



engage

Engage Society for
Risk Awareness and Resilience

Deliverable D6.3 – Final social impact report

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Abstract: ENGAGE aims at linking the informal resilience naturally inherent in citizens with the formal work of authorities to prevent, prepare for, respond to, and recover from disasters. It brings together 14 partners from 8 countries aiming to show how individuals and local practices can interrelate effectively with planned preparedness and response, practitioners, and technology.

This deliverable provides a report on the societal impact of the ENGAGE project by using the indicators from the midterm societal impact report via an internal assessment. The analysis of the societal impact focuses on work packages and validation exercises. Its findings show a nuanced assessment of the project's social impact, stressing its capacity in changing the mindset of emergency organizations and authorities for a more proactive approach to engaging social actors in preparedness and crisis management. However, the report also points towards the fact that the project's orientation towards formal disaster managers made it more difficult to address the needs of vulnerable social groups in the outcomes of the project.

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Executive summary

This social impact assessment of the ENGAGE project provides valuable insights into its effects, highlighting both its achievements and areas for improvement. It notably provides a methodological framework to measure the societal impact of the ENGAGE project by focusing on its work packages and validation exercises.

Findings state that the project primarily targets first responders and authorities, indirectly affecting community members. Notably, the need for targeted efforts to address vulnerable groups is emphasized, with short-term effectiveness dependent on raising risk awareness and engaging citizens. The project shows promise at the local, regional, and city levels but remains uncertain at a societal scale, while positively influencing research in crisis and disaster management.

Furthermore, the project's impact extends beyond tangible outcomes like the catalogue of solutions and the knowledge platform, influencing the perspectives of practitioners and crisis professionals on citizen involvement. It fosters collaboration among volunteers, NGOs, and health departments, making strides in integrating civic action into national emergency plans and improving regulations. Volunteers play a crucial role, emphasizing the necessity for better organization of their roles and addressing language barriers.

Societal resilience is deemed essential for effective disaster response, and adaptability is emphasized, exemplified in validation exercises. ENGAGE's capacity to create interaction between civil society actors and emergency organizations is a cornerstone of its social impact. However, its long-term and society-level impact is less clear.

The report further analyzes ENGAGE's approach to address common biases in resilience frameworks, assessing its ability to balance responsibilities, provide a clear societal resilience approach, navigate complexity, promote equity, and drive social change. The project aligns well with some of these criteria, focusing on shifting formal authorities and emergency organizations' attitudes and practices toward citizen involvement, thus mitigating biases. ENGAGE also maintains its commitment to fostering social change and improving long-term impacts by transforming emergency organizations' and authorities' perspectives on citizen involvement.

1 INTRODUCTION

Task 6.3 within ENGAGE's framework for assessing social impact revolves around assessing the project's societal influence upon its lifecycle conclusion. The objective is to foster transparent introspection, comprehending the project's boundaries and accomplishments in fortifying societal resilience. This procedure encompasses two key stages: a midterm report furnishing explicit recommendations to project partners for refining tools and strategies, followed by this subsequent report outlining the societal impact. Hence, the essence of this document lies in presenting a anticipating the social impact of the project's results and elucidating how these outcomes might shape the resilience of distinct social groups in times of crisis.

1.1 GOAL OF THE DELIVERABLE

Hence, the aim of this deliverable is to provide a methodology for self-assessment of the projects social impact by considering its societal resilience approach. This goal is realized by adapting the conceptual framework that D6.2 developed based on deliverables from WP1, WP2 and WP3 to a methodology that is then used to collect data on the social impact of two validation exercises as well as work packages 1 to 4 that produce the projects content. This report does not focus on the content of work packages, nor does it provide an analysis of the exercises, since more details on all validation exercises will be provided in deliverable D4.3 that synthesizes results from the validation activities.

1.2 INTENDED READERSHIP

The intended audience for this document comprises several distinct groups:

Work Package Leaders: The midterm social impact report primarily addresses work package leaders. Given their substantial influence in interpreting the DoA, this report relies on their input and offers feedback on the societal impact of each WP.

Consortium Members: Irrespective of their specific responsibilities, the entire consortium aims to maximize positive social impact. Therefore, a structured assessment of the project's effects benefits all partners. It helps them to better understand the project's strengths and weaknesses.

Knowledge and Innovation Community of Practice (KI-CoP) Members: This group holds operational expertise and also represents first responders, researchers, authorities, and civil society – the very stakeholders the project aims to influence. Their inclusion ensures relevance and a broader reach of impact. The report provides them with an internal assessment.

Stakeholders and End-Users: Those with a stake in the project, including its rationale, methods, risks, and outcomes, can find valuable insights in this document.

General Public: Any citizen, even if not directly targeted by the project, could find interest in this document. It offers transparency about the project's ambitions, approach to enhancing societal resilience, and associated risks.

European Research Council, European Commission, and Project Reviewers: The document is also relevant to entities affiliated with the European Research Council, the European Commission, and project reviewers as it provides them with project's own vision of its achievement and shortcomings.

In essence, this deliverable's dissemination level is public, allowing it to be shared beyond the consortium, the European Commission, and the project reviewers.

2 CONCEPTUAL FRAMEWORK

2.1 HOW TO CONCEPTUALIZE THE SOCIAL IMPACT OF AN SOCIETAL RESILIENCE APPROACH

Conceptualizing the social impact of a societal resilience approach involves assessing how such an approach affects individuals, communities, and society as a whole in the face of various of disruptive events. The report's approach analyzes societal impact comprehensively, considering project methods, effects' scale, stakeholder types, and depth. As the midterm societal impact report showed in more detail, this methodology avoids simplistic positive/negative categorizations, acknowledging impact's dynamic nature over time.

2.1.1 DEFINING SOCIETAL RESILIENCE

In a first step every assessment of the social impact of a societal resilience approach needs to clearly defining what is meant by "societal resilience." Societal resilience generally refers to a community or society's ability to adapt, withstand, and recover from shocks, stresses, or adverse events, such as natural disasters, economic crises, public health emergencies, or social conflicts. In ENGAGE societal resilience is defined in D1.4, the model for assessing and enhancing societal resilience, as the potential for all types of social actors, formal and informal, to effectively cope with an adverse situation and the social context influencing this potential.

Furthermore, this report evaluates ENGAGE's societal impact in reference to the project's goal of assessing *and* enhancing societal resilience. It aligns these concepts within ENGAGE's context and broader literature. Societal resilience unifies ENGAGE's components. The report explores the concept while acknowledging criticisms.

2.1.2 IDENTIFYING KEY COMPONENTS

In a second step, it is necessary to break down the societal resilience approach into its key concepts. This may include social, economic, environmental, and governance contextual factors as well as understanding both social impact and societal resilience as concepts together.

2.1.2.1 Resilience

The concept of resilience has emerged in academic discourses on security, critical infrastructure and disaster risk reduction since the early 2000s (Dunn Cavelti et al 2015). This development is related to the emergence of risk and uncertainty as central concepts. Simply put, one can say that whereas security relates to known threats, risk is more often related to the omnipresence of unknown dangers, where the goal is not to eliminate risk, but to mediate and manage it. As such, the logic of risk lends way to the idea of resilience and the ability of society to withstand the risk of external shocks and disasters.

2.1.2.2 Resilience and risks for societal impact

Resilience, as a normative and political concept, is central yet critiqued in ENGAGE. The midterm societal impact report conceptualized criteria for assessing societal resilience without common pitfalls of the notion. In short, criticisms centers on its responsibility shift from authorities to affected communities, often neglecting contextual factors and preventive measures. Second, resilience is criticized as vague, a buzzword used for policy promotion, leading to contradictions. Third, it oversimplifies community resilience, disregarding cultural complexity. Fourth, power dynamics and inequalities are overlooked, maintaining unjust practices. Fifth, resilience can be conservative, prioritizing stability over change, despite its adaptive language.

2.1.2.3 *Societal resilience as contextual and multi-dimensional concept*

The societal impact framework, developed in the midterm societal impact report addressed this criticism in the following way.

ENGAGE critically examines societal resilience, emphasized in D.1.1, D1.2, D1.3 and D1.4. These tasks adopted varied approaches to societal resilience, highlighting its local and dynamic aspects. In a nutshell, ENGAGE aimed to value local knowledge, considers context, and involves all societal actors. Despite this, the project balances holistic resilience, emphasizing context and cooperation. D1.1 and D1.4 notably defined societal resilience across four dimensions:

- » Society, facing a crisis, comprises formal and informal actors, groups and individuals.
- » Resilience, as a potential, emerges from embedded discourses and actions.
- » Societal resilience involves relational coping.
- » Context shapes resilience.

ENGAGE focuses on disaster's social actors, short-term aspects, first responders, authorities, their collaboration, and holistic resilience. However, its focus on maintaining "functions" lacks critical engagement with society and function definitions. As this report evaluates the project's societal impact, it critically engages ENGAGE's implicit concepts before delving into "societal impact."

2.1.2.4 *Societal impact*

As detailed in D6.2, over the past decade, assessing societal impact gained prominence in European research funding, yet the exact definition remains ambiguous. It pertains to research's influence and findings on society. Historically, science's positive societal impact was assumed, but since the end of the 1960s risk assessments for specific groups were introduced to research evaluations. Initially, impact was only evaluated within scientific realms, but gradually, wider societal benefits became paramount.

The notion of societal impact aligns with Science and Technology Studies (STS) principles, viewing research as socially contextual. Researchers acknowledge public engagement's role, yet there's a gap between accepting this social aspect and endorsing social impact evaluations, potentially due to added workload and mismatched ideological foundations. Scholars showed that researchers notably prioritize contributing to education, public discourse, and informed political decisions. However, societal impact evaluations tend to emphasize marketable outcomes, especially in natural sciences, disregarding qualitative contributions, especially from social sciences and humanities (SSH) research. Metrics often undervalue SSH and favor successful outcomes, disregarding the collective nature of research. Hence, overemphasizing "societal impact" for funding can undermine critical reflection, turning it into a marketing term.

This deliverable focuses on an internal critical assessment of the impact of the project. Both work packages and validation exercises provide the entry point.

2.1.3 **SETTING MEASURABLE OBJECTIVES: DIMENSIONS OF SOCIAL IMPACT**

In a third step, it is necessary to determine what the project wants to achieve through the societal resilience approach. The project stated goals notably includes reducing vulnerability for specific groups, improving community engagement, enhancing community cohesion, or ensuring equitable access to resources by analyzing specific solutions that enable better interactions between society and emergency organization as well as authorities in before, during and after a crisis. For understanding how these elements could have a social impact, this deliverable wants to establish a clear methodology for self-assessing the project's ability to let this goal.

Deliverable D6.2 notably proposed to measure societal impact on different social scales following our conceptualization of societal resilience as context dependent and variable according to different levels of community.

3 METHODOLOGY

3.1 DEFINING RELEVANT DIMENSIONS

After having defined measurable objectives to anticipate the social impact of the project, these objectives need to be defined as specific dimensions and translated into questions that align with the above defined overall objective of self-assessing ENGAGE's social impact.

A methodology that addresses work packages and participants of validation exercises should hence distinguish between different scales, long-term and short-term impact and social groups as the following first subsection shows. This framework is then laid out as a series of questions distinguished by these dimensions of societal resilience.

3.1.1 SCALE

3.1.1.1 Individual level

First, the project seeks to impact a localized or individual level. Several working packages target localized crisis event management as interaction between individual and can therefore provide self-assessment of the societal impact of ENGAGE's approach on this level.

Validation exercises are a second way the project will assess social impact on this micro-level of a localized scenario with focus in how individual interact. Validation exercises in Rome and Trondheim work on a city scale that corresponds mostly to the community-level mentioned below, but they allow as well anticipating the social impact in a series of micro interactions or how individuals could be impacted by the project.

3.1.1.2 Community level

Anticipating and evaluating societal impact on a community level entails both a self-assessment of the project's influence on organizations as well as on a community. ENGAGE validation exercises are typically situated in a city or part of a city and cover therefore a meso level.

The methodological framework provided by this deliverable provides thus a specific focus on organizational and regional societal impact of the project.

3.1.1.3 Society wide scope

Finally, assessing the societal impact of ENGAGE on a macro level is considerably more difficult and speculative. However, including this level makes it possible to anticipate unintended consequences as well as spillover effect of the project's action.

3.1.1.4 Operationalization of the scale dimension

The following questions make it possible to assess the project's societal impact in relation to the dimension of scale.

When evaluating the societal impact of ENGAGE on societal resilience, different scales of impact should thus be considered: individual, community, regional, and society wide.

1) Individual impact

- » How can validation exercises have an impact on the individuals participating in it?
- » How has the project influenced the resilience of individuals in the project's target population or community members?

» What beneficial impact of the exercise or the work packages can be stated in terms of enhancing individuals' resilience? How successful have validation exercises been in testing and improving the project's approach to societal resilience?

» What obstacles became apparent during the exercise or during work packages that withheld individual in becoming resilient?

2) Meso impact

» What impact the project has had on the resilience of the communities?

» How has the project contributed to enhancing the resilience of a city or a region beyond individual communities?

3) Macro impact

Is it possible to anticipate any impact of validation exercise scenarios or the project's outcome on the resilience of the society as a whole? (e.g., policy changes, broader adoption of resilience strategies?)

3.1.2 LONG-TERM AND SHORT-TERM IMPACT

In a similar vein, the assessment of societal impact should also consider various temporal dimensions. Among these dimensions, the short-term impact stands out as both accessible and quantifiable. To evaluate short-term impact, ENGAGE must monitor whether output, be it from work packages or through validation exercises are designed to yield immediate benefits, aligning with the fundamental elements in the introduction. The assessment should notably focus on the extent to which the project affects different stakeholders at different stages.

A subsequent layer of analysis involves the effects of the practical deployment of a validation exercise. Here, the evaluation centers on how effectively the form of the exercise has immediate or long-term effects.

The ultimate test of the project's result occurs when it impacts stakeholders coping during a genuine crisis or emergency situation. This third evaluation step represents the immediate and real-world use of the project's result in high-stress, crisis-ridden environments and in long-term crisis coping

The methodological framework should therefore assess societal impact across different temporalities to allow for a comprehensive evaluation that spans from design and integration to real-world application. This multi-tiered approach ensures a holistic understanding of how the project contributes to societal resilience and can inform adaptive strategies based on real-world effectiveness.

3.1.2.1 Operationalization of the time dimension

4) Short-term

» How have these crisis simulation validation exercises impacted the city in the short term (e.g., within the first few months following the exercises)? Please consider factors such as improved preparedness, awareness, or community engagement.

» What aspects of the validation exercises or work packages contributed most to their short-term effectiveness?

5) Long-term

- » Looking beyond the immediate aftermath, how has a work package or a validation exercises influenced societal resilience in the long term (e.g., over a year or more)? What role play factors like policy changes, sustained community engagement, or enhanced disaster response capabilities.
- » Which are the tangible, lasting changes in the societal resilience of a social group that can be attributed to the work packages or validation exercises?
- » What aspects of the validation exercises or work packages contributed most to their long-term effectiveness?

3.1.3 STAKEHOLDERS

Finally, it is necessary to assess the impact on the main social groups impacted by ENGAGE, even though, as mentioned earlier, the project's should strive towards a beneficial impact towards the general population.

3.1.3.1 *Victims of crisis*

The primary focus of the project revolves around addressing the needs of (potential) victims of crises and disasters. We aim to influence their interactions with emergency organizations and authorities, seeking to enhance their experience during the different stages of a crisis. While the project primarily targets organizational end-users to promote solutions, it must also anticipate the social impact on crisis victims. This requires to consider how our efforts indirectly affect and benefit these populations.

3.1.3.2 *Particularly Vulnerable Populations*

It's important to recognize that not all crisis victims are equally affected by a disaster. Some specific groups are more vulnerable than others. This includes homeless individuals, those with disabilities or illnesses, people living in poverty, and those who may not speak the dominant language of the region. The impact on these vulnerable populations can be significantly larger, both positively, through improved access to assistance, and negatively, through increased challenges and disparities.

The project is particularly interested in an intersectional analysis of societal resilience. The focus should, therefore, be on overlapping vulnerabilities.

3.1.3.3 *Emergency Organizations and Authorities*

Emergency organizations and authorities are pivotal end-users of the knowledge platform, catalog of solutions, and participants in validation exercises offered by our project. They play a central role in the successful implementation of our project's output. While they are generally less vulnerable than crisis victims, they are a key component in achieving a beneficial social impact. Their ability to effectively apply our project's solutions can have a direct and substantial influence on societal resilience and disaster response.

3.1.3.4 *Researchers*

The project's output also holds relevance for researchers who may explore and promote concrete solutions or adopt our approach to societal resilience assessment and enhancement. To ensure a positive impact within the research community, the project must actively engage and address the needs of researchers. By doing so, it encourages the dissemination and adoption of the project's findings, further contributing to societal resilience and disaster preparedness.

3.1.3.5 *Operationalization of the stakeholders dimension*

- » What strategies or approaches of work packages or validation exercises have been particularly effective in achieving societal resilience for victims of crises?
- » Which groups that have a specific vulnerability are affected by work packages outcomes or validation exercises?

- » Which aspects of the validation exercises could be improved to particularly impact vulnerable groups that are affected in more than one way by a crisis?
- » What is the project's impact on research on crisis and disaster management or accident research?

3.2 SELF-ASSESSING THE PROJECT'S SOCIETAL RESILIENCE APPROACH

The questions listed above were used to self-assess work packages and validation exercises. In the case of work packages a limited questionnaire was answered by work package leaders. For this approach packages 1 to 4 were chosen, since these work packages produce the main outcomes of the project.

Concerning validation exercises, two were chosen for analysis. The Rome heat wave exercise was analyzed through the lens of the coordinator of volunteers and stakeholder network by relying on the question above, whereas the assessment of the Trondheim landslide evacuation exercise could be based on fifteen observation sheets from Ki-CoP members and partners.

4 FINDINGS

Before analyzing the results of work packages and validation exercise, it is necessary to make explicit the limited scope of this social impact report. The objective of this questionnaire is not to measure or quantify the societal impact resulting from the implementation of ENGAGE's proposed solutions aimed at enhancing societal resilience. The effectiveness of the solutions that the project integrates in its catalogue of solution is already partly analyzed in WP3 by focusing on deep characterization that allow to assess the impact of each solution based on the project's approach.?

Instead, this report seeks to delve critically into the projects effects by interrogating itself. It aims to anticipate the broader societal consequences stemming from the project's activities. This report starts from the premise that research is an inherently social activity intimately intertwined with society. Consequently, it necessitates an examination not only of the project's practices themselves but also of the underlying understanding of society in this context. This critical exploration extends beyond the boundaries of research methodology to encompass a analysis of how society is conceptualized and situated within the context of this project and if the project's impact avoid biases of resilience approaches.

4.1 FINDINGS ON WORK PACKAGES SOCIAL IMPACT ASSESSMENT

A short questionnaire to work package leaders of work packages 1 to 4 provided the first basis for a self-assessment of the project's impact. This questionnaire was based on the question described in section 3. Work leaders' perspective allows for an insider assessment of the project's impact. The fact that they are biased is not necessarily an obstacle as long as the questions do not focus on a binary perspective of a negative or positive impact, but rather allow for a nuanced description of the project's various impacts.

4.1.1 INDIVIDUAL LEVEL

» Question 1: How do you think the project has influenced the resilience of individuals in our target population or community members?

The responses reveal a multifaceted perspective on the project's influence on individual and community resilience. Respondents indicate that the project's outcomes are primarily directed towards first responders and authorities, with a consequential impact on community members through these key stakeholders. In contrast, respondents also suggest a more proactive role for the project in enhancing individual resilience, particularly among first responders. Furthermore, the project is acknowledged for its efforts to understand volunteer needs and convey them to authorities. On the contrary, respondents also regret suggests a predominant focus on first responders and authorities, with minimal emphasis on a direct impact on individual community members.

» Question 2: What obstacles became apparent during the project withheld individuals from becoming resilient?

The findings underscore several critical obstacles to building individual resilience during the project. All responses concur on the necessity for a mindset change among formal actors, predominantly first responders and authorities. These actors often perceive the inclusion of citizens as a burden rather than an asset. It is imperative to address this mindset to optimize community resilience. The project focus on interactions with civil society and citizens is, therefore, considered to produce a significant impact. Furthermore, the importance given in the project to approaches and solutions that improve coordination between formal and informal actors is emphasized by respondent to ensure clear identification of responsibilities and risks when involving citizens in disaster management and resilience-building activities. However, respondents also acknowledge that the

project did not further target vulnerable citizens, emphasizing the potential for improvements through the application of solutions listed in the project's catalogue.

4.1.2 COMMUNITY LEVEL

» Question 3: What impact, if any, do you believe the project has had on the resilience of the communities we are working with?

The responses reflect a mixture of positive impacts and potential benefits for community resilience. Respondents highlight specific positive outcomes, such as the Red Cross's opportunity to evaluate and enhance the Preparedness Guard. Formal actors, including those from Trondheim, have gained practical experience through the project, which was not part of their previous training. School pupils have also acquired knowledge about preparedness. These tangible effects indicate the project's influence on community resilience and education. In contrast, respondents also suggest that the project has offered valuable opportunities for formal actors to practice and learn, with potential benefits for the development of preparedness plans. Respondents, while recognizing potential positive impacts in some locations, refrains from offering specific examples, thus leaving the overall impact somewhat indistinct.

» Question 4: In your opinion, how has the project contributed to enhancing the resilience of a city beyond individual communities?

The findings emphasize the project's potential to extend its benefits beyond individual communities and positively impact cities, regions or other forms of communities beyond a local level. Respondents underline that the project has provided opportunities for formal actors in cities, such as Trondheim, to practice and learn. This, in turn, contributes to the development of city-level preparedness plans and improvements in community resilience, suggesting that the project's advantages extend beyond mere local communities. Respondents, while acknowledging potential impacts in certain locations, refrain from providing specific examples other than cities, which suggest that the project's effects on city-level resilience may vary.

4.1.3 SOCIETY WIDE SCOPE

» Question 5: Can you anticipate any impact of the project on the resilience of the nation as a whole?

The responses express a notable degree of uncertainty regarding the project's society-wide impact. Respondents express for instance doubt that the project's Trondheim validation exercise did have a larger impact in Norway. This uncertainty is a recurring theme, with none of the responses offering a clear anticipation of how the project might influence the resilience of a society as a whole.

4.1.4 SHORT-TERM AND LONG-TERM IMPACT

» Question 6: What aspects of the project do you believe contributed most to their short-term effectiveness?

The findings highlight key factors contributing to the short-term effectiveness of the project. Respondents emphasize the significance of solutions raising awareness about risks and the potential contributions of citizens to the project's short-term effectiveness. This indicates that improving awareness and actively solutions engaging citizens are considered to play pivotal roles in achieving short-term effectiveness and the fact that risk awareness solutions are targeted by the project enhances its social impact. Other respondents characterize the project's progress as a small step in raising awareness about citizen involvement in disaster management. It underscores the challenge of shifting the mindset of formal actors and the need for changes in their practices to enhance

project effectiveness, highlighting the importance of emergency organizations mindset changes for short-term effectiveness. Beyond its more tangible outcomes like the catalogue of solutions or knowledge platform, the constitution of networks through the Ki-CoP is considered as impactful.

4.1.5 IMPACT ON VULNERABLE GROUPS

» Question 7: Are there any aspects of the project that you believe could be improved to particularly help vulnerable groups affected by the crisis?

The findings provide insights into potential improvements aimed at better supporting vulnerable groups affected by crises. Respondents recommend that the project should have focused more on tools and solutions tailored for vulnerable groups, as well as conducting surveys and interviews to gain a deeper understanding of their specific needs. These responses underscore the necessity for more targeted efforts to assist vulnerable populations. Respondents also acknowledge the project's lack of a specific focus on specific vulnerable groups and the potential for enhancement.

4.1.6 IMPACT ON RESEARCH

» Question 8: Does the project have a positive impact on research on crisis and disaster management or accident research? If yes, could you give an example?

The findings suggest that the project has had a positive impact on research within the fields of crisis and disaster management. Respondents affirm that the project has positively contributed to research by involving other researchers and documenting outcomes in scientific publications. This involvement of researchers and the dissemination of findings are cited as examples of the project's impact on advancing research in crisis and disaster management. However, respondents also expressed uncertainty regarding the project's impact beyond the state of the art and suggests that reviewing project publications may provide more insights into its research contributions, although it does not provide specific examples.

4.2 ANALYSIS

In short, work package leaders assess that the project primarily targets first responders and authorities, only indirectly impacting community members. Notably, addressing vulnerable groups requires targeted efforts. However, they acknowledge that short-term effectiveness hinges on raising risk awareness and engaging citizens and the changing the mindsets of formal actors is considered challenging. Respondents emphasize the impact of the project to project a more proactive role in enhancing individual resilience through the solutions it included in its catalogue and its effort in changing the mindset of formal actors. The project's potential extends to local, regional and city-level preparedness but remains uncertain at a societal scale. Respondents agree that the project positively impacts research in crisis and disaster management.

4.3 FINDINGS ON VALIDATION EXERCISES

In this section, we illustrate through 2 of the project's validation exercises how the framework can be used more specifically to assess social impact. More details on all the exercises will be provided in deliverable D4.3 that synthesizes results from the validation activities. The methodology for assessing the social impact of ENGAGE through its validation exercises used two different approaches for two different exercises. The first one, the heat wave exercise in Rome, could not easily be assessed based on multiple sources, since it included only three partner organizations, ASL,

DBL and CA. For this reason, a detailed questionnaire was submitted to CA responsible for the coordination of volunteers and the stakeholder network.

4.3.1 FINDINGS ON THE HEAT WAVE EXERCISE IN ROME

Hence, answers reflect their central role in orchestrating community involvement and support during the exercise. The exercise involved co-designing a *Proximity Information Action* with volunteers and local health personnel by engaging multiple stakeholders in an integrated approach. The training of volunteers, constant support, and interaction with citizens during the campaign played a pivotal role. This exercise enabled the creation of a multi-stakeholder network and capacity building of volunteers and health personnel, thus influencing individuals by enhancing community resilience.

The project yielded several positive impacts, as indicated in the response. It facilitated the creation of a multi-stakeholder network, which is likely to collaborate on heat wave resilience in the future. Additionally, it enhanced the capacity of volunteers and health personnel in innovative health communication methods. The exercise notably showed a significant impact by showing how the cost/benefit ratio for public bodies can be optimized by delivering effective awareness actions without significantly increasing costs, thanks to the support of non-profit organizations and their volunteers. These elements collectively contributed to enhancing individual and community resilience.

4.3.1.1 Individual resilience as part of societal resilience

The self-assessment highlights the positive impact of the exercise, particularly in conveying information about heat wave precautions to citizens. The exercise successfully conveyed these precautions through volunteers and health professionals, making citizens more receptive to these critical safety measures when presented by their peers or healthcare experts.

However, a significant obstacle is also identified: delays in the official activities of the Heat Plan authority, compressing the time available for stakeholder networks to develop public awareness actions. With more time, the network could have extended its impact, broadening the scope of citizens reached and enhancing overall resilience.

4.3.1.2 Society resilience as community resilience

The project has fostered willingness among volunteers, NGOs, and health departments to replicate collaborative efforts in the future. It has trained volunteers and established networks, ensuring continued positive effects even beyond the project's duration.

Local authorities in Rome have recognized the importance of applying solutions identified by the ENGAGE project, specifically for developing social actions to support the Heat Plan. The project's impact extends to other areas of the city, facilitated by a network of stakeholders that supports this process.

4.3.1.3 Society wide scope and long-term social impact

Participants in the exercise envision a desirable scenario involving the integration of civic action and participation in emergency mitigation plans at the national level. They emphasize the need for appropriate norms to allow and regulate such actions, tailored to local contexts and the types of emergencies faced.

4.3.1.4 Short-term and long-term social impact

CA indicates that there have been tangible, lasting changes, though volunteer engagement. The co-design of civic actions, involving all stakeholders and targeting vulnerable groups to heat waves, is highlighted as the aspect contributing most to short-term effectiveness.

The assessment suggests providing evidence of the results of an integrated approach to resilience involving civic organizations. Authorities should recognize the latent energies within these

organizations and undergo a cultural process to support a broader understanding of disaster response.

4.3.1.5 Impact on victims of crisis

The self-assessment underscores the effectiveness of identifying civic organizations and health departments working with vulnerable groups and collaborating with them in a participative and horizontal manner to construct actions and messages. This approach addresses actual needs, builds on established collaborations, and highlights the importance of active experience.

4.3.1.6 Impact on vulnerable groups

CA emphasizes the need to improve collaboration with authorities within a shared working framework and appropriate timeframes, allowing for effective participation and mobilization of social resources to reach other vulnerable people than the elderly population targeted by the exercise.

4.3.1.7 Impact on research

Respondents find the exercise an interesting experiment in implementing civic action in support of an authority plan, but does not provide specific examples of its impact on research in crisis and disaster management.

4.3.2 ANALYSIS

The assessment recognizes the exercise's successful impact in conveying heat wave precautions through volunteers and health professionals. Nevertheless, delays in official activities limited this impact. Through this validation exercise the project notably fostered collaboration among volunteers, NGOs, and health departments, with potential for future initiatives. Local authorities in Rome adopted its solutions, extending its impact.

To maximize its reach participants, aspire to integrate civic action in national emergency plans, emphasizing the need for tailored regulations. Volunteer engagement and co-designed civic actions brought tangible and lasting changes, highlighting the value of civic organizations in disaster response.

The assessment underscores the effectiveness of working horizontally with civic organizations and health departments. It emphasizes the need for improved collaboration with authorities within a shared framework. However, specific impacts on research in crisis and disaster management are not detailed.

4.3.3 FINDINGS ON THE EVACUATION EXERCISE IN TRONDHEIM

Contrary to other validation exercise, the Trondheim landslide evacuation exercise could profit from the presence of most of the project's partners and several Ki-CoP members. They participated as observers in the exercise what allowed for the use of observation reports for the purposes of this deliverable by applying its methodological framework. A detailed content analysis of these observation will however rather take place in WP4 and more specifically in D4.3. As an evacuation exercises in a confined space, the exercise allowed particularly to how the varied impact on different social groups. Its social impact can hence be measured by the critical elements that were pointed out by observers in how specific individuals or social groups were targeted and integrated.

4.3.3.1 Individual resilience as part of societal resilience

» Volunteers

Individual volunteers were commended for their efforts to overcome communication problems of the authorities, but observers stated that their impact could be improved with a better organization

of their roles and responsibilities, especially in a crisis involving a significant number of people. Clear guidance on their duties would help ensure effective support.

» More inclusive language and Signage

Observers highlighted the lack of English-language support and clear multilingual signage hindering the impact of volunteers and authorities' actions. Providing information in multiple languages can help diverse populations to take a more proactive role.

» Tourists

The exercise acknowledged the needs of individual tourists, and suggestions were made to provide them with clear instructions and support, recognizing that they may not be familiar with local emergency procedures. The exercise positively impacted stakeholders by recognizing the need of integrating tourists as foreigners with limited language skills

4.3.3.2 Society resilience as community resilience

» Inclusive communication to address specific social groups

Observers stressed that the exercise highlighted the importance of using various communication channels to ensure that all social groups receive necessary information. Communication aids should be available to address different needs and the presence of relatively homogenous groups such as students or tourists should be acknowledged, so they can be addressed specifically.

» Community adaptation

Responding to feedback and adapting to changing circumstances in real-time was identified as crucial for maintaining an efficient and organized evacuation. Observers highlighted the positive impact of the Preparedness Guard solution in adapting to the lack of information provided by other stakeholders of the exercises. This flexibility of the solution enhances its societal impact.

4.3.3.3 Impact on vulnerable groups

Observations during the exercise allow for an assessment how vulnerable groups, specifically children and disabled people, were impacted during the exercise:

» Children

Children have unique needs, and during an evacuation, the exercise showed that it is essential to provide them with spaces that are suitable and comfortable for their age and developmental stage. In disaster situations, such as the exercise, traditional evacuation centers may not be child-friendly. Children require safe and age-appropriate spaces that consider their emotional well-being. Children also require additional support during evacuations. The exercise likely revealed that without proper support structures, children's needs could be overlooked, leading to distress for both children and their caregivers. Disasters can notably be traumatizing for children. They may experience fear, confusion, and anxiety during evacuations. The exercise highlighted the need to provide psychological support and comfort for children to address their emotional well-being during and after an evacuation.

» Disabled People

Disabled people, particularly those with hearing or visual impairments, faced communication challenges during the exercise. They may not have received crucial information or instructions effectively. Hence, the exercise underscored the importance of providing communication aids and alternative methods for conveying information to accommodate different types of disabilities.

The double registration process during the exercise, including police and municipality, created confusion for disabled individuals, which may have resulted in longer wait times and feelings of frustration or uncertainty. The exercise highlighted the need for streamlined and accessible registration procedures that consider the specific requirements of disabled people.

Recommendations to prioritize people with disabilities indicate that they may need more time and assistance during evacuations. Prioritizing disabled individuals ensures their safety and well-being and helps them access necessary services efficiently.

4.3.4 ANALYSIS

The assessment of the observers of the exercise underscore the social impact of the projects insistence on volunteers and volunteer related solution in disaster management but emphasize the need for better organization of their roles and responsibilities to ensure more beneficial impact. Furthermore, addressing the language barrier through inclusive multilingual communication and clear signage is essential, with particular attention to the needs of tourists and individuals with limited language skills.

Additionally, community resilience is highlighted as a crucial aspect of society's ability to respond to disasters. Inclusive communication strategies that cater to specific social groups are essential for ensuring that everyone receives necessary information. Moreover, the exercise revealed the importance of adapting to changing circumstances in real-time, with the Preparedness Guard solution serving as a prime example of flexibility and its positive societal impact.

Enhancing individual and community resilience requires improved organization, inclusive communication, and adaptability, all of which contribute to a more effective disaster response and ultimately, the overall resilience of society.

The exercise findings highlighted also the vulnerabilities of children and disabled people during disaster evacuations and the need to address them for meaningful social impact. Observers emphasized the need for tailored support, child-friendly spaces, inclusive communication, streamlined procedures, and prioritization to ensure the safety and well-being of these groups.

5 CONCLUSION

In summary, this social impact assessment of the project reveals several key insights according to work package leaders and validation exercises participants. First, the project primarily targets first responders and authorities, indirectly affecting community members, emphasizing the need for more targeted efforts to address vulnerable groups. Short-term effectiveness relies on raising risk awareness and engaging citizens while challenging the mindset of formal actors. The project's potential extends to local, regional, and city-level preparedness but remains uncertain at a societal scale, although it positively influences research in crisis and disaster management.

In other words, the project primary impact lies not alone in its tangible outcome, the catalogue of solutions and the knowledge platform, but also in the processes producing these outcomes, notably by including practitioners from the Ki-COP and influencing their perspective and the perspective of other crisis professionals on citizen involvement in crisis management.

Concerning validation exercises, the Rome exercise's impact in conveying heat wave precautions was successful, albeit hindered by delays in official activities. The project also shows the project positive impact in fostering collaboration among volunteers, NGOs, and health departments, extending to local authorities in Rome. Aspirations to integrate civic action in national emergency plans highlight the need for tailored regulations, with volunteer engagement and co-designed civic actions bringing tangible and lasting changes.

The observers of the Trondheim exercise recognized the project's emphasis on volunteers in disaster management but also stressed the need for better organization of their roles and responsibilities. Addressing language barriers and inclusive communication is crucial, particularly for tourists and individuals with limited language skills. Community resilience is essential for effective disaster response, with adaptability, exemplified by the Preparedness Guard solution, enhancing societal impact. Thus, the self-assessment of both exercises highlights that the social impact of ENGAGE lies in capacity to create interaction between civil society actors and emergency organizations. However, they also show that the impact of these activities on a national level and on a long-term basis is not ensured.

Lastly, the exercise findings underscore the vulnerabilities of children and disabled people during evacuations, emphasizing the need for tailored support, child-friendly spaces, inclusive communication, streamlined procedures, and prioritization to ensure their safety and well-being. In conclusion, enhancing individual and community resilience requires targeted efforts, improved organization, inclusive communication, and adaptability, contributing to more effective disaster responses and overall societal resilience.

5.1 AVOIDING COMMON BIASES OF RESILIENCE APPROACHES

These key findings of this report are analyzed based on ENGAGE's conceptual framework and the criteria of D6.2 designed to address common criticisms of resilience approaches. While this framework alone may not guarantee a beneficial societal impact, it allows the project to critically evaluate its own limitations and potential shortcomings in enhancing societal resilience. The following criteria, rooted in biases observed in resilience approaches, have been identified:

5.1.1 RESPONSIBILITIES

ENGAGE should be assessed based on its ability to address the responsibilities of authorities without unfairly shifting those responsibilities onto citizens. The model for assessing societal resilience should focus on how citizens' actions are interrelated and coordinated with official disaster management, while considering citizen agency in coping with disasters.



The findings presented below reveal in fact a strong focus on formal authorities and emergency organization with the objective of changing these actors' attitude and practices towards the involvement of citizens and civil society organizations. Thus, this bias does not manifest itself in ENGAGE's outcomes.

5.1.2 CLARITY

ENGAGE's impact on societal resilience should be assessed in a clear way, aligning with conceptual dimensions detailed in D1.1, and should allow explaining how these dimensions are operationalized by work packages and validation exercises. Validation exercises should anticipate how the validation process impacts stakeholders.

5.1.3 COMPLEXITY

The complexity of localized social contexts should be a factor in validation exercises and should guide work packages. The project needs to explore how its output, in terms of knowledge platforms and solution catalogs, impacts society by following up on initial uses.

ENGAGE focus on social context allows for a positive social impact while addressing diverse societies. Work package leaders and validation exercise highlight the need for addressing different social group by focusing on contextual factors.

5.1.4 EQUITY

Solutions should address issues related to unequal access to resources and be mindful of power relations, which may involve integrating or addressing minority or vulnerable groups and ensuring open access. Whereas ENGAGE's impacts the involvement of several vulnerable groups, other are less impacted by the project's outcomes. It addresses well language issues, the needs of elderly or children, but its outcomes focus less on resource allocation for socioeconomically marginalized groups.

5.1.5 SOCIAL CHANGE

Recognizing that disasters are inherently rooted in the societies where they occur, outcomes should be designed to enable social change that extends beyond the immediate context of their use during a crisis. The difficult assessment of long-term impacts based on ENGAGE's outcomes points, however, to weaknesses in ENGAGE's approach for lasting change. Nevertheless, the project is committed to the long-term goal of changing emergency organizations and authorities' attitude towards citizen involvement.