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Ministry for
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“Leave No One Behind: Active Involvement of Persons with Disabilities in Disaster Preparedness and Response towards Strengthening Inclusive Disaster Resilience”

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HELLENIC REPUBLIC
Ministry for Climate Crisis and Civil Protection

"Leave No One Behind: Active Involvement of Persons with Disabilities in Disaster Preparedness and Response towards Strengthening Inclusive Disaster Resilience"

This work has been prepared by the European Center for Forest Fires (ECFF), Greece, under the aegis of the Council of Europe (EUR-OPA), in the framework of the joint project *"Inclusion of Vulnerable groups in Disaster Preparedness and Response for coping with emerging risks: Evacuation exercise including people with disabilities", which was implemented in cooperation with the European Centre on Prevention and Forecasting of Earthquakes (ECPFE), Greece*

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Forward

Climate-induced disasters have exponentially increased the recent years, affecting billions of people worldwide. Prolonged periods of heatwaves, uncontrolled wildfires, elongated periods of higher average temperatures, drought, as well as severe and unprecedented flooding are annually recorded in the last decade. Moreover, the recent COVID-19 pandemic crisis has augmented the challenges and difficulties in disaster risk management, bringing to the fore the issue of emerging risks and the need to cope with complex emergencies in the future; it seems that populations are likely to be exposed to unprecedented conditions, experiencing vast consequences.

The features of the built environment, as well as urbanization and population growth affect the impact of disasters, i.e. non-accessibility is a certain drawback in building disaster resilient cities. Specific groups, such as persons with disabilities are often exposed to higher risks due to existing barriers, which increase their vulnerability in disasters; however, disabilities can be visible or non-visible that are not immediately apparent. The 2023 Global Survey on Persons with Disabilities and Disasters conducted by UNDRR highlights that *"Disasters impact everyone but have a disproportionate impact on persons with disabilities who continue to experience barriers to participation and societal exclusion. The Sendai Framework for Disaster Risk Reduction 2015-2030 commits to increase the participation of persons with disabilities in disaster risk reduction (DRR) and champions inclusive decision-making in which persons with disabilities are key stakeholders in determining the DRR plans and programmes that impact all our lives."*

In the above context, and due to an increasingly volatile risk landscape globally, building inclusive disaster resilience policies is a key element for coping with emerging risks and unknown effects. Persons with disabilities need to be included in the disaster management cycle, in terms of active involvement in the planning and implementation of plans pertaining to disaster resilience, as well as active participation in training exercises organised by the local authorities.

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Introduction

The volume entitled *"Leave No One Behind: Active Involvement of Persons with Disabilities in Disaster Preparedness and Response towards Strengthening Inclusive Disaster Resilience"* has been prepared by the European Center for Forest Fires (ECFF), Greece, under the aegis of the Council of Europe (EUR-OPA Major Hazards Agreement), in the framework of the joint project *"Inclusion of Vulnerable groups in Disaster Preparedness and Response for coping with emerging risks: Evacuation exercise including people with disabilities"*, which was implemented in cooperation with the European Centre on Prevention and Forecasting of Earthquakes (ECPFE), Greece. The project was implemented in the period 2022-2023. The main activities were the organisation of a workshop dedicated to inclusion in emergencies, and the execution of an evacuation exercise with the participation of persons with disabilities.

In specific, the workshop entitled *"Leave No One Behind: Inclusivity in Disaster Preparedness and Response"* which took place on the 8th of November 2022, in Athens, Greece, at the premises of the Hellenic Ministry for Climate Crisis and Civil Protection, is described in Section 1 of this volume; it incorporates the available presentations given by the invited speakers, in the format of short, stand-alone articles. Moreover, the objectives and the opening remarks of the workshop are available. The draft conclusions of the workshop are also summarised.

The *"Evacuation exercise with Participation of Persons with Disabilities"* that was conducted on the 26th of October 2023, in Athens, Greece, at the premises of the National Confederation of Persons with Disabilities (ESAmeA), is described in Section 2 of this volume. The main objectives of the table-top exercise, as well as the simulated scenarios that run under this scope, are provided. Moreover, highlights of the role-playing during the evacuation process, which involved persons with disabilities, are given. The conclusions and lessons learnt from the exercise are drafted to be utilized for the preparation of future relevant exercises, which involve persons with disabilities.

Section 1. Workshop “Leave No One Behind: Inclusivity in Disaster Preparedness and Response”

1.Workshop’s Objectives and Opening Remarks

The European Center for Forest Fire (ECFF), Council of Europe, in cooperation with the Hellenic Ministry for Climate Crisis and Civil Protection, General Secretariat for Civil Protection (GSCP) and the National Technical University of Athens (NTUA), Greece, organised a workshop entitled “Leave No One Behind: Inclusivity in Disaster Preparedness and Response”, which took place on the 8th of November 2022, in Athens, at the premises of the Hellenic Ministry for Climate Crisis and Civil Protection.

Workshop entitled “Leave No One Behind: Inclusivity in disaster preparedness and response”, 8/11/22, Hellenic Ministry for Climate Crisis and Civil Protection, Athens

This event was a follow-up of a previous conference entitled: “Evacuation of Buildings in Case of Emergency for Persons with Disabilities”, which took place on the 31st of October 2017 at the auditorium of the NTUA, also organized by ECFF, together with GSCP and NTUA.


Conference entitled “Evacuation of Buildings in Case of Emergency for Persons with Disabilities”, 31/10/17, NTUA, Athens

The workshop, as well as the conference, aimed at promoting the dialogue among the different parties illuminating diverse perspectives, as well as bringing to the fore the voice of the disability community, and tackling the real needs of the persons with disabilities in emergencies. It is worth mentioning that over a hundred participants attended the workshop with different expertise and knowledge backgrounds, representing various organisations including the disability community.

Specifically, the objectives of the workshop were to:

- Bring together academics, scientists, operational people, experts, and persons with disabilities, for exchanging insights and sharing knowledge and practical experience.
- Promote disaster preparedness among interested parties, such as individuals who take care of persons with disabilities; special education teachers; and persons with disabilities.
- Provide material on safe evacuation procedures and practical self-protection guidelines.
- Raise awareness of emerging risks for all the groups of population.
- Enhance disaster preparedness for effective response and “Building Back Better.”

In that framework, several speakers were invited to present their observations or studies; all the available contributions have been summarized and are outlined in Section 1, paragraphs 2 to 4 of this volume, as individual short articles.

The workshop was opened by Mr George Gerapetritis, Minister of State of the Hellenic Republic, who outlined the goals of the “National Strategy for the Rights of Persons with Disabilities 2023-2030” for an inclusive society in Greece.

Then, the Secretary-General for Civil Protection (GSCP), Mr Vassilis Papageorgiou took the floor mentioning that ECFF, which falls under the Ministry for Climate Crisis and Civil Protection, is part of the Network of Specialized Scientific Centres of the EUR-OPA Major Hazards Agreement (https://www.coe.int/en/web/europarisks/specialised-centres) and has developed constant cooperation with the General Secretariat for Civil Protection and the Ministry, since its creation in 2002. He referred to the scientific and research work of ECFF on wildfires and their impact, especially in the mixed zones; the use of chemicals against forest fires; means of protection, and the consequences of wildfire on health. A special remark was made on persons with disabilities being disproportionately affected by any kind of disaster and the importance of their inclusion in the disaster management circle, in preparedness as well as in response, for the reinforcement of the populations' resilience and the experience needs to be gained on all sides. Towards the direction of inclusivity, the Ministry and the GSCP have already taken various initiatives:

- publishing the self-protection guidelines in the Braille code in collaboration with the Center for Education and Rehabilitation for the Blind and updating the GSCP website, where these guidelines can be found, so that the files' font size can be modified according to the readers' needs.
- partaking in the "National Plan of Action on the Rights of People with Disabilities", coordinated by the Minister of State.
- producing videos for the self-protection guidelines, with added sign language interpretation, embedded subtitles, and a complete content vocalization, that are uploaded on the Ministry's website (https://civilprotection.gov.gr/) and the respective official YouTube account (https://www.youtube.com/channel/UC7cMXhEAsyOdNb_f_3aeMSg).
- the ability to locate all 112 callers automatically just by receiving a text message from the user and including persons with disabilities in the 112 services personnel.
- educational campaigns through accessible means at every municipality and the use of volunteers from the GSCP registry for the spread of information.
- creation of catalogs with the contact information of persons with disabilities, on a regional level, so that evacuation and assistance can be immediate in case of an emergency.

It was mentioned that the Hellenic Ministry for Climate Crisis and Civil Protection together with GSCP have prepared many emergency response plans and hence, the importance of instructing and coordinating people in need when these plans are activated was addressed.

Among the other invited distinguished delegates who participated in the workshop with a short opening remark were Mr Efthimios Bakogiannis, Secretary General of Spatial Planning and Urban Environment, Ministry of Environment and Energy, Greece, who highlighted the importance of accessibility of the built environment to achieve disaster resilient cities; Prof. Efthimios Lekkas, President of the Earthquake Planning and Protection Organisation, Greece (OASP) who remarked on the accelerated number of climate-induced disasters and the importance of disaster preparedness and response for all the population.

Apart from the Greek delegates, it was an honor to have an intervention by Mr Krzysztof Zyman, Executive Secretary European and Mediterranean Major Hazards Agreement (EUR-OPA). Mr Zyman underlined that fighting against environmental degradation and climate change is one of the key priorities of the Strategic Framework for the Council of Europe. He mentioned that EUR-OPA responds to these challenges based on the values of the Council of Europe: democracy, human rights, the rule of law and democratic participation. Since the Ministerial Meeting of the Agreement in 2010, the Agreement has followed the guidelines established by Ministers that focus on different areas of work and the Council of Europe values. The Resolution on Ethical Principles relating to disaster risk reduction and contributing to people's resilience to disasters, adopted in 2011 provided a conceptual platform to expand the Agreement's work on vulnerable groups. One of the general ethical principles adopted by EUR-OPA is the principle of non-discrimination that is to be applied to persons with disabilities. This group of people is confronted with a few difficulties regarding disaster risk reduction. They could face difficulties obtaining correct information on prevention or even receiving alerts in the case of emergencies. There could be physical barriers to entering or exiting a building or emergency services may not be prepared to efficiently handle people with certain disabilities. Regarding ECFF, Mr Zyman stated that he is pleased to see that it is so actively working and with successful results within the Network of Specialized Scientific Centers of the EUR-OPA Major Hazards Agreement, co-organising this important event.

2. Inclusive Disaster Preparedness and Response: Perspective and Insights – Presentations

2.1 "Persons with disabilities in Disasters: Framework for Addressing the Needs and Next Steps", by Konstantinos Gargalis, National Confederation of Persons with Disabilities (ESAmeA), Greece

Introduction

The National Confederation of Persons with Disabilities (ESAmeA) is the national body representing people with disabilities and chronic diseases and their families in Greece (ESAmeA website: https://www.esamea.gr/el); the Institute of National Confederation of Persons with Disabilities & Chronic Diseases (In-ESAmeA) is the official educational and research organization of the disability movement in Greece (In-ESAmeA website: https://www.in-esamea.gr/el).

As known, persons with disabilities and chronic diseases are not a homogeneous group with uniform characteristics. According to the United Nations Convention on the Rights of Persons with Disabilities (L.4074/2012, Article 1 – Purpose) persons with disabilities are defined as follows: "[…] Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which, in interaction with various barriers, may prevent their full and effective participation in society, on an equal basis with others".

Even nowadays, persons with disabilities face multiple and complex forms of discrimination, based on their disability or condition but also due to gender, age, ethnicity, religion, etc., that leads to their displacement and exclusion. Especially in emergency and disaster situations, even though persons with disabilities and chronic conditions have the same rights and basic needs (escape/protection, shelter, food, care, etc.) and face the same challenges as any other citizen, they encounter many additional barriers and particular risks that require enhanced protection and specialized action, including increased risk of violence, exploitation, and abuse, as well as high levels of stigma.

What are the Barriers for Persons with Disabilities in Emergencies?

Some of the barriers that people with a disability/chronic condition encounter in emergency situations are the following:

- *Physical barriers:* stairs, absence of ramps for access to accommodation/food/distribution of first aid material.

- *Information and communication barriers*: format or language in which information about evacuation procedures or announcement of instructions etc. is conveyed; for example, information which is not understood by persons with disabilities, e.g. sensory, cognitive/mental.
- *Behavioral barriers:* prejudices or discrimination that treat people with disabilities as second-class citizens or exclude them from consultation, e.g. on policies or humanitarian needs.
- *Financial barriers:* lack or non-commitment of resources to replace essential aids or assistive devices used by people with disabilities/chronic conditions that have been lost or damaged during emergencies.
- Policy barriers: such as policy making that discriminates against people with disabilities or lack of specific measures to address the special needs of people with disabilities/chronic diseases.
- Legislative and regulatory barriers: such as limiting their legal capacity, requiring a witness to access their bank account while the system may have crashed in disaster conditions.

What is the Framework for addressing the needs of Persons with Disabilities in Risk Situations?

The United Nations Convention on the Rights of Persons with Disabilities sets out the framework of obligations to address the needs of persons with disabilities in Situations of risk and humanitarian emergencies referred in Article 11 – "States Parties shall take, in accordance with their obligations under international law, including international humanitarian law and international human rights law, all necessary measures to ensure the protection and safety of persons with disabilities in situations of risk, including situations of armed conflict, humanitarian emergencies and the occurrence of natural disasters".

The need to respect the inherent dignity of persons with disabilities is also particularly emphasized (Article 1 – Purpose: "The purpose of this Convention is to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms, by all persons with disabilities and to promote respect for their inherent dignity […]"), as well as the particular importance of implementing accessibility throughout the chain of human activities in normal or even extraordinary circumstances (Article 9 – Accessibility: "1. In order to enable persons with disabilities to live independently and to participate fully in all aspects of life, States Parties shall take appropriate measures to ensure that persons with disabilities have access, on an equal basis with others, to the natural environment, the means of transport, information and communications, including information and communications technologies and systems and other facilities

and services that are open or provided to the public, both in urban and rural areas. These measures, which will include the identification and elimination of obstacles and accessibility barriers, will apply, among others, to:
a. buildings, roads, transport, and other indoor and outdoor facilities, including schools, residences, medical facilities, and workplaces.
b. information, communications, and other services, including electronic services and emergency services".

Conclusions

It is extremely important to develop the next steps at both central and local level, to enable the state to meet the above requirements of the United Nations Convention on the Equal Protection of Citizens with Disabilities/Chronic Diseases in Emergency Situations, including disasters caused by natural hazards or man-made disasters:

Step 1: networking of the competent services and organisations with the disability movement at both central and local level to identify the problems and develop methods for tracking citizens with disabilities/chronic conditions in emergency situations.

Step 2: review all civil protection policies and plans/protocols in collaboration with the disability movement and develop individual action plans on a case-by-case basis.

Step 3: training of staff of the relevant services and volunteers on issues related to disability/chronic diseases issues; learn about the special needs of these citizens and the obstacles they face, and ways of accessible communication between them. Also, training of citizens with disabilities or those with chronic diseases on issues of personal management and coping with emergency situations, development of individual action plans, etc.

Step 4: development of inclusive early warning systems and accessible warning messages to citizens with disabilities / chronic diseases.

Step 5: ensuring accessible shelters, food and clothing distribution, health and rehabilitation services, education.

Step 6: ensuring accessible means of transport.

Step 7: ensuring that affected people with a disability/chronic disease are supported with on-line assistance, assistive devices, or technologies, etc.

Step 8: taking specific measures to prevent and protect these citizens from violence with special focus on women, children, elderly people, etc., who experience multiple discriminations.

It is particularly pointed out that the implementation of the above process and steps must always focus on respecting the dignity of persons with a disability/chronic disease and take into account the fact that all disabilities are not

visible and cannot be treated in the same way; in that prospect, the “inclusive civil protection programs” are not enough if they focus only on the supply and installation of ramps but need to be seen under the umbrella of integrated programs that will always be developed in close cooperation with the disability movement, they will satisfy the special needs of persons with disabilities and chronic diseases in all phases of planning and implementation, and will cover information, communication, preparation, as well as treatment, support and rehabilitation in a way that is accessible to all.

The disability movement is and will be at the disposal of the relevant stakeholders and competent services at both central and local level to support any planning of policies and actions that will ensure the optimal protection of persons with disabilities/chronic diseases in emergency situations including disasters caused by natural hazards.

References

Institute of National Confederation of Persons with Disabilities & Chronic Diseases (In-ESAmeA), https://www.in-esamea.gr/en

National Confederation of Persons with Disabilities (ESAmeA) website: https://www.edf-feph.org/our-members/account-national-confederation-of-disabled-people-ncdp/

United Nations, Convention on the Rights of Persons with Disabilities (CRPD), https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf

2.2 “Engagement of persons with disabilities in disaster preparedness: Indicative Examples”, by Alex Tsakiridis, Disaster Risk Reduction specialist

Introduction

Over the past decades, there has been important shifts in the way disability is comprehended. Disability is now understood “as the consequence of the interaction of the individual with an environment that does not accommodate that individual’s differences and limits or impedes the individuals’ participation in society” (OHCHR, 2010). This social-centred understanding of disability replaced earlier models that conceptualized disability as an individual problem.

It is thus crucial to note that the experience of disaster risk and the consequences of a disaster directly depend on socioeconomic factors. People living with disabilities, in a context that does not take their needs into account, are in a particularly vulnerable position. On top of that, the climate crisis and the COVID-19 pandemic have exacerbated inequalities and show the urgency to strengthen disability-inclusive disaster risk reduction (DRR).

The numbers are staggering. More than one billion people (or 1 in 6 people) around the world experience some form of disability (WHO), while 80 per cent of persons with disability live in low- middle – income countries (World Bank, 2022). According to an older report from the United Nations Office for Disaster Risk Reduction (2013), 71% of persons with disabilities do not have an individual preparedness plan for disasters, while about 85% of persons living with disabilities have not participated in community disaster management and risk reduction processes in their communities.

Inclusion of people living with disabilities in disaster risk reduction processes and activities, is paramount.

Inclusion

Obstacles to the inclusion of people with disabilities may be further complicated by the intersection of disability with other identities such as gender, race, and ethnicity. A combination of these factors can lead to disadvantages and disparities. However, the long-term socio-economic impacts of exclusion far

exceed the cost of inclusion if it is included in the design of public infrastructure, for example. In fact, facilitating an environment with accessible infrastructure would enable more than 1 billion people with disabilities to fully participate in society and contribute productively to the economy (CBM International, 2012).
Disability inclusion, as an element of a wider social inclusion, strengthens a whole society. The inclusion of persons with disabilities as full and active participants in society, is centred around opportunity and choice. It is based on the availability of supportive societal networks and infrastructure that enable them to have their strengths and capacities recognized and built on. This would allow people with disabilities to be in the best possible position to take actions in their own best interests, both in preparing for and reacting in emergencies.
Furthermore, numerous studies point out that empowering persons with disabilities can lead to stronger climate actions and more resilient societies (UN DESA, 2018; WHO, 2018).

The Sendai Framework

The Sendai Framework provides concrete actions to protect development gains from the risk of disasters. It aims at the substantial reduction of disaster risk and losses and preventing new and reducing existing disaster risk by reducing and managing hazards, exposure and vulnerability while enhancing capacities.
The Sendai Framework recognizes the vulnerability and exposure of people as foundational components of risks. In this respect, disaster risk reduction (DRR) means reducing vulnerability and exposure, while strengthening the capacity and resilience of persons with disabilities. Consequently, the Sendai Framework requires a people-centred preventive and inclusive DRR approach. Participation in decision-making and implementation is indeed a key issue for persons with disabilities and their organisations.

The Sendai Framework highlights in this regard that “persons with disabilities and their organizations are critical in the assessment of disaster risk and in designing and implementing plans tailored to specific requirements, taking into consideration, inter alia, the principles of universal design” (SFDRR, 2015).

Case studies

Examples of good practices exist from various countries and provide important lessons regarding the inclusion of people with disabilities in planning and preparedness.

In Australia, Deaf Connect translated the Australian Red Cross, national preparedness plan into sign language videos and trained liaisons who deliver emergency services training and deaf preparedness seminars. The positive result of this effort led to the emancipation of the deaf and their independence.

In Brazil, researchers conducted research into the participation of blind people in risk management decision-making. The research enabled the recording and understanding of the experiences and views of the blind and led to several actions such as the creation of a map with a raised hazard warning. The positive consequence was the realization that when people with disabilities participate in such a process, it influences the formulation of public policy proposals.

In the Philippines, the Cebu City Network for Inclusive Disaster Risk Reduction has created a specific methodology. This includes training government and public officials from people with disabilities on the inclusion of inclusion in preparedness, as well as how to communicate and behave towards people living with disabilities. The positive consequence is that civil servants learn to treat persons with disabilities correctly, as well as persons with disabilities themselves realize that they are part of society, acquiring a more active role.

The specific examples from these three different countries highlight three important lessons:

- The cooperation between various agencies can bring immediately realizable results.
- The direct involvement of people with disabilities in the planning and implementation of preparedness activities brings results more compatible with their needs.

- The participation of people with disabilities in training helps change people's perceptions as well, enhancing their abilities.

Cost considerations

One of the key concerns of authorities that are designing and implementing disaster risk management (DRM) projects includes how much additional or alternative activities and approaches for inclusion will cost. Early inclusion of costs in the project design allows teams to budget their financial resources at later stages. A study of accessible housing in Australia found that the additional cost of including accessibility measures for a single house dwelling at the design stage was 0.2 per cent of the total cost, whereas retrofitting for accessibility after implementation was 6 per cent (Ward, 2011).

Conclusions

Numerous project examples from around the world show that the early engagement of persons with disabilities, and their representative organizations, in DRM activities helps to identify relevant solutions in a timely and effective way. It also helps save human and financial resources and ensures more impactful project outcomes, enabling people with disabilities to rapidly respond to disasters and emergencies.

References

Christian Blind Mission (CBM), Inclusion Made Easy: A Quick Program Guide to Disability in Development, CBM International, 2012

Disability and Development Report, Realizing the Sustainable Development Goals by, for and with persons with disabilities, United Nations Department of Economic and Social Affairs, 2018

Disability inclusion in disaster risk management – assessment in the Caribbean region, Global Facility for Disaster Risk Reduction and Recovery, World Bank, 2022

Disability inclusion in disaster risk management operations: an exploration of good practices and resources, GFDRR, World Bank, 2022

Disability inclusiveness vital to risk reduction in the Philippines, PreventionWeb, 2021

Health 2020 priority area four: creating supportive environments and resilient communities, A compendium of inspirational examples, World Health Organization, 2018

Monitoring the Convention on the Rights of Persons with Disabilities: Guidance for Human Rights Monitors. Professional series no. 17, OHCHR, 2010

Persons with disabilities in situations of risk: A scoping study on Article 11 of the Convention on the Rights of Persons with Disabilities, UNDRR, 2022

Study points to ways of involving visually impaired people in environmental disaster prevention, PreventionWeb, 2022

Ward, Margaret (2011) Included by design: A case for regulation for accessible housing in Australia. In Cowled, C J L (Ed.) Proceedings of the First International Conference on Engineering, Designing and Developing the Built Environment for Sustainable Wellbeing. Queensland University of Technology, Australia, pp. 31-35

‘We always come last’: Deaf people are vulnerable to disaster risk but excluded from preparedness, PreventionWeb, 2021

2.3 "Including Children with Disabilities in Disaster Education", by Magda Nikolaraizi & Vassilios Argyropoulos, University of Thessaly, Greece

Introduction

During the last decades various policies have been introduced and considerable efforts have taken place in many societies to enhance the access and inclusion of children with disabilities and diverse special educational needs in education. These policies and practices have been primarily introduced and applied in formal education, namely schools, while later and more recently inclusive efforts for children with disabilities have started to be integrated within organizations and settings that promote non-formal education. Within the scope of inclusive policies, the access to Disaster Risk Reduction (DRR) education has received attention considering that people and communities experience many disasters worldwide and that people with disabilities are seriously affected by disasters because of the accessibility barriers that they face (Nikolaraizi, Argyropoulos & Kofidou, 2016).

The right of people with disabilities to DRR education is more and more supported though frameworks and guidelines of organizations in disaster management, planning or delivery (Engelman, 2012; Smith, Jolley & Schmidt, 2012; Wisner, Blaikie, Cannon & Davis, 2004). These documents usually refer to accessibility barriers that people with disabilities face in various phases of disasters or have guidelines regarding emergency preparedness and planning (Connecticut Developmental Disabilities Network, 2005, Engelman, 2012). Also, the attention is focused mostly on adults while children are less addressed. Children and in particular children with disabilities do not have the same level of independence compared to adults but they can be educated to act independently, and they can share and apply their knowledge and experience with their parents (Ronan & Johnston, 2003). According to the Sendai Framework for DRR «children and youth are agents of change and should be given the space and modalities to contribute to disaster risk reduction, in accordance with legislation, national practice and educational curricula». Therefore, DRR education needs to start as early as possible to influence children's way of thinking and attitudes as they grow up (Rea 2007).

Education of children on DRR: An Overview

In Greece, the education of children related to DRR is promoted through formal and non-formal education. In formal education, namely schools, through the national curricula, the subjects taught in primary and secondary education and the school textbooks, various topics associated with DRR are introduced to

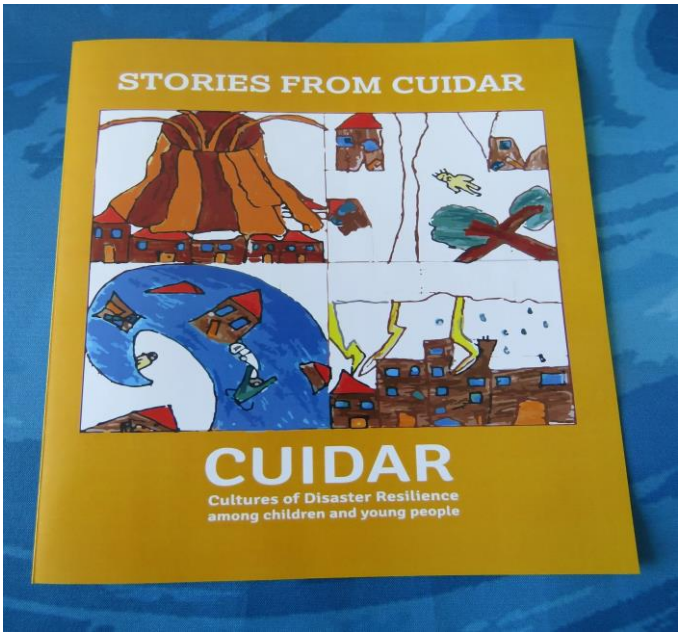
students. Also, schools may run interdisciplinary projects relevant to DRR or organize extracurricular activities in collaboration with local authorities or organizations (public, NGOs, private). These organisations through a range of actions such as leaflets, guidelines, learning tools, awareness, training, and learning events promote non-formal disaster education. Experts from various organizations may visit schools in or schools may visit these organizations and participate in their activities and their programs. Furthermore, the organizations may offer programs open to families, children and teenagers who during their free time may participate in a scheduled activity, see an exhibition, attend a lecture or a film and in general acquire an experience that the organization offer in relation to disaster education (Nikolaraizi, Argyropoulos & Kofidou, 2016).

In relation to the accessibility of the above activities in formal education, namely schools, the access and inclusion of children with disabilities is supported in specific ways. Many of the school textbooks are provided in alternative forms to address the accessibility barriers of students with disabilities. Furthermore, special education teachers, who are qualified through undergraduate studies or postgraduate studies in the education of children with disabilities, are appointed to teach and support students with disabilities attending special and general educational settings. Their role is essential in the access of students with disabilities in the curriculum and all educational activities that take place in school and in extracurricular activities.

The research regarding disaster education among children with disabilities is very poor. A range of studies by Ronoh (2017) and Ronoh et al. (2015a; 2015b) involved participatory workshops which tried to enhance the understanding of children with disabilities aged 10-16 years old in relation to hazards. Through these workshops children were empowered, developed problem-solving skills, and increased their awareness about natural hazards and strengthened their safety awareness culture. Further research on children with disabilities were carried out by Ozkan, Oncul and Kaya (2013) and Ozen (2008) who taught children with severe learning and developmental disabilities to tell and recall emergency phone numbers. A recent study on accessible DRR education for children with sensory disabilities took place by Nikolaraizi et al. (2021).

The “CUIDAR” project (Cultures of Disaster Resilience among children and young people)

The researchers from the University of Thessaly, participated in the European project ‘CUIDAR’ which aimed to ‘enhance the resilience of children, young people and urban societies to disasters and enable disaster responders to meet children and young people’s needs more electively’ CUIDAR was coordinated by the University of Lancaster, and involved six partners from five counties.



"CUIDAR" project (Cultures of Disaster Resilience among children and young people, https://www.lancaster.ac.uk/cuidar/en)

All partner countries of the CUIDAR project were involved in the development of the following outputs: a scoping review of research and policies and practices in relation to disaster management relating to children and young people, dialogues with children and young people to understand their perceptions of risk, strengthen their resilience and empower them to communicate their needs in disasters to disaster practitioners, mutual learning exercises with children, young people and disaster practitioners to raise awareness and influence local disaster policies and plans to include the particular needs and capacities of children and young people. Also, awareness raising, and dissemination activities took place in partner countries and a framework was developed for children and young people's disaster management (https://www.lancaster.ac.uk/cuidar/el/).

The University of Thessaly was responsible for the accessibility and disability issues of the project, and implemented several activities that enhanced the participation of children with disabilities in disaster education. In their study, Nikolaraizi et al. (2021) described the role of a collaborative action research network who implemented accessible workshops, to enhance the participation of children with sensory disabilities in disaster education workshops The workshops were coordinated by researchers and special education teachers, highly qualified in the education of children with sensory disabilities. In their study they describe the learning approaches that they used and how they address the learning needs of children and enhance their access and participation in the workshops. The workshops took place at schools and involved collaborations with organisations

relative to disaster education. The schools either visited the organisations, or experts from organisations visited the schools. Before the visit there was a preparation phase during which special education teachers informed experts regarding the accessibility needs of children and discussed with them about the content of the visit and some essential principles that would enhance students' participation. Also, during the visit special education teachers supported students for enhancing the access throughout the whole learning process.

Conclusions

To conclude, accessible disaster education is a demanding procedure and requires collaborative networks and partnerships among various experts and various settings and organisations, including formal and non-formal educational settings. The role of teachers and in particular special education teachers is essential since disaster education is an educational process, which needs to be accessible and inclusive for all children. Teachers and experts in relation to disasters can together contribute to the development of more accessible and inclusive disaster education programs for children with disabilities, their families, and their communities.

References

Connecticut Developmental Disabilities Network (2005). Guide for including people with disabilities in disaster preparedness planning. Retrieved from http://www.ct.gov/ctcdd/lib/ctcdd/guide_final.pdf

CUIDAR: Cultures of Disaster Resilience among children and young people, https://www.lancaster.ac.uk/cuidar/en

Engelman, A. (2012). Addressing disparities in emergency communication with the deaf and hard-of hearing: Cultural Competence and Preparedness for first responders. Unpublished thesis, California, University of Berkeley.

Nikolaraizi, M., Argyropoulos, V., & Kofidou, C. (2016). Disaster education and sensory disabilities. Proceedings of the 1st International Conference on Natural Disasters and Infrastructure. Chania, Greece.

Nikolaraizi, M., Argyropoulos, V., Papazafiri, M., & Kofidou, C. (2021). Promoting accessible and inclusive education on disaster risk reduction: the case of students with sensory disabilities. International Journal of Inclusive Education, DOI: 10.1080/13603116.2020.1862408

Ozen, A. (2008). Teaching emergency phone numbers to youth with developmental Disabilities. International Journal of Special Education 23, 85–95.

Ozkan, Y. S., Oncul, N. & Kaya, O. (2013). Effects of Computer-Based Instruction on Teaching Emergency Telephone Numbers to Students with Intellectual Disability. Education and Training in Autism and Developmental Disabilities, 48, 200-217.

Rea, D. (2007). Preparing for the future: Incorporating disaster management Education into Sri Lankan Schools. Master's thesis, Coventry University, UK.

Ronan, K. & Johnston, D. (2003) Hazards education for youth: A quasi-experimental investigation, Risk Analysis, 1009-1020.

Ronoh, S., Gaillard, J.C. & Marlowe, J. (2015a) Children with Disabilities and Disaster Risk Reduction: A Review. International Journal of Disaster Risk Science 6, 38-48 https://doi.org/10.1007/s13753-015-0042-9

Ronoh, S., Gaillard, J.C. & Marlowe, J. (2015b). Children with Disabilities and Disaster Preparedness: A Case Study of Christchurch, Kōtuitui: New Zealand." International Journal of Disaster Risk Science, 10, 91-102. https://doi.org/10.1080/1177083x.2015.1068185

Ronoh, S., Gaillard, J.C., & Marlowe, J. (2017). Children with Disabilities in Disability-Inclusive Disaster Risk Reduction: Focusing on School Settings. Policy Futures in Education, 15, 380-388. https://doi.org/10.1177/1478210317694500

Smith. F., Jolley, E. & Schmidt, E. (2012). Disability and disasters: The importance of an inclusive approach to vulnerability and social capital. Sightsavers

Wisner, B., Blaikies, P., Cannon T. & Davis I. (2004). At risk. Natural hazards, people's vulnerability, and disasters. London: Routledge

3. Building Disaster Resilience with Inclusive Criteria: Examples of Approaches and Methodologies - Presentations

3.1 "Inclusive Self-Protection Guidelines on Earthquakes", by Linda-Evangelia Pelli, Earthquake Planning and Protection Organisation (OASP), Greece, European Center on Prevention and Forecasting of Earthquakes (ECPFE), Council of Europe

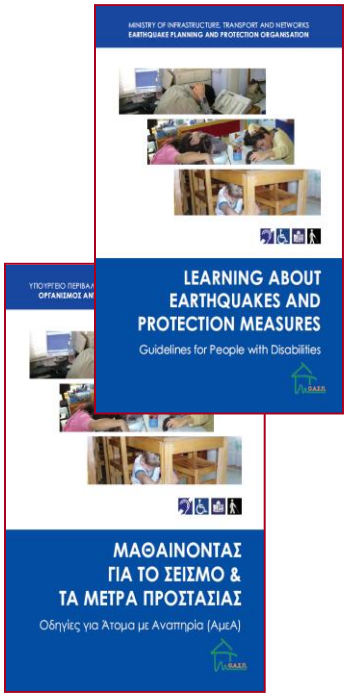
Introduction

The European Center on Prevention and Forecasting of Earthquakes (ECPFE) was founded in 1987 and is operating within the Framework of EUR-OPA. It is supported financially and administratively by the Earthquake Planning and Protection Organisation, Greece (OASP). The ECPFE's axis of policy are earthquake protection of monuments and historical centres; reduction of the vulnerability of structures; education (e-learning); development of informative material on earthquake self-protection measures for individuals with disabilities; accessibility assessment of buildings. During all these years, both ECPFE and OASP have incorporated into their earthquake planning protection policy the persons with disabilities and conducted a lot of drills; also, they have participated in relevant seminars, published several booklets, posters with guidelines in special languages concerning specific disabilities (e.g. braille, easy-to-read, MAKATON etc.) (Earthquake Planning and Protection Organization – OASP, website; ECPFE website).

Informative Material on Earthquake Protection for Persons with Disabilities

Earthquakes are a natural phenomenon that can nevertheless become destructive based on the vulnerability of the buildings and infrastructures. They cannot be avoided since they are connected to powers from the interior of the Earth. However, we can deal with them if we know what we should do. Greece being the first most seismically active country in the Mediterranean basin and the sixth in the world has been constantly struck by earthquakes from ancient times until nowadays; certain earthquakes have been considerably destructive and marked its history. OASP, together with ECPFE have prepared a list of guidelines for protection of population upon earthquake hazard, also focusing on persons with disabilities. A sample of this informative material will be provided in the following:

- *Learning about Earthquakes and Protection Measures*



The first initiative by OASP/ECPFE for inclusive protection guidelines was the production of a booklet entitled: “Learning about Earthquakes and Protection Measures-Guidelines for People with disabilities”, available in Greek and in English, in 2008.
This booklet at first place had a more general character, thus the future editions targeted on providing guidelines to more specific subgroups with disabilities, such as the blinds, people with cognitive impairments, as well as people with mobility impairments. The booklet was also translated into Braille language, suitable for people with blindness.
The booklet is divided into two sections: the first one is entitled “Learning about Earthquakes” and the second “Protection Measures (Before, During and After the Earthquake)”.

The first section includes general information about earthquakes and presents the basic characteristics of this natural phenomenon, along with the way the environment around us changes after a destructive earthquake.

The second section refers to protection measures, before, during and after an earthquake. Even though self-protection guidelines are in general lines common for all, there are certain diversities mentioned for persons with disabilities. Whenever a guideline is differentiated, it is pointed out separately, along with an indication of the disability it refers to.

- *Informative Material concerning Earthquake Protection Measures for People with disabilities using «Easy to Read» language and the augmentative alternative communication “MAKATON.”*

Since there is a lack of information designed and written in a format that can be easily accessed and understood by people with little or no reading skills ECPFE took the initiative to coordinate the development of informative material concerning Earthquake Protection Measures, for People with disabilities using an “Easy to Read” language “and the augmentative alternative communication “MAKATON”, in 2014-2015. In that context, a Scientific Committee was formed to develop informative material concerning earthquake protection measures for persons with disabilities; earthquake specialists from OASP and ECPFE, a psychologist & a

social worker from the adult intellectual disability field, two Easy to Read specialists, two MAKATON specialists, speech language therapists from the child & adult autism and intellectual disability fields, as well as one young adult with intellectual disability, were assigned to prepare the guidelines (Earthquakes: Guidelines for People with Intellectual Disabilities using the Easy-to-Read method and MAKATON symbols). The produced material was verified by evacuation drills that took place in special Institutions like “Theotokos Foundation”, Training Center for People with Cognitive Impairments” in Athens, Greece. All the material is available at OASP/ECPFE website.

Evacuation drills organised by OASP/ECPFE at “Theotokos Foundation”, Training Center for People with Cognitive Impairments” in Athens, Greece

What is the Easy-to-Read method?

- A method of writing or adapting texts which includes only the most important information of a topic.
- The texts are written in the most straightforward way so that they can be understood by the largest number of readers who have difficulties in reading and understanding written texts.
- In 1998 the ILSMH European Association developed “Easy-to-Read Guidelines” and translated them into 8 official European Union languages. The publication, entitled “Make It Simple” was edited by the Commission of the European Communities, DGV-E-4, Integration of Persons with Disabilities. (ILSMH European Association. Make it Simple (European Guidelines for the Production of Easy-to-Read Information. for People with Learning Disability, 1998).

Who can use Easy-to-Read?

- People with intellectual disabilities and other disabilities.
- People with limited education.
- People with social difficulties.

- Migrants whose mother tongue is different from the country's they are living in.

In the following there is an example of text, supported by a photograph:

"I talk to my parents, teachers, coworkers about earthquakes and get ready for an Earthquake."

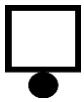
"We agree on the place when the Earthquake stops, and we leave the building."

What is MAKATON?

- A unique language program which may be used as a systematic multi-modal approach for the teaching of communication, language, and literacy skills.
- A source of highly functional vocabulary for people with communication needs and their interactive partners.
- MAKATON uses speech with signs (gestures) and symbols (pictures) with written words to help people communicate. Comprehension is facilitated by the visualization of language with symbols.

In the following there is an example of text, supported by MAKATON symbols*:*

Go



under

a strong table.

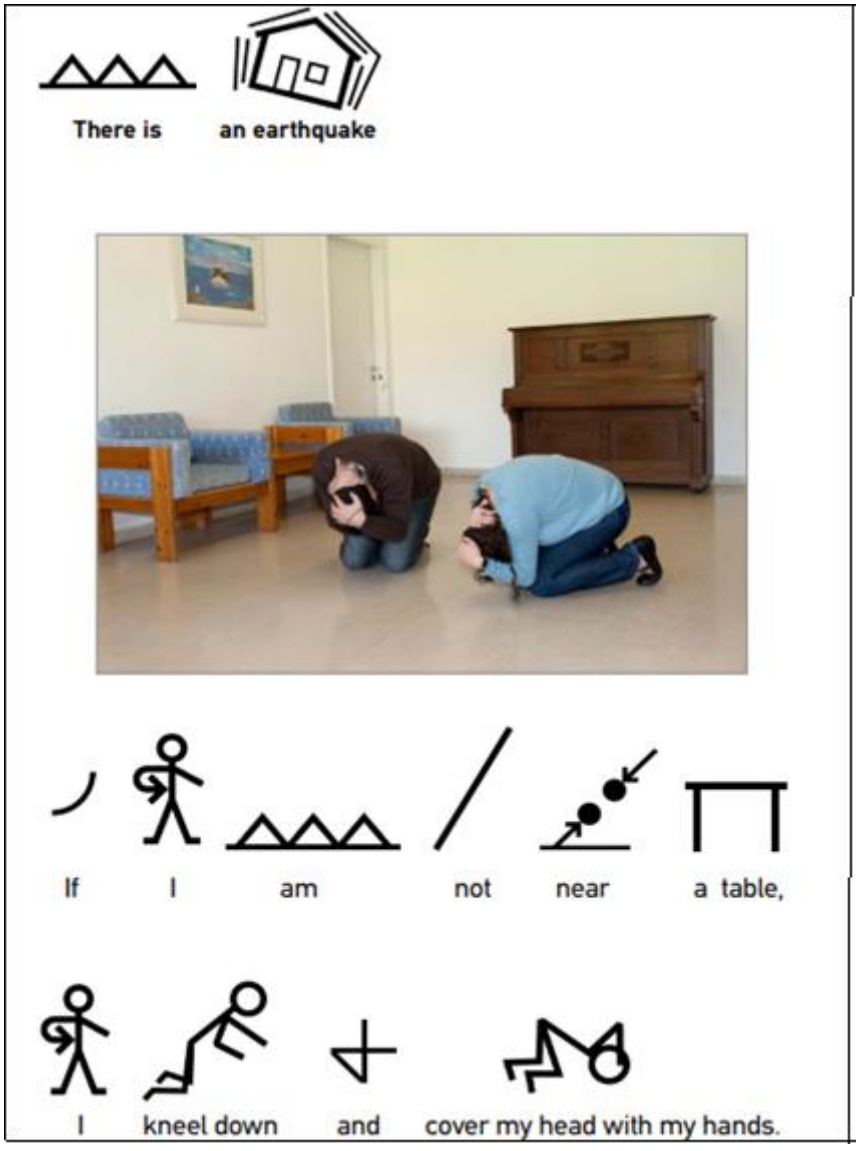
Hold the leg

of the table

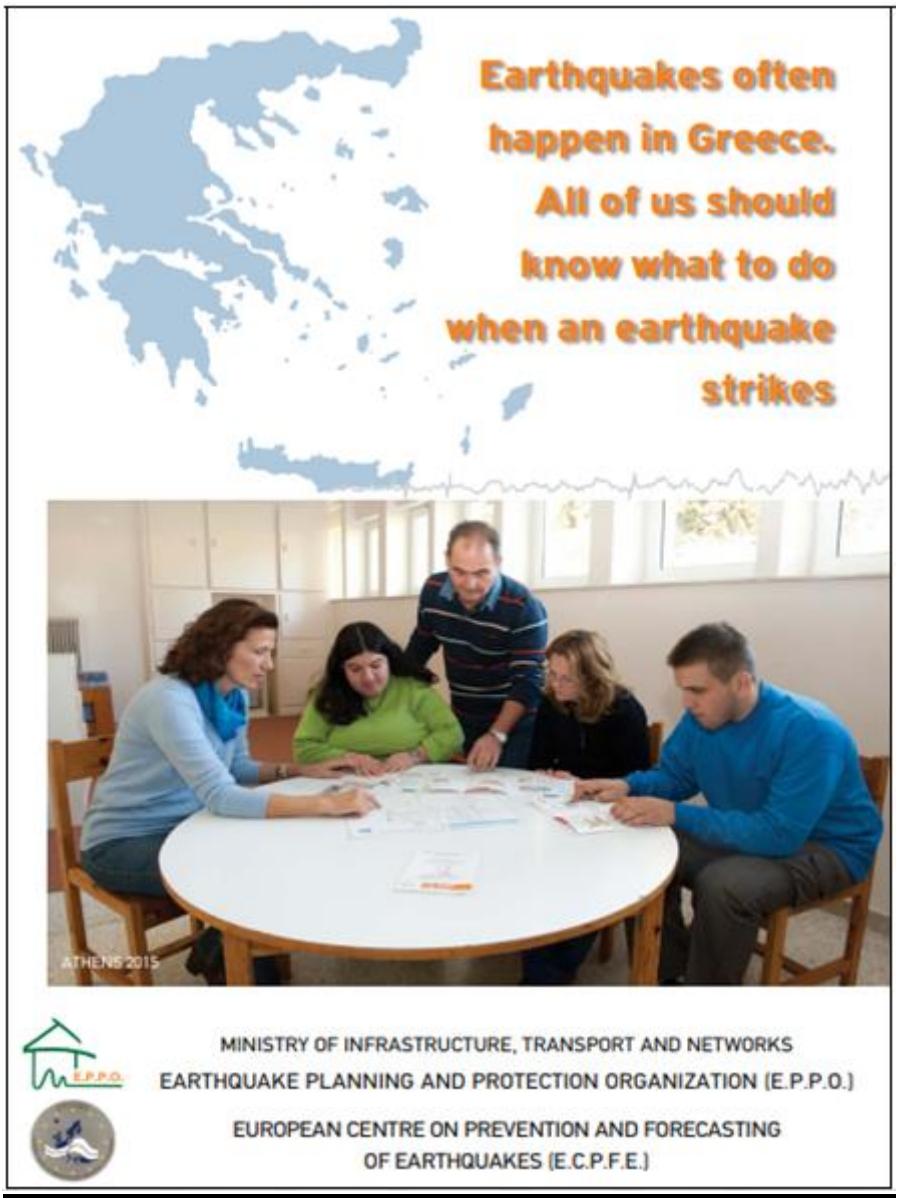
tightly.

Earthquake protection guidelines using text, supported by MAKATON symbols prepared by OASP/ECPFE

The produced material was two leaflets and posters in Easy-to-Read and two leaflets and two posters in MAKATON (in Greek and in English); Easy-to-Read, addresses people with mild to moderate intellectual disability; MAKATON, addresses people with moderate to severe intellectual disability with or without autism. In the following the relevant posters are presented. All the material is available at OASP website (Earthquake Planning and Protection Organization - OASP website).



What should we do in earthquakes? Leaflet in MAKATON language by OASP/ECPFE



What should we do in earthquakes? Leaflet in Easy-to-Read language by OASP/ECPFE

Why two different leaflets?

Similarities:

- Simple language without losing essential information.
- Short sentences with a lot of repetition.
- Visual support using photographs.

Differences:

- Each method addresses people with different abilities in receiving written information –minimal reading skills for Easy to Read & pre-reading skills for MAKATON.
- Vocabulary selection criteria
    - Reading difficulties related to the phonemic structure of words (Easy to Read).
    - Visualization difficulties of an abstract concept /with a representational symbol (MAKATON).

Primary goals for the target groups:

- to strengthen the ability to act spontaneously so as to protect oneself in case of an earthquake.
- to increase the ability to identify environmental risks and to ask for their removal so that they are safer.

Secondary goals for parents, caregivers, and disability service providers:

- to empower them with specific guidelines and useful, accessible material to use when informing and training their children or service users.
- to increase awareness in environmental risk removal.
- to support the understanding of the instructions during practical exercises.

- *Earthquake Guidelines to people with Mobility Impairments and their Coachers*

ECPFE as a partner to EC of Armenia's (ECRM) Activity: "Involving people with disabilities in disaster planning and preparedness, as an integral part of disaster preparedness and response" produced a two-sided leaflet (in English and in Greek) with guidelines addressed to people with mobility impairments , (what to do before, during, after an Earthquake) ,as well as to their Personal Support Network; as Personal Support Network, we define a network of at least 3 persons that the individual, can trust absolutely; the purpose of the network is to support people in case of an emergency, like the Earthquake; members of the Network can be people from family, friends or workplace, where the individual regularly spend a lot of time

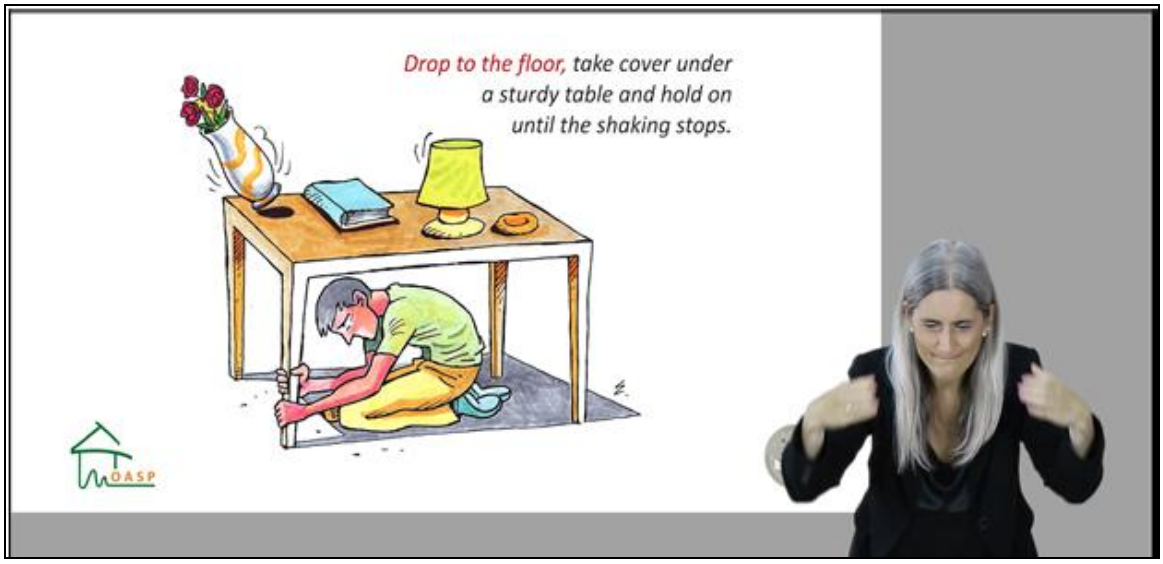
Get Ready for an Earthquake: Leaflet with guidelines for people with Mobility Impairments, in English and Greek, prepared by OASP/ECPFE

- **Videos concerning Earthquake Protection Measures for Persons with disabilities**

With the aim of preparing digital information tools regarding earthquake protection measures, 26 videos were shoot in vocational training centers with the participation of young adults with intellectual disability, 13 in Greek and 13 in English. The main target was the implementation of a software application for tablets and iPhone in “easy to read language”. All the videos are available at OASP/ECPFE website (Learn about the Earthquake: Self-Protection guidelines for people with cognitive impairment (OASP/ECPFE videos)).

Learn about the Earthquake: Self-Protection guidelines for people with cognitive impairment (OASP/ECPFE videos)

Moreover, ECPFE has recently participated in a joint activity with the European Centre for Buildings Rehabilitation, Romania and produced a video with guidelines for self-protection during an earthquake and on how to behave appropriately after an earthquake.



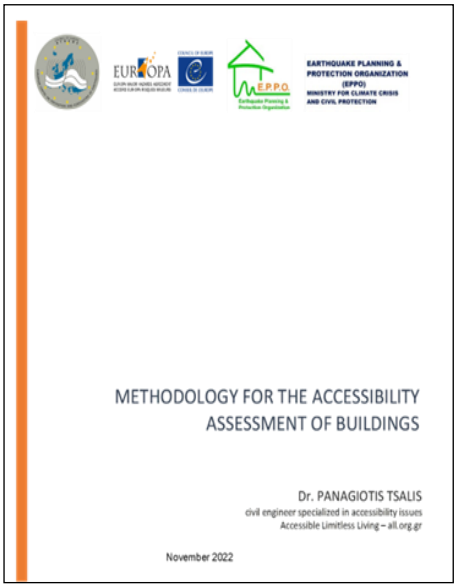
Video on earthquake self-protection guidelines in sign language and subtitles in English prepared by OASP/ECPFE

Deaf or hard of hearing people have full access to the video content, through international sign language and subtitles.

- **Accessibility of Historic buildings**

People with disabilities today are over 10 % in the world (about six hundred fifty million) and comprise 15% of the EU population. According to the United Nations convention on the rights of persons with disabilities, article 9: “Persons with disabilities have the right to live independently and participate fully in all aspects of life on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas.

In that framework, ECPFE, took the initiative to issue two booklets (in English and in Greek) concerning the Development of a Methodology for evaluating the accessibility of historic buildings and the syntax of the relevant questionnaires and checklists for the assessment.



Methodology for the accessibility assessment of historic buildings booklet published by OASP/ECPFE

The checklist was developed as a tool to assist the evaluation of buildings from the point of view of users' groups with reduced mobility. The use of the list facilitates the systematic identification and evaluation of the physical condition of buildings in terms of their accessibility for people with different impairments. The list includes various groups of "structural elements" of the buildings which may function as obstacles. The checklist created ensures that the data collected can be easily updated.

References

Earthquake Planning and Protection Organization - OASP website: https://www.preventionweb.net/organization/earthquake-planning-and-protection-organization-oasp

Earthquakes: Guidelines for People with Intellectual Disabilities using the Easy-to-Read method and MAKATON symbols https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016800cdded

European Centre on Prevention and Forecasting of Earthquakes (ECPFE) website: https://ecpfe.oasp.gr/en

European Guidelines for the Production of Easy-to-Read Information. for People with Learning Disability, 1998, https://docplayer.net/142050357-Ilsmh-european-association-make-it-simple-european-guidelines-for-the-production-of-easy-to-read-information-for-people-with-learning-disability.html

Learn about the Earthquake: Self-Protection guidelines for people with cognitive impairment (OASP/ECPFE videos): https://www.youtube.com/@user-le5jt7jo5u/videos

Methodology for the accessibility assessment of buildings, OASP/ECPFE https://ecpfe.oasp.gr/sites/default/files/files/buildings%20checklist%20final%20logo.pdf

United Nations, Convention on the Rights of Persons with Disabilities (CRPD) Article 9 – Accessibility, https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-9-accessibility.html

What should we do in Earthquakes? Leaflet in MAKATON language by OASP/ECPFE, https://oasp.gr/userfiles/OASP%20MAKATON_20selido%20ENGLISH-NEW.pdf

What should we do in Earthquakes? Leaflet in Easy-to-Read language by OASP/ECPFE, https://ecpfe.oasp.gr/sites/default/files/OASP-Easy%20to%20read_English%20NEW.pdf

3.2 Personal Emergency Evacuation Plans for reducing the vulnerability of persons with disabilities, by Sofia Karma, European Center for Forest Fires (ECFF), Council of Europe

Introduction

Climate-induced disasters have been exacerbated the recent years due to climate crisis, resulting in tremendous effects worldwide in terms of the number of casualties, property losses, and manifold environmental impacts, such as the consequent air and water pollution; in 2023, the international disaster database EM-DAT recorded a 60% rise in the number of deaths from landslides, a 278% increase in deaths from wildfires and a 340% increase in deaths from storms between 2022 and 2023 (EM-DAT, Save the Children, 2023).

However, disasters occur when hazards meet vulnerability. In that context, disasters affect disproportionately the different population groups, having a more devastating impact on the groups at higher risk, such as infants, young children, pregnant women, the elderly, persons with disabilities or chronic health diseases. Based on the Global Survey on Persons with Disabilities and Disasters in 2023, it became apparent that persons with disabilities are frequently the most affected by natural hazards, climate-induced disasters, and global health emergencies; the survey aimed to: i) identify if persons with disabilities are prepared for potential disasters; ii) if early warning and risk information is available and accessible; iii) if persons with disabilities are aware of disaster risk reduction plans at national and local levels; iv) if persons with disabilities are participating in disaster risk reduction decision-making and planning.

2023 Global Survey on Persons with Disabilities and Disasters (https://www.undrr.org/report/2023-gobal-survey-report-on-persons-with-disabilities-and-disasters)

It should be noted that the 2023 global survey is a follow-up of the first one that was conducted in 2013; however, the results are not optimistic since the progress in disability inclusion over the past 10 years was found limited across the regions. On the other hand, according to the UN report on “Disability-Inclusive Disaster Risk Reduction and Emergency Situations”, there are a few studies illustrating that inclusion of the needs and voices of persons with disabilities in the entire disaster management cycle, focusing on planning and preparedness, can significantly reduce their vulnerability and increase disaster recovery.

We need to highlight that the vulnerability of persons with disabilities is directly correlated with certain vulnerability drivers while interacting with the physical environment, e.g. the existing barriers and limitations, as well as the mechanisms that activate or preserve such vulnerabilities. For example, the non-horizontal application of the universal design, or the non-accessibility of the built environment augments the impact of disasters for persons with disabilities or chronic health diseases. Usually, the difficulties that can be encountered during the evacuation process, in terms of safely evacuating a building and reaching accessible emergency shelters, or the non-accessible early warning messages, render those people “vulnerable”. Moreover, the lack of inclusive training on how to respond to emergencies, and the non-engagement of persons with disabilities in preparedness exercises, is another vulnerability driver. Social, financial, or other types of inequalities also exacerbate the vulnerability of those population groups.

Personal Emergency Evacuation Plans (PEEPs) versus Vulnerability

In a landscape of emerging complex emergencies and considering the vulnerability context described above, the need for tools, methods, and procedures towards reducing disasters’ impact is imminent. Towards this direction, disaster preparedness and response actions could play a fundamental role in the reinforcement of the communities’ coping capacity; strategies relevant to planning for emergencies focusing on high-risk groups are needed (CDC, 2015).

In the above context, the “Disaster Resilience Scorecard for Cities: Annex for the inclusion of persons with disabilities”, under the initiative of Making Cities Resilient 2030 by UNDRR (MCR 2030, Scorecard), can be a tool for disaster resilience planning. Towards this direction, the preparation of Personal Emergency Evacuation Plans (PEEPs) for persons with disabilities could be a key element in reducing their vulnerability. Based on the results of the Analysis and Recommendations from the “Pilot Implementation of the Disaster Resilience Scorecard for Cities - Annex for the Inclusion of Persons with Disabilities”, in

2024, it became apparent that there is a need not only for the creation of family evacuation plans but also for the ongoing enhancement of the cities' emergency plans.

According to the National Fire Protection Agency, USA (NFPA, 2022), in case of an emergency where the evacuation of a building is necessary, everybody in the building including persons with disabilities needs to be capable of answering certain questions, such as: Is there an emergency? What is the emergency? How to respond to that emergency? Where is the way out? How can I move to a safe place? Can I evacuate alone, or do I need assistance?".

A PEEP can generally be used as a tool for emergency preparedness and response of a person with disabilities, e.g. for coping with an earthquake or a fire emergency (S. Karma et al, 2016). Specifically, for the preparation of a PEEP there is a need to define:

- The appropriate "escape routes", considering the specific type of disability/impairment.
- The accessible "Areas/Assembly Points or Shelters".
- The available emergency notification system of the building (e.g. visual and/or audible alarm system).
- The assistance needed for this person and who will be the assigned helpers (two at minimum for pack up).

It should be emphasized that disabilities are not always visible. The non-visible disabilities like hearing impairment, or chronic diseases, although they are not immediately apparent there is a need to be included in the preparation of the PEEPs. Also, a disability can be permanent, or temporary, such as the recovery from an injury; hence, there is a need for regular reviewing and updating of the PEEPs.

The effectiveness of the PEEPs depends on the practising and training of all the involved parties, e.g. under the framework of running evacuation exercises, including the persons with disabilities, the caregivers or the personal assistants, the safety personnel, the first responders, as well as the respective local authorities. With these exercises the existing PEEPs can be checked and updated, strengthening the effectiveness of response and hence, reinforcing inclusive disaster resilience.

However, for the successful implementation of inclusive evacuation exercises, the accessibility of the evacuation routes, as well as of the egress signs is critical.

This issue has been tackled in a publication of the European Center for Forest Fire, entitled “Evacuation Planning of Critical Infrastructures in case of an Earthquake or a Fire for People with Disabilities”, where the new egress signs which have been proposed in light of “Universal Design”, were presented (S. Karma et al, 2016); these signs have not yet been officially integrated into building codes at international level, but could be considered as complementary to relevant existing International Standards, such as ISO 7010:2019 (Graphical symbols-Safety colours and safety signs-Registered safety signs) and ISO 21542:2021 (Building Construction -Accessibility & Usability of the Built Environment).

Accessible means of egress icon
(https://accessibleexitsigns.com/)

Indicative example of a building’s “Fire Escape Plan” according to ISO 23601:2020, including accessible means of egress icon
(European Center for Forest Fire, “Evacuation Planning of Critical Infrastructures in case of an Earthquake or a Fire for People with Disabilities, 2016”)

In the abovementioned publication, an indicative example of a building's "Fire Escape Plan", based on ISO 23601:2020 (Safety identification Escape and evacuation plan signs), which includes accessible means of egress icon (Universal Design Meets the Exit Sign) is presented.

Conclusions

According to the above, emergency planning with inclusive criteria is critical for fostering emergency preparedness and response for all. However, 84% (5,322) of persons with disabilities reported not having a personal preparedness plan for disasters, while only 8% (488) reported that local DRR plans addressed the specific needs of persons with disabilities, based on the recent global survey for Global Survey on Persons with Disabilities and Disasters.

Since the global community has shifted the focus on disaster risk reduction via disaster prevention and preparedness actions rather than on simply responding to disasters, there is a certain need to include persons with disabilities in policies, actions, measures and programs in both planning and implementation. Towards this direction, PEEPs could contribute to strengthening disaster preparedness, increasing the coping capacity of persons with disabilities and hence, reducing their vulnerability, with the condition of regularly practising, reviewing, and updating the respective plans. This can be achieved by the active participation of persons with disabilities in exercises that will be organised with the contribution of the local authorities and all the involved parties, especially for the communities that live close to disaster-prone areas.

References

2023 Global Survey on Persons with Disabilities and Disasters, Available at: 2023 Global Survey Report on Persons with Disabilities and Disasters | UNDRR

Advancing Disability Inclusion in Disaster Risk Reduction, Analysis and Recommendations from the Pilot Implementation of the Disaster Resilience Scorecard for Cities - Annex for the Inclusion of Persons with Disabilities, 2024,
Available at:
https://www.undrr.org/media/92670/download?startDownload=true

Centers for Disease Control and Prevention (CDC). Planning for an Emergency: Strategies for Identifying and Engaging At-Risk Groups. A guidance document for Emergency Managers: First edition. Atlanta (GA): CDC; 2015, Available at: https://www.cdc.gov/nceh/hsb/disaster/atriskguidance.pdf

Disability-Inclusive Disaster Risk Reduction and Emergency Situations, https://www.un.org/development/desa/disabilities/issues/disability-inclusive-disaster-risk-reduction-and-emergency-situations.html

International disaster database, available at: https://www.emdat.be/

MCR 2030, Disaster Resilience Scorecard for Cities – Annex for Inclusion of Persons with Disability, Available at: https://mcr2030.undrr.org/disability-inclusion-scorecard

NFPA 2022, Emergency Evacuation Planning Guide for People with Disabilities, Available at: https://www.nfpa.org/downloadable-resources/guides-and-manuals/evacuation-guide-pdf?l=0

Save the Children, 2023 In Review: Climate disasters claimed 12,000 lives globally in 2023, Available at: https://reliefweb.int/report/world/2023-review-climate-disasters-claimed-12000-lives-globally-2023

S. Karma et. al. 2016, Evacuation planning of critical infrastructures in case of an earthquake or a fire for people with disabilities, European Center for Forest Fires, Council of Europe,
Available at: https://civilprotection.gov.gr/sites/default/files/2022-09/evacuationplanningearthquakefire.pdf

Universal Design Meets the Exit Sign, Available at: https://universaldesignmeetstheexitsign.com/closing-the-exit-sign-gap/accessible-exit-signs-for-the-future/

3.3 “Strategic Planning on Accessibility of the Built Environment with emphasis on Climate Crisis - Induced risks”, by Kalliopi Papadaki, Maria Poulou, Avgi Vassi, Efthimios Bakogiannis, Ministry of Environment and Energy, Greece & Sofia Karma, National Technical University of Athens, Greece

Introduction

The typical design of the environment, the services, and goods, based on the needs of the "average" user, causes a chain of discrimination that prevents equal opportunities for people. On the other hand, "accessibility" is a fundamental condition for equal participation in every aspect of social life, guaranteeing the citizen's right to personal choice, autonomy, and dignity.

In September 2019, the Ministry of Environment and Energy, responding to the identified need for a comprehensive and holistic strategy for Accessibility in the natural and built environment, started the drafting project of the "National Plan for Accessibility with emphasis on Climate Change - Climate Crisis". The Plan was prepared by the General Secretary of Spatial Planning & Urban Environment of the Ministry of Environment & Energy with the contribution of a large editorial team.

The project connects two major issues related to the natural and the built environment. These are: (a) the consistent and autonomous access of all citizens to this environment without discrimination and (b) the accompanying and/or complementary actions, measures and projects that will make the required interventions environmentally friendly.

Non-Accessibility of the Built Environment creates certain barriers for the persons with disabilities.

The transition from a typical environment to an accessible environment constitutes a qualitative leap and developmental transformation. It is also noted that the intense and increasing urbanization and the ageing of the population, brings to the fore accessibility as a social right and an environmental obligation.

Why a national accessibility plan with Emphasis on Climate Change – Climate Crisis?

- *Necessity of the National Accessibility Plan with emphasis on Climate Change*

The rural population is expected to remain 3.2 billion by 2050. At the same time, the tendency of people to concentrate in urban centres is observed in all parts of the world. Today many cities exceed 10,000,000, on all continents and it is believed that in 2030 more than 60% of the population will live in cities.

Urbanization creates complex social, economic, and environmental problems and huge challenges in areas of energy, transport, urban environmental quality, and urban infrastructure. These problems exert great pressure to cities, causing serious environmental effects, mainly air pollution, traffic problems and the intensification of the greenhouse effect (COM, 2020).

Based on the urban forms and the respective characteristics described in the literature, most Greek cities resemble diffused cities, combining features of multinuclear cities and marginal ones, mainly because they were formed in the absence of urban planning (only during the last three decades urban planning policies have been adopted), with many and long-lasting problems. More specifically, the structured environment in Greece is characterized a) by densely populated central areas with dense and high constructions, narrow street width, increased car traffic and lack of green spaces and b) by the diffusion of the suburbs with a more loosely structured web with extensive on-street parking areas, lack of open spaces, low level of aesthetics in the building stock, degradation of the cultural heritage of historic centres, traffic congestion etc. (Papadaki K., Karma S., Siountri K., Siti M., Vassi A., Bakogiannis E., 2019).

At the same time, in recent decades, there has been a steep increase in life expectancy and a parallel ageing of the population. It is widely accepted that people over the age of 65 are now the fastest-growing age group. Specifically for Greece, the percentage of the population over 65 is 20.7%, while for the year 2030, it is predicted to reach 30.00% (EUROSTAT, 2020). Additionally, in Greece, the level of the percentage of Persons with Disabilities is estimated at approximately 10-15% of the total population. If the percentage of people with disabilities is added to the people over 65 years old, people with temporary

disabilities and other vulnerable groups (pregnant women, infants, young children, etc.) the percentage rises to approximately 50% of the country's population (i.e., one in two citizens) and has increasing trends (ESAmeA, 2019).

To this end, it seems that in an increasingly diverse society, with an ageing population, accessibility must concern a wider range of policies than in previous years, when it was perceived as the exclusive remit of disability policy. Accessibility policies must now focus on the 'real' people who use the built environment daily, and not on imaginary people, created by statistics. These policies must serve the rights of the persons in question and respond to the diversity of their needs (European Commission, 2010).

It has also to be emphasized that the natural environment and the human societies are getting affected by the global warming; in the coming years, a further increase in temperature on Earth is expected with disastrous consequences for the human life (Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Service, 2019). Based on the findings of the relevant research, in most climate parameters and geographical areas, the effects of climate change in Greece will be negative, summarized as follows:

• Optimistic scenario: The temperature will increase by about 2°C by the middle of the century.
• Medium scenario: The temperature will rise by up to 2.5°C by mid-century.
• Pessimistic scenario: The temperature will increase by about 3.4°C in mainland Greece

(Kartalis K., Kokkosis H., Filippopoulos K., Polydoros A., Lappa K., Mavrakou Th., 2021)

- *Expected benefits from the National Accessibility Plan with emphasis on Climate Change*

The "National Accessibility Plan with emphasis on Climate Change - Climate Crisis" concerns all the country's residents and periodically includes its visitors. The expected benefits from its application are multiple and in many areas:

• *Social benefits:* The implementation of the regulatory framework, proposals, projects, and individual actions will positively affect the lives of all citizens; enhancing accessibility will improve their quality of life, safety, and health. Especially for the vulnerable categories of citizens (elderly, persons with disabilities, etc.) the implementation of the Plan is expected to deal with their displacement and isolation and will make feasible their independent living.

• *Environmental benefits:* The creation of an accessible urban environment with bioclimatic criteria promotes the upgrading of the built environment (using materials and constructions that ensure thermal and acoustic comfort), as well as the sustainable mobility, within, from and to urban centres and settlements. The implementation of the relevant measures and actions contributes to the reduction of gas emissions responsible for the greenhouse effect and creates a safe, attractive, and comfortable environment.

• *Financial Benefits:* Accessible Planning for all – especially with bioclimatic criteria – is perfectly compatible with the development of the country in the future. For example, it promotes and supports entrepreneurship, tourism development and city branding. It strengthens the long-term sustainability and competitiveness of the economy and creates new specialised jobs.

Explanation of the Plan's structure

- *General scope*

The Plan's general scope is to create the basis for the implementation of the required projects, measures, actions, services, procedures, and supplies. In addition, it aims at social control, raising awareness and educating citizens, especially young people. The proposals of the Plan and the planning for their implementation advocate the creation of a coherent framework where each intervention will complement the overall planning so that there are no competing or conflicting points (on a legal or factual level).

The Plan ensures complementarity with other existing strategic actions, such as the "National Energy and Climate Plan", the "National Climate Change Adaptation Strategy", the "National Circular Economy Strategy", the "Long-Term Strategy for the year 2050", and the "National Strategic Transport Plan". Also, it is in complete harmony and agreement with recent development laws such as Law 4635/2019 "Invest in Greece and other provisions" and reinforces Sustainable Development policies and Sustainable Urban Development, in the context of the Global Goals (SDGs), and Sustainable Urban Development (SDG 11, Sustainable Cities and Communities). It includes issues related to the impact on the natural and built environment due to increasing natural disasters of the difficulty of accessing safe places in emergencies. For the above reasons, it considers the "European Green Agreement" setting goals up to 2050, as well as the "Paris Agreement", and national civil protection plans (especially the XENOKRATIS plan - Civil Protection General Plan /2003, the purpose of which is the creation of a system to effectively deal with catastrophic phenomena).

- *Vision and purpose*

The Plan's vision is to upgrade the country to a fully accessible man-made and natural environment that will apply the necessary design principles to be more resilient to Climate Change. The purpose of the Plan is:

1) to define an integrated framework of guidelines that will combine spatial and urban planning, environmental planning, and energy planning, considering Civil Protection issues.
2) to establish a planning framework based on which every intervention in urban space aims at revitalization, regeneration, sustainable mobility, accessibility, bioclimatic planning and prevention and response to disasters by natural hazards.
3) to be a tool for policy, support and decision-making, investment planning and projects' preparation, constituting an integrated framework of accessibility solutions and options under the responsibility of the Hellenic Ministry of Environment and Energy.

- *Axes and Special Objectives*

Key Axes of the Plan are:

1) to provide a comprehensive strategy on the issue of accessibility (horizontal character).
2) to propose specific operational management for the realization of the objectives.
3) to ensure the achievement of reasonable adjustments in terms of safety, technical manageability (institutional tools) and economic feasibility.
4) to associate relevant studies and projects with financial instruments.
5) to define responsibilities and procedures to achieve its implementation.
6) to propose common standards and specifications.
7) to define National implementation and monitoring procedures and mechanisms.
8) to create mechanisms for the inclusion of rapidly developing new technologies in legislation, with continuous monitoring and adaptation.
9) to define measures and actions for networking, communication - information and relevant education (of the public sector, the private sector, and citizens) on accessibility issues.

Specific objectives were formulated for each of the above 9 axes.

- *Challenges*

Challenges related to physical barriers, architectural barriers, information and communication barriers, technological barriers, behavioral barriers, and procedural barriers were recorded, which concern individuals i.e., persons with disabilities and, by extension, the entire population (Christofi M., 2013).

Challenges related to climate change and in particular the effects of rising temperatures were also recorded. Typically, it is estimated that in the period 2026-2045 at least 6 and the period 2046-2065 at least 9 "Heat Episodes" are expected, while the average temperature of the cities will increase everywhere, but more in Patras, Kalamata, and Athens (Kartalis K., Kokkosis H., Filippopoulos K., Polydoros A., Lappa K., Mavrakou Th., 2021).

Methodological framework

For the preparation of the "National Accessibility Plan with emphasis on Climate Change – Climate Crisis" a specific methodology was followed:

- *Preliminary research*

The "National Accessibility Plan with emphasis on Climate Change", proposes a holistic national strategy for Accessibility in the natural and built environment based on accessible design. It refers to the entire range of spatial and urban planning, environmental planning, and energy planning of the country. It considers Civil Protection issues to deal with emergencies due to natural disasters (linked to climate change) or other disasters.

For this purpose, extensive literature research was carried out on the two topics (accessibility and climate change), the state of the art, the UN Convention on the Rights of Persons with Disabilities, the international and European legislative framework, etc. Good practices and statistics were studied and recorded. Finally, the opinions and the actions of social and professional organizations and citizens were recorded. The contribution and work of the above are very important, e.g., drafting specialized reports, information campaigns, public awareness, etc. Their positions are often considered, even though they have mainly an advisory rather than an institutional role.

- *Secondary research*

At this stage, an extensive study of the existing legislation on both accessibility and climate change took place. Gaps, shortcomings, and implementation difficulties were identified. The above was evaluated and coded in a special table. In addition, the existing National Strategies and their correlation with the Plan were recorded.

A case study was also carried out in a selected municipality of Attica (pilot collection and analysis of accessibility data). Within the context of the case study the methodology was developed and combined to form four (4) accessibility models:

- Local accessibility model
- Regional accessibility model
- Climate accessibility model
- Holistic accessibility model

Each model defines accessibility as it is evaluated each time and receives values ranging from 0-100 indicating the level of accessibility.

The conclusions and findings of the research were collected in a targeted questionnaire with the object of recording the opinions of selected organizations and services and highlighting their proposals. The questionnaire was structured in three levels:

1) Evaluation of the agencies regarding the current situation in Greece
2) Recording representative actions of the agencies on the above problems
3) Recording suggestions/proposals of the agencies

It should be mentioned that during the drafting of the Plan, the special characteristics and categories of pedestrians were studied. This is because pedestrians belong to all population groups, with different characteristics, e.g. physical abilities, and age that influence the walking behavior and transport choices. For technical reasons, the following categorization was made; pedestrians, people with impairments, the elderly, children, and persons with reduced walking capacity (pregnant women, injured, travelers with heavy luggage, etc.). It is also noted that persons with disabilities are not a homogeneous group. There are different categories of disability:

- Physical disability (paraplegics, quadriplegics, people with artificial limbs, walking people with disabilities of upper or lower limbs, etc.)
- Sensory disability (deaf and hard of hearing, visually impaired)
- Mental Disability (e.g., manic depression, schizophrenia, etc.)
- Intellectual Disability (e.g., autism, Down syndrome, intellectual disability, etc.)
- Other disabilities (e.g., severe, and multiple disabilities etc.)

For the completeness of the Plan, the peculiarities and needs of each of the above categories were studied and considered.

- *Methods of implementation*

For the implementation of the National Plan for Accessibility with an emphasis on Climate Change, it is required:

1) Utilization and combined use of all available funds to complete, specialize or update spatial planning so that there are definitive accessibility and climate neutrality solutions. Priority is given to urban revitalization interventions and innovations that intelligently and effectively highlight solutions and options that did not exist until today or had not been successfully implemented appropriately adapted. At the same time, special attention is paid to the selection of measures, interventions and solutions that are expected to be permanent and functional over time, as well as combined accessibility solutions in energy upgrading projects.
2) Proposing a package of motivation to individuals and businesses to achieve sustainability of the plan.

Conclusions

The entire research highlighted the accessibility problems in the Greek urban environment and proved their correlation with the safety of citizens and settlements amidst climate change. It also highlighted the difficulties arising from multi-legislation which is, however, fragmentary, and often unenforceable. To date, many proposals have been made and many projects have been carried out but not under the umbrella of an organized plan, recording and evaluation, resulted in non-accessible cities. The “National Plan for Accessibility with emphasis on Climate Change - Climate Crisis” addresses these problems, providing with an actionable roadmap for outlying coherent policy directions and setting the implementation framework at multi-sectoral level, aiming at strengthening urban resilience upon disasters.

References

Christofi M. (2013). *Accessibility and Disability - Trade Union Training of Executives of the Disability Movement.* Athens : ESAmeA Publication.

COM. (2020). *Sustainable and smart mobility strategy - putting European transport on track for the future.* Brussels: 789 final.

ESAmeA. (2019). *Designing disability policy.* http://www.esaea.gr/files/documents/Egheiridio_Ekpedevomenou.pdf.

European Comission. (2010). A Europe accessible to all. Report from expert group set up by European Commission (2003), https://www.accessibletourism.org/?i=enat.en.reports.442

EUROSTAT. (2020). *https://ec.europa.eu/eurostat/web/population-demography-migration-projections/population-projections-/database.*

Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Service. (2019). https://www.ipbes.net/global-assessment

Kartalis K., Kokkosis H., Filippopoulos K., Polydoros A., Lappa K., Mavrakou Th. (2021). *Integrating climate change in the trnsformaton og develoepment model of Greece.* Athens: Dianeosis.

National Plan for Accessibility with emphasis on Climate Change - Climate Crisis, Hellenic Ministry of Environment and Energy, Available at: https://ypen.gov.gr/wp-content/uploads/2022/11/%CF%84%CE%B5%CE%BB%CE%B9%CE%BA%CE%BF-%CE%95%CE%98%CE%9D%CE%99%CE%9A%CE%9F-%CE%A3%CE%A7%CE%95%CE%94%CE%99%CE%9F-%CE%93%CE%99%CE%91-%CE%A4%CE%97%CE%9D-%CE%A0%CE%A1%CE%9F%CE%A3%CE%92%CE%91%CE%A3%CE%99%CE%9C%CE%9F%CE%A4%CE%97%CE%A4%CE%91_%CE%9C%CE%95%CE%A1%CE%9F%CE%A3-%CE%91-%CE%9C%CE%95%CE%A1%CE%9F%CE%A3-%CE%92-%CE%9C%CE%95%CE%A1%CE%9F%CE%A3-%CE%93-3.pdf

Papadaki K., Karma S., Siountri K., Siti M., Vassi A., Bakogiannis E. (2019). Re-designing the built Environment as a strategic tool for antipating emergency situations:the Greek Strategy for dealing with COVID-19 crisis. *International Journal of Real Estate*, pages 62-72.

4. Inclusive Disaster Management Operations: Indicative Examples in Greece - Presentations

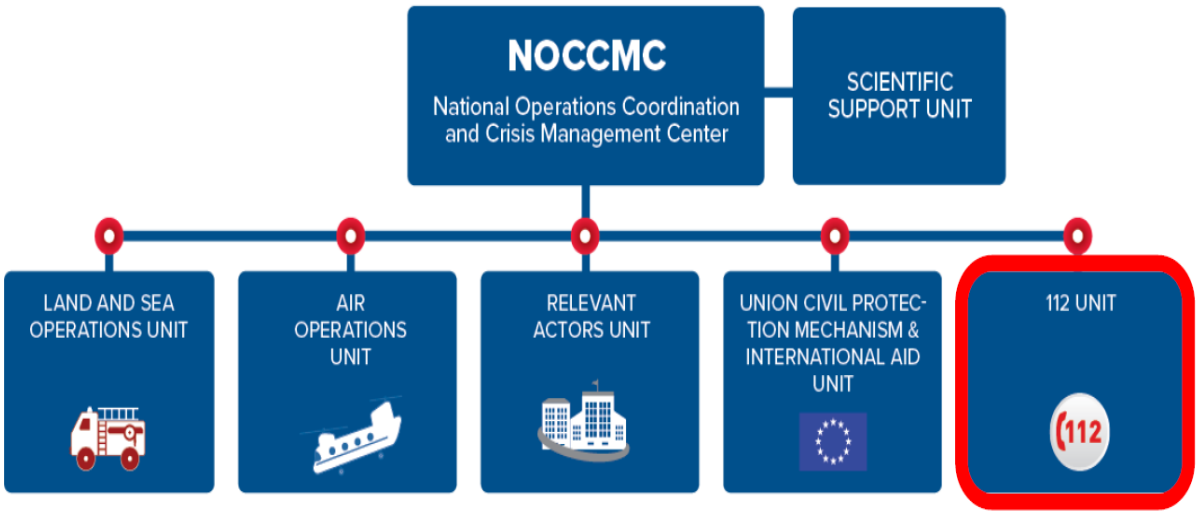
4.1 "Emergency Services Accessibility for Persons with Disabilities: The 112 European Emergency Number Structure in Greece", Manos Androulakis, Head of IT & Technical Support Directorate, General Secretariat of Civil Protection, Ministry of Climate Crisis and Civil Protection

Introduction

The single European Emergency Number 112 is an integrated communications service. When a citizen is in need or danger and needs immediate assistance in Greece or the EU, they can contact 112 free of charge. By utilizing new technologies, assisting has become easier, since all agents who need to be involved are informed simultaneously and the location of the citizen can be traced.

Moreover, 112 provides the option to send mass alerts to citizens in cases where a natural disaster or a dangerous situation which could threaten their life, health, or safety, is expected or is in progress. In these cases, citizens receive alerts with protection guidelines and instructions, through various communication channels (General Secretariat for Civil Protection, Hellenic Ministry for Climate Crisis and Civil Protection, https://civilprotection.gov.gr/en/112).

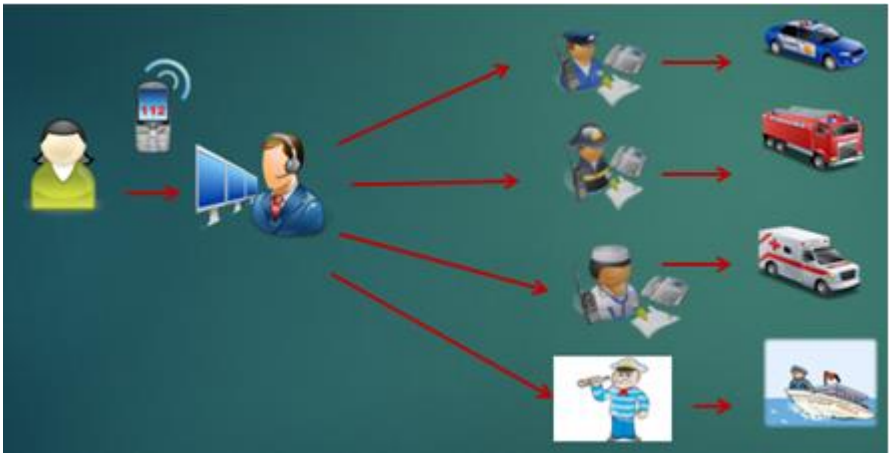
The Ministry for Climate Change and Civil Protection utilizes the National Operations Coordination and Crisis Management Center (ESKEDIK in Greek), for the operational coordination and cooperation of all the forces needed to respond to a disaster or large-scale incident. It is structured into five divisions, called Units. **Unit 1** supervises and coordinates the mobilization of the fire brigade and maritime forces, while **Unit 2** is responsible for the aerial surveillance and coordination of aerial firefighting means. **Unit 3** mobilizes the civil protection forces and **Unit 4** is responsible for the participation of Greece in the EU Civil Protection Mechanism. **Unit 5** is responsible for European Emergency Number 112.



Administrative structure of 112 European Emergency Number in Greece

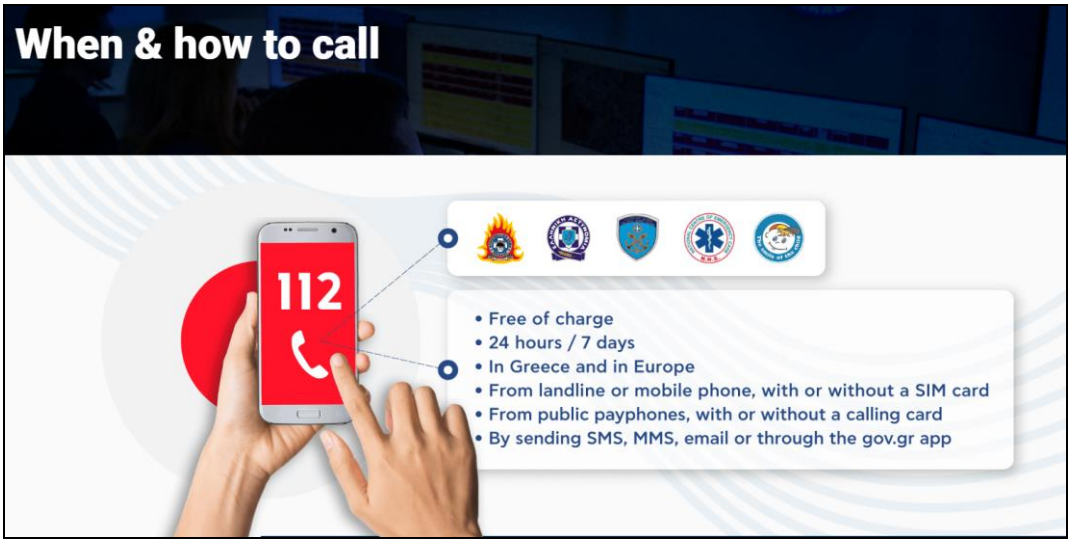
112 - Inbound Component

Citizens may dial 112 for free in case of emergency anywhere in Greece or the European Union. 112 is an integrated emergency communications service, that operates 24 hours a day, 7 days a week and includes an inbound and an outbound component.



Inbound component of the 112 Emergency Communications Service in Greece, concerning incoming calls from citizens.

When someone calls 112, the call is served nationally by skilled operators (1st level users), who accordingly forward the information collected or the call itself to an emergency responder (2nd level user), such as Police, Fire Brigade, Coast Guard, Emergency Medical Services, SOS 1056 - The Smile of the Child and the European Hotline for Missing Children 116000.



When and how to call 112 European Emergency Number, guidelines provided by the General Secretariat for Civil Protection, Hellenic Ministry for Climate Crisis and Civil Protection (https://civilprotection.gov.gr/en/112)

Citizens can contact 112:

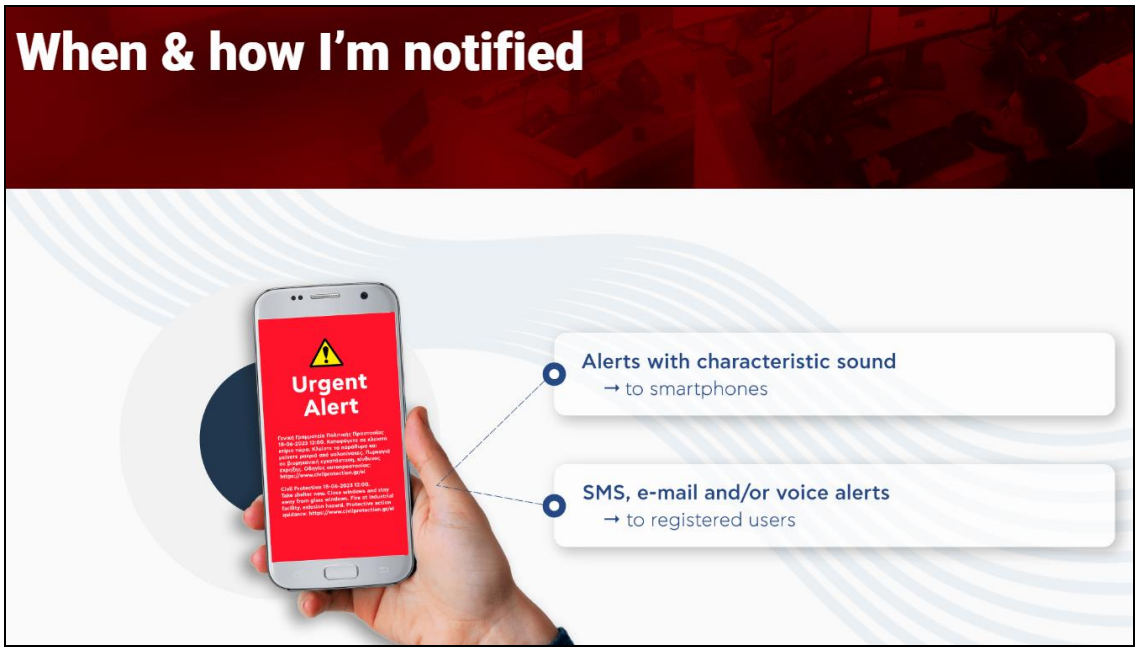
- from a landline telephone.
- from a mobile phone, even without a SIM card.
- from a locked device, from the initial activation screen.
- from public payphones, even without a calling card.
- by text message (SMS) or multimedia message (MMS).
- by email at contact@112.gov.gr.
- via the free app "gov.gr" available in the App Stores (for smartphones).

Non-hearing and non-speaking persons can contact 112 either by SMS or by email.

112 - Outbound Component

The outbound 112 allows citizens to receive warnings via multiple technologies and communication channels in case of an imminent or occurring incident or a dangerous situation constituting an immediate threat to their health and safety so that they can take protective action.

Outbound component of the 112 Emergency Communications Service in Greece, concerning outbound alerts sent to citizens.



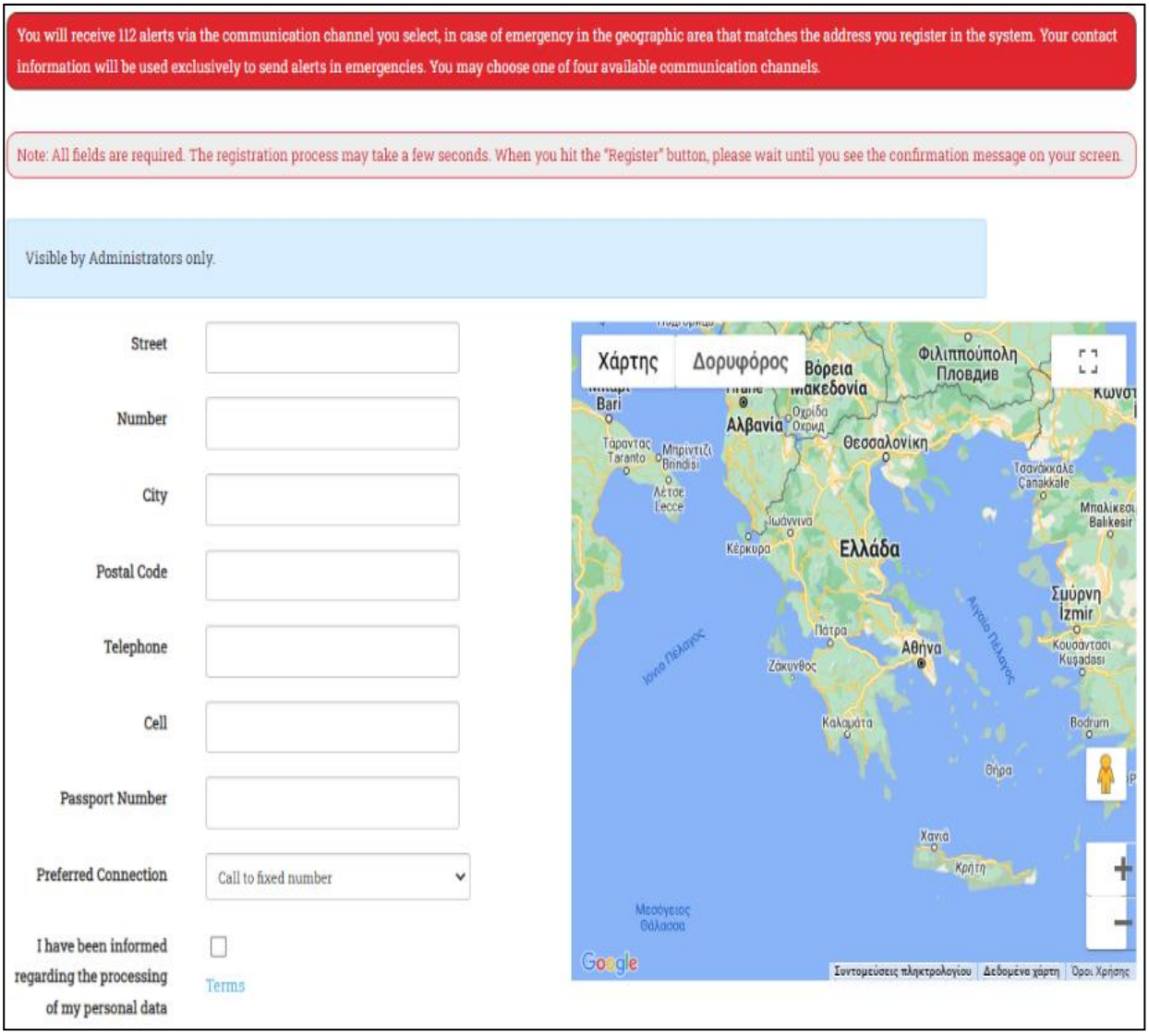
When and how I'm notified by 112 European Emergency Number, guidelines provided by the General Secretariat for Civil Protection, Hellenic Ministry for Climate Crisis and Civil Protection (https://civilprotection.gov.gr/en/112)

Various technologies and channels are utilized to alert citizens, such as a text message alert sent via a Cell Broadcast message to smartphones. If a citizen does not have a smartphone, they can register for the Service and choose how they wish to be notified.

The alerts are in the form of a short text and on mobile phones they are accompanied by a characteristic sound, so that they are immediately noticed, and no valuable time is wasted when taking self-protection measures.

The importance of Early Warning

“Early warning is an important factor in reducing disaster risks. It prevents loss of life and reduces the financial and material impact of disasters.” (Source: UN, International Strategy for Disaster Reduction).

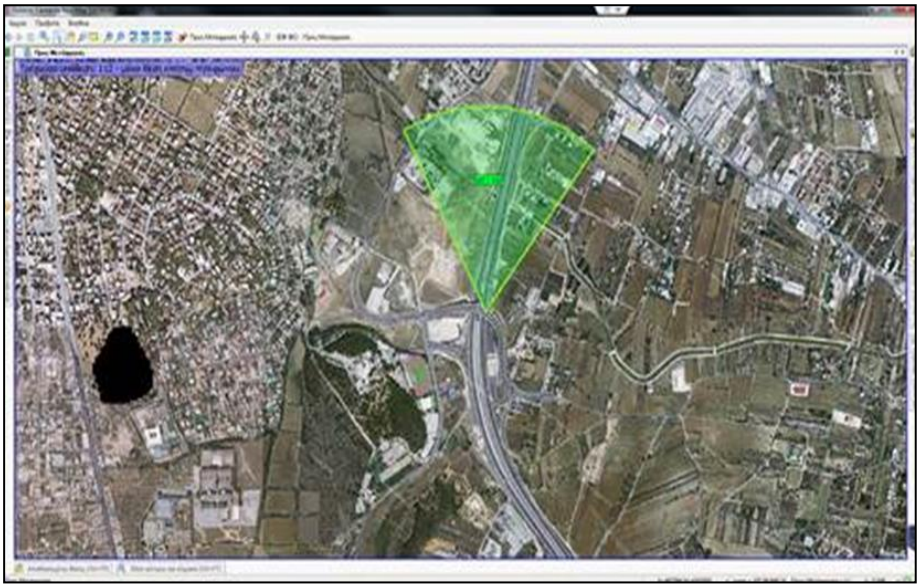


Registration process to the civil protection website in Greece (https://civilprotection.gov.gr) so that to receive 112 alerts.

A person can register to receive 112 alerts on the civil protection website (https://civilprotection.gov.gr) by entering his location and the preferred method of communication: SMS, email or voice call on landline or mobile. An assistant or a companion of a person with disabilities can use this functionality to register someone who is not able to register on his own.

According to the National Action Plan for the Rights of Persons with Disabilities, Objective 17: Protection and Security in situations of danger and emergency, the climate crisis has intensified the risks of disasters, affecting the level of Social, Economic and Environmental impacts. People with disabilities are a population group considered most vulnerable to disasters, according to a global UN survey.

Improving the access of people with disabilities to emergency services
When a caller who is situated in Greece dials Emergency Number 112, Unit 5 of the 112 Emergency Communications Service will receive the Mobile Caller Geolocation, as depicted in the photo below.



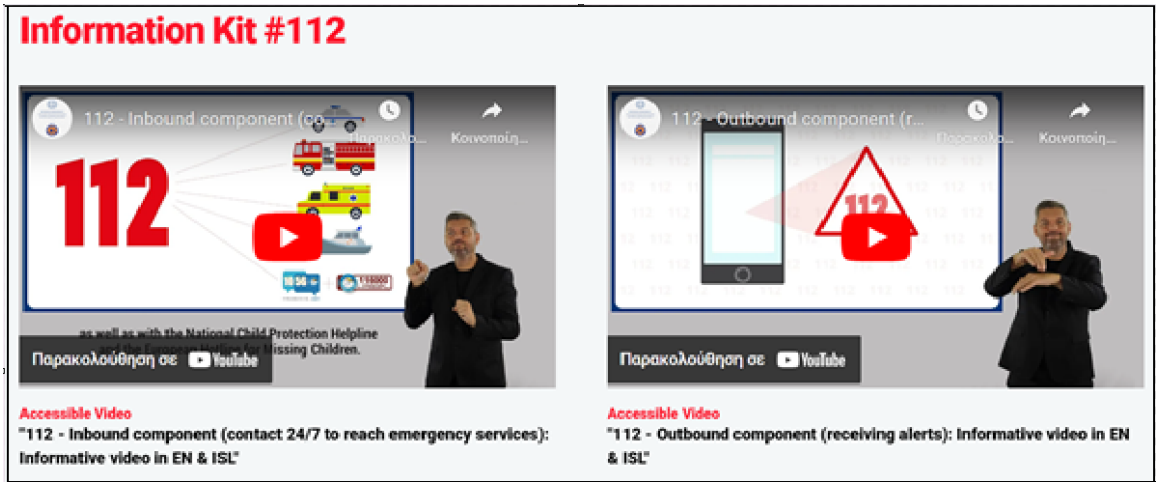
Geolocation of a mobile caller who dials Emergency Number 112 in Greece by the 112 Emergency Communications Service of Hellenic Civil Protection.

Furthermore, Greece has deployed the Advanced Mobile Location Protocol – AML, which allows 112 Emergency Call Centers to receive the best available geolocation of the caller with an accuracy of a few meters, improving the time taken by emergency call takers to dispatch an emergency response. No action is required from the caller, besides the use of a smartphone running recent

versions of Android or iOS and having a SIM card from a Greek Telecom Provider (non-roamers).

Advanced Mobile Location Protocol – AML developed in Greece, allows 112 Emergency Call Centers to receive the best available geolocation of the caller with an accuracy of a few meters.

Additionally, the Ministry of Digital Governance has incorporated in the gov.gr application - available on Play Store (Google) and App Store (Apple) - a functionality that enables sending an SMS message to 112, with the coordinates of the caller. The caller receives a confirmation SMS with the Emergency Call Management System case code of 112. These technologies are state-of-the-art, and Greece is one of the first countries in the world to have implemented them.



Accessible informative videos on the 112 inbound and outbound components (Information Kit #112) are available in English language at the website of the Ministry for Climate Crisis and Civil Protection (https://civilprotection.gov.gr/en/112)

Towards the direction of inclusive early warnings, the Ministry for Climate Crisis and Civil Protection, together with the GSCP have recently produced accessible informative videos on the 112 inbound and outbound components (https://civilprotection.gov.gr/en/112); the English version of those videos was produced in collaboration with ECFF.

Planned steps to improve access of Persons with Disabilities to 112 services

The Pan-European Mobile Emergency Application (PEMEA) is a standard that enables emergency applications developed in other European countries to operate in Greece. Such an application will also be developed for Greece in the coming period. The specific standard will give the possibility beyond the classic communication channels for citizens to communicate via video so that 112 can serve them using sign language. A Request For Proposal (RFP), enabling this functionality is underway. Furthermore, the incorporation of Directive (EU) 2019/882 dictates that RTT (Real-time text), should be supported and this is also demanded as functionality in the same RFP.

Finally, the Ministry investigates possible synergy with the Municipalities for the compilation of lists with contact details of persons with disabilities, who live within the limits of their jurisdiction, to be able to offer more targeted civil protection actions, taking into account the type of disability.

References

112- European Emergency Number, General Secretariat for Civil Protection, Hellenic Ministry for Climate Crisis and Civil Protection, available at: https://civilprotection.gov.gr/en/112

UN, International Strategy for Disaster Reduction, Available at: https://sdgs.un.org/statements/un-international-strategy-disaster-reduction-unisdr-8377

PEMEA, The Pan-European Mobile Emergency Application, https://pemea.help/whats-pemea/

4.2 The Prehospital Management of Persons with Disabilities, Anastasia Zygoura, Special Unit of Disaster Medicine, National Centre of Emergency Care, Athens, Greece

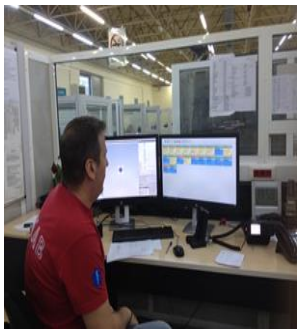
Introduction

Persons with disabilities are the persons whose ability to move, think, perceive, or express themselves is impaired either by injury or illness or due to social limitations. The different types of disability are: mobility difficulties, visual impairment (possibly requiring the use of a guide dog), deafness, communication and word articulation problems (stroke), cognitive disorders, various medical problems (use of life support systems), intolerance to chemical or environmental substances, psychiatric disorders and panic attacks or disability related to old age. The World Report on Disability (WHO, 2010) reported that 15% of the world's population lives with a disability, while in Greece 10% of its population lives with a disability.

Pre-hospital management of people with disabilities in everyday situations

The pre-hospital management of people with disabilities in everyday circumstances is a complex situation that is related to many aspects that are not easily visualized, most of which are related to accessibility to these services.

Calling emergency medical services is not easy for persons who have a visual impairment, deafness, communication, and word articulation problems, cognitive or psychiatric disorders. Access to these services for people with disabilities requires specific devices, specialized training, and instructions, as well as specific equipment and training for the call receivers to be able to handle emergencies. Special skills are needed to obtain correct details, medical history, exact address etc. The persons with disabilities must be prepared and trained on how to address a priority emergency call (ambulance, emergency services, fire brigade). They need to know about their disability, have a written plan on how to address an emergency, have a prepared text if they have speech or cognitive disorders, and know and be able to communicate if they receive treatment for their condition. Contact in advance with the relevant services and prior registration can be beneficial. The dispatch of appropriate means is also crucial, and the response depends on the skills that the emergency medical services (EMS) personnel have to achieve good communication with the sufferer (person with a disability). The emergency



services personnel need to bear in mind that any physical impairment doesn't correlate with cognitive competence. EMS providers should be trained in how to address a person with disabilities using a special communication code and a simple vocabulary, in a manner that does not offend the person with the impairment.

Responding to an emergency call that involves a person with a disability can create other difficulties, such as the management of the supportive means, which can be often difficult for the EMS personnel; for example, an electric wheelchair cannot be loaded on an ambulance, or the management of the guide dogs which in many countries are not allowed in ambulances or hospitals' emergency departments (ED). The emergency services personnel need to be competent in how to address a person with disabilities adapting questions, talking directly to the person, respecting the dignity, individuality and independence of the person. They should always ask if there are any special circumstances of immobilization, movement or co-existing conditions, comorbidities that could lead to difficulty in taking vital signs, electrocardiogram (ECG) readings, or difficulty in taking history like spastic movements or impaired speech. They should also take into consideration if there is a specific need for special positioning of these patients using supportive pads and if they have to manage assistive devices or permit caregivers/personal assistants to accompany the person during the transport to a health formation.

In Greece, for most persons with disabilities access to the ambulance emergency service 166/112 is through a call to the dispatch centre but for persons with speech/hearing impairments, the call to 112 can be done either by written message (SMS, email) or via a specific call line to Hellenic Police. Another possibility that is starting to be used in different public services is "IRIS Relay" application – which does remote interpreting for deaf and hard-of-hearing people via sign language, text message or lip-reading. EMS personnel are trained in how to address and handle persons with disabilities and the elderly.

Persons with disabilities and disasters

There are many definitions of a disaster but the most acceptable is that a disaster is "A severe disruption of the functioning of society, causing widespread human, material and environmental losses that exceed the capacity of the affected society to cope with them with its own means and resources".

According to Morrow, 1999; Tobin & Ollenburger, 1993; Wisner et al., 2004 persons with disabilities are the members of society disproportionately affected by disasters since the evacuation plans require the ability to walk, drive, see and hear. Also, Gerber in Fjord and Manderson 2009 and Kailes 2002 reported that evacuation plans need to be adapted to the needs of people who cannot walk, drive, see and hear. Planning for disaster risk reduction is done in terms of aiding large groups of people which leads to the result that people with disabilities are not involved in preparedness behaviors and response.

Common experience reveals that persons with disabilities are more likely to be left behind or abandoned during evacuation in disasters and conflicts, due to a lack of preparation and planning, as well as inaccessible facilities, services, and transportation systems. Persons with disabilities are considered to be at higher risk of suffering negative effects from natural disasters, such as earthquakes, volcanic eruptions, landslides, floods, droughts, cyclones, etc. Indeed, as shown during the tsunami in 2011, persons with disabilities are often not reached on time by the early warning systems that alert the public, which contributes to their vulnerability.

A global survey that was conducted by the UN in 2013 including about 5000 persons with disabilities shows the difficulties experienced by persons with disabilities in the face of disasters and highlights the reasons for their vulnerability:

- Only 20% say that they can evacuate immediately without difficulty in the event of a disaster, the rest could do so with a certain degree of difficulty, and 6% would not be able to do so at all.
- 71% do not have an individual preparedness plan for disasters.
- Only 31% always have someone to help them evacuate, 13% have no one to help them.
- Only 17% of respondents are aware of their community's disaster preparedness plan.
- Only 14% are consulted during the preparation of disaster preparedness plans.

Persons with disabilities during disasters must face multiple difficulties. People in wheelchairs cannot take refuge under desks and tables, cannot exit a building directly from stairs (Rahimi 1993), and can become trapped in

buildings. People with hearing or visual impairments do not hear verbal commands to evacuate, and do not see emergency lights (Kailes 2002). People who depend on electrical devices (such as dialysis machines, ventilators, or simple electronic means of communication) may find themselves in a difficult situation because of power cuts during emergencies. The elderly, who may have chronic diseases and physical impairments, represent another category at risk.

Since all persons with disabilities need assistance to evacuate during a disaster, they should assess the types of risks present in the workplace and at home to establish a support network of people for each place they usually frequent. Communities should implement measures and strategies for their impaired members creating social supportive networks that will lead to mediating the negative impacts of a disaster or an emergency on persons with disabilities. In a survey done by Zakour in 2015 was found that informal social support, voluntary memberships, and personal assistance frequency were statistically significant predictors of preparedness.

Significant steps have been taken in Greece towards policies of inclusion for persons with disabilities in the different phases of disaster risk management. Actions have been taken by the Ministry of Climate Crisis and Civil Protection, as the edition of instructions regarding self-protection from any type of disaster which are accessible to persons with disabilities. Also, actions at the level of municipalities for the dissemination of information, the provision of instructions and the inclusion of persons with disabilities in their conversations and the creation of evacuation plan strategies are encouraged. Existing educational actions between groups of persons with disabilities and the fire brigade, the ambulance service, etc. must be strengthened.

To reduce the vulnerability of persons with disabilities it is crucial to include them in the planning and risk management processes and practices regarding disasters. Persons with disabilities and their organizations have to be recognized as essential partners for designing and implementing policies that will lead to risk reduction. Central planning is also an emergent issue of great significance and measures to identify vulnerable populations during the crisis - creating an online register to identify citizens with disabilities during an emergency - should be in place. Enhancing persons with disabilities' resilience and ability to cope with

disasters is critical. Persons with disabilities should be viewed as knowledgeable partners in the disaster risk management planning process, thus supporting their overall participation in society, but also ensuring society benefits from their vast experience and skills.

References

Prehospital Assessment of Patients with Physical Disabilities, Kathryn E. Gersch, RN, FNP-BC, CCRN, CFRN, EMT-B August 2012, EMS World

Caring for older people in prehospital emergency care: can nurses make a difference? Vidar Melby BSc, MPhil, RGN, RNT, PGCTHE, Assumpta Ryan BSc, MEd, RMN, RGN, RNT, PGCTHE, 09 September 2005, Journal of Clinical Nursing, https://doi.org/10.1111/j.1365-2702.2005.01222.x

Geriatric Emergency Medicine pp 3–16 Prehospital Management of Older Patients Eric Revue MD, James Wallace MD & Shuja Punekar MD Chapter First Online: 01 September 2017

Concurrent Disabilities Can Complicate EMS Assessment and Treatment in Emergency Situations Katherine Koch, PhD, NRP - 1.1.2017, Journal of Emergency Medical Services

Assessing, treating, and transporting patients with special needs, Greg Friese, MS, NRP, Oct 31, 2018, EMS World

Identifying and Mapping Community Vulnerability, Betty Hearn Morrow, Disasters, December 2002, https://doi.org/10.1111/1467-7717.00102

At Risk: natural hazards, people's vulnerability, and disasters, Second edition, 2003, Copyright Wisner, Blaikie, Cannon and Davis

Anthropological Perspectives on Disasters and Disability: An Introduction, Lakshmi Fjord and Lenore Manderson, Human Organization, Vol. 68, No. 1 (Spring 2009), pp. 64-72 (9 pages)

Evacuation preparedness: Taking responsibility for your safety: A guide for people with disabilities and other activity limitations. (2002) Kailes J.I., Pomona CA, Center for disability issues and the health profession, Western university of Health Sciences

Effects of Support on Evacuation Preparedness of Persons with Disabilities, Michael J. Zakour, Journal of Social Work in Disability & Rehabilitation, Volume 14, 2015 - Issue 1

https://www.researchgate.net/publication/304983693_Disability_and_Disaster_An_Overview, David Alexander

How to include persons with disabilities in disaster response, A guide based on lessons-learned and good practices from Mozambique, Light for the World International, Authors: Peter Torres Fremlin, Maria Hasan, Pedro Safrão

Disaster Preparedness for People with Disabilities, Bay of Plenty Civil Defence Emergency Management Group

5. Draft Conclusions of the Workshop

The workshop entitled “Leave No One Behind: Inclusivity in Disaster Preparedness and Response”, succeeded into bringing together academics, scientists, operational people, experts, and persons with disabilities, giving them the opportunity to exchange experiences and knowledge, and the fora to share insights and perspectives on this topic.

Compared to the conference entitled “Evacuation of Buildings in Case of Emergency for Persons with Disabilities” which was organised by ECFF in 2017 and considering the restrictions during the COVID-19 period in hosting in-person meetings, it seems that a few steps ahead have been achieved during this workshop. Firstly, the number of attendees was greater, providing an excellent opportunity for more voices to be heard, especially from the side of the disability community. In addition, during the workshop it became apparent that there is a core network of people who are willing to support relevant activities in the future in the prospect of building disaster resilience for all.

The draft conclusions of the workshop are summarised in the following:

- It is crucial to have on-board the representatives of the disability community in all phases of the disaster management cycle to achieve inclusive disaster resilience. During the workshop there was a focus on disaster prevention and preparedness planning, where it was highlighted that these people should be engaged to provide the decision makers with accurate information on their real needs per type of disability in emergency situations, as well as for addressing the existing barriers which burden their condition. This issue was tackled by the representative of the National Confederation of Persons with Disabilities.
- It was tackled by the relevant representatives of the stakeholders that the current problems and barriers of the physical environment that exacerbate vulnerability of persons with disabilities need to be addressed under a holistic framework and be confronted at a multi-sectoral level. In that context, indicative initiatives and measures that have already been taken by relevant Ministries, such as the Ministry for Climate Crisis and Civil Protection and the Ministry of Environment and Energy in Greece were presented, i.e. the 112 Emergency Service Structure in Greece and the available accessibility features for Persons with Disabilities, and the “National Plan for Accessibility with emphasis on Climate Change - Climate Crisis”, in respect.

- Under the necessity of early warning of the population on emerging risks the coming years, it seems that the European Emergency Number 112, together with other complementary processes or operational tools could play a fundamental role in strengthening inclusive disaster resilience.
- Training of the population in emergency situations is critical for raising public awareness with inclusive criteria; in that framework, self-protection guidelines and relevant informative accessible videos are available by the General Secretariat for Civil Protection (GSCP) and the Earthquake Planning and Protection Organisation (OASP); the «Easy-to-Read» language and the augmentative alternative communication “MAKATON” have been used to prepare the relevant informative material on earthquakes. Moreover, GSCP and the Ministry for Climate Crisis and Civil Protection regularly run awareness campaigns, e.g. before and during the fire season (GSCP’s accessible informative videos).
- Building the young capacities is the main challenge for strengthening communities’ resilience in the future. Inclusive education and training in this direction is substantial, e.g. including Children with Disabilities in Disaster Education, as presented in this workshop by the representatives from the University of Thessaly. Simulated drills are regularly organised in Greece by the competent authorities, e.g. earthquake drills in schools are annually organised with the contribution of OASP to promote safety culture in the school environment.
- Personal Emergency Evacuation Plans (PEEPs) can contribute to reducing the vulnerability of groups at risk, such as persons with disabilities. Such plans can help the persons with disabilities to identify their assistant network and be prepared in case of an emergency, organizing accordingly their response actions with their help.
- Evacuation exercises are considered an asset for the population to gain practical experience and knowledge on how to behave in case of emergencies and per type of hazard, e.g. earthquake, wildfire, flood, tsunami etc. Moreover, they facilitate the identification of the gaps or any types of limitations among the involved parties or sectors during the emergency management. These exercises need to be inclusive, engaging all the groups, focusing on the disaster-prone areas. Indicative examples of engagement of persons with disabilities in disaster preparedness were presented here. Though, for ensuring sustainable disaster resilience, these exercises need to be conducted on a regular basis with the dedicated effort of all the key players, such as the local authorities, in cooperation with the civil protection and all the first responders who are engaged in the operations when a disaster strikes.

Section 2: “Evacuation Exercise including Persons with Disabilities”

1. Introduction

Based on the issues that have been discussed during the workshop “Leave no one Behind: Inclusivity in Disaster Preparedness and Response”, which took place on the 8th of November 2022, in Athens, presented in Section 1 of this volume, it became apparent that one of the main challenges for strengthening inclusive disaster resilience is how to engage persons with disabilities in all stages of disaster management cycle.

Therefore, in order to design an inclusive disaster preparedness activity, a table-top exercise which focused on a building’s evacuation took place on October 26th, 2023, in Athens, Greece with the participation of persons with disabilities, through their representative organizations. Specifically, the exercise was organized by the European Center for Forest Fires (ECFF) of the Council of Europe (EUR-OPA), the Hellenic Ministry for Climate Crisis and Civil Protection, General Secretariat for Civil Protection (GSCP), in cooperation with the National Confederation of Persons with Disabilities Greece (ESAmeA) / Institute of National Confederation of Persons with Disabilities & Chronic Diseases Greece (IN-ESAmeA), the European Centre on Prevention and Forecasting of Earthquakes (ECPFE), the Hellenic Fire Service and the National Centre of Emergency Care.

Table-top exercise focused on a building’s evacuation organised by ECFF (October 26th, 2023, Premises of the National Confederation of Persons with Disabilities, Athens, Greece)

The building for running the exercise was provided by ESAmeA, and the scenarios included an earthquake that caused a fire incident afterwards due to a short circuit. For the needs of the scenarios' preparation and the planning of the exercise, a working group had been set up including a total number of 13 people representing ECFF, GSCP, ESAmeA, IN-ESAmeA, ECPFE, OASP, the Hellenic Fire Service and the National Centre of Emergency Care; the working group had started collaboration about 5 months prior to the date of the final event.

The main asset to this exercise was the early involvement of the representatives from the disability community in the preparation phase of the exercise and their active participation in the execution of the drill. This was achieved by inviting the ESAmeA and IN-ESAmeA representatives at the early stages of the activity, not only to build the evacuation scenarios, but also to define the role-playing during the exercise; specific roles were assigned to the actors, including persons with different types of disability, such as mobility and vision impairment .

In particular, the exercise was divided into three parts; The first part entailed the draft opening of the event by the organisers, as well as the explanation of the rules for implementing the exercise, which lasted about half an hour; The second part included the running of the table-top exercise and the role-playing in a format of a short drill with the participation of persons with disabilities, which had a duration of about two hours; The third part included the hot debriefing of the exercise and open discussion with the participants; a total of 50 attendees coming from the abovementioned organisations and relevant services had the opportunity to make their comments and exchange hands-on experiences, knowledge and insights.

2. Evacuation Exercise: Objectives and Highlights

From a general perspective, the organisation of this exercise aimed primarily at bringing together academics, scientists, experts, first responders, and persons with disabilities, illuminating different views and allowing them to learn about the real needs of persons with disabilities in emergencies.

The main objectives of the exercise were: (i) to highlight the importance of participation of persons with disabilities through their representative organizations in both the initial planning and implementation phases of an evacuation exercise, as well as the responsibility of the stakeholders to ensure this participation in relevant activities, e.g. the preparation of civil protection plans, evacuation plans, etc. (ii) to underline the necessity of preparing building evacuation plans with inclusive criteria (iii) to increase awareness and train all parties involved, including persons with disabilities and their caregivers or their personal assistants (iv) to practice on the interoperability of means and actors and to identify possible gaps, barriers and limitations (v) to come up with

suggestions on how to prepare similar exercises including persons with disabilities, based on the lessons learnt.

As part of the exercise, techniques for managing persons with intellectual and developmental disabilities, as well as guiding techniques for persons with visual disability were presented.

Demonstration of guiding techniques for persons with visual disability during the evacuation exercise organised by ECFF (October 26th, 2023, Premises of the National Confederation of Persons with Disabilities, Athens, Greece)

Moreover, a power evacuation chair was demonstrated for easy and quick transport of persons with physical disabilities, in cases where immediate evacuation of the building is required.

Demonstration of a power evacuation chair for transferring a person on a wheelchair during the evacuation exercise organised by ECFF (October 26th, 2023, Premises of the National Confederation of Persons with Disabilities, Athens, Greece)

It should be mentioned that in order to better organise the table-top exercise and the role-playing, a facilitator was assigned to coordinate the steps to be followed in running the scenarios.

3. Draft Conclusions and Lessons Learnt

In conclusion, during the exercise it was possible to exchange ideas, hands-on experiences, insights, and arguments among the participants bringing to the fore the voice of persons with disabilities. This was quite important, since they were given the opportunity to share their feedback as to their needs in emergencies with the first responders. Furthermore, operational people, namely firefighters and medical teams who were among the audience were able to interact and comment on existing methods and procedures of search and rescue when persons with disabilities are involved.

Despite their different background, the common perception of the participants, was that such types of exercises are necessary to be regularly organized by the relevant authorities, with the participation also of the local stakeholders. Conducting evacuation exercises with inclusive criteria can reinforce the disaster preparedness and response of communities, taking into account emerging multi-hazard risks, i.e., wildfires and exposure to the produced smoke during the COVID-19 pandemic; it seems that exposure to multi-hazards may result in an additive or a synergistic result of the effects, exacerbating the total impact. Towards this direction, this exercise dealt with a complex emergency including a scenario of an earthquake that triggered a fire and a smoke episode.

The lessons learnt are summarised in the following:

- We need to integrate “Universal Design” in disaster risk reduction strategies and adopt it at a horizontal level; otherwise, the solutions and the relevant applied procedures may not be compatible with the real needs of persons with disabilities.
- The one-solution fits all model cannot be applied in the case of persons with disabilities; every category of disability should be treated distinctly in emergencies.
- The engagement of persons with disabilities or other vulnerable groups, like children, at the early stages of emergency planning but also at all phases of the disaster management cycle is essential for strengthening the capacity building of the communities to deal successfully and in an inclusive manner with those situations.
- Inclusive evacuation exercises, such as table-tops, drills, or full-scale ones, with the participation of all parties involved, should be frequently organised to improve disaster preparedness; especially for communities near disaster-prone areas, e.g. the Wildland Urban Interface (WUI).

- Personal Emergency Evacuation Plans (PEEPs) are needed and should be activated and regularly tested under simulated emergency scenarios with the participation of persons with disabilities, their caregivers, or personal assistants, as well as all parties involved; training of all actors is vital for effective response in real emergencies.
- Raising awareness campaigns in accessible formats organised by the relevant authorities, through structured involvement and consultation with the representative organizations of persons with disabilities, and together with the active involvement of citizens and volunteers could strengthen inclusive communities' disaster resilience.
- Identification of standard operational procedures in rescuing persons with disabilities is needed. A pan-European or even an international training module for the rescuers is required, to instruct them how to manage persons with different kinds of disability. This could generally facilitate search and rescue operations, reducing rescue time and increasing the effectiveness of an operation, regardless the country that the person with disability might be when impacted by a disaster, e.g. tourists in a foreign country stroked by an earthquake.
- The role of caregivers or personal assistants of persons with disabilities could be a key element in facilitating the rescuers' job. Also, service dogs are important for their handlers and could help the rescuers in saving them under specific circumstances; however, special training of these dogs is needed to avoid any unexpected reactions, e.g. barking, or even attacking the emergency responders because they are upset since their handler is in danger.
- The supportive equipment of persons with disabilities is valuable for them, and a possible loss may hardly affect them, e.g. a wheelchair is customized to the person in need and requires significant time to be developed. In the event of equipment loss after a disaster, a provision should be made by the relevant stakeholders to be immediately replaced.
- Accessibility and usability of the built environment affect vulnerability; the building codes should certify the functionality and accessibility of the built environment, ensuring safe evacuation via accessible evacuation routes, emergency exits and refuge areas. Accessibility standards of refuge areas, as well as treatment of persons with disabilities or vulnerable groups, e.g. children, infants, the elderly, pregnant women, who need to stay longer at those areas in the post-disaster phase, have to be taken into consideration by the relevant local authorities and key stakeholders, based on specific needs.
- Accessible emergency messages and universal early warning systems are essential to secure safe evacuation for all, in case of an emergency; access to information, inclusive information broadcasting and risk communication are

fundamental rights of all people and should be part of disaster risk management policies, e.g. smoke visual alarms need to be set at all public buildings to inform persons with hearing impairment about a fire incident; also, the European Emergency number (112) has to showcase accessibility features.

- In complex emergencies there is a need for risk prioritization (“risk triage”) to confront multiple threats, giving priority each time to the most urgent one. Towards this direction, a multi-hazard risk assessment approach needs to be integrated to disaster risk reduction strategies; a recent example is the “Early Warnings for All, Executive Action Plan 2023-2027”, which is a UN Global Early Warning Initiative for the Implementation of Climate Adaptation (https://library.wmo.int/records/item/58209-early-warnings-for-all).

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