research team and the target groups. In this present project, we underestimated the need for such sustained relation, and, despite our efforts, it was difficult to have regular contacts (the researcher in charge of the contacts has a limited working time on the project). This is one of the lessons learned from this first phase.
Another aspect related to patient involvement is the need for being flexible regarding the way one wish to involve patients. We though that a Patient Support Committee, made of persons who already work together, was the most suitable strategy in our project. We underestimated that the topics of CBRNe and decontamination are very specific and, as evidenced in the interviews, not at all know by both professionals and patient representatives. Consequently, we can hypothesise that this also impacted our ability to make patient involvement effective.

However, during the interviews, some patient representatives mentioned that they are also members of the NHRPH-CSNPH and can act as intermediary in the future. Also, we proposed to some patient representatives and professionals to be further involved in the project. We particularly targeted patient representatives and professionals actively involved in the development of operational solutions for persons living with disabilities (e.g. communication tools) or already familiar with training and education of professionals (e.g. patient representatives that are involved as patient educators). We also identified patient representatives covering different forms of disabilities to ensure that any intervention or recommendation takes this diversity into account. Additionally, we had contact with 2 expertise centres for improving the daily life of persons living with disabilities: these centres also accepted to provide feedback on any material further developed in the frame of eNOTICE-2.
On July 17, 13 participants were selected to participate for feedback and further reflections on the results and recommendations. Additionally, 4 extra participants, who did not participate to an interview, agreed to participate to the next step. We will also reactivate our contact with the NHRPH-CSNPH as they are a key player: they could also help us to reach other national disabilities councils in the participating countries of eNOTICE-2.
In the next step, we will concert with these persons, through individual contacts or through a group discussion, to further nourish our project.

3.3.4 Limitations

The initial data collection methodology first planned group discussions with patient representatives to collect their needs and preferences during the decontamination of the assistive devices. Group discussion was chosen as it allows for interactions and could help to prioritise the user requirements, facilitating the knowledge transfer to the training programs.
In a first wave of recruitment (April 2024), we opened a large call through social networks for participation to the group discussions, but none registered. Individual interviews were then proposed and, thanks to the diffusion through the patient umbrella association, recruitment was

successful. We hypothesised that individual interviews were perceived as more convenient for the participants as they could chose the place and time, making it more adapted to their personal schedule. Identifying priorities for user requirements was achieved through the comparison of data between the interviews.

Interviews were held in French and only in Belgium. This could lead to a selection bias as persons speaking French as mother tongue are more likely to live in Brussels or Wallonia. Therefore, as our sample was heterogeneous regarding age, gender and nature of the disability, our findings are likely to reflect the perspectives of other persons living with disabilities. Differences can lie upon the degree of preparedness as some countries involve more in the citizen awareness, e.g. by doing regular evacuation exercises at national level or by organising civil security events. Similarly, it was pointed that not all countries have the same approach to disabilities: some care practices can be perceived differently (e.g. a same practice can be seen as "normal" in Belgium while it can be perceived as "abuse" in another country). This should be kept in mind when moving further with the development of the training recommendations.

3.3.5 Reflexivity

As the researcher in charge of the interviews (Marie Dauvrin), it was sometimes a confronting experience to hear from persons living with disabilities, especially those with hearing problems. It was also unexpectedly confronting to hear about their perceptions of past collective emergency situations.

As said by Palaganas, getting involved in qualitative research implies "shaping and being shaped"[24]. At my level, I perceived that I shaped participants by raising their awareness about being confronted to a CBRNe incident, involving decontamination, and making them more attentive to what they could prepare to anticipate such situations. I was shaped by a particular interview, echoing my personal situation and making me aware of my lack of awareness about some aspects.

Besides, as during the interviews, participants also shared elements pertaining to the Belgian context of emergency preparedness and not to the CBRNe decontamination process, the UCLouvain research team also engaged in a reflexion on how to share these results to better care for persons with disabilities.

4 Dissemination, communication and exploitation plan

Successful dissemination is considered the major criterion and prerequisite for the project results promotion for the benefit of the CBRN network of training centers, the CP and DRM community. eNOTICE-2 objective is to reach out to CBRN, security and crisis management stakeholders at the local, national, European and worldwide level to increase their involvement

[24] Palaganas, E. C., Sanchez, M. C., Molintas, M. P., & Caricativo, R. D. (2017). Reflexivity in Qualitative Research: A Journey of Learning. *The Qualitative Report*, *22*(2), 426-438. https://doi.org/10.46743/2160-3715/2017.2552

in the network and their willingness to play a key role in innovation through networking and training centres visibility. For the security stakeholders bidirectional exchange with the project is crucial that presumes communication of the project objectives to the stakeholders and collection of their feedback for precise expression of their needs, requirements, vision of the desired collaboration. This outline of eNOTICE-2 dissemination, communication and exploitation strategy includes a description of the activities and tools in support of this strategy, aimed at the target audience – the groups of end users and stakeholders described in detail in Sections 1 - 3, as well as the mechanisms to define, carry out and assess eNOTICE-2 dissemination activities.

4.1 Dissemination activities and tools

The dissemination of knowledge in eNOTICE-2 involves different activities aiming to raise as much awareness of the project results and European network of CBRN training centres as possible. The process involves three different types of dissemination:

- **Promotion of the project results**, such as identified CBRN R&D and training priority topics as basis for development of new training modules at courses taught by training centres (cf. D1.1), review of existing CBRN teaching courses and new training modules (D1.2), the findings on the structure and contents of safety-security data sheets as synthetic operational information for first responders (D3.1 – D3.3), the sources and materials selected for the CBRN-centered digital library (D2.2), the existing and new emerging technologies, and recommendations for first responders on the methods of decontamination of assistive devices used by vulnerable people (D5.1 – D5.3), the methodology and assessment of simulation exercises implemented by the project as joint activities (D4.3), etc.

- **Promotion of the project and its web space on the UCPKN platform** to the possible users, CP and DRM community and all CBRN stakeholders

- **Promotion of the capacity of CBRN training centres (TC)**, testing and demonstration sites to all stakeholders

The process of spreading excellence, exploiting results and disseminating knowledge generated during in the project involves all consortium partners as well different activities aiming to raise as much awareness of the European CBRN Community as possible. All eNOTICE-2 partners will disseminate the project findings and results through their own networks, contacts and dissemination channels. E.g. JCBRND COE intends to disseminate the project products to its Sponsoring Nations, its Contributing Partners, to NATO's CBRN Capability Development Group and – in the framework of the valid security restrictions – to partners in the Military CBRN Defence Training Centre network. UCLouvain will continue and deepen interaction with national and EU institutions such as DG ECHO (civil protection mechanism activated in case of CBRN crisis), and DG INTPA (supervising the CBRN centres of Excellence outside the EU) and DG HOME (Community of Users on secure safe and resilient societies and its CBRN component).

The announcements and results of dissemination events will be reported on the eNOTICE-2 web page at the UCPKN platform. UCLouvain as the dissemination leader is in charge of maintaining this part of the web page up to date and supported by other partners producing and promoting results and relevant materials regarding eNOTICE-2 activities.

4.2 Project webpage at the UCPKN platform

The eNOTICE-2 project webpage has been launched at UCPKN platform at the address https://civil-protection-knowledge-network.europa.eu/projects/enotice-2.The webpage serves as the main platform of dissemination of the project activities and results to the external audience. The webpage allows relevant stakeholders from the training centres, practitioners, CBRN technology suppliers, decision makers and regulators to stay up to date on the latest developments of the eNOTICE-2 project in particular and eNOTICE network in general. The information about the project concept, approach, events, workshops, tabletop exercises, presentations and discussions will be found and discussed on the webpage.

The logo of eNOTICE-2 project was co-designed by partners, in the spirit of eNOTICE network one, and it is accepted for the use on all project materials.

4.3 Publications

The project academic partners – UCLouvain, UNITOV, METU – will proceed with publication of the project findings in peer-reviewed scientific journals, such as

- International journal of Environmental Research and Public Health https://www.mdpi.com/journal/ijerph
- Environment Systems and Decisions - https://link.springer.com/journal/10669
- International Journal of Safety and Security Engineering - https://www.iieta.org/Journals/IJSSE
- Frontiers in Public Health - https://www.frontiersin.org/journals/public-health
- Virtual Reality - https://link.springer.com/journal/10055
- International Journal of Disaster Risk Reduction - https://www.sciencedirect.com/journal/international-journal-of-disaster-risk-reduction

while both academic and other partners – FDDO, VESTA, JCBRND COE, SAFE, WMP – will publish briefs and white papers in their corresponding professional journals meant for the practitioners audience in their professional network, such as, for example:

- The European Security and Defense Union journal - https://magazine-the-european.com/
- CBRNe World magazine https://cbrneworld.com/magazine
- UK National CBRN Centre digest

Besides, the consortium will contribute to the UCP Knowledge Network Newsletter, upon request of DG ECHO (as it was the case in May 2024).

We will also contribute to the INCLUDING Network Newsletter, of which Project eNOTICE is already integral part and which will expose eNOTICE-2 to a cluster of practitioners, decision and policymakers in the RN domain.

4.4 eNOTICE-2 events

The Consortium will organise dedicated eNOTICE events to strengthen the community, to practically show, use and promote the training facilities included in the network and to build and raise awareness of the project especially in view of increasing the involvement of the training professionals, practitioners and technology suppliers in the project activities. For the time being, the following eNOTICE events have been scheduled:

- **Joint activities and workshops*:*** Four activities in the form of Simulation Exercises (SimEx) are planned during the project where previously identified interested stakeholders will be invited to participate, as participants or observers, to an activity organised by a project partner. Workshops dedicated to various aspects of the project development (SDS development focus groups, industrial solutions and research methods of decontamination, training courses, VR/AR training) will be organized side-by-side with the SimEx, and the workshops participants will be stakeholders invited to the exercises.

- **Final Conference**: At the end of the project, the eNOTICE-2 Final Conference will be organised by SAFE and UCLouvain. The final scenario in 4th SimEx (M24) will be available for both offline and online (multi-player) exploitation, as well as it will be tailored to operational procedures recognised as good practices by training centres partners of eNOTICE-2. The final 4th SimEx will focus on the CBRN threat from its broad perspective. This activity will aim at testing a tentative harmonised approach, defined according to results of the previous SimEx as well as to guidelines produced in WP5. To maximise the result, dissemination to stakeholders from TCs, industry, research and DG ECHO, this SimEx will be merged with the project Final Conference and it will be held at SAFE Training and Testing Facility in the province of Verona, Italy.

	Date	Hosting partner	Location	Type of activity
1	April 19-20, 2024	**FDDO**	Dortmund, DE	SimEx 1 - table-top and field exercise. Workshop with decontamination technology developers
2	November 25-29, 2024	**JCBRND COE**	Vyškov, CZ	SimEx 2 - CBRN Consequences Management Course
3	June 2025	**VESTA**	Ranst, BE	SimEx 3 – table-top exercise

4	December 2025	**SAFE**	Soave, IT	SimEx 4 - final exercise. Final conference

Table 1. eNOTICE-2 project events

4.5 Participation in external events

The eNOTICE Consortium plans to present the project status and results at selected major events like the meetings of CERIS

Since the start of the project, and even before, by the time of this document preparation, eNOTICE-2 was presented at the following events:

- 19 – 21 September, 2023 - JCBRN Defence CDG Fall Meeting, Kolimvary, Crete, GRC, presentation on eNOTICE and eNOTICE-2 to representatives from more than 30 nations, key leaders from NATO HQ, NCS and NFS. Presenter – JCBRND COE
- 26 – 28 September, 2023 - SICC Conference, Rome, Italy, presentations on the project and Civ-mil cooperation, on Extended Reality Applications and Serious Games in the CBRNe Domain: Opportunities, Challenges and Future Perspectives. Presenters - JCBRND COE, METU, conference organiser - UNITOV, participant – UCLouvain
- 2 – 4 October, 2023, JCBRN Defence COE Annual Conference, Prague, CZE, eNOTICE network and eNOTICE-2 during panel discussions, Speaker - JCBRND COE
- 18 – 19 October, 2023 - Brandweer (firefighters), eNOTICE-2 presented at a booth, for the audience of Belgian firefighters. Presenter – VESTA.
- 24-25 October, 2023 – Security Research Event (SRE 2023), Brussels, Belgium - invited speaker in the panel discussion: Natural, accidental and intentional disasters of the future: are we prepared? Speaker – UCLouvain
- 25 – 26 October, 2023, JCBRN Defence COE Steering Committee Meeting, Vyskov, CZ, presentation on eNOTICE and eNOTICE-2, Speaker - JCBRND COE
- 22 - 25 November, 2023 - 6th ICMM Maghrebian Regional Congress on Military Medicine, Marrakech, Morocco. Invited presentation on eNOTICE network and upcoming eNOTICE-2 project. Presenter – UCLouvain
- 4-7 December, 2023 – CERIS DRS CBRN, Brussels, Belgium. panel discussions Involving citizens in CBRN research and capacity-building initiatives, From Research to Innovation, representing eNOTICE-2. Speaker – UCLouvain, participants – VESTA, METU, JCBRND COE
- 4 January, 2024, Meppen, Germany - oral presentation in German for District Fire Chiefs & Security officers - "Scientific Projects in the field of CBRN". Presenter - FDDO
- 9 January 9, 2024, Brussels, Belgium – Meeting of Belgian CBRN stakeholders at the Belgian National Crisis Centre. Presenters - UCLouvain, VESTA

- 15 January, 2024, JCBRN Defence COE Annual Evaluation, presentation on eNOTICE and eNOTICE-2, Speaker - JCBRND COE
- 15 February, 2024, Dortmund, Germany - oral presentation in German for Dortmund Fire Officers - "Decon of vulnerable people - new solutions". Presenter – FDDO
- 20 – 22 February, 2024, JCBRN Defence CDG Meeting, NATO HQ, Brussels, Belgium, presentation on eNOTICE-2. Speaker - JCBRND COE
- 11 – 13 March, 2024, Budapest, Hungary - CBRNe Summit Europe. Invited presentations. Presenters - UCLouvain, JCBRND COE
- 12 March 2024 - The Alliance of Guangzhou International Sister-City Universities (GISU) Digital and Entrepreneurship Program 2024, online short course on Digital Globalization of Gaming and Extended Reality Industries. Presenter – METU
- 15 March, 2024: introduction of eNOTICE-2 at Belgian civil protection. Presenter – VESTA
- 19 – 21 March, 2024 – CBRNE Research and Innovation conference, Strasbourg, France. UCLouvain in the Scientific Committee of the conference, eNOTICE-2 organised a workshop on Harmonisation of CBRN training, moderator - UCLouvain, speakers - METU, JCBRND COE, UNITOV, SAFE, participants - VESTA, FDDO. eNOTICE-2 (UCLouvain) chaired a session on CBRN training, And eNOTICE-2 organised panel discussion on Anticipating tomorrow’s crises, preparedness, training and adapting response means, moderator - UCLouvain, speakers - JCBRND COE, VESTA
- 25 March, 2024 - Introduction of eNOTICE-2 and request to collaborate for the Postgraduate degree disaster management, presentation for the heads of PGRM, responsible for module about technological disasters. Presenter – VESTA
- 26 – 27 March, 2024, JCBRN Defence COE Steering Committee Meeting, Vyskov, CZ, presentation on eNOTICE-2

  VESTA presentations of eNOTICE-2 to Focus groups:

  - 20 April, 2024, Dortmund, Germany – presentation to German firefighters
  - 25 April, 2024, Campus Vesta, Belgium - presentation to multidisciplinary CBRNe experts
  - 14 May, 2024 - online presentation to Italian multidisciplinary CBRNe experts
  - 31 May, 2024 - online presentation to Czech Republic multidisciplinary CBRNe experts
  - 26 June, 2024 - online presentation to UK multidisciplinary CBRNe experts
  - 28 June, 2024 - Campus Vesta, Belgium - presentation to multidisciplinary CBRNe experts

- 3 April 2024 - ROMER Talks, Ankara, Turkiye - invited talk on A Brief Introduction to Game Research: Persona Building, Serious Games, and Extended Reality Applications. Presenter – METU
- 16 – 17 April, 2024, SSMS Meeting, The Hague University of Applied Sciences, Oberammergau, Germany, information about and advertising eNOTICE-2; Presenter - JCBRND COE
- 21 – 23 May, NCT Europe, Zagreb, oral presentation on eNOTICE-2. Presenter - JCBRND COE
- 15 May, 2024 – DG ECHO rescEU CBRN meeting, online presentation. Presenter – UCLouvain
- 4-5 June, 2024 - DG ECHO Civil Protection Forum, Brussels, Belgium. eNOTICE-2 had a booth. Speakers – UCLouvain, JCBRND COE, METU, SAFE
- 5-7 June, 2024 – CERIS DRS CBRN, Brussels, Belgium. Panel discussion Technologies for first and second responders – Road to uptake, where are we standing? Moderated by eNOTICE-2. Speaker – UCLouvain, participants – METU, SAFE, JCBRND COE
- 5 – 8 June, 2024, Dortmund, Germany - continuous presentation during the 112Rescue Fair at the booth of FDDO for end users in the field of fire service - "Scientific Projects in the field of CBRN". Presenter - FDDO

The eNOTICE-2 Consortium will regularly monitor relevant events that would constitute a good venue for the project's promotion. All project participants will contribute to monitoring on a constant basis. Every three months the eNOTICE-2 Project Coordinator will make a point of the situation and see if the dissemination plan needs to be updated. The list of potential events for eNOTICE-2 project discussion identified so far is:

Title of the event	Website of the event	Relevance to eNOTICE-2 project
Community for European Research and Innovation for Security (CERIS) DRS, June 5-7, Brussels, Belgium CERIS Disaster Research Days 2024: Shaping the Future of Science and Research for Disaster Risk Reduction, October 8-10, Vienna, Austria	https://home-affairs.ec.europa.eu/networks/ceris-community-european-research-and-innovation-security_en	Active collaboration with other projects in the theme on Disaster Resilient Societies (DRS) and CBRN, large gathering of stakeholders
European Civil Protection Forum, June 4-5, 2024, Brussels, Belgium	https://civil-protection-knowledge-network.europa.eu/	The European Civil Protection Forum reunites civil protection and disaster risk management authorities at different governance levels, first

	european-civil-protection-forum-2024	responders, civil society organisations, the private sector, science and academia, EU institutions, and partner international organisations in a context where initiatives related to Civil protection, Disaster Resilient Society, and similar thematic areas are presented and put in contact to exploit potential cooperations and cross-feed their results.
EENA (European Emergency Number Association) annual Conference & Exhibition, April 9 – 11, 2025, Helsinki, Finland	https://eenaconference.org/	The conference covers a range of topics each year, from trends in the public safety field and updates on EU legislation, to strategies for retaining staff and enhancing the well-being of call-takers. New technologies offering for emergency services professional, researcher, solution provider, mobile network operator, or EU institution representative are also presented.
NATO JCBRN Defence CDG autumn meeting, 17 – 19 September 2024, Oslo, Norway	N/A	Information and side talks on eNOTICE-2
JCBRN Defence COE Annual Conference, 21 – 23 October 2024, Brno, CZ	N/A	Information and side talks on eNOTICE-2
JCBRN Defence COE Steering Committee Autumn Meeting, 25 – 26 October 2024, Vyskov, CZ	N/A	Presentation on COE's outreach activities including an update on eNOTICE-2
CTPN table top exercise 7th November 2024 Washington DC, US	Counter Terrorism Preparedness Network | London City Hall	Co-hosted by UK Counter Terrorism Policing National CBRN(e) Centre. and the DC Homeland Security and Emergency Management Agency – specific objectives focus on preparedness priorities and knowledge exchange.
NATO JCBRN Defence CDG spring meeting, February 2025, NATO HQ Brussels, Belgium	N/A	Information and side talks on eNOTICE-2

JCBRN Defence COE Steering Committee Spring Meeting, March 2025, Vyskov, CZ	N/A	Presentation on COE's outreach activities including an update on eNOTICE-2
CBRNe Summit Europe, 25 – 27 March 2025, Oslo, Norway	N/A	Information and side talks on eNOTICE-2
NCT Europe, 20-22 May 2025, UK Defence Academy in Shrivenham, UK	N/A	Information and side talks on eNOTICE-2
JCBRN Defence COE Annual Conference, October 2025, tbd	N/A	Information and side talks on eNOTICE-2
JCBRN Defence COE Steering Committee Autumn Meeting, October 2025, Vyskov, CZ	N/A	Presentation on COE's outreach activities including an update on eNOTICE-2
JCBRN Defence COE Annual Evaluation, January 2025, Vyskov, CZ presentation on eNOTICE and eNOTICE-2	N/A	Presentation on COE's outreach activities including an update on eNOTICE-2
SSMS Meeting, The Hague University of Applied Sciences, April 2025, Oberammergau, Germany	N/A	Information about and advertising eNOTICE-2
International conference CBRNE Research & Innovation	https://cbrneconference.fr/	The event, which held its 6th edition in 2024, is a prime context to gather scientific and technical updates in CBRN DIM and Decon, but also to get in touch with first responders and obtain relevant feedback and expression of needs. The eNOTICE-2 Consortium commits to present relevant project updates during the next edition of the event.

4.6 Collaboration with other Projects

eNOTICE-2 is building on all the links and collaborations established with numerous CBRN-related R&D&I projects, networks, initiatives, associations and clusters funded by EU Horizon Europe, H2020, ISF, EDA, EDF, FPI, national projects, and is continuously looking into new contacts, new projects, especially UCPKN fellow projects that deal with CBRN technology development, research, networking, policy, training, standardisation, marketing in order to explore opportunities for collaboration with eNOTICE-2.

Project Acronym and full title	Project website	Relation to eNOTICE-2 partners	Rationale for collaboration
TeamUP - Transforming Collaboration and Response Strategies for CBRN-E Incidents	https://teamup-project.eu/	UCLouvain, VESTA, FDDO are partners	Development of technologies for first responders, training curricula
eNOVATION - Extended Network of CBRN Training Centres for Innovation	To be created (project starts on September 1, 2024)	UCLouvain is technical coordinator, partners – VESTA, UNITOV, JCBRND COE, SAFE, METU, WMP	Upgrading training methodologies, VR/XR assisted CBRN training, exchange of information and best practices, interface with industry
UCPKN KnowEMS	https://civil-protection-knowledge-network.europa.eu/projects/knowems		Trainings, liaison with emergency medical services, exchanges on CBRN knowledge
STBERNARD	https://stbernard.eu/	UCLouvain established the link at the UCPM CP Forum	CBRN decontamination technologies and innovative methods
rescEU-CBRN-DSIM-IT	Not included in the project	SAFE	Development of technologies for CBRN DIM for first responders, creation of training curricula to include VR/XR components, network with relevant first responders.

4.7 Project results exploitation

The input of industries active in the field of CBRN is deemed critical, and associated through the eNOTICE-2 supplier platform the project integrates scientific expertise for first-responders, industrial and policy stakeholders in the preparedness phase, making research activities more visible to a large community of these multidisciplinary stakeholders (described in detail in previous sections), thereby increasing the uptake of academic expertise and work of research and technology organisations (RTO) by the industrial sector (small or large industries) and by FR and creating a dynamic flow of relevant, cross-fertilizing and controlled (non-confidential) sources of CBRN information focused on efficient decontamination measures.

eNOTICE-2 triggers change and innovation, it will contribute in a very active and constructive way to national teaching and training programmes and strengthen DRM and institutions tasked with CP and DRM. The stakeholders will benefit from:

- the improved knowledge and capability sharing,
- increased awareness of new types of threats,
- best countermeasures and guidance materials (SOPs, emergency response guidelines, SDS),
- the pan-EU pre-normative guideline for decontamination with special emphasis on decontamination of assistive devices for disabled people, introduced into the operational activity,
- training materials and the updated teaching courses adapted to these topics of interest and enriched by academic and scientific inputs,
- the open digital library that will include non-classified up-to-date information selected by FR and academic staff from the relevance of the content.

All these results will be exploited for the benefit of the individual and institutional stakeholders.

The results will be exploited through the reviewed updated CBRN courses. This ensures that stored information and CBRN courses are quickly and efficiently adapted for use by the CBRN community and other stakeholders, a process that extends far beyond the eNOTICE-2 partners. This is the most efficient method of facilitating cross-border exchange and the alignment of the best project outcomes. The trainees who will benefit from the updated courses are, concretely:

- the civil protection partner FDDO trains 1000 full time and voluntary first responders in Germany per year

- VESTA courses with CBRN and HAZMAT part is the Post Graduate Disaster Management degree, and several specific CBRN courses are organised upon request by the FR. The rough estimation makes between 50 and 300 first responders benefiting from the courses.

- UNITOV hosts the International Master Courses in “Protection against CBRNe events”: 1) 1st Level Base Level and 2nd Advanced Level Master Course in “Protection against CBRNe events”, attended by 20 and 30 participants per year respectively, representing CP, consequence management structures (police, firefighters, health services, hospitals, military and civil defence), emergency management authorities with wide geographical coverage - from all EU countries, plus UK, Norway, Türkiye, Afghanistan, Qatar, Iraq, Morocco, South Korea, Zambia, United Arab Emirates, Egypt, Jordan, Bahrain, Brazil, Cuba, Lebanon and USA.

- the international NATO-accredited centre JCBRND COE holds CBRN Consequence Management Course, with currently 35 participants a year (with the plan to make the course twice a year and then it will be 70 participants per year), they are key military and civilian personnel of DRM, civil protection, consequence management structures (police, firefighters, health services, hospitals, military and civil defence), emergency management authorities, as well as specialist teams from national crisis centres with a wide geographic coverage - from

twenty (20) nations Austria, Belgium, Croatia, Czech Republic, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Romania, Slovenia, Spain, and USA. The more technical course "Introduction to the International CBRN Training Curriculum for Trainers of First Responders to CBRN Incidents" hosts currently – 20 participants per course, including trainees from Ukraine, from the Atlantic Façade countries, and this course is made upon request, and can take place as frequently as needed, thus making up to 100 trainees a year. The first updated course with a new module on bio threats and toxins detection and decontamination will be taught at the CBRN Consequences Management course in November 2024.

The eNOTICE-2 results will be further exploited and built upon in the new Horizon Europe Innovation Action project eNOVATION – Extended Network of CBRN Training Centres for Innovation – that starts in September 2024 and aims at continuation and maintenance of the network of CBRN Training Centres. One of the main objectives and expected final result of eNOVATION is to exploit the testing and validation framework and innovation results towards the sustainable network of CBRN training centres, develop the business strategy and business model for the network to make it function independently. All practitioner-driven innovations, taken over from eNOTICE-2 and others to be further developed in eNOVATION have high marketing potential, the work will ensure that the developments match the market's requirements, market study and business plan. The ultimate goal is to finalize and formalize the Network of CBRN TC ensure its economic sustainability, through the revenue generated by the members, user-pays model and private-public partnerships with significant role of industry.