RiskPACC

INTEGRATING RISK PERCEPTION AND ACTION TO ENHANCE CIVIL PROTECTION-CITIZEN INTERACTION

D4.3 DRAFT RISKPACC COLLABORATIVE FRAMEWORK

Deliverable 4.3

Dissemination Level: PU

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ABOUT RISKPACC

Increasingly complex and interconnected risks globally highlight the need to enhance individual and collective disaster resilience. While there are initiatives to encourage citizen participation in creating a resilient society, these are typically fragmented, do not reach the most vulnerable members of the communities, and can result in unclear responsibilities for building disaster resilience.

New technologies can also support preparedness and response to disasters, however, there is limited understanding on how to implement them effectively. Awareness of risks and levels of preparedness across Europe remain low, with gaps between the risk perceptions and actions of citizens and between the risk perceptions of citizens and Civil Protection Authorities (CPAs).

The RiskPACC project seeks to further understand and close this Risk Perception Action Gap (RPAG). Through its dedicated co-creation approach, RiskPACC will facilitate interaction between citizens and CPAs to jointly identify their needs and develop potential procedural and technical solutions to build enhanced disaster resilience. RiskPACC will provide an understanding of disaster resilience from the perspective of citizens and CPAs, identifying resilience building initiatives and good practices led by both citizens (bottom-up) and CPAs (top-down). Based on this understanding, RiskPACC will facilitate collaboration between citizens, CPAs, Civil Society Organisations, researchers and developers through its seven (7) case studies, to jointly design and prototype novel solutions.

The “RiskPack” toolbox/package of solutions will include a framework and methodology to understand and close the RPAG; a repository of international best practice; and tooled solutions based on new forms of digital and community-centred data and associated training guidance. RiskPACC consortium comprised of CPAs, NGOs, associated organisations, researchers and technical experts will facilitate knowledge sharing and peer-learning to close the RPAG and build disaster resilience.

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Executive Summary

D4.3 Draft RiskPACC Collaborative Framework describes the PROCESS of Framework development, the Framework PRODUCT, and the PRACTICE of applying three specific Co-creation Lab activities which were designed to support risk communication building in ways different to those used in the RiskPACC apps and technological inputs.

The deliverable includes brief literature reviews to underpin the Framework Modules with scientitifc evidence (building on the earlier D4.1) and more specifically, more accessible resources (albeit accessible to those with internet access) for CPAs and Citizens. These comprise useful examples of activities and information sources that have been employed by external bodies (e.g. UN, Government, NGOs, academics). One or two examples of these are presented briefly, with screenshots or other examples of the approach, in the main text and then a longer list of resources is presented in a series of annexes related to the individual Framework Modules.

The deliverable concludes with recognition of the challenge facing CPAs to adopt the RiskPACC Framework model of working, especially where they have not had much or any expeirence of two-way communication with Citizens. Its outline solution to this, to be developed in the remaining period of RiskPACC, is to adopt a staged process of engagement from an entry level, through an internediate phase and finally an advanced level. Further development of that idea and relevant support materials will be reported in the D4.4, the final RiskPACC Collaborative Framework, in Month 36 (August 2024).

Glossary and Acronyms

CAFO	Ceska Asociace Hasicskych Dustojniku Sdruzeni (Czech Association of Fire Officers)
CBRN	Chemical, biological, radiological and nuclear
CPA	Civil Protection Authority
D1.1	Evaluation and SOTA Summary Report (CPAs)
D1.2	CPA consultation report and repository of best practices
D2.1	Evaluation and SOTA Summary Report (Citizens)
D3.4	Lab Methodology and Glossary
D3.6	Report lab phase II
D3.7	Evaluation report
D3.8	Report on knowledge exchange
D4.1	Report to WP3 on Prototype Co-creation methodology
D4.2	Prototype Knowledgebase Repository
DoA	Description of the Action
DRM	Disaster Risk Management
EFUS	The European Forum for Urban Security (Efus)
IBZ	Service Public Federal Interieur
IFRC	International Federation of Red Cross and Red Crescent Societies
ISAR	I.S.A.R. Germany Stiftung gGmbH
MDA	Magen David Adom in Israel
MoE	Municipality of Eilat
RPAG	Risk Perception Action Gap
T3.4	Co-Creation lab phase II – Refining
T4.1	Assessing existing models of collaboration
T4.3	RiskPACC Collaborative Framework
T4.4	Development of training material
TRL	Technology Readiness Level
UNDRR	United Nations Office for Disaster Risk Reduction
WHO	World Health Organisation
WP1	Understanding good practices and challenges in Civil Protection policy and practice
WP2	Engaging citizens to expand understandings of risks, vulnerabilities and data collection opportunities
WP3	Co-Creation lab & Stakeholder-Integration
WP4	Framework Development
WP6	Impact generation through peer-learning, field testing and knowledge capitalisation

TABLE 1: GLOSSARY AND ACRONYMS

1 INTRODUCTION

1.1 Overview

The DoA (Description of the Action) describes this deliverable as the Draft RiskPACC Collaborative Framework containing the consolidated results from T4.1 (Report to WP3 on Prototype Co-creation methodology), and T4.2 (Prototype Knowledgebase Repository), and the co-creation labs to produce the RiskPACC Framework. It sits within Task 4.3: RiskPACC Collaborative Framework which will draw together the findings and outputs from T4.1 and T4.2 to develop the RiskPACC Collaborative Framework to be derived through consensus between RiskPACC partners, end users, and feedback from associated partners. It will result in a finalised version of, and guidance for, the RiskPACC Framework, including:

Provide guidance products on social media and volunteered information, and co-creation methods for closing the RPAG (reported in D4.1).

Build awareness and capacity in both CPAs and citizens on how best to work in effective and inclusive DRM partnerships, including identification of generic, DRM-relevant actors (delivered through D3.4 and WP6).

This is based, initially, on a synthesis of knowledge products and effective processes gleaned from WP1, WP2 and Tasks 4.1 and 4.2. This task will result in a series of recommendations such as:

a) How to identify relevant actors in CPA-citizens collaboration (D3.6);

b) What to consider in collaboration (hindering and facilitating factors) (D4.1);

c) How to choose collaboration formats and finally potential measures and tools (D4.1, D4.3 and D4.4);

d) How to make use of the RiskPACC repository and tools (D4.2);

e) How to develop collaboration effectiveness evaluation tools (D3.7 and D3.8).

T4.3 will gather the insights derived in the baseline and needs assessments and co-creation sessions under WP3 (reported in D3.6), as well as [later] during the testing in WP6 to continuously update the framework leading into D4.4, the final RiskPACC Collaborative Framework. As the Draft Framework has remained relatively stable in its early stages, it is expected that future work will focus on adaptations that might be suggested during exposure to a wider range of users (primarily in WP6), and some final stages of simplification and consolidation to be as user friendly as possible.

The task therefore develops a reporting structure for the lab sessions and testing to take into account the lessons learned (recommendations provided in D4.1).

The main objective of this document is to chart the **process** which has been adopted to arrive at the draft Collaborative Framework **product**, whose modules are described and supported by a sample of the underlying scientific evidence, and how we see the **practice** of applying the Framework modules for CPAs and Citizens, with reference to the Phase II Co-creation Labs and looking forward to the next steps in T4.3. For this to be a standalone document, understandable by anyone without access to previous outputs, it is dependent on some of the materials that have been reported elsewhere. While attempts have been made to avoid overly duplicating what has already been reported, some duplication is inevitable as D4.3 builds upon some of the detailed

scientific discussion around collaborative governance[1] that can be found in D4.1. D4.3 presents resources which go beyond those identified in D1.2. and considered in D4.2 Prototype Knowledgebase Repository. Ideally, these practices will later be assessed and added to the repository.

To be useful to end users, the framework requires the support of a collection of resources, both academic and practitioner-based, so that those coming to the framework anew can find examples of the rationale for understanding and applying the modules and the exemplars of what they might look like in practice. In D4.3 we have emphasised the practitioner-based material to enhance the utility of the Framework for RiskPACC partners. We have focused this work on a simplified list of the target groups and target hazards identified by the RiskPACC Case Study partners as follows:

Target Groups	Target Hazards					
	Wildfire	Flood	Earthquake	CBRN	Pandemics	Others
Age (older)						
Age (young)						
Volunteers						
Gender						
Others						

TABLE 2: RISKPACC TARGET GROUPS AND HAZARDS

In Table 2, 'Others' under Target Groups, this includes references to Disability, Social Class, Race/Ethnicity, Citizenship/ Migratory Status, and Municipalities). Gender is a cross cutting concern but, is also included as a standalone category to avoid it becoming mainstreamed into invisibility (GRRIPP Collective 2022). 'Other' under Target Hazards, includes Heatwaves, Drought, Infectious Diseases, and Mosquitoes which were also identified as of interest by Case Study Partners but proved to be too many to research at this stage.

The report will describe each of the four Framework Modules (Understanding, Sharing, Relating and Building) and include illustrative web-based resources which should be easily accessible to CPAs and Citizens with internet accessibility. Ultimately, all the resources will feed into the RiskPACC Knowledgebase Repository.

D4.3 is primarily a report on the conceptual underpinning of the RIskPACC work and does not provide comprehensive coverage of the technological inputs which are reported in detail elsewhere (see D3.6).

1.2 Structure of the deliverable

This document includes the following chapters:

[1] Collaborative gvernance: 'A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets' (Ansell 2008: 544).

Chapter 1: Introduction. In this chapter there is a description of report content, an overview of the rationale for the approach to the deliverable as offering material useful to end users (CPAs and Citizens), and a reference to the relevance of the work to the Sendai Framework for Disaster Risk Reduction 2015-2030.

Chapter 2: The **Process** of Framework Development. This chapter describes how the Framework was developed based on identified gaps in practice, its response to the expectations expressed by Case Study partners for successful Co-creation Labs (Case Study Workshops), and support for the interests of Case Study partners in terms of hazards and target groups.

Chapter 3: Understanding Risk Communication. This chapter underlines the importance of risk communication and offers a short review of the relevant literature.

Chapter 4: Understanding Collaborative Governance. This chapter provides a discussion of collaborative governance which underpins much of RiskPACC, building on what was set out in D4.1.

Chapter 5: The RiskPACC Collaborative Framework **Product**. In this chapter the current iteration of the Draft Framework (V12) is described and justified. Each Framework Module (Understanding, Sharing, Relating and Building) is described and supported by relevant academic literature, and then followed by a subsection on a sample of resources useful to end users (i.e. internet resources and not journal articles which are often behind paywalls).

Chapter 6: The **Practice** of Applying the Framework. In this chapter the three 'conceptual' activities designed for use in the Co-creation Labs are described. These are followed by an overview of the links between the Framework and the two other Tasks within WP4, the Repository (see D4.1) and the Training material (see D4.4).

Chapter 7: Conclusion. This chapter refers to the challenges faced in working with the Framework and then, based on the Framework experiences and challenges, what is planned to follow in the final year of RiskPACC (Next Steps).

Chapter 8: References. This provides a list of those sources identified in the deliverable.

Chapter 9: Annexes. This chapter provides supporting material too lengthy to be included in the main body of the text, including a more extended list of resources under Framework Module headings.

1.3 Relationship to the Sendai Framework for DRR 2015-2030

The RiskPACC Draft Framework speaks directly to several of the Sendai Framework for Disaster Risk Reduction (DRR) 2015-2030 targets (see Figure 1). For example, those related to reducing disaster mortality and the number of disaster-affected people; reducing loss, damage and disruption; increasing local DRR strategies; and access to disaster risk information. It also supports Priority 1: Understanding disaster risk. This is in line with the stated goals of RiskPACC, although it will only be possible to measure success in the future beyond the lifetime of the project.

FIGURE 1: SENDAI FRAMEWORK AT A GLANCE HTTPS://WWW.PREVENTIONWEB.NET/SENDAI-FRAMEWORK/SENDAI-FRAMEWORK-AT-A-GLANCE

The current iteration of the Draft Framework (V12 – see Figure 2) is that presented in D4.1. It is reproduced below to aid interpretation of the subsequent text. Explanations of each of the modules (columns) will follow.

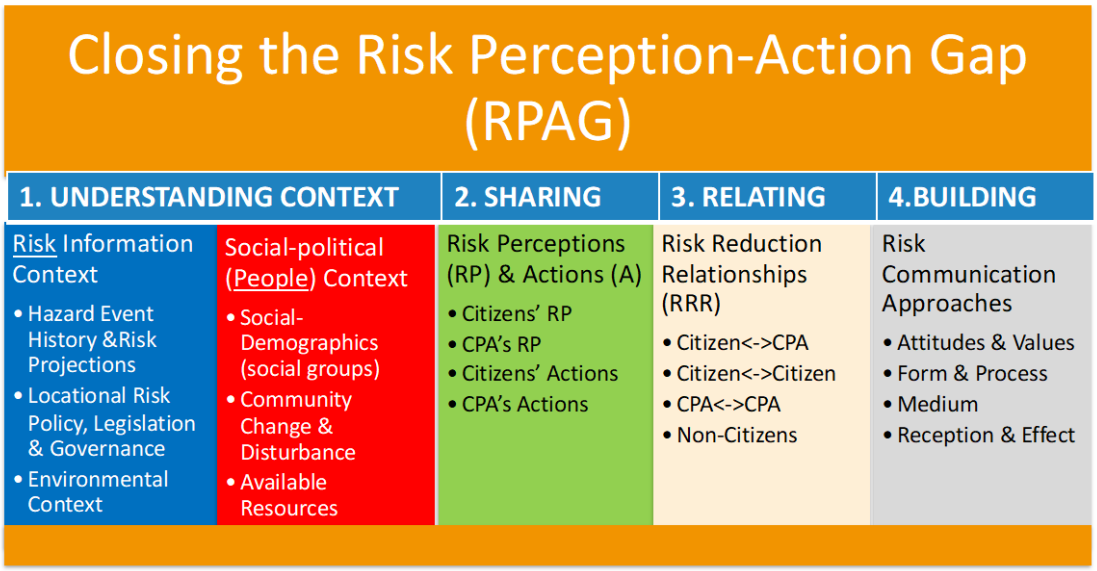


FIGURE 2: RISKPACC DRAFT COLLABORATIVE FRAMEWORK (V12)

2 THE PROCESS OF FRAMEWORK DEVELOPMENT

2.1 An Early Start to Build Consensus

The first iteration of the Collaborative Framework was created by the end of Month 2 (October 2021) and the core of it has remained fairly stable. The evidence base drawn upon included desktop studies from work external to RiskPACC and reviews of internal RiskPACC deliverables and discussions between all partners. Various iterations were presented in regular RiskPACC meetings and also shared at external events attended by RiskPACC Scientific Partners.

An important criterion was for the framework to be user friendly and acceptable to end users and not just an abstract model or conceptual framework to satisfy the expectations of scientific journals. It was necessary for it to be built on scientific evidence but synthesized for accessibility. This attempts to deal with the concerns raised by Weichselgartner and Kasperson (2010) that the needs of potential users are often not considered by researchers who then do not produce directly usable risk information (page 108). Attention to this challenge resulted in the current modular framework comprising key parameters for risk communication in the context of a collaborative governance ethic.

All of this was then trialled, both explicitly and implicitly, during the various Co-creation Labs. The use of the term 'trialled' instead of 'tested' is to acknowledge the heterogeneity of the Labs because they were under the direct facilitation of the Case Study partners and not primarily the Scientific Partners who were the advisors. Thus, although these workshops are termed Labs, this should not be confused with the typical activities undertaken under normal laboratory conditions where each occurrence must test the same variable in the same, controlled, way (the hypothetico-deductive model); in RiskPACC, the aim was to explore the same concept but individually defined and elaborated to ensure that the Framework does work for a diverse set of challenges, partners and users.

2.2 Identifying Gaps

Table 3 was devised after distilling the findings of Work Packages 1 and 2 to identify gaps and differences in risk perception and action from a community resilience perspective[2] perceived early on by RiskPACC consortium members. This was used to begin development of the Draft Framework modules after analysing the relevant literature (reported on in more detail in D4.1 Report to WP3 on Prototype Co-creation Methodology). For this report, the table (see Table 3) has been matched to the draft framework modules to show the connections.

D1.1 and D2.1 Identified Gaps	**Links to Framework Modules (see D4.1)**
Contested terminology: 'Resilience' and 'community resilience' are contested terms and mean different things to different CPAs and communities. In some cases, resilience is not the terminology used to describe actions local communities take to prepare for, respond to and recover from a disaster event. In other cases, such as the UK and US the notion of resilience is hardwired into community action. Most CPAs interviewed for RiskPACC provided a different definition of resilience. In some cases, resilience is not the terminology used to describe actions taken, with disaster management, emergency management, and	Risk Context – Policy Legislation & Governance

[2] We include a selection of findings with more to be found discussed at length in D2.1 EVALUATION AND SOTA SUMMARY REPORT (CITIZENS).

hazard prevention are used instead. RiskPACC has agreed on using the UNISDR definition of 2017 as a working definition (see D3.4. Lab Methodology and Glossary).	
A lack of community engagement: Often attempts at enhancing broader frameworks of disaster resilience by CPAs have highly centralised and siloed governance and are operationally overly technical and legalistic (command and control), and pay less attention to the ability of communities to adapt and embrace change and transformation - community resilience - or encouraging wide participation of stakeholders in decision-making. There needs to be a shift from passive to active citizenship with pubic engagement required to be sensitive to an array of different social contexts and be undertaken in a culturally appropriate manner. A lack of community engagement: Issues with engaging citizens in prevention activities, including the dissemination of risk communication. CPAs focused on this as a major gap in their activities	Risk Context – Policy Legislation & Governance
Responsibility without power: Critique of community resilience efforts sees expected action as the 'responsibilisation' of local citizens - a method to devolve responsibility from the state to civil society, in an attempt to relocate responsibility for disaster response, often associated with parallel failure to delegate appropriate resources and the ability to act effectively to local areas.	Risk Context – Policy Legislation & Governance
Lack of future vision for resilience activities: A lack of future vision about citizen engagement and community's role in future resilience building efforts. Most of the discussion around future activities has been centred around better communication and collaboration with CPAs in the area, to both better understand the roles of the citizen groups and better incorporate those groups into the local CPA structures. Commonly work to engage communities in disaster response occurs after a disaster event, rather than in the preparedness and anticipatory phase.	Risk Context – Policy Legislation & Governance
Lack of existing communication channels between CPAs and community groups: Communication channels between CPAs and citizen/community groups are non-existent in most of the case studies, ultimately depriving risk governance planners and decision-makers from the ability to adjust and tailor risk response to the fluctuating needs of different communities. Here social media offers a bi-directional communication platform whereby messages can be pushed to the public and feedback received. This however comes with ethical issues and concerns over digital exclusion. **Better integration with other CPAs:** many interviewees have stated that different parts of DRM activities are the domain of different agencies, and not much communication exists between them. Better coordination will improve actions	Risk Context – Policy Legislation & Governance
A warning and informing deficit: Several citizen and community groups highlighted the importance of increasing the risk related information available to local communities, as they only have a superficial level of knowledge about the concept so far. In this context, educational programmes and information campaigns were mentioned as means of not only informing but also involving civil communities in the disaster risk management process	Risk Context – Policy Legislation & Governance

Inadequate inclusion in the designing of VGI solutions: The utility of VGI solutions for community resilience are undermined due to the exclusion (or inadequate inclusion) of important factors such as political and governance systems, institutional structures and unequal power distributions, when designing VGI solutions (Haworth et al., 2018). This is especially relevant since governmental institutions hold the administrative power to encourage the standardisation and regularisation of VGI practices through the inclusion of VGI concepts in mainstream Spatial Data Infrastructure frameworks.	Risk Context – Policy Legislation & Governance Risk Communication Approaches
Digital divide and lack of inclusiveness: Digital technologies, such as VGI solutions, are often technology-led, eventually marginalising the less technology-savvy and socio-economically disadvantaged populations, further broadening the digital divide and inevitably supporting the argument that VGI cannot represent every citizen and privileges those with money, access, and time to utilise the technology.	Socio-political Context – Socio-Demographics and Available Resources
Tokenism: For some, where community engagement occurs in disaster management operations, this is seen as superficial and a failure to deal with the consequences of crises and subsequent recovery efforts without meaningfully addressing underlying factors – such as marginalisation, environmental degradation, etc., that produced them – a key factor in disaster risk reduction.	Socio-political Context
Mainstreaming risk perception: Risk perceptions is a key contextual factor that CPAs should consider when deciding if a risk needs to be mitigated, and if so, how this should be best done in conjunction with local communities. Currently there is often misalignment between how CPAs and community perceive risk and how the multiple psychological, sociological (including gender), experiential and cultural factors that affect risk perception impact upon subsequent actions. Therefore, it is important to situate people in their socio-political/community context, instead of merely considering them as individuals. Better aligning such processes would allow us to better understand the attributes of communities that have greater potential for effectively engaging resiliency processes as well as and those groups where additional support will be required.	Risk Perceptions & Actions
CPA and community gap in perception: many CPAs have observed that citizens and CPAs have a very different understanding of risk and gaps in perception and what is seen in emergency situations. This can lead to conflict if citizens have a different idea of what CPAs should be doing in response.	Risk Perceptions & Actions
Inadequate attention paid to prevention activities: Among some of the case studies there is a lack of local ability to understand the potential impact of risks as well as an inconsistency regarding the coordination of prevention activities and community actions when they occur. **Moving from passive to active citizens:** need to create citizens that rely more on themselves than passively waiting for the govt to act. Many CPAs have noted that citizens are waiting for CPAs to "come save them" while there may be actions that they can take themselves	Risk Perceptions & Actions

Building trust ties: A traditional focus on infrastructure resilience is not sufficient for mitigating crisis, and more emphasis should be place on enhancing social capital. Here, leveraging a network of professional and community groups in local disaster response requires the consolidation of 'trust ties' in order to form lasting relationships and improve communication between CPAs and the civil society so as to harness the power of social networking and advance community resilience to cope with crisis situations.	Risk Reduction Relationships
Top down meets bottom up: The building of disaster and community resilience is about new forms of joined-up governance which will be 'most effective when it involve[s] a mutual and accountable network of civic institutions, agencies and individual citizens working in partnership towards common goals within a common strategy' (Coaffee, Murakami Wood and Rogers, 2008). Involving citizens, if done appropriately, can enhance capacities and capabilities of disaster resilience, potentially allowing for the empowerment and consideration of marginalised groups in the development and implementation of disaster resilience. Incorporation of bottom-up activities: Communication needs to involve bottom-up activities to better incorporate citizens, currently very focused on top-down approaches	Risk Communication Approaches – Form & Process
Linking perception and behaviour: There is no causal link between risk perception and subsequent mitigation behaviours. There is a pressing need to understand how risk is conceptualised by local communities, how risk adaptation and preparedness make sense contextually and how institutions which govern disaster resilience can better understand the nuances perceptions of risk – the 'local psychosocial dynamics' - instead of generalising it. Here a key policy and risk governance questions emerges about how to engage with risk perception when different CPA actors and the public have differential viewpoints regarding risk, different degrees of risk acceptance, and hence divergence with regard to the appropriateness of risk reduction actions to take.	Risk Communication Approaches – Reception & Effect
Communicating risk (increase two-way communication): difficult to get risk perception of CPAs and citizens to match up. Worries about providing information on the worst case scenarios without causing concern.	Risk Communication Approaches – Medium
Amplification of risk: Linked to better understanding risk perception is the importance of media or CPA communications in amplifying or downplaying risk, in influencing risk awareness and, in the adoption and acceptance of safety measures, and the decisions the public made. There is much to learn in devising effective and contextual strategies by which CPAs (or Governments) communicate with the public regarding the risks faced or during an ongoing incident.	Risk Communication Approaches – Medium
Existing datasets are not contextually-sensitive: Perceptions of risk between CPAs and community members are often not aligned and ultimately existing datasets used for disaster risk preparedness, management and response usually do not utilise tacit local knowledge. As a result, local disaster responses often fail to produce user-centred and tailored risk management plans, particularly for the smaller administrative and spatial scales.	Risk Communication Approaches – Attitudes & Values

Digital divide: the use of new technologies may be leaving behind some of the most vulnerable people that CPAs are trying to reach (i.e. elderly). Important to include activities that will not exclude those who have limited access to tech. **Over reliance on 'tools':** there is concern among CPAs about relying solely on new tools for risk communication, as they may not increase risk perception	Risk Communication Approaches – Medium
Fragmented utilisation of VGI and other digital technologies: The compartmentalisation of VGI solutions often restricts its usage to single stages of the disaster continuum, and for a single type of disaster event. Taking a multi-hazard and multi-dimensional approach showcases the magnitude-frequency relationship of multiple hazards and their interrelated effects on the community's vulnerability and could potentially encourage sustained citizen participation in monitoring and recording environmental changes. Standardized data: data sharing across CPAs could be better, more common databases needed	Risk Communication Approaches – Attitudes & Values
Lack of updating and continuous engagement may limit the impact of VGI tools: Although there is high potential of VGI and other citizen science tools in capturing community risk perception and enhancing disaster resilience a lack of updating or continuous engagement with such tools may limit their capacities to operate as a medium between local communities and CPAs. **Gathering data:** While some CPAs gather data on whether their risk communication efforts are working, but many others do not know whether they're really being effective. Without this information, it's hard to know whether risk perception/action is increasing	Risk Communication Approaches – Medium
More prevention work: CPAs interviewed tend to focus more on response, where the RPAG is best addressed by prevention work	Risk Communication Approaches – Attitudes & Values

TABLE 3: GAPS AND DIFFERENCES IN RISK PERCEPTION AND ACTION, AND THEIR LINKS TO THE DRAFT RISKPACC FRAMEWORK.

We approach these challenges by adopting a collaborative governance approach (Ansell 2012). The practitioner literature offers considerable support for our chosen approach to collaborative governance and we return to this in more detail below.

2.3 Identifying Success Indicators

Table 4 shows the success indicators for the case study workshops (from D3.1: Baseline and Gaps Assessment report, V3) which were compiled on the basis of interviews with the case study partners about what success would mean to them for the Phase II, second round of workshops in 2023. In the third column, Link to Framework Modules, if the framework module name (Understanding, Sharing, Relating, Building) is written in UPPERCASE then it denotes greater focus; if it is written in lowercase it denotes lesser focus.

Case Study	Hazard Focus	Success Indicators for Case Study Workshops	Link to Framework Modules
Attica, Greece (**MRP**)	Wildfires, flooding	• Obtaining more information about risk awareness and risk perception of different groups (within the population but also within and between the various CPAs) • Based on the information obtained: Improving communication between citizens and CPAs, between different CPAs and volunteer institutions • Developing a better understanding for the different perspectives and needs of the stakeholders • Developing new formats of disseminating information and special training materials	SHARING, BUILDING, relating
Brussels, Belgium (**IBZ**)	Multi-risk approach	• Elaboration of recommendations on how collaboration can be improved between the CPAs and schools/teachers: ➢ how teaching can be improved; ➢ how to make material more accessible for children ➢ More top tailored tips for different groups of children; ➢ More inclusive communication	SHARING, BUILDING, relating
Eilat, Israel (**MDA, MoE**)	Earthquakes	• Evaluation and development of technological tools and other measures that can help to improve communication with volunteers • Improving communication, motivation and training of volunteers, increasing awareness and preparedness • Producing a database that facilitates coordination and summarizes important information	SHARING, BUILDING
Moravian-Silesian & Olomouc Regions, Czech Republic (**CAFO**	Leakage of toxic chemical substances from a factory; leakage from a tank truck	• Generating new ideas and topics from the workshops how to improve risk awareness and preparedness • Developing guidelines for citizens on how they should behave in the event of a crisis • Feedback in the workshops if citizens have the right information about what to do and what not to do in case of emergency situations	BUILDING, sharing
Municipality of Padova, Italy (**CDP**)	New climate risks, i.e. flooding, heatwaves, extreme rainfall, storms, mosquito plagues	• Comparing risk perceptions of citizens, local associations and CPAs • Clear definition of the perception / level of awareness • Developing solutions, tools and measures in response to new climate risks Evaluation of the tools: useful and honest feedback: rounds of workshops are successful if a good participation (in terms of number and type of representatives) is achieved and if CPAs are confident and positive about the proposed tools and measures	BUILDING, sharing
Global (**ISAR**)	Pandemics	• Matching the framework and exploring the RPAG in more depth • Analysing the use and acceptance of tracking apps, e.g. with regard to cultural background, age and gender • Testing the tool of PublicSonar: analysing the use of social media with regard to corona Aim for the workshops: sufficient number of participants and a diverse group	BUILDING, understanding

TABLE 4: SUCCESS INDICATORS FOR EACH CASE STUDY PARTNER'S WORKSHOPS IN LAB PHASE II, COMPILED VIA INTERVIEWS WITH CASE STUDY PARTNERS ABOUT WHAT SUCCESS WOULD MEAN TO THEM IN THIS PHASE (TAKEN FROM D3.1 V3)

The co-development of the technological solutions (the RiskPACC apps and other tools) - which are described in some detal in D3.6 - supported the Framework expectations of sharing risk perceptions and experiences and building risk communication approaches using technologial means, but the more conceptual activities (participatory mapping and risk communication) were designed to address all the Framework modules to some extent at least (as identified in Table 4). What we find when looking at the source material for our decision making (the Labs, the various earlier deliverables and the Consortium meetings) is that our major challenge is around the role of risk communication in closing the RPAG. We have identified collaborative governance as the primary mechanism for achieving successful risk communication and action and so each of these has its own chapter.

Additionally, every case study had a different focus in terms of hazard and target group they were interested in and so there will be some discussion on these different social groups and appropriate resources.

Case Study Partner(s)	Main Target Group(s)
CAFO	General citizens
CDP	General citizens, vulnerable groups and municipal representatives
IBZ	Teachers (Children)
ISAR	Citizens, CPAs
MDA, MoE	CPA volunteers
MRP	Elderly populations and young adults

TABLE 5: PRIMARY TARGET GROUPS OF EACH CASE STUDY

3 UNDERSTANDING RISK COMMUNICATION

Fundamentally, RiskPACC is about risk communication in the context of a collaborative governance ethic. We spend some time below elaborating the evidence base on risk communication because the RiskPACC solutions depend upon a firm grasp of what we know works well and what works less well. This provides a valuable bridge between scientific research and effective CPA practice.

The effective communciation of risk is essential for disaster risk reduction. Emergency managers and a public who are informed have the scope to reduce their vulnerability to the risks in their environment by taking effective preparedness and response action. Neverthless, for people to understand the risks they face, and atke informed dceisions in response to them, these risks have to be communicated in the "right way". The reason for this is that risk and our perception of risk differ. A forecaster may be able to calculate the probability of an event occurring (within bounds of uncertainty), but the way this probability is perceived and understood can vary hugely from person to person. Indeed, our perception of a risk is influenced by individual characteristics including how we feel about the risk, our experience with it, our worldviews and politics, the way our family and friends perceive that risk, and our levels of trust in the authorities and government responsible for managing it (Slovic 1993; Slovic et al. 2004; Renn et al. 1992; Kahan et al. 2012). Risk perception is a mental construct that combines an objective "real risk" number with our subjective evaluation of it (Sjoberg, 2000; Rosa, 2003), and these perceptions can differ markedly from assessments by experts (Starr, 1969; Slovic, Fischhoff & Lichtenstein, 1982). A person who has never experiences an earthquake before will probably feel quite differently about a forecasted 10% risk of an earthquake compared to a person who has lost friends or family to such an event; the risk is the same but the feeling and perception of it is different. Simple choices by a risk communicator, such as the format a number is presented in (e.g. 1 in 10 vs 10%), can even make the same person perceive the same risk number differently (Freeman et al. 2021; Dryhurst et al. 2023).

Communicators have to be careful then, in *how* they communicate risks to their audience so that the right information is communicated in the right way i.e. that the audience gets the information they want and need to know but that the meaning they make of that information aligns with the communicator's intentions and is consistent amongst audience members. The building module of the RiskPACC framework aims to provide solutions to collaboratively understanding what makes for informative and effective risk communications, and to progress towards designing them, through both technological tools and via conceptual and methodological solutions.

Laura Rickard inadvertently describes the RiskPACC approach to two-way risk communications when she says:

> *the risk communication enterprise involves not just "getting numbers right," but also accounting for the audiences who hear these numbers. Further, research and practice have suggested that such individuals be treated compassionately and equitably, and even as partners with technical experts. (Rickard 2019: 466)*

She goes on to elaborate these two positions as having both "pragmatic" and "constitutive" functions (citing Cox & Pezzullo, 2016) defined as follows:

Risk communication as pragmatic: Risk communication is a strategic, one- or two-way, and (sometimes) iterative process of sharing information, often, but not exclusively, with an intended: (1) outcome, such as limiting exposure to a given hazard; (2) message, such as avoiding a geographic location; (3) messenger, such as a government agency; and (4) audience, such as a local community.

Risk communication as constitutive: The act of communicating about risk, intentionally or unintentionally: (1) (re)creates the definition of "risk" for a given social context, and suggests how we can, and/or should relate to it; (2) contributes to identity and expertise (re)formation; and (3) involves questions of trust, fairness, and power. (Rickard 2019: 468).

The essence of these two definitions can be matched to RiskPACC's challenge in moving from a traditional and still largely dominant risk communication approach (pragmatic) to a more collaborative and co-creational approach (constitutive) in the work of our CPA partners and their stakeholders. In this approach, the emphasis is on risk communication as not only a technical exercise but a social process. This highlights the different disciplinary and epistemological contexts of the two positions (if we can characterise them in discrete ways): 'post-positivist and social psychological (as in the pragmatic perspective) or constructivist and sociological (as in the constitutive perspective) (Rickard 2019: 473). Thus, the core of the problem becomes the emphasis on, not just what we do (risk communication message) but how we do it (collaboratively).

4 UNDERSTANDING COLLABORATIVE GOVERNANCE

It would be easy to provide a technical exposition of risk communication and expect that appropriate actions would automatically follow. However, communication is more than transmitting a wall of text from A to B (and back). It was a foundational commitment of RiskPACC to go beyond one-way communication to develop appropriate solutions and approaches built upon two-way communication as a necessity to close the Risk Perception-Action Gap (RPAG).

D4.1 has set out the foundations for this approach but an updated summary explanation is included here and should ideally be read in tandem with D4.1 for more detail. The primary focus is to see the task of RiskPACC to develop effective means of collaborative governance. In the following sections, illustrative examples will be presented to concretise the discussion and provide a useful resource.

RiskPACC engages with the concept of collaborative governance in the context of risk. Klinke and Renn (2021) bridge these two underlying points of convergence in their paper on risk governance. Generally, in the current report, we will not distinguish between the two because we are always applying collaborative governance principles to risk management and communication.

A starting definition of collaborative governance is provided by Ansell and Gash (in Ansell 2012: 498):

> *A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets. (2008: 544)*

Chris Ansell (2012) unpacks this by highlighting its constitutive dimensions: who collaborates; who sponsors collaboration; what the term collaboration means; and how collaboration is organized (page 498). In RiskPACC, different Case Study partners defined these dimensions differently for different goals and desired outcomes.

Ansell argues (2012) that a collaborative approach produces higher stakeholder satisfaction and more learning than conventional approaches (page 508) however, the evidence base for this conclusion is limited and so it cannot be assumed to obtain in all cases and must be regarded as an aspiration that requires testing.

Collaborative governance (CA) is often set within the context of 'wicked' problems (Ansell and Gash 2007), which are dynamic, complex, multi-level, multi-actor and multi-sectoral (Carmine et al 2021: 1581). CA is built upon co-design, co-production and co-assessment. While definitions and labels are not fixed and lack a standard approach, common elements describe:

> *A 'multi-actor collaboration, usually led by a public sector organization aimed at building consensus among stakeholders on a formal set of policies designed and implemented to generate public value' (Carmine et al 2021: 1582).*

Ansell et al 2020 provide a useful rationale for our recommendation to case study partners to use a targeted approach to inclusion in place of a general inclusion of a disparate group of citizens drawn from across a diverse set of social groups.

> *[W]ide inclusion of actors in the networks that lie at the heart of collaborative governance processes may increase transaction costs, reduce the quality of*

> *deliberation, muddy negotiations or produce 'least common denominator' bargaining outcomes…collaborative processes may be more successful if inclusion is more strategic and selective. (Ansell et al 2020: 571).*

In discussing why people do or do not participate, the authors suggest:

> *[S]takeholders may not participate because: they lack incentives to do so; they do not feel a sense of interdependence with other stakeholders; or their involvement does not align with the stated strategic purpose or the efficiency of a collaborative network…[T]hose who do participate may do so for different reasons. Some participants may wish to be included merely to monitor what is going on, or to protect their specific interests by acting as veto players. Others may participate out of a sense of civic duty or general interest in the proceedings rather than any strategic motives. (Ansell et al 2020: 587).*

Furthermore, they emphasise the role of trust and relationship-building, and 'facilitative leadership' (page 574) to retain stakeholders and establish 'common knowledge frameworks' (page 576). Thus, Ansell et al (2020) identify a body of evidence to support various modules in the draft RiskPACC Framework as well as validating its foundational principles.

The 'what' and the 'how' highlight the tensions between power and trust relations in the attempt to close the RPAG. Ran and Qi (2019) draw our attention to the value of working with these two concepts in tandem (they use dyadic analysis) as providing more insight and potential for practical recommendations than examining the concepts in isolation. This requires a depth of engagement in the ideas of collaborative governance which may be overburdensome for CPAs beginning to work with collaborative governance and may be more suited to later stages of development (see discussion below in Next Steps).

How do we know that collaborative governance has resulted in benefits? There is no easy answer to this for many reasons. One problem (outlined by Emerson and Nabatchi 2015) is that performance management evaluations may conflate process and productivity – i.e. the process of engaging in the collaborative process, which is seen as of value in itself, and the outcomes of the engagement because the two are closely linked (page 720). The authors have developed a 'performance matrix' to try and separate out 'actions, outcomes and adaptation' that result from the collaboration. It is an integrative process which involves three performance levels: (actions (sometimes referred to as outputs); outcomes; and adaptation ('adaptive responses to the outcomes of collaborative actions' (Emerson and Nabatchi 2015: 725)). These are combined with three units of analysis: the participant organisation; the collaborative governance regime itself; and the target goals that are the focus of the collaboration.

PERFORMANCE LEVEL	UNIT OF ANALYSIS		
	Participant Organization	**Collaborative Governance Regime**	**Target Goals**
Level 1: Actions/ Outputs	Efficiency	Efficacy	Equity
Level 2: Outcomes	Effectiveness	External Legitimacy	Effectiveness
Level 3: Adaptation	Equilibrium	Viability	Sustainability

TABLE 6: PERFORMANCE DIMENSIONS OF COLLABORATIVE GOVERNANCE REGIMES (ADAPTED FROM EMERSON AND NAATCHI 2015: 723).

This will be explored further in the final stages of finalising the RiskPACC Framework in Year 3 (see below).

4.1 The Challenges of Collaborative Governance

So far, the discussion on collaborative governance has been largely positive – collaborative governance is 'a good thing' and has been called the 'collaborative advantage' (Huxham and Vangen 2005) – but this section briefly highlights some of its challenges.

Waardenburg et al (2020) identify three typical challenges of the kind of collaboration we have been discussing: 'substantive problem-solving challenges, collaborative process challenges and multi-relational accountability challenges' (page 386) and set out the paradox which faces public servants who embark on this journey:

> *[I]t is easy to see how professionals conditioned to exercise caution and to fear the legal ramifications of sharing information are less than forthcoming in collaborative processes. A level of trust is required, but only by engaging in collaboration and, indeed, sharing information can they establish such trust. (Waardenburg et al 2020: 403).*

Their recommendation for dealing with such paradoxes is to adopt a 'both/and' mindset rather than an 'either/or' one to embrace the inherent contradictions and work through them. This requires an openness to reflective working and the willingness to explore new approaches.

(See also Dupuy and Defacqz 2022 on issues of legitimacy and administrative burdens; and Sørensen and Torfing 2021 on upstream and downstream concerns. Upstream problems are those to do with initiating and managing collaborations; downstream problems relate to 'securing implementation, ensuring proper evaluation and holding collaborative governance arenas to account' (page 1606)).

4.1.1 Resources For Understanding Collaborative Governance

Various researchers and practitioners have operationalised aspects of collaborative governance. For example, the WHO 2021 Operational guide for engaging communities in contact tracing https://www.who.int/publications-detail-redirect/WHO-2019-nCoV-Contact_tracing-Community_engagement-2021.1-eng (page 6) identifies some key principles (see Table 7 and Figures 3 and 4). The resources available on this site have direct relevance to RiskPACC interests in many ways. E.g.:

WHO Key Principles for Engaging Communities	RiskPACC Framework Modules
01 Understand the community context	UNDERSTANDING - Social-political Context
02 Build trust	RELATING - Risk Reduction Relationships
03 Ensure & maintain community buy-in	RELATING - Risk Reduction Relationships
04 Work through community-based solutions	SHARING - Risk Perceptions & Actions
05 Generate a community workforce	RELATING - Risk Reduction Relationships
06 Commit to honest and inclusive two-way communication	RELATING - Risk Reduction Relationships
07 Listen, analyse and respond to feedback	SHARING - Risk Perceptions & Actions
08 Consider the use of contact tracing technology	BUILDING - Risk Communication Approaches
09 Do not criminalise actions (in the context of COVID)	RELATING - Risk Reduction Relationships

10 Discourage and address stigma, discrimination and rumours	SHARING - Risk Perceptions & Actions
11 Coordinate with all response actors	RELATING - Risk Reduction Relationships

TABLE 7: WHO KEY PRINCIPLES FOR ENGAGING COMMUNITIES.

This resource provides accessible extra resources to support engaging communities, specifically in relation to contact tracing for COVID. It uses a social-ecological model which is a useful framing device to avoid narrowing down to individual social categories (see below for more on this) and to understand the individual in their social context. The images included here are to convey the style of communication in the WHO resource and the reader is directed towards the original WHO document for more explanatory depth.

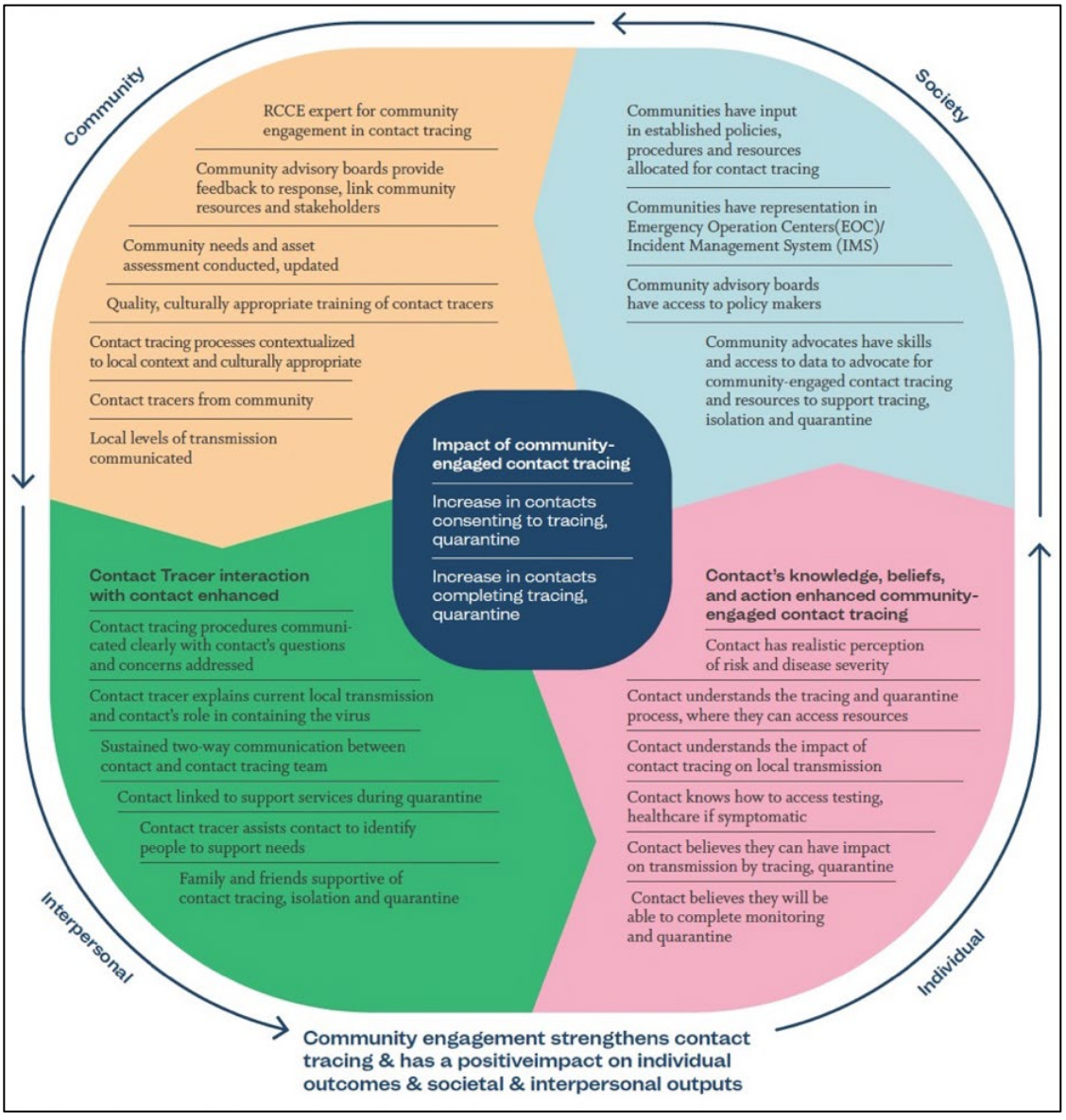


FIGURE 3: ADDITIONAL FACTORS THAT INFLUENCE CONTACT TRACING PERFORMANCE AND IMPACT, WHO 2021 OPERATIONAL GUIDE FOR ENGAGING COMMUNITIES IN CONTACT TRACING, PAGE 13 HTTPS://WWW.WHO.INT/PUBLICATIONS-DETAIL-REDIRECT/WHO-2019-NCOV-CONTACT_TRACING-COMMUNITY_ENGAGEMENT-2021.1-ENG

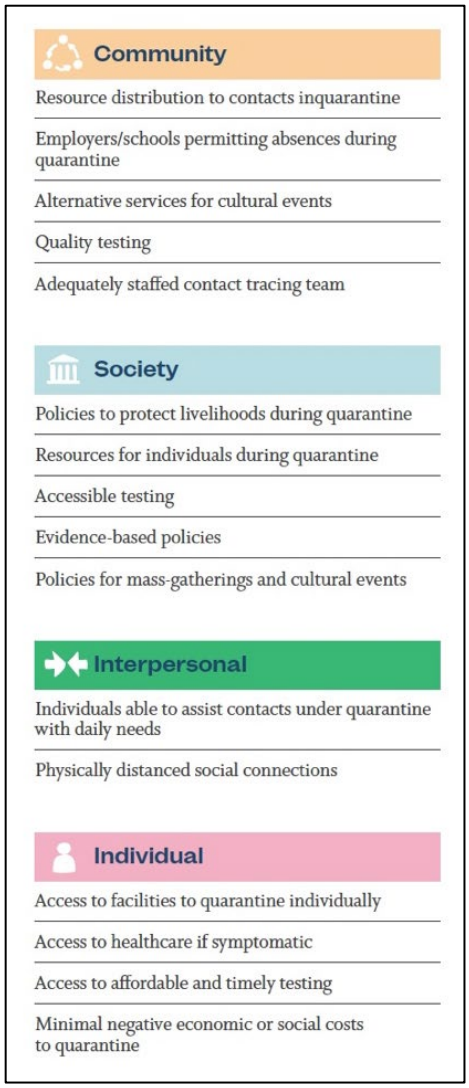


FIGURE 4: SOCIAL-ECOLOGICAL MODEL, ADDITIONAL FACTORS THAT INFLUENCE CONTACT TRACING PERFORMANCE AND IMPACT, WHO 2021 OPERATIONAL GUIDE FOR ENGAGING COMMUNITIES IN CONTACT TRACING, PAGE 13 HTTPS://WWW.WHO.INT/PUBLICATIONS-DETAIL-REDIRECT/WHO-2019-NCOV-CONTACT_TRACING-COMMUNITY_ENGAGEMENT-2021.1-ENG

WHO's operational guide employs the social-ecological model or framework to situate the individual within networks of influences. This is a useful heuristic to understand how an individual from a particular target social group of interest is likely to make decisions based on interactions with, or influences from, others at different levels. It is typically characterised as seeing the individual at the core of interest but surrounded by larger spatial and societal levels: the interpersonal level is the individual's closest circle including friends, family and partners; this then opens out to the community level where interactions may occur in schools, neighbourhoods and workplaces; finally, the societal level is the most remote and often abstract; it includes social and cultural norms which may set certain boundaries and expectations on the individual.

It is a helpful way of going beyond individual psychology as the primary route to engage and influence people to act in risk reducing ways. For example, at a community level, faith organisations may have significant influence on encouraging people to act to reduce risk and their representatives might be valuable participants in community-based engagement.[3] This is

[3] See: Priyanka Borpujar 2021 Religious Institutions and Disasters: Scope for DRR and Long-term Recovery, Blog for ICRC Humanitarian Affairs https://blogs.icrc.org/religion-humanitarianprinciples/religious-institutions-and-disasters-scope-for-drr-and-long-term-recovery/ and Ager, J; Fiddian-Qasmiyeh, E: Ager, A 2015 Local Faith

not to be viewed uncritically of course as the inclusion of faith groups can also create intra-community conflict. However, employing a social-ecological approach helps avoid listing social groups and ticking them off in a simplistic checkbox approach. It suggests other social categories that intersect with the category of interest and supports more inclusive approaches.

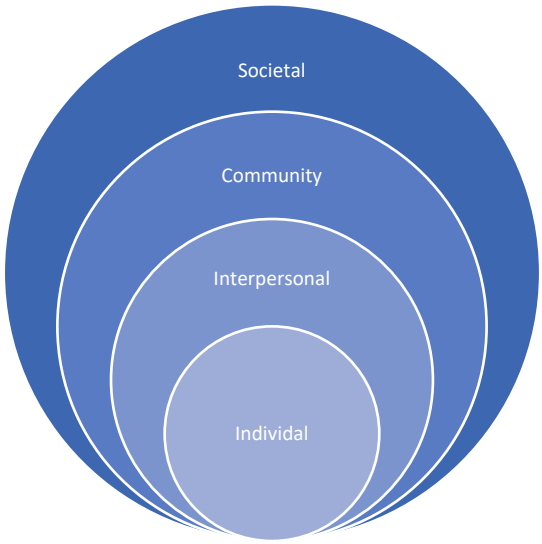


FIGURE 5: THE SOCIAL-ECOLOGICAL MODEL.

Communities and the Promotion of Resilience in Contexts of Humanitarian Crisis, Journal of Refugee Studies Vol. 28, No. 2 pp 202-221

5 THE RISKPACC COLLABORATIVE FRAMEWORK PRODUCT

The current draft framework is Version 11 with the aim of further simplifying the language and descriptions to make its application easier for a range of users. Previous versions have used academic language in order to demonstrate the scientific underpinning of the work. However, to be of value in a user-friendly form (an expectation established early on by the Consortium), it is necessary to continue to translate the academic language into more generalised communications. We began this process by establishing a simplified modular approach using 'UNDERSTANDING', 'SHARING', 'RELATING' and 'BUILDING' (discussed in detail below) as the preferred descriptors that overlay and add a non-technical description to the original framework. The current stage of development takes this further into the framework itself. The new descriptors have not yet been trialled with the RiskPACC team but are elaborated here prior to their development in the final year of the RiskPACC project.

This section borrows somewhat from D4.1 to provide, firstly, a brief discussion of the underpinning evidence and examples from academic literature to justify the framework modules. Secondly, in this section there is more emphasis on popular or 'grey' literature which would be typically more easily accessible to CPAs and citizens because many academic journals are behind paywalls. We have sought examples that broadly support our end users' interests in terms of hazard types and target groups across the Framework modules. This part of the report provides one or two indicative examples of the latter but the combined set of resources is presented in tabular form in ANNEXES 1-5.

A fuller scientific discussion and rationale of the RiskPACC Framework modules in in D4.1.

5.1 UNDERSTANDING The Risk Information Context

The first Framework module, Understanding Context, addresses the importance of understanding both the risk context, and the diversity and needs within communities (however defined) of interest. For the Framework, we have split this module into two: Understanding the Risk Information Context, which focuses on the hazards in a given location, and Understanding the Social-Political (People) Context, which focuses on the diversity of people at risk in the location and the importance of understanding the opportunities and challenges that such diversity brings. Although they both come under the Understanding heading, they are individually distinct and thus they are presented below as if they comprise two separate modules.

The RiskPACC Framework begins with the need to understand the risk context for decision making. Although this might seem uncontentious from the perspective of what is considered objective scientific data, CPAs and Citizens come to this with different resources at their disposal and this is likely to influence their perception of risk and their propensity to take action. We have simplified the complexity of this domain by suggesting three main subcomponents: the presence/absence/frequency of hazard events; the availability of risk reduction policy, legislation and governance structures and processes; and the environment in which this all takes place. These are discussed briefly below.

This section does not go into great detail on the scientific critiques of knowledge production and exchange but interested readers are referred to Weichselgartner and Pigeon 'The Role of Knowledge in Disaster Risk Reduction' (2015) who summarise the challenge as a need for:

"A better integration of multiple scales, different societal actors, various knowledge sources, and diverse disciplines into disaster risk research will increase its relevance for decision-makers in policy and practice" (Page 107).

All of these are key elements in the RiskPACC approach.

The Risk Information Context (Understanding) Module identifies the following topics or questions for consideration:

HAZARD EVENTS

- Experience/ no experience of hazard events affect risk perception (likelihood, susceptibility, willingness to act)

POLICY, LEGISLATION & GOVERNANCE

- Providing frameworks of expectations, possibilities and limitations

ENVIRONMENT

- The physical/ biological contexts shape limitations; Presence of physical mitigation influences risk attitudes

- Presence of physical mitigation influences risk attitudes

Hazard experience has long been linked to enhanced hazard perception (Burton Kates and White; Kuhlicke et al 2020; Becker et al 2017). Perception of risk is not uniform (Gotham et al 2018) and there is an assumption that enhanced hazard perception will automatically lead to action to adapt to the hazard. The formative research of Gilbert White, since the 1940s, and Ian Burton and Robert Kates since the 1960s (Burton et al 1978) emphasises the role of experience but also some of its limitations. Kates' work on choice perceptions in the flood plain management of Tennessee (Kates 1962: 140) concluded with coining the term 'the prison of experience', which describes how previous experiences of flooding proved to be a major limitation to individuals' willingness to use improved flood hazard information. The prison of experience phenomenon can refer not just to citizens but it can result in CPAs and emergency responders responding to (and planning for) the last flood rather than the current or possible future ones (Penning-Rowsell and Fordham 1994).

Becker et al's (2017) analysis identifies four different types of experience which may influence levels of preparedness actions, with direct experience having the greatest influence on action but any experience may stimulate action:

- direct experience (physically feeling the event or being directly impacted);

- indirect experience (being directly exposed to the real or potential impacts of a disaster but not being personally affected;

- vicarious experience (individuals interacting with others such who have had disaster experience; or experience via the media); and

- life experience (applying experience of potentially adverse events or situations to a disaster context (Becker et al 2017: 182-183).

Understanding of the risk context is improved with some awareness of the relevant policies, laws and forms of risk management in the location of interest. While this can get extremely technical very quickly, what is important is some degree of understanding of what risk and emergency managers can do and the rights and responsibilities of citizens.

Whichever the location there will be practices, policies and legislation which provide the basis for organized action to plan for, mitigate, reduce and respond to risk. Relevant actors may engage with these from the global (e.g. Sendai Framework for Disaster Risk Reduction or the Sustainable Development Goals), regional, national and local levels. What action that can be taken will be dependent upon resource availability in the given location and the political will to support professional and community-based activities and duties. Understanding the policy and legislation context will help understanding of why certain actions may or may not be possible which in turn will help ma.

Please see D1.2 CPA Consultation Report and Repository of Best Practices for further details of the role and practices of CPAs in disaster risk management in Europe and internationally.

The locational environment is hugely influential to which hazards occur and can determine some of the outcomes of any hazard event. Flood risks differ between low coastal plains and steep sided ravines. Geographical location is therefore a vital factor in understanding how any population anticipates, prepares for, responds to and recovers from hazard events (emBRACE 2012; Deeming et al 2019).

Previous and ongoing environmental and hazard management can influence the consequences of any hazard event with historic harms (ecological and human) encouraging interest in rewilding; including to manage flood risk) sensitively (see Rewilding Europe).

In some locations the presence of structural defences can influence people's perception of risk, believing a structure (e.g. a dam, a flood wall or embankment) will remove the risk which is not the case.

Thus, knowledge and understanding of the risk context is not a simple technical exercise of applying objective hazard data. It requires a level of understanding of the wider context, including the social one which we turn to next.

5.1.1 Resources For The Risk Information Context – UNDERSTANDING

There are many different knowledge hubs, toolkits and platforms that assist both CPAs and citizens in understanding risk and hazards. These typically include different guidance on preparedness activities, documents to understand risk and templates to start their own activities. Some of these tools are geared more towards understanding risk for CPAs, some are more focused on citizens, and some are usable for both. ANNEX 1 includes a summary list of resources in tabular form.

The DRMKC - Disaster Risk Management Knowledge Centre – Risk Data Hub is a web-based source of data and tools for finding and analysing risk, losses and damage, and vulnerability for a range of hazards and European countries. It employs three interactive dashboards: Risk

Estimation Dashboard (presents figures and charts from the DRMKC RDH risk estimation); Losses and Damage Dashboard (presents figures and charts from the DRMKC RDH losses and damage); and Vulnerability[4] Dashboard (presents figures and charts from the DRMKC RDH vulnerability framework and links to an extensive list of vulnerability indicators https://arcgis.jrc.ec.europa.eu/portal/apps/dashboards/3cfa2bb0f4ff493c92f1b1a6bc3df3c0. Although the target user community covers research, policy and operational actors, and they expect both data providers and also end-users to engage with it, it is pitched at a more technical level so it is likely that citizen users would be technically literate and probably already engaged in risk reduction activities.

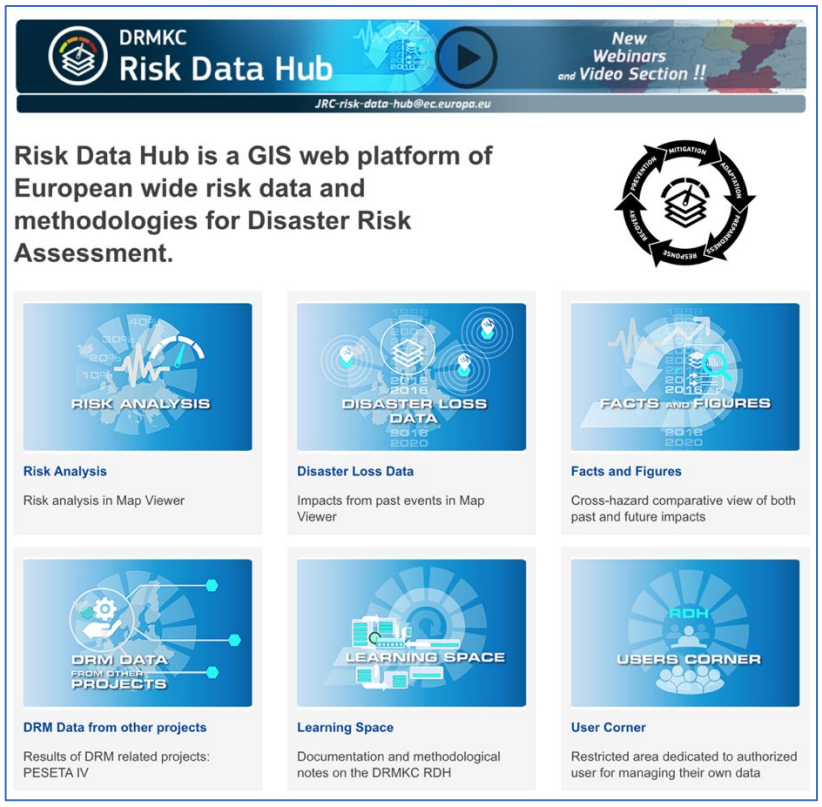


FIGURE 6: DRMKC RISK DATA HUB

This is one example of a helpful resource to explore the Understanding Risk Module. There are many more listed in ANNEX 1.

5.2 UNDERSTANDING The Social Political (People) Context

For most CPAs, knowledge of the social-political context in which hazard events occur is not developed to the same extent as the risk context which is usually primary. While CPAs may be aware of certain social groups who are more typically listed as vulnerable, it is less common to undertake something like community profiling to better understand indicators of increased vulnerabilities or capacities of those that live, work or move through the location. Also being aware of the relative stability of the local population can indicate where there might be established groups representing vulnerable groups with whom CPAs may be able to connect. In terms of risk perception and the likelihood of taking risk reducing actions, research evidence tells us that different social groups are likely to respond differently. This intelligence can provide a

[4] They define vulnerability as 'the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt'.

solid foundation for, not only needs assessment but also capacities that can be engaged before, during and after a hazard event.

The RiskPACC Draft Framework points to the following as key elements for consideration under the Social-political (People) Context:

SOCIAL-DEMOGRAPHICS (SOCIAL GROUPS)

- Gender, age, race/ethnicity, (dis)ability, social class, etc. influence vulnerability and capacity

COMMUNITY CHANGE & DISTURBANCE

- In-migration, out-migration, community conflict, economic turbulence, etc. influence vulnerability and willingness to act

AVAILABLE RESOURCES

- Levels of human, social, economic, assets influence knowledge, ability, willingness to act

Although any of the above social characteristics could be relevant in different cases, we are focusing more specifically on age (older age groups and children or youth) and volunteers. For manageability in this deliverable, the wider social demographics will be gathered together under a 'General' category.

There is now a significant body of knowledge around gender issues and impacts in disaster experience and disaster risk reduction which is too large to discuss here. The Gender and Disaster Network (GDN www.gdnonline.org) compiles online searchable reference guides (annotated bibliographies) which encompass a large range of topics and locations (GDN Resources https://www.gdnonline.org/resources - see Figure 7). For those starting out to explore gender and intersectional issues and disaster, the GDN Reference Guides provide a solid grounding.

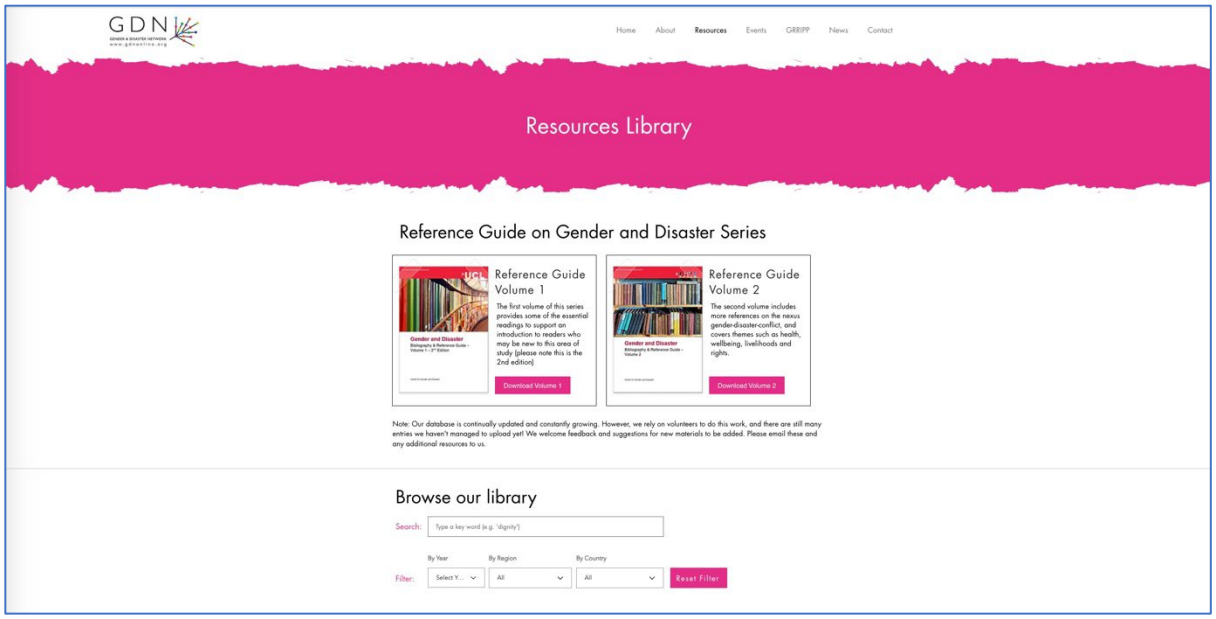


FIGURE 7: SCREENSHOT OF GENDER AND DISASTER NETWORK (GDN) RESOURCES PAGE (ACCESSED 12 JULY 2023).

RiskPACC uses gender as a crosscutting issue and so it can be seen as either a standalone matter of concern/source of evidence, or applied intersectionally alongside other social parameters such as age.

Age alone is not necessarily an indicator of vulnerability although frail elderly may require more support:

> *'Variations within the elderly population, such as chronological age, gender, marital status, race, education, religion, socioeconomic status, or geographic location, can greatly affect the population's collective response to a disastrous event, making it difficult to categorize them as simply "the elderly" when responding to their needs following a disaster.' (Ngo 2001: 87).*

However it is important to understand the range of possibilities for older adults (Walkling and Haworth 2020) in terms of their level of risk and capacities to cope and respond (Yotsui, Catherine Campbell and Honma 2016) because these can vary widely. While there has been evidence published that older Japanese women died in greater numbers in some disasters it is not always known or explained whether the authors took account of the large number of older women in the general population. An example where this analysis was conducted includes Kawashima et al 2021 who noted the large extent of excess deaths in women from suicide during the COVID-19 pandemic. Below we include an example of intersecting characteristics which put older women at greater risk.

The amount of data and scientific evidence now available concerning gender and disasters, and the shift towards focusing on women's leadership and not just their vulnerability in the Sendai Framework for Action, mean it is a prerequisite for CPAs to consider the role of gender in everything they do.

Children are one of the groups high up on the list of vulnerable subjects but there is now a large body of research which shows them to be – or potentially to be – active agents in disaster risk reduction (Yildiz et al 2023; Goto et al 2020; Lloyd Williams et al 2017). Peek notes three types of vulnerability of children in disaster (see Table 8).

Psychological Vulnerability	Physical Vulnerability	Educational Vulnerability
PTSD Depression Anxiety Emotional distress Sleep disorders Somatic complaints Behavioral problems	Death Injury Illness and disease Malnutrition Heat stress Physical and sexual abuse	Missed school Poor academic performance Delayed progress Failure to complete education

FIGURE 8: TYPES OF VULNERABILITY CHILDREN EXPERIENCE IN DISASTER (PEEK 2008: 5).

There is huge variability around mortality of children in disasters because it is so contextual and much of it is focused on Low and Middle Income Countries. The point of note is that children have some specific vulnerabilities which have to be planned for but also the potential for considerable risk reducing actions.

Under the 'General' category we could potentially discuss a number of social groups of interest and potential concern for their increased exposure and vulnerability, and like gender and age they are highly variable and contextual in nature. The CARISMAND Project notes:

> *'every risk analysis must incorporate the social dimensions including gender, race, ethnicity, social class, and sexual orientation' (CARISMAND No Date page 25).*

The effect of race and ethnicity on perception of risk is an example of the complexity of analysis needed. A study by Siman-Tov et al (2021) examined differences in risk perception and response to heatwaves across the two major ethnicities, Jews and Arabs, identified differences but not always unidirectional. The complex contextual factors of the two groups were noted as likely influences on responses. Similarly, Teo et al (2019) highlighted some of the challenges faced by different ethnic and language groups in disaster including:

> *'language barriers, leading to linguistic and social isolation; cultural factors, leading to differing perceptions and understanding of disaster risk; lack of acclimatisation to local environmental conditions; low literacy rates limiting access to disaster warnings and a distrust of warning messages; distrust of government or people within formal governance structures and reliance on informal sources of information' (Teo et al 2019: 3).*

The CARISMAND study (CARISMAND No Date page 45) is also informative on the effect of race and ethnicity on risk perception. They note that there is evidence that demonstrates that racial and ethnic minorities express higher levels of perceived risk from disasters but that this is less related to race/ethnicity/language or better understandings of nature and environment, and more to their perceived levels of vulnerability. In this analysis, it means that higher rates of perception is not a positive sign but signals a lack of resources and control.

In many cases, disability is still viewed as an individual medical problem (the medical model of disability) instead of recognising the ways that the life conditions of people with disabilities are made worse by disabling societies (the social model of disability (Barnes 2019)). Kelman and Stough (2015) sum up what the social model means for people with disabilities in disasters in the opening paragraph of their book:

> *'Traditional infrastructure, day-to-day life, and emergency procedures are designed for people without disabilities. It is assumed that human bodies have*

four functioning limbs; five functioning senses; and the cognitive ability to observe, interpret, and respond to the world in a normative fashion. However, an estimated 20 percent of the world's population experiences physical, sensory, cognitive, or mental health issues (World Health Organization, 2011) not typically considered or accommodated in our societal and built environment. Society assumes normed functioning and often disregards those who walk, talk, or think atypically. Unfortunately, such marginalization often leads to calamitous experiences during disasters—experiences that are rarely recorded.' (Kelman and Stough 2015: 3).

There is a vicious spiral for people with disabilities in a disabling world where exclusion from opportunities to build resources and a lack of prospects for developing capabilities to cope in disaster (Ton et al 2019) lead to increasing levels of marginalization and exclusion. Ton et al (2019) argue for more inclusion and participation of people with disabilities in disaster preparedness and response to counteract this disabling narrative.

However, while the foregoing paints a grim picture, there are positive developments (arguably never enough or soon enough). For example, The European Disability Forum produced a Review of Disability-inclusive Disaster Risk Reduction Policy and Practice across Europe and Central Asia (2021) which identified several European countries with positive disability-inclusive policies. Nevertheless, the review is fairly damning in its key findings summary which indicate how far we still have to travel:

'The DiDRR review has found no example of systematic data disaggregation by gender, age and disability in national information systems related to disaster risk reduction and recovery.

Only five out of 55 countries in Europe and Central Asia have demonstrated attempts in developing disability-inclusive DRR policies in line with the Sendai Framework.

Only six countries across the region have prioritized protection and safety of persons with disabilities in situations of risk and humanitarian emergencies by having included reference to Article 11 of the UN Convention on the Rights of Persons with Disabilities (CRPD) in national policies, strategies and action plans related to disability.

Only one country in the region commits to allocation of state budget for disability inclusive civil protection measures, which indicates to a major gap in national investments and efforts for inclusive DRR.

The review has found practically no reference to disability in country-specific policies and plans related to climate change adaptation.

Rights-based approaches are largely missing from policy and practice, and persons with disabilities continue to be seen as 'vulnerable groups' rather than as key stakeholders and contributors to disaster risk reduction.' (European Disability Forum 2021: 4).

At a global level, UNDRR have mainstreamed disability-inclusive DRR in their strategic objectives and included for the first time as dedicated results and deliverables (UNDRR No Date).

Tierney et al (2006) provide a succinct explanation of the role of social class in shaping likely outcomes in disaster.

> *"Social class position is perhaps the most obvious contributor to disaster vulnerability and resilience. Just as higher socioeconomic status confers benefits during non-disaster times, dimensions of social class, including education and income, affect the ability to engage in self-protective activities across all phases in the hazard cycle." (Tierney et al 2006: 113).*

Peek et al 2004 add to these factors with place and type of residence, building construction, and social exclusion (Fothergill et al 2006: 89).[5] However, arguably, that also paints a somewhat simplistic view as there is considerable divergence in risk perception across different social groups and different hazards (Kahan et al 2007), despite the seeming dominance of the 'white male effect' which posits that risks are typically judged lower by men than women and white more than people of colour (Finucane et al 2000).

It is worth adding that this can seem overly deterministic. All of the above discussions point to the same general conclusion, it is not the social characteristic itself (gender, social class, race/ethnicity, disability etc.) that determines risk outcomes but they are the drivers to privilege or to reduced access to resources, greater exclusion and increased vulnerability. It follows that interventions can be made to change negative trajectories.

Although it is most common to focus on a single social group or identity characteristic, increasingly it is realised that many of these intersect in ways that make some people even more vulnerable.

> *'The concept of intersectionality describes the ways in which systems of inequality based on gender, race, ethnicity, sexual orientation, gender identity, disability, class and other forms of discrimination "intersect" to create unique dynamics and effects. For example, when a Muslim woman wearing the Hijab is being discriminated, it would be impossible to dissociate her female* from her Muslim identity and to isolate the dimension(s) causing her discrimination.'*
> *(The Center for Intersectional Justice https://www.intersectionaljustice.org/what-is-intersectionality).*

Taking an intersectional approach, rather than focusing on a singular variable like age, is likely to be more informative (and see RiskPACC Deliverable 3.4 pp. 26-28). For example, in the Great Hanshin earthquake in Kobe in 1995, Tanida (1996) reports that more than half of the fatalities were among those over 60 years old, and in this age group female fatalities were almost double those of men. However, in Osaki et al's (2001) analyses, which controlled for age and gender (among other variables), gender was not significant. In Klinenberg's (2002, 2015), study of the 1995 Chicago heatwave he found that African American males were more likely to die.

[5] See also: Cardona, O.D., M.K. van Aalst, J. Birkmann, M. Fordham, G. McGregor, R. Perez, R.S. Pulwarty, E.L.F. Schipper, and B.T. Sinh, 2012: Determinants of risk: exposure and vulnerability. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 65-108.

The Japanese Gender Equality Bureau (2014) who documented the disproportionately large number of deaths in the elderly, and in elderly females in particular, during the Great East Japan Earthquake.

> *'A comparison of the respective number of' casualties in Iwate, Miyagi and Fukushima prefectures, segmented by gender and age group, with population data obtained from the 2010 National Census, shows that the proportion of women and men aged 60 years or more is 35.0% and 28.9% respectively, while the ratio of casualties aged 60 or over is 67.6% for women and 63.7% for men. These figures reveal that the ratio of casualties disproportionally higher for the elderly' (Gender Equality Bureau 2014: 1).*

These intersectional differences are shown in Figure 9 from their report.[6]

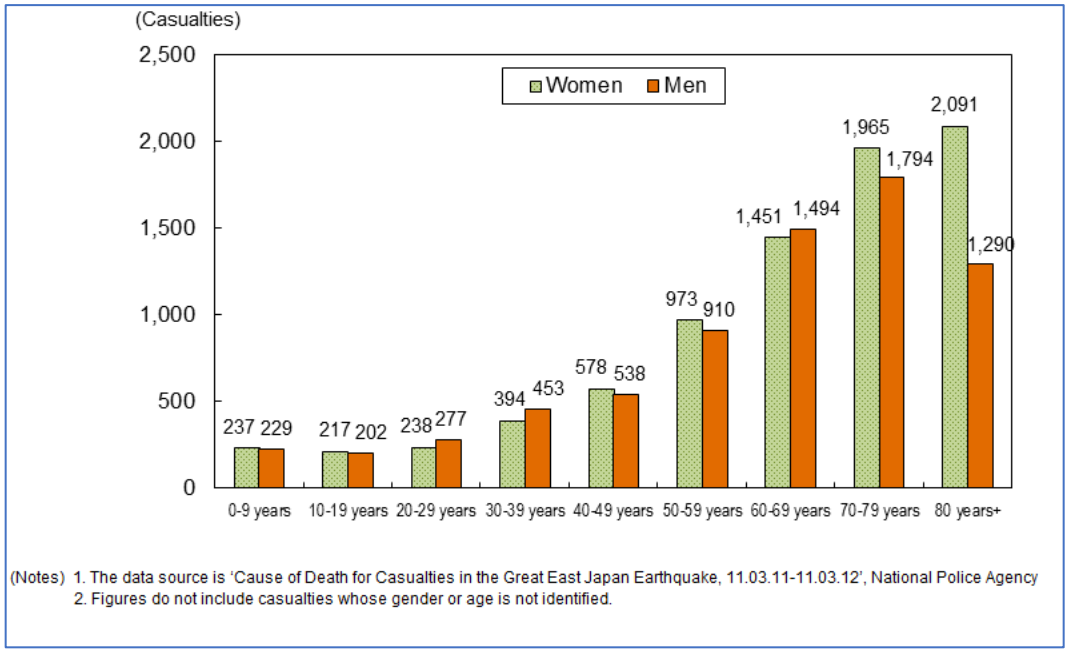


FIGURE 9: CASUALTIES BY GENDER AND AGE GROUP IN THE GREAT EAST JAPAN EARTHQUAKE (IWATE, MIYAGI, FUKUSHIMA PREFECTURES), (GENDER EQUALITY BUREAU 2014: 2).

However, detailed knowledge of community characteristics is likely to require collaboration with service providers beyond CPAs and must be planned for. Generally, it has been found (CARISMAND 2020: 47) that increases in risk perception by various social groups are related to them regarding themselves as more vulnerable because of a lack of control or resources, which in turn sensitises them to notions of risk. Thus, it is less to do with biological factors and the social group identity and more to do with sociopolitical factors and perceived vulnerability; although admittedly these are inextricably intertwined.

Some locations have relatively stable populations and others have considerable in or out migration. These can also change over time. The degree of change, disturbance or stability in a locality can influence levels of community cooperation and conditions under which CPAs for example have to work. For example, increasing population growth rates or changes in population

[6] See also: Irene Petraroli, Roger Baars 2022 To be a woman in Japan: Disaster vulnerabilities and gendered discourses in disaster preparedness in Japan, International Journal of Disaster Risk Reduction, Volume 70, 2022, 102767, https://doi.org/10.1016/j.ijdrr.2021,102767; Saito, F. (2012). Women and the 2011 East Japan Disaster. Gender and Development, 20(2), 265–279. http://www.jstor.org/stable/41722376

structure can exacerbate risk and threat in a multi-hazard environment (Sullivan-Wiley & Gianotti, 2017; Huppert & Sparks, 2006).

However, newly arrived residents, as well as tourists passing through, will lack or struggle to benefit from the kinds of social ties which typically develop over time. Additionally they may be members of social groups which are socially excluded and lack entitlements to resources available to others.

The emBRACE Project (2017) identified various kinds of changes or disturbances which can impact citizens (and non citizens) such as social, economic, political or environmental changes. These can lead to changes in availability of or access to social capital which has been found to strengthen community resilience in disaster contexts (Aldrich and Meyer 2015; Aldrich 2010, 2012).

There is considerable research which has highlighted the role of access to resources or assets as a critical factor shaping communities' abilities to plan for and respond to the impacts of hazards and climate change (Serrat 2017; Thomas et al 2019; Alexander 2012; Shreve and Fordham 2019; Wisner et al 2004). Blaikie et al. (1997) identify a safe environment as not only a goal but also the means to achieve that goal and that access to resources is a key factor in relative levels of vulnerability and the empowerment of marginal groups (page 34).

Many communities are not static but dynamic in their levels of change over time and these changes may not be captured in 'data snapshots' such as census data or other formal data sources that are used to inform risk reduction actions. Thus there is an argument for reaching out to local communities to establish an understanding, not just of the diversity but also the extent to which there are stable community based groups and social capital to build upon.

Human and social factors may influence the uptake and use of technologies and social media in hazard and disaster contexts (Dargin et al 2021). A better understanding of these factors provides an opportunity to reach groups which are traditionally hard to reach and who may be excluded by conventional practices. Bird et al (2012) in their study on the 2010/11 Queensland and Victorian floods, found that many Facebook groups emerged with citizens joining to find information on their community, their family's or friend's community, to share information, offer help or simply out of curiosity (page 30). The researchers found that generally, three-quarters of the Facebook pages' users were female and under 44 years. As the research they conducted was an online survey, the demographics of the survey respondents comprised 92% females, 33% were between the ages of 25-34 and 30% were between 35-44. There is clearly a lot of work already done on this topic (Dargin et al 2021 have over 100 references listed in their article) and yet more needs to be done to understand specific locations.

5.2.1 Resources For The Social-Political (People) Context – UNDERSTANDING

ANNEX 2 provides a list of useful resources but we highlight one example here.

The Global Disaster Preparedness Center (GDPC) https://preparecenter.org/ from the American Red Cross and the International Federation of Red Cross and Red Crescent Societies (IFRC). They have established the GDPC as a reference centre to support innovation and learning in disaster preparedness (see: https://preparecenter.org/toolkits/).

This site is worth exploring for a number of resources aimed at both children and adults including:

- Community Engagement and Accountability (CEA) Toolkit https://www.ifrc.org/document/cea-toolkit. This toolkit contains tools that can help National Red Cross and Red Crescent Societies – as well as other organizations – to assess, design, implement, monitor and evaluate community engagement and accountability activities.

- COVID-19 Health Help Desk https://preparecenter.org/toolkit/healthhelpdesk/. A comprehensive toolkit of guidance resources; Self-support via FAQ; and Learning webinars for topics with broad need for guidance.

- Heat Toolkit. How Can Communities Prepare For Heatwaves? https://preparecenter.org/toolkit/heat/.

- Teen Prep Kit https://preparecenter.org/toolkit/teenprepkit/. Accessible ways to learn about preparedness for teenagers.

Their Disaster Preparedness Games: games for kids to play, learn and be prepared for different disasters offer several child-friendly and personalised ways to engage in preparedness activities. E.g.:

FIGURE 10: DISASTER PREPAREDNESS GAMES HTTPS://PREPARECENTER.ORG/TOOLKIT/KIDSKIT/

- Tanah: The Tsunami and Earthquake Fighter https://preparecenter.org/resource/tanah-the-tsunami-and-earthquake-fighter/. This is a disaster preparedness educational mobile app designed for kids and families. The game follows heroine Tanah as she learns to prepare and protect herself from tsunamis and earthquakes. Through helping Tanah navigate fun and interactive challenges, users enhance their hazard awareness while learning key concepts of disaster risk reduction.

- Sai Fah: The Flood Fighter https://preparecenter.org/resource/sai-fah-the-flood-fighter/. Sai Fah: The Flood Fighter follows the adventures of a young boy on a journey to reunite with his mother during a flood disaster. Players learn flood safety lessons as they encounter flood hazards, from live electrical current to dangerous wildlife. Each level of the game provides a new challenge – and lesson – on the safest course of action before, during and after floods.

- First Aid Champion https://preparecenter.org/resource/first-aid-champion/. An Illustrated Poster: Be a First Aid Champion at home. See what objects you have in the house that could help someone who is injured.

5.3 SHARING - Risk Perceptions And Actions

Under the Risk Perceptions and Actions Module the following topics and questions have been identified as important to pursue:

CITIZENS' AND CPAs RISK PERCEPTIONS

- Is there variability in how citizens characterize the risk (fatalism, blame, agency, etc)?
- How do CPAs characterize and measure the risk?

CITIZENS' AND CPAs' ACTIONS

- Are there organized risk management groups?
- What actions have been taken (plans, outreach, etc)?

While it seems a common sense conclusion that risk perceptions will be significant in motivating individuals to take the appropriate action to adapt, mitigate, or to avoid risks (Wachinger et al., 2013), the research evidence does not always support this. It has been termed the 'Risk Perception Paradox' by Wachinger et al (2013: 1051-2034) who argue that three intervening variables may point to only a weak relationship between citizens' risk perception and their actions. These are experience and motivation, trust and responsibility, and personal ability (including economic and personal conditions). All three variables are suggested to have a direct impact on how citizens perceive risk, who they place their trust in, whose agency is recognised, and how they influence actions. This raises the question of how CPAs might intervene to encourage positive acts of risk reducing behaviour and, conversely, how citizens can express their preferences to CPAs and encourage understanding.

In RiskPACC we have tried to confront the shortcomings of the 'deficit model' which assumes citizens simply lack the right information, or the right information in the right form, in order for them to act. However, research evidence has confirmed the simplistic nature of the deficit model and the need to really understand why citizens do not perceive things in the same way as CPAs nor act in ways that CPAs expect (Rufat et al 2020; Eriksen & Gill, 2010; Wachinger et al., 2013; Fünfgeld, Lonsdale, & Bosomworth, 2019). This leads to the need to understand how CPAs can communicate unambiguous risk messages out of sometimes unclear or uncertain evidence (this is discussed below as part of the section concerning activities undertaken in the second phase of RiskPACC Co-creation labs) and is at the heart of the RiskPACC collaborative governance approach.

National Risk Registers (NRR) such as that in the UK or equivalents in different countries, have access to considerable scientific resources to identify priority risk areas based on reasonable worst-case scenarios, assessed for scale of impact and likelihood of occurrence. There is also a National Security Risk Assessment (NSRA) which is the classified (secret) version of the NRR, which addresses the most serious risks to the UK or to its overseas interests.

Structures exist in the UK at the local level in the form of Local Resilience Forums (Civil Contingencies Secretariat 2013) but these do not offer the granular level of CPA-Citizen knowledge exchange that we are suggesting is needed through a collaborative governance

model. In locations which have a history or recent occurrence of a hazard event there are often local groups which develop to support citizens and act as a more organized and formalised link to CPAs, who may be unknown to the general citizen. Over time such local groups can attain expert status as they often include interested local professionals.

In the UK, the National Flood Forum (https://nationalfloodforum.org.uk/) is a charity which supports communities to organise themselves to protect against flooding. Part of this work involves supporting local communities to set up or develop Flood Action Groups which do voluntary work to map hazards, identify key issues facing their community and interface with the various authorities concerned with floods. This is now a highly organized infrastructure in the UK and a potentially useful model to share. However, like all voluntary groups, there is no guarantee that the group is representative of all local interests (Forrest et al 2018) but this is rarely possible with such voluntary initiatives.

Such local groups can act as a useful bridge between CPAs and the general citizen who often knows little of emergency planning matters. This is particularly important when CPA actions conflict with locally expressed preferences – often due to a failure on both sides to properly discuss the risk and subsequent risk reducing actions. Finding common ground in this CPA-citizen space is imperative and is one of the driving forces for the design of the RiskPACC Co-creation Labs.

5.3.1 Resources For Risk Perceptions And Actions - SHARING

ANNEX 3 provides a list of useful resources but we highlight two examples here.

As the core of the problem faced by CPAs is effective risk communication, the work of Scotland's Centre of Expertise for Waters (CREW) is a good example of techniques for conveying risk messages clearly and simply. They have produced 'A Smart Guide to Flood Risk Communication' (Henderson and Helwig 2022: 18) which contains a number of guidance sheets such as:

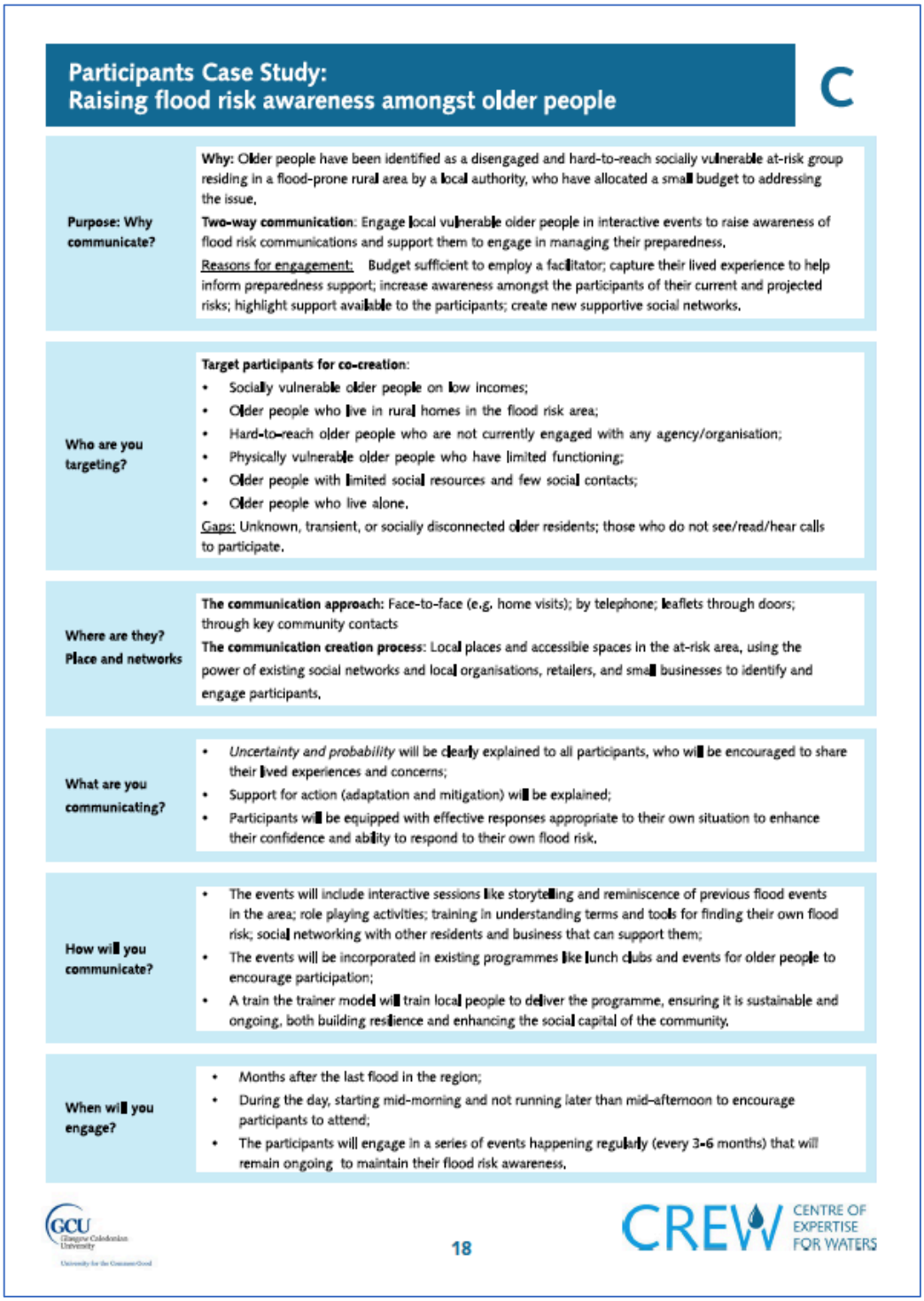
- Why communicate? The aim of the communication
- Who do you need to communicate with? Understanding your participants
- Place and social networks: Where flood communication happens
- What you are communicating: Risk perception, probability and uncertainty
- How to communicate: Tools, approaches and information
- When to engage in 'good weather' flood risk communication: A checklist
- Methods Case Study: Co-creating flood risk communication: Developing a new website
- Methods Case Study: Co-creating a digital archive
- Participant Case Study: Co-creating a new flood risk communication strategy for Scotland

Of interest to RiskPACC is the guidance sheet on raising flood risk awareness amongst older people which is a useful one-page guideline for how to structure a risk communication intervention (see Figure 11). They use a standardised structure which includes:

- Purpose: Why communicate?
- Who are you targeting?
- Where are they? Place and networks
- What are you communicating?
- How will you communicate?
- When will you engage?

Also of interest is the way they use an intersectional approach by not just assuming homogeneity among the older age group but identifying subgroups which may need different approaches: socially vulnerable, lower incomes, rural locations, hard to reach, physically vulnerable, limited social resources and contacts, older people living alone.

The screenshot in Figure 11 of this one-page guidance cannot be reproduced with full clarity but the reader is directed to the source document at https://www.crew.ac.uk/sites/www.crew.ac.uk/files/publication/CRW2018_04_A-Smart_Guide_to%20Flood_Risk%20Communication.pdf.



Participants Case Study:
Raising flood risk awareness amongst older people

C

Purpose: Why communicate?	**Why:** Older people have been identified as a disengaged and hard-to-reach socially vulnerable at-risk group residing in a flood-prone rural area by a local authority, who have allocated a small budget to addressing the issue. **Two-way communication**: Engage local vulnerable older people in interactive events to raise awareness of flood risk communications and support them to engage in managing their preparedness. Reasons for engagement: Budget sufficient to employ a facilitator; capture their lived experience to help inform preparedness support; increase awareness amongst the participants of their current and projected risks; highlight support available to the participants; create new supportive social networks.
Who are you targeting?	**Target participants for co-creation**: • Socially vulnerable older people on low incomes; • Older people who live in rural homes in the flood risk area; • Hard-to-reach older people who are not currently engaged with any agency/organisation; • Physically vulnerable older people who have limited functioning; • Older people with limited social resources and few social contacts; • Older people who live alone. Gaps: Unknown, transient, or socially disconnected older residents; those who do not see/read/hear calls to participate.
Where are they? Place and networks	**The communication approach:** Face-to-face (e.g. home visits); by telephone; leaflets through doors; through key community contacts **The communication creation process**: Local places and accessible spaces in the at-risk area, using the power of existing social networks and local organisations, retailers, and small businesses to identify and engage participants.
What are you communicating?	• *Uncertainty and probability* will be clearly explained to all participants, who will be encouraged to share their lived experiences and concerns; • Support for action (adaptation and mitigation) will be explained; • Participants will be equipped with effective responses appropriate to their own situation to enhance their confidence and ability to respond to their own flood risk.
How will you communicate?	• The events will include interactive sessions like storytelling and reminiscence of previous flood events in the area; role playing activities; training in understanding terms and tools for finding their own flood risk; social networking with other residents and business that can support them; • The events will be incorporated in existing programmes like lunch clubs and events for older people to encourage participation; • A train the trainer model will train local people to deliver the programme, ensuring it is sustainable and ongoing, both building resilience and enhancing the social capital of the community.
When will you engage?	• Months after the last flood in the region; • During the day, starting mid-morning and not running later than mid-afternoon to encourage participants to attend; • The participants will engage in a series of events happening regularly (every 3-6 months) that will remain ongoing to maintain their flood risk awareness.

GCU Glasgow Caledonian University

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CREW CENTRE OF EXPERTISE FOR WATERS

FIGURE 11: CREW: PARTICIPANTS CASE STUDY: RAISING FLOOD RISK AWARENESS AMONGST OLDER PEOPLE (CREW 2022: 18).

At the other end of the age scale, for children, the US Centers of Disease Control and Prevention Office of Readiness and Response https://www.cdc.gov/orr/index.htm have developed a series of Ready Wrigley Books about a dog (Wrigley) who helps her family prepare for emergencies. These are in English and Spanish and aimed at a younger age group https://www.cdc.gov/orr/readywrigley/books.htm. These are engaging ways for CPAs (and teachers and families) to share hazard awareness advice and information with children.

FIGURE 12: SCREENSHOT OF CDC READY WRIGLEY BOOKS FOR CHILDREN IN EMERGENCIES HTTPS://WWW.CDC.GOV/ORR/READYWRIGLEY/BOOKS.HTM (NB THE LINKS ARE NOT ACTIVE IN THIS SCREENSHOT).

5.4 RELATING - Risk Reduction Relationships (RRR)

The literature supports, and we have found during RiskPACC, that a top down, one-way communication process is dominant in CPA-Citizen risk relationships but these are potentially problematic and possibly ineffective (Thaler et al., 2022; Twigg and Bottomley 2011). Our position in RiskPACC is that addressing the RPAG requires interventions to increase bottom-up, participatory approaches to enhance resilience and we have recommended a co-creation approach to work towards achieving this.

The RiskPACC Draft Framework sets out a number of questions that need to be considered in CPA-Citizen relationships building:

CITIZEN-CPA AND CPA-CITIZEN

- How do citizens regard CPAs? How do CPAs regard citizens?
- Is there a history of collaboration or conflict?
- What is the level of trust?

CITIZEN-CITIZEN

- Presence/ absence of social capital
- Is there a history of collaboration or conflict?
- What is the level of trust?

CPA-CPA

- Is there a history of collaboration/ cooperation or conflict/ difference?
- What is the level of trust?

NON-CITIZENS

- E.g migrants, victims of trafficking, temporary visitors, etc
- Are they visible/ hard to reach/ at greater risk?
- What is the level of trust?

These are discussed in more depth in D4.1 but an overview is presented here.

The Phase II Co-creation labs (discussed in D3.6) explored some of these questions using two new activities (discussed below) to, firstly, initiate two-way communication using a map as a focus (Participatory Mapping Activity) and, secondly, to explore meaning and understanding of risk communications (a Risk Communication activity which Case Study partners adapted to their contexts).

Understanding how all groups come to the collaboration space is important to identify any unspoken misunderstandings or latent conflicts. The nature of the way CPAs understand the locations in which they work often goes unexplored. A risk area is outlined on a map and specifics are identified for greater attention if there is enhanced risk or vulnerability. Schools or hospitals might be identified as representing increased demands on CPAs to manage risk but there may be more limited understanding of locations and populations that citizens identify as requiring extra support. For example, refuges for victims of domestic abuse are not usually listed as vulnerable sites and victims may have to be evacuated to shelters but victims and abusers may be evacuated to the same place (Kostouros and Warthe 2020).

The role of trust is a key variable in positive relationship-building between CPAs and citizens and has been found to be a factor that strongly influences risk perception. Trust in the government agencies or the relevant organization with responsibility for regulating a hazard, means the technology may be perceived more positively and be more acceptable compared to where trust is lacking (Siegrist 2000: 482; Paton 2008; Siegrist, 2021; Tumlison et al., 2017; Johnson-George and Swap 1982; Thoresen et al 2018).

An important aspect of community resilience is the availability of social capital and networks although this is not usually an area that CPAs would normally expect to research. However, it is recommended in the Framework as a means of understanding the degree of potential support and connectedness which can address some aspects of vulnerability for various social groups and for citizens as a whole. Aldrich (2010) argues that social capital is 'the engine for recovery':

> *'[R]eservoirs of social capital and the trust (or lack thereof) between citizens in disaster-affected communities can help us understand why some neighborhoods in cities like Kobe, Japan, Tamil Nadu, India, and New Orleans, Louisiana displayed resilience while others stagnated' (Aldrich 2010: 1).*

Aldrich's research (among others') has provided enough examples of the benefits of social networks in community recovery and community action that supports our inclusion of it here (Aldrich and Meyer 2015; Aldrich 2010, 2012). In his 2011 paper on the role of social capital after the 1995 Kobe earthquake in Japan, he says: 'social capital proves to be the strongest and most robust predictor of population recovery after catastrophe' (Aldrich 2011: 595).

However it is worth noting that negative outcomes of social capital have also been identified (Villalonga-Olives and Kawachi 2017) so it requires handling with some care. Meyer's study in Florida, USA identified that age had a negative effect in respondents' perceptions of social capital resources available during a disaster with the elderly recording fewer social ties. Meyer concluded that social capital may not operate for the elderly in the positive way others have reported and may not counteract the of elderly persons' social vulnerabilities in disaster (Meyer 2017). Thus, it is worth investigating how social capital operates for the other target groups of interest.

The extent to which separate CPA organisations coordinate or work alone is something we have included in the Framework but have limited opportunity to examine empirically at this point, although there was some inclusion of such organizations in the Phase II Co-creation Labs. Coordination failures do happen (Aldrich 2019; Boin and Richardson 2015) as do absences of coordination or linking with other service providers such as social services or community development, which could provide more evidence about the social context in which the CPAs are operating.

When we speak of communities we are often imagining a stable and fixed group of people but increasingly CPAs have to deal with a range of people who are not permanently present (e.g. tourists) or what the United Nations Office of the United Nations High Commissioner for Human Rights call 'non-citizens' (OCHCR 2006). On the one hand, such groups may be hard (or impossible) to reach and less likely to receive or understand warnings and on the other hand, may be more vulnerable due to a mix of social, cultural, and legal factors (Kelman et al 2008;

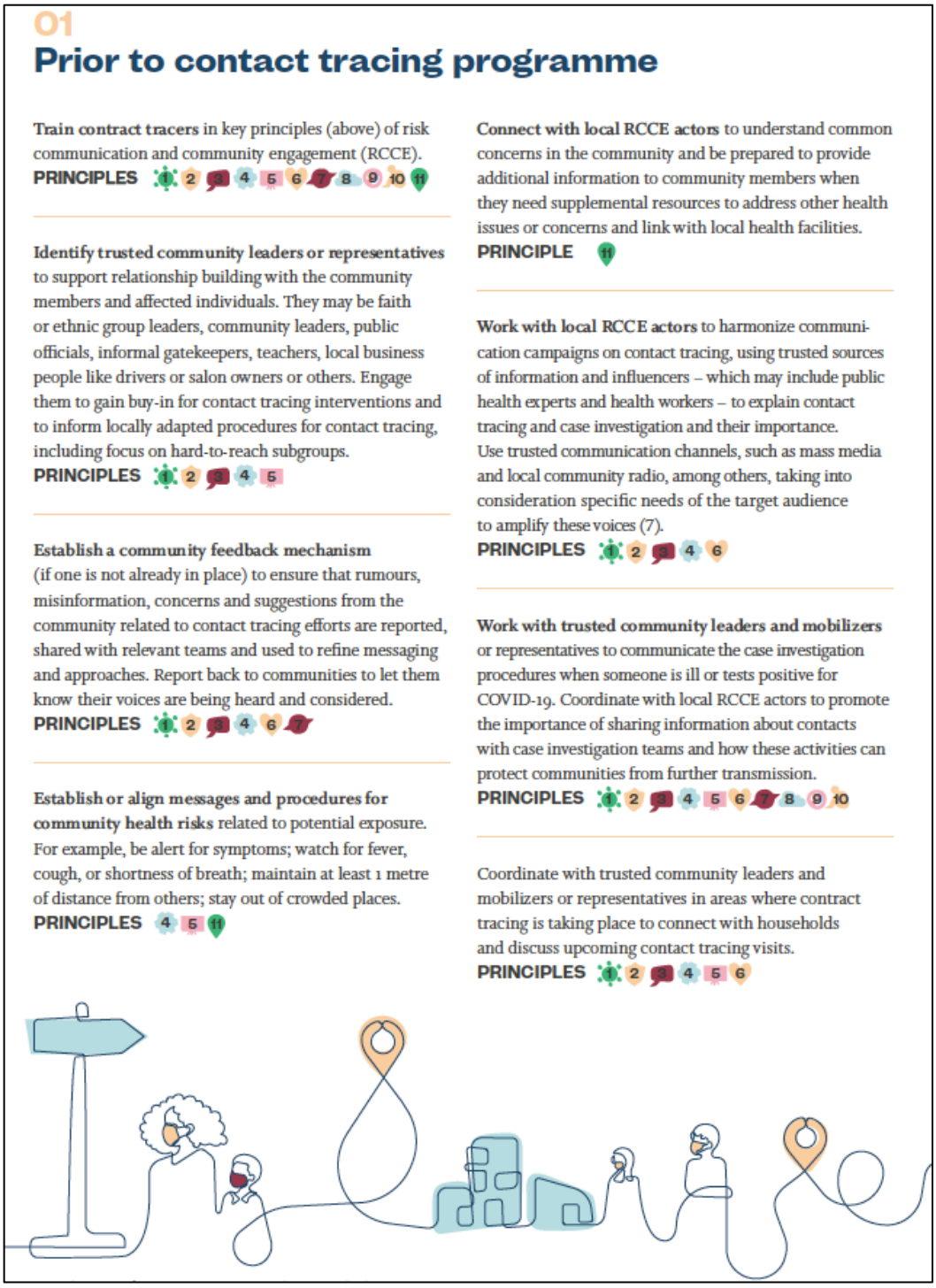
Dutta 2020; Guadagno 2020; Kuran et al 2020; Pongponrat and Ishii 2018; Arora and Majumder 2021; Teo et al 2019; Gares and Montz 2014; Pardikar 2021). They may be affected by:

- limited language proficiency;
- limited knowledge of their destination's hazards, laws, institutions and markets;
- limited social networks;
- a lack of trust in authorities;
- restrictions on mobility; and
- discrimination, hostility and xenophobia (Guadagno et al 2017: 9).

Czech Republic Case Study partner CAFO included some Ukrainian refugees in their Co-creation Lab and other Case Study partners discussed tourist issues and thus, we can see that 'non-citizens' have been put on the RiskPACC agenda, but we can see that this is a much larger area which needs further attention.

5.4.1 RESOURCES FOR RISK REDUCTION RELATIONSHIPS (RRR) – RELATING

The World Health Organisation (WHO 2021) Operational Guide For Engaging Communities In Contact Tracing points to some of the key criteria for clsoing the RPAG that we have identified in the RiskPACC Framework. For example, 'Identify trusted community leaders or representatives to support relationship building with the community members and affected individuals' (Page 15 and shown here in Figure 13) which aligns with Framework Modules recommending UNDERSTANDING the local social-demographic constituencies and then, building relationships and mechnaisms for working together with them (RELATING and BUILDING).



01

Prior to contact tracing programme

Train contract tracers in key principles (above) of risk communication and community engagement (RCCE).
PRINCIPLES 1 2 3 4 5 6 7 8 9 10 11

Identify trusted community leaders or representatives to support relationship building with the community members and affected individuals. They may be faith or ethnic group leaders, community leaders, public officials, informal gatekeepers, teachers, local business people like drivers or salon owners or others. Engage them to gain buy-in for contact tracing interventions and to inform locally adapted procedures for contact tracing, including focus on hard-to-reach subgroups.
PRINCIPLES 1 2 3 4 5

Establish a community feedback mechanism (if one is not already in place) to ensure that rumours, misinformation, concerns and suggestions from the community related to contact tracing efforts are reported, shared with relevant teams and used to refine messaging and approaches. Report back to communities to let them know their voices are being heard and considered.
PRINCIPLES 1 2 3 4 6 7

Establish or align messages and procedures for community health risks related to potential exposure. For example, be alert for symptoms; watch for fever, cough, or shortness of breath; maintain at least 1 metre of distance from others; stay out of crowded places.
PRINCIPLES 4 5 11

Connect with local RCCE actors to understand common concerns in the community and be prepared to provide additional information to community members when they need supplemental resources to address other health issues or concerns and link with local health facilities.
PRINCIPLE 11

Work with local RCCE actors to harmonize communication campaigns on contact tracing, using trusted sources of information and influencers – which may include public health experts and health workers – to explain contact tracing and case investigation and their importance. Use trusted communication channels, such as mass media and local community radio, among others, taking into consideration specific needs of the target audience to amplify these voices (7).
PRINCIPLES 1 2 3 4 6

Work with trusted community leaders and mobilizers or representatives to communicate the case investigation procedures when someone is ill or tests positive for COVID-19. Coordinate with local RCCE actors to promote the importance of sharing information about contacts with case investigation teams and how these activities can protect communities from further transmission.
PRINCIPLES 1 2 3 4 5 6 7 8 9 10

Coordinate with trusted community leaders and mobilizers or representatives in areas where contract tracing is taking place to connect with households and discuss upcoming contact tracing visits.
PRINCIPLES 1 2 3 4 5 6

FIGURE 13: THE WHO 2021 OPERATIONAL GUIDE FOR ENGAGING COMMUNITIES IN CONTACT TRACING (PAGE 15) HTTPS://WWW.WHO.INT/PUBLICATIONS/I/ITEM/WHO-2019-NCOV-CONTACT_TRACING-COMMUNITY_ENGAGEMENT-2021.1-ENG

Another resource which addresses one of our target groups, children/teachers, is from Lancaster University, UK which has been working on children and disasters for several years. They have created innovative ways to engage children as active agents in dealing with flood risk and flood events (see Figure 14 and https://wp.lancs.ac.uk/floodarchive/resources/books-and-articles/).

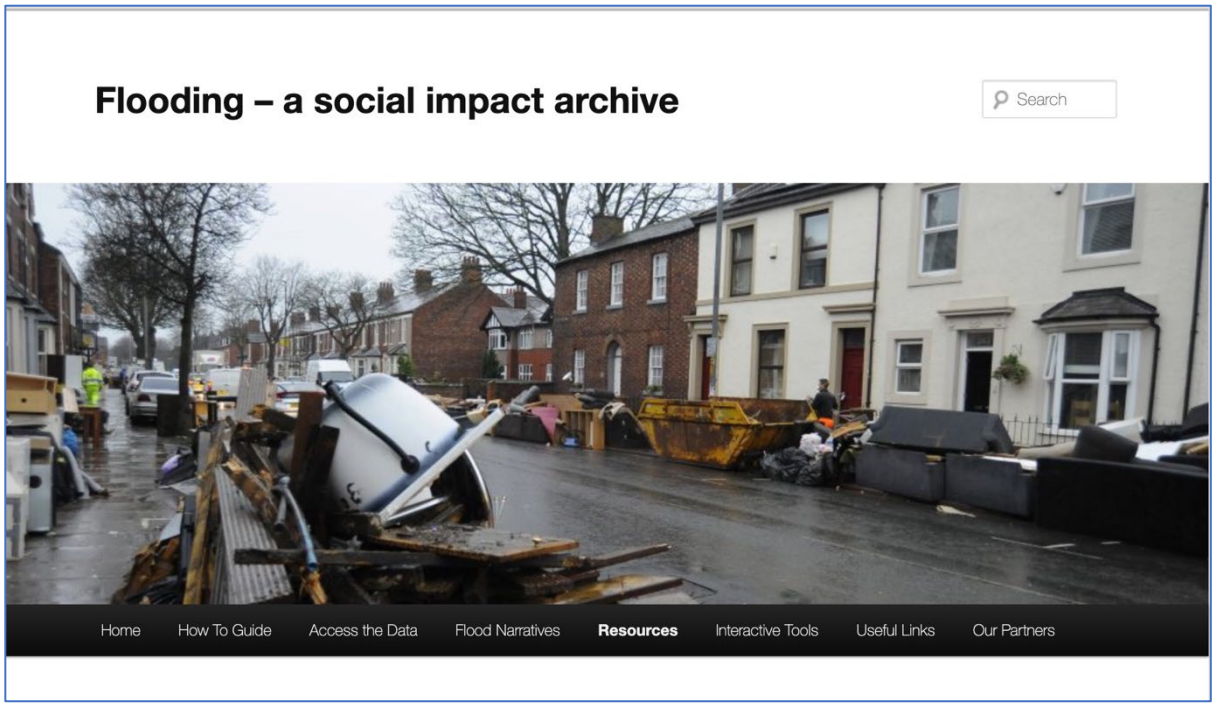


FIGURE 14: LANCASTER UNIVERSITY FLOODING SOCIAL IMPACT ARCHIVE. HTTPS://WWW.LANCASTER.AC.UK/CUIDAR/EN/FLOODING-A-SOCIAL-IMPACT-ARCHIVE/.

Their interactive tools include:

Help Callum is a 360 virtual reality video in which viewers experience flooding and the difficult road to recovery from the perspective of a young boy and his family. The video aims to promote flood awareness among adults and children. https://wp.lancs.ac.uk/floodarchive/help-callum/.

- Flood Snakes & Ladders is an interactive game that invites participants to walk in the shoes of flood-affected children. It can be used to stimulate discussion and learning around flood preparedness and response. http://wp.lancs.ac.uk/floodarchive/resources/interactive-tools/flood-snakes-ladders/.

- The Flood Suitcase is designed to support recovery and resilience building with flood-affected children, young people, families and teachers. http://wp.lancs.ac.uk/floodarchive/resources/interactive-tools/flood-suitcase-2/.

- Get Flood Ready! is a digital game for primary-aged children, aimed at promoting flood awareness and preparedness. https://wp.lancs.ac.uk/floodarchive/interactive-tools/get-flood-ready/.

- How to Catch a River is a set of resources created by Claire Dean during her PhD at Lancaster University. http://wp.lancs.ac.uk/floodarchive/resources/interactive-tools/how-to-catch-a-river/.

These are an excellent starting point to contextualise further for local conditions.

5.5 BUILDING - Risk Communication Approaches

The RiskPACC Draft Framework asks us to consider the following under the Risk Communication Module (Building):

ATTITUDES AND VALUES

- What are citizens' expectations of CPAs?
- What are CPAs' expectations of citizens?

FORM AND PROCESS

- Technological/ non technological?
- Centralised or decentralised?
- Interpersonal communication?

MEDIUM

- Social Media?
- Face To Face?
- Provision of Materials?
- Provision of appropriate tools

RECEPTION & EFFECT

- Have messages been received as intended?
- Evaluation of Outcomes?
- Are the solutions adequate for CPAs?
- Are the tools adequate for Citizens?

The RiskPACC Risk Communication Processes Module aims to establish the key criteria for successful two-way communication which include learning about the perceptions, attitudes, needs and expectations of both CPAs and citizen groups. The validity of this aim is supported by the World Health Organization whose definition of risk communication is:

> *'The two-way and multi-directional communication and engagement with affected populations so that they can take informed decisions to protect themselves and their loved ones' (World Health Organization https://apps.who.int/iris/rest/bitstreams/1349513/retrieve).*

We have identified in the Framework (see list above) some aspects of risk communication approaches that should be considered. If risk communications are created in a vacuum, then they may not produce the expected responses. Knowing what Citizens expect of CPAs and vice versa provide the starting point in opening up two-way communication and sets the scene for then exploring what works in the form, the medium and the evaluation. Without an opportunity

to exchange understandings, preferences and constraints, it is likely that expectations will not be managed on either side.

Meredith et al's (2008) analysis of risk communication strategies could have been written directly for RiskPACC in terms of the alignment of evidence and strategies for what is likely to work. Their 'Key Findings' (pp xi-xiv) link to many parts of RiskPACC but Table 9 suggests some of the most direct links.

Key Findings for Risk Communication for At-Risk Populations	Link to RiskPACC & Framework Modules
Community-based participation strengthens emergency preparedness, response, and recovery for at-risk populations.	RELATING WP3/T3.4, WP4, WP6
Training through exercises and drills that include risk communication for at-risk populations may improve response to future disasters.	BUILDING WP4/T4.4
Evaluating the implementation of risk communication programs and impact of risk communication efforts is critical but systematic efforts are lacking.	SHARING WP3/T3.4
Effective risk communicators must be trained to understand emergency risk communication, know their stakeholders, and be trusted in the community.	UNDERSTANDING WP3/T3.4, WP4
Reaching at-risk populations requires the use of multiple channels, formats, and Tools. (Pp xi-xiv)	BUILDING WP4, WP5, WP6

TABLE 8: KEY FINDINGS FOR RISK COMMUNICATION FOR AT-RISK POPULATIONS (MEREDITH ET AL 2008: XI-XIV).

The recommendations for risk communications pre-, during and post-event shown in Table 9 provide a helpful follow-on to the Risk Communication Activity designed for the Phase II Co-creation Labs.

Risk Communications Pre-, During and Post-Event	Link to RiskPACC & Framework Modules
Risk Communication Pre-Event	
Establish planning committees that include representatives of at-risk populations.	RELATING WP3/T3.4
Strengthen training activities by directly addressing the needs of at-risk populations.	UNDERSTANDING Social-political (People) Context WP3, WP4
Tailor risk communication to the functional needs of at-risk populations.	UNDERSTANDING Social-political (People) Context WP3, WP4

Risk Communication During an Event	
Offer risk communications in multiple modes and multiple languages.	BUILDING WP4, WP5, WP6
Present clear facts with actionable plans.	SHARING WP3/T3.4
Employ new technology to enhance communication reach.	BUILDING WP5
Use strategies to identify and track at-risk populations.	UNDERSTANDING Social-political (People) Context
Risk Communication Post-Event	
Develop messaging for post-event risk communication.	SHARING, BUILDING WP3/T3.4
Evaluate the impact of risk communication efforts.	RELATING WP3/T3.5, T3.6
Share lessons learned across organizations and geographic regions.	BUILDING, SHARING WP3/T3.4, WP8

TABLE 9: RISK COMMUNICATIONS PRE-, DURING AND POST-EVENT AND LINK TO RISKPACC & FRAMEWORK MODULES (MEREDITH ET AL 2008: 35-39).

Whether, when, where, how and with whom to use technology are key questions to address in strategizing for building effective risk communication approaches. Although there is now considerable accessibility to technology, it doesn't work everywhere or for everyone and it could be that where it does not is where the greatest vulnerability lies. These matters have been discussed during many of the Co-creation Labs and compromises and solution efforts have been trialled. We have tried to address this challenge using a range of technological and, what we have termed, conceptual, solutions and activities.

In the final stage of RiskPACC we hope to employ some specific evaluations of the Framework which we will develop collaboratively.

5.5.1 RESOURCES FOR RISK COMMUNICATION APPROACHES – BUILDING

ANNEX 5 provides a number of links to useful resources to support the Building Module and two are presented here for illustration.

Firstly, the American Red Cross and the International Federation Red Cross and Red Crescent Societies' (IFRC) Global Disaster Preparedness Center (GDPC) contains a Resource Library (called Topics) incorporating a searchable inventory of documentation, policies, annual reports, lessons learned, guidance, and tools and methodologies related to hazards and disaster preparedness in communities around the world https://preparecenter.org/topics/. One such resource is Community Engagement And Accountability (CEA) https://preparecenter.org/topic/community-engagement-and-accountability/ which is a way of

working that recognizes and values all community members as equal partners, with diverse needs, priorities, and preferences to guide IFRC programming and operations. CEA encompasses a set of activities that integrate meaningful community participation, open and honest communication, and mechanisms to listen to and act on feedback. Two examples are shown below.

SOCIAL MEDIA FOR BEHAVIOUR CHANGE (SM4BC) TOOLKIT https://preparecenter.org/site/sm4bc-toolkit/ is a toolkit designed to help anyone who wants to use social media for positive behaviour change regarding disaster risk reduction among people in their community or other groups they serve. The support documentation, including videos, is designed to be engaging. See Figures 15 and 16.

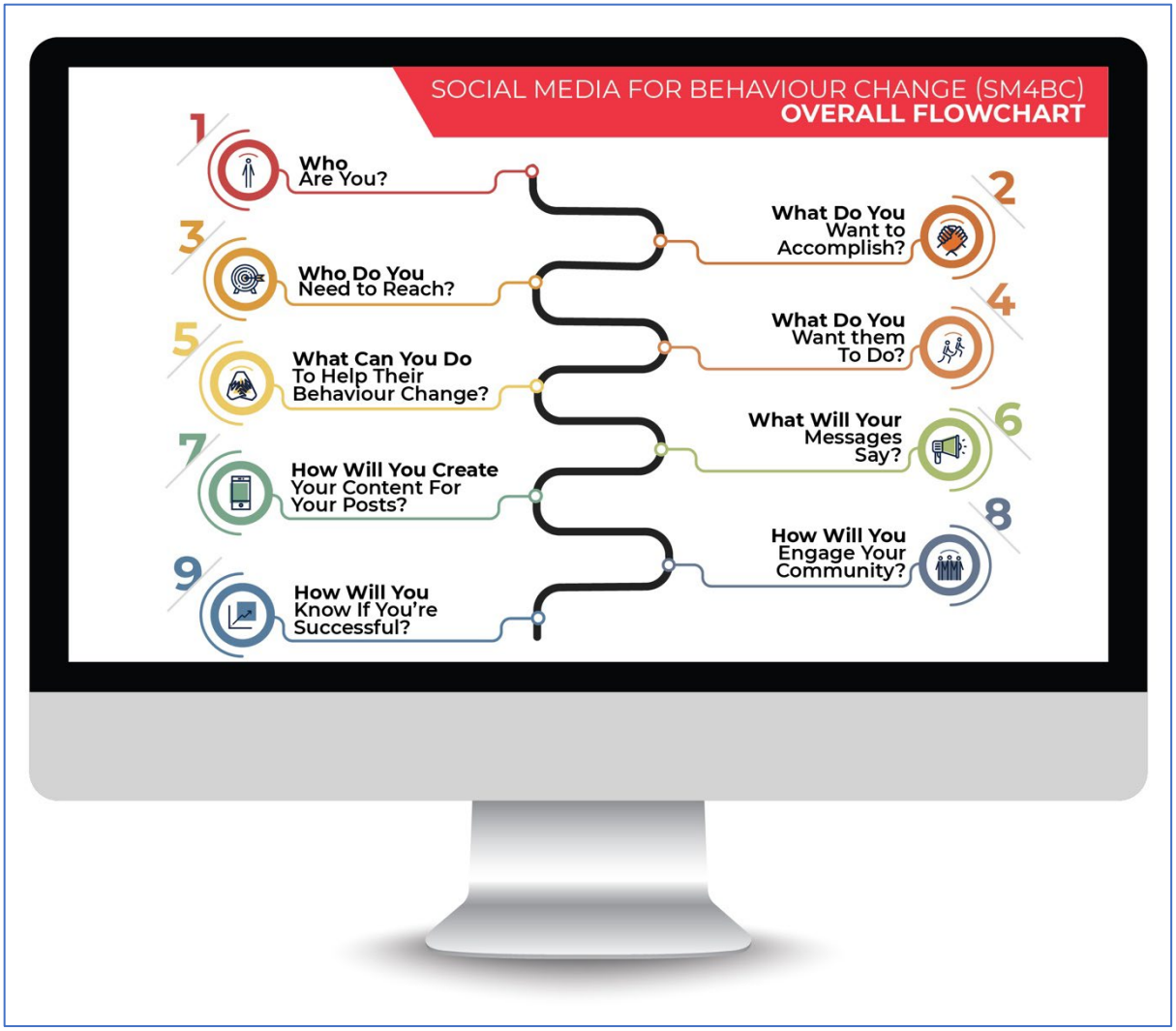


FIGURE 15: GLOBAL DISASTER PREPAREDNESS CENTER (GDPC) SM4BC TOOLKIT UNDERSTANDING THE STEPS – FLOWCHART HTTPS://PREPARECENTER.ORG/SITE/SM4BC-TOOLKIT/.

FIGURE 16: GLOBAL DISASTER PREPAREDNESS CENTER (GDPC) SM4BC TOOLKIT VIDEO LINKS HTTPS://PREPARECENTER.ORG/SITE/SM4BC-TOOLKIT/.

A second is Disability Inclusive Disaster Preparedness https://preparecenter.org/topic/disability-inclusive-disaster-preparedness/ which includes 'All Under One Roof: Disability Inclusive Shelter And Settlement Guidelines' https://preparecenter.org/wp-content/sites/default/files/ifrc_disability_inclusive_shelter_guide_all_under_one_roof.pdf.

These guidelines are the result of institutional collaboration between IFRC, Christian Blind Mission (CBM) and Handicap International, and between the Shelter & Settlements and Health Departments within IFRC. The aim is to transform the way humanitarian organisations approach inclusion and accessibility in their shelter and settlement programmes.

CBM's Humanitarian Hands on Tool (HHOT) is a mobile app to help people with disabilities access life-saving relief services during emergencies. It is a custom mobile app, providing practical, step-by-step guidance that emergency workers can access freely to ensure that the help they provide, such as emergency shelters or food and water points, are accessible to people with disabilities or other marginalised groups. https://www.cbmuk.org.uk/cbminaction/mobile-app-help-people-disabilities-emergencies/.

Humanitarian Hands on Tool HHoT transcript (open link in new tab).

FIGURE 17: SCREENSHOT OF CBM'S HUMANITARIAN HANDS ON TOOL (HHOT) INTRODUCTORY VIDEO HTTPS://YOUTU.BE/D38FQ8HPCZU.

6 THE PRACTICE OF APPLYING THE FRAMEWORK

As we have worked through RiskPACC so far, we have had a major focus on technological tools but we have also trialled two activities designed to address processes of two-way communication specifically addressing and 'testing' the Framework modules. D3.6 details the work carried out in the Phase II Co-creation Labs and so a few summary points will be presented here. The key outcome of the Co-creation Labs and the RiskPACC Consortium discussions is that the Framework modules have been supported and the various approaches, applications and activities have been largely successful in their attempts to assist in closing the RPAG.

6.1 Activities For Two-Way Communication

The challenge for RiskPACC was to find ways to justify and practice two-way communication between RiskPACC CPAs and their stakeholders. Given that a major part of the allotted time has been devoted to the co-design and testing of the technological applications (requiring to reach Technology Readiness Level 5), we needed one or two activities to cover what we had identified as gaps in applying the Framework modules. We designed two: a participatory mapping activity (see ANNEX 6) and two Risk Communication Activities (see ANNEXES 7 and 8). These are discussed further below but in much more detail in D3.6.

6.1.1 PARTICIPATORY MAPPING

This section is an adapted version of what was written for D3.6.

Participatory mapping refers to representations of spatial information that have been produced using 'participatory' processes to aid the direct involvement of community groups or individuals (Burnett et al., 2023). It aims to assist dialogue and participation, usually using physical maps, or digital geospatial datasets co-produced by citizens, researchers and/or public authorities.

Participatory mapping is a form of participatory action research and typically involves 'research designs, methods and inquiry that are created in direct collaboration with those affected by an issue being studied for the purpose of action or change' (Participatory Research Encyclopedia.com[7]). Participatory action research involves researchers and participants working together to understand a problem and find a solution. Participatory mapping can also be considered under the heading of citizen science or Volunteered Geographic Information (VGI), two terms which are usually often used interchangeably.

A Portuguese case study (Partidário et al 2022) of mapping forest fire risk supported the relevance of inclusion of local landowners' experiences, practices, and knowledge in forest fire management which can increase understanding of local risks and vulnerability and fostered engagement in strategizing local risk reduction strategies. Although it cannot be claimed as representative of the whole region, it nevertheless brought together a diversity of participants and a diversity of knowledge, perceptions, and local actions on forest fire risk management (page 12).

A German case study (Klonner et al 2021) using a paper-based mapping approach was successful in identifying differences between residents and pedestrians passing through in terms

[7] Encyclopedia.com https://www.encyclopedia.com/social-sciences/encyclopedias-almanacs-transcripts-and-maps/participatory-research

of identifying areas at risk and they conclude is useful to increase communication and trust between local government, citizens and researchers. They note that citizen residents of risk-prone locations often have knowledge of past hazard events and preparedness actions but that this knowledge is often not shared with CPAs and relevant authorities. A mapping exercise is one method for integrating citizen knowledge into the DRR process.

Although the examples have been positive in their claims, it is necessary to also include a critical analysis as provided by Chambers (2006) who concludes:

> *'Indications are that in the coming years much will depend on the behaviour and attitudes of facilitators and who by virtue of their mastery of GIS technologies partly control the knowledge representation and transfer process. The process of integration and representation of local knowledge and aspirations through participatory mapping and GIS in the long run much will depend on issues of institutional and interpersonal trust, between holders of knowledge, process facilitators and the eventual users of the knowledge'. (Page 8).*

Thus, whatever tool we use, it is important to reflect carefully on the social processes involved in how we use that tool.

For RiskPACC, the social processes were the main focus of the participatory mapping activity rather than the production of a map as such. Our aim in designing the activity was to facilitate discussion and activities amongst participants to address each of the modules of the RiskPACC framework, but particularly as a vehicle for engaging in two-way communication and relationship building. The use of this tool was particularly helpful to understand the, possibly differing, contexts of the risk as seen by CPAs and Citizens, and to understand the diversity and/or vulnerability in the community. Co-creation Lab participants were asked (often in separate CPA and Citizen groups):

- What are the main risks and hazards in this location from your perspective?
- Are there particular social groups (elderly, people with disabilities, migrants, etc) who might be more affected??
- What similarities and differences do you see between your different groups?
- Taking just one of these agreed hazards/ risks, what actions would you take if you received a warning that this was about to happen?
- What actions would you expect the other group to take if they received a warning that this was about to happen? [Citizen groups think about what actions they would expect CPA groups to take, whilst CPA groups think about what actions they would expect citizens to take]?
- Who do you know that you could call on for help in this event?
- What should we do now with what we have learned? Would it be useful to keep talking and sharing on a regular basis? Would you be prepared to come back for some other activities to help reduce risk and share good practice actions?

Participants were brought together as a whole group at various points to share their group maps and answers and discuss differences that emerged between CPA and citizen groups. Finally, if there was time, case study partners were advised to form new groups of participants that consisted of a mix of CPAs and citizens and ask them to create a new, shared map of hazards, risks and vulnerable groups in their locality.

Overall, the mapping activity worked well in providing a focus for the exchange of knowledges and perceptions. Each Case Study was different in the way it employed the activity and the extent to which it got through all stages of the provided guideline. Where we still lack real progress is in moving to the 'Would it be useful to keep talking and sharing on a regular basis?' and the possible formation of CPA-Citizen committees for example. We have concluded that one of the reasons (apart from constraints on time to continue discussion) is likely to be the relative lack of experience of Case Study partners in engaging with Citizens in this way, which we discuss further in the concluding section of this report.

6.1.2 Risk Communication Activity

The scientific evidence underpinning risk communication has been presented above and in more detail in D3.6 so this section will go straight to a discussion of the risk communication activity undertaken in the Phase II Co-creation Labs.

In seeking to address the core concern of effective risk communication and simultaneously introduce ways of working with the Framework module ideas, we designed a risk communication activity (see ANNEX 7) which was broadly aimed at better-addressing the Building module of the RiskPACC framework, however its more specific aims and their link to the different framework modules included:

- To address a need by CPAs to communicate to citizens and/or volunteers a particular risk that they have identified -- BUILDING
- To open up a structured space for dialogue and sharing of risk perceptions between CPAs and citizens/volunteers on the meanings and measurements of this particular risk – UNDERSTANDING, SHARING
- To identify the best forms of risk communication to help citizens and/or volunteers to take informed and appropriate risk reduction actions – BUILDING
- To meet the needs of co-design and build relationships of trust through working together on a defined activity -- RELATING

The Case Study partners adapted the activity to their contexts but for the MDA/MoE Eilat Case Study we designed a specific adaptation to address their specific needs regarding their volunteers (see ANNEX 8).

The activity employed a typical risk communication that CPAs might use, or indeed, receive themselves, such as "location x has a [1 in 100 year flood] risk." The groups were then asked to discuss things such as:

- How well they understood the communication (by asking them to describe what it meant to them).

- How worried they felt about the prospect of that risk in their area having seen the communication.
- How trustworthy they felt the communication was.
- How useful they thought the communication was for informing them about the risk.
- Whether there were any vulnerable groups who they thought would find the communication more or less useful.
- What actions (if any) they would take in response to the communication.
- How they thought the communication could be improved with themselves and these different vulnerable groups in mind.

It was discovered in the discussions that CPAs and Citizens found the communications problematic in making meaning out of the numerical form of the message. It showed how such a message tended to require a lot more follow up information for people to make use of it. Also that trust in the communicator was significant in how people regarded the communication.

The second major part of the activity, if time permitted, was for the CPAs and Citizens to collaboratively create their own risk communication and two Case Study partners (CAFO and MRP) did this although in the end the value of the activity lay in discussing the expectations for what a successful communication should include and less on the specific contents of the message.

A particularly successful use of the activity was in the Eilat Case Study which provided a useful platform for non-judgementally exploring why trained volunteers, who knew both the local risk situation (earthquake in this case) and the appropriate actions that should be taken, did not themselves carry out such actions in their personal/family lives. Although there was limited time to take this activity further, it demonstrated the value of open, equal, two-way communication for discovering where vulnerabilities and opportunities lie.

6.1.3 NUDGING

Nudging is a social-psychological/behavioural tool for governments and businesses to influence citizen economic, healthcare and other decisions (see Thaler and Sunstein (2008)). Put positively, it is a method for influencing public behaviour to act in, what is seen, perhaps paternalistically as, their own interests. Put more critically, it is a subtle or soft form of manipulation of the public by those in power positions. Case study partner ISAR was interested in exploring the role of nudging in the choices people make around pandemic-related contact tracking apps and vaccination.

Heath et al (2019) analysed the employment of this approach using a ‘spokes-character’ (an animate being or animated object used to promote a product, service or idea (AdAge Encyclopaedia https://adage.com/article/adage-encyclopedia/spokescharacter/98889)) called Wally Wise Guy (Wally), to suggest the preferred emergency response in the event of a hazardous chemical release (P 129). The authors conclude that using such spokes-characters can be useful "narrative" tools to direct behavioural intentions however, there are intrinsic difficulties in measuring impact and attributing cause with this approach (P 136). In its use during

the RiskPACC ISAR Co-creation Lab nudging was broadly supported and some of the early concerns with the approach were not upheld in the discussions. See also Culau et al 2022 for an example from Japan which presents a classification of nudges and compares these nudges with other DRR approaches. The authors concluded that the most favourable nudges in terms of effectiveness and acceptability were those used in an emergency scenario (when a disaster is imminent) that also conveyed useful information (Page 57).

Although nudging was explored in the Labs, it does not fit well within a two-way communication and collaborative governance approach because it is intrinsically top down in direction.

6.2 Linking T4.2 Repository Of Good Practices With The Framework

The main aim of task T4.2 was the creation of a knowledgebase repository to include practices for different purposes and contexts of use to Civil Protection Authorities (CPAs) and/or citizens as part of the task to close the Risk Perception-Action Gap (RPAG). This has been done (see D4.2) with due reference to the Framework Modules to provide coherence across the project. D4.2 elaborates what exactly is meant by a 'good practice' and how the term will be used in the project as a whole. It uses a set of assessment criteria as follows:

Category of assessment criteria	Sub-category
Technical criteria	Accessibility
	Usability
Socio-Ethical Criteria	Privacy
	Non-discrimination
Governance criteria	Governance structure – vertical
	Governance structure – horizontal
	Governance and the governed
Communication criteria	Multi-directionality
	Efficiency
	Uniformity
Operational criteria	Community Engagement
	Transparency
	Applicability

TABLE 10: RISKPACC REPOSITORY ASSESSMENT CRITERIA

At time of writing it has not been possible to apply these criteria to the resources included in D4.3 because of the convergence of D4.3 and D4.2 submission dates.

6.3 Linking T4.4 Development Of Training Material With The Framework

RiskPACC Task 4.4 is focused on how best to provide training materials to support our activities and solutions. The development of the training material is based on the needs and the gaps that have been identified through the co-creation work of the project, guiding the user into the repository and the framework. The material, aiming to bridge RPAG, is addressed and configured accordingly to different target groups, CPAs, volunteers, citizens, people with disabilities, elderly, immigrants, children, etc.

The objectives that are specified for the development of the training material are:

1. Building Community Resilience for Hazards:

- Understanding risk perception, improving communication, and identifying needs and potentials

2. Understanding the Terminology of resilience' and 'community resilience':
    - Highlighting how different stakeholders understand these terms
3. Community Engagement
    - Current challenges in community engagement
    - The need for a shift from passive to active citizenship
    - Culturally sensitive and appropriate engagement strategies
4. Empowering Local Citizens
    - Addressing the 'responsibility' of local citizens
    - Ensuring the delegation of appropriate resources and abilities to act effectively.
5. Building Trust Ties
    - Emphasizing the importance of social capital alongside infrastructure resilience
    - Building and consolidating 'trust ties' between CPAs and civil society
6. Incorporating Bottom-up Activities
    - Acknowledging the need for citizen-led initiatives
    - Encouraging two-way communication and engagement
7. Aligning Risk Perceptions
    - Addressing the disconnect between CPAs and community risk perceptions
    - Strategies to better align and understand these processes
8. Risk Communication
    - The need for improved, two-way risk communication
    - Balancing the need for information with preventing unnecessary concern
9. Utilizing Local Knowledge
    - Addressing the lack of contextually sensitive data
    - The importance of utilizing tacit local knowledge in disaster preparedness

10. Addressing the Digital Divide
    - Ensuring inclusivity in technology-led solutions
    - Strategies to ensure that digital solutions do not exclude vulnerable populations
11. Expanding Use of VGI and Digital Technologies
    - Encouraging the broader application of VGI solutions across different stages of disaster management
    - The need for better data sharing and standardization across CPAs
12. Active Citizen Participation
    - Encouraging citizens to actively participate in disaster resilience efforts
    - Strategies for moving from passive to active citizenship
13. Developing a Future Vision
    - The need for a forward-thinking approach to citizen engagement and community resilience
    - Prioritizing proactive, anticipatory engagement over-reactive responses
14. Improving Inter-agency Communication
    - The importance of effective communication channels between CPAs and community groups
    - Ethical considerations and inclusivity in digital communication platforms
15. Increasing Risk Information Availability
    - The need for more comprehensive risk information for local communities
    - Strategies for effective information dissemination and education

The scope of the training material is to follow up the collaborative Framework that is being built within the RiskPACC. It is separated in two parts, a draft version and a final, aligned with the two deliverables D4.3 and D4.5 of the Framework.

7 CONCLUSION

At this stage of development, the RiskPACC Draft Collaborative Framework can be said, tentatively, to be working although it requires much more exposure and application to deliver the final version. This we hope Will be aided byt the sharing of the Framework and attendant activities with the EFUS Cities as part of WP6.

7.1 Challenges

The major lesson learned since we began working on the framework is that there is no 'One Size Fits All' – RiskPACC partners are at different stages. For some, they have never engaged with citizens in two-way communications; for others, they have engaged but not on the topic of closing a risk perception-action gap. We can envisage there will be others who have experience of both communications and the central topic and may have already developed committees or groups who meet regularly. Each of these three broad groups will enter the space with different expectations, knowledges and processes.

The Co-Creation Workshops demonstrate that developing effective Risk Reduction Relationships is the hardest, and yet least recognized or actioned, element

Yet this is highlighted in the literature as highly significant to build resilience (part of which is closing the RPAG)

This will have implications for the Training work and for the Platform by suggesting different ways to engage for different 'audiences'.

A crucial question which remains to be addressed more systematically is how stakeholder representatives for the various target groups could be identified and involved in a form of collaborative governance. How can CPAs specifically involve women, homeless people, elderly people, migrants or speakers of a foreign language and who is truly representative of these groups? This is core to the concept of collaborative governance. It is hoped that this will be a topic of discussion and deliberation during the remaining period of RiskPACC and especially during the Workshops with EFUS Cities.

7.2 Next Steps

7.2.1 Recognising Different Starting Points

Analysis of the previous RiskPACC outputs and activities has revealed that the current draft framework is too ambitious for many case study partners to work within, given their lack of experience in two-way communication with citizens and stakeholders.

The next step in developing the RiskPACC Framework is to work on a staged process of CPA-Citizen Engagement and asking which partners are at which stage that we have tentatively identified as:

1. Entry Level (Starting Out)

2. Intermediate Level (Establishing Sustainable Partnerships)

3. Advanced Level (Continuous Development & Improvement)

We will develop a simple checklist to go with the three stages. An initial (empty) outline of descriptive actions of the three different stages, why these actions are important and what is still missing to meet the requirements of collaborative governance is presented in Table 12 and wil be completed in the next stage. The idea has already been shared with RiskPACC team members but in the next period we will discuss on a one-to-one basis with the case study partners to determine where they think they are currently situated and ways to move to higher levels.

CPA-Citizen Engagement Stage	Why is this important? And/or what is missing?	RiskPACC Case Studies
1. Entry Level (Starting Out)	*To be completed in the next stage*	*To be completed in the next stage*
a) One-way communication (e.g. of warnings or advice). Little or no tradition of dialogue with citizens	"	"
b) Information posted on a website	"	"
c) …	"	"
2. Intermediate Level (Establishing Sustainable Partnerships)		
a) Occasional 'Town Hall' type public consultation meetings (e.g. top table of CPAs presenting with possibilities for citizens to ask questions)	"	"
b) …	"	"
3. Advanced Level (Continuous Development & Improvement)		
a) Regular public participation events (more opportunities for citizen input)	"	"
b) Established CPA-Citizen group that meets regularly	"	"
c) …	"	"

TABLE 11: STAGED PROCESS OF CPA-CITIZEN ENGAGEMENT

Additionally, we will explore the applicability of performance measurements in evaluating the implementation of the framework (see Emerson and Nagatchi 2015 and above Table 6).

7.2.2 TESTING WITH EFUS CITIES AND VOLUNTEER CASE STUDY PARTNERS

We have the opportunity to share RiskPACC solutions, including the Framework, with the European Forum for Urban Security (Efus) as part of WP6 Impact generation through peer-learning, field testing and knowledge capitalisation.

We will showcase the theoretical and procedural aspects of the Framework to serve as a basis for the subsequent testing of the platform by the RiskPACC EFUS cities. This collaborative effort between cities and regions and project partners aims to enhance existing disaster resilience

practices and enable disaster management professionals and citizens alike. As a core structural task (WP4) within the project, the RiskPACC Framework holds a pivotal role in guiding associated cities and regions towards successfully closing the RPAG.

In the upcoming phases, we plan to undertake two critical steps to ensure the effectiveness and applicability of the RiskPACC Framework:

Demonstration/Presentation of the Framework:

- Before initiating the testing of the platform, the RiskPACC Framework will undergo a comprehensive demonstration and presentation. This presentation will serve as a solid foundation for the subsequent testing phase of the RiskPACC platform, where the Framework will be integrated and will serve as a resource for associated cities and regions.

Testing by RiskPACC Cities and Stakeholders:

- The real test of our Framework lies in its implementation and practical usage. To achieve this, associated cities and regions will actively participate in testing the Framework. As key stakeholders in disaster resilience, their involvement will provide invaluable insights into the real-world applicability of the Framework. Additionally, the associated cities and regions will utilise the Framework during their activities, incorporating both technological and non-technological tools developed within the RiskPACC Project. This inclusive approach aims to strengthen disaster resilience practices and empower our partners with effective solutions.

We foresee that the RiskPACC Framework will not only be utilised during the testing phase but will also be embraced and incorporated into the ongoing activities of the cities. As we explore the diverse technological and non-technological tools developed under the RiskPACC Project, the Framework will play a central role in guiding and enhancing our associated cities and regions efforts.

Through this collaborative and iterative process, we anticipate the RiskPACC Framework to be a robust and dynamic tool, empowering our associated cities and regions and stakeholders to navigate challenges and make informed decisions in disaster resilience planning.

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9 ANNEXES

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9.1 ANNEX 1: Resources for RiskPACC Framework Modules – UNDERSTANDING Risk Information Context

UNDERSTANDING RISK INFORMATION CONTEXT - Where can you get information? CPAs and Citizens	
Resources	**Links**
OpenWHO WHO's first interactive, self-paced, online knowledge-transfer platform introducing open online courses into health emergency response. OpenWHO courses are offered for free to anyone who registers with their email address. **Go social!** Go social! focuses on cross-cutting interventions such as risk communication. The course is structured into five modules, with case studies and a final assessment. Course contents: Course Introduction; Module 1: Community Engagement; Module 2: Data Collection and Analysis; Module 3: Considerations for Intervention Design; Module 4: Risk Communication; Module 5: Interpersonal Skills.	https://openwho.org/courses?utf8=%E2%9C%93&q=Communication https://openwho.org/courses/empowering-communities
RiskData Hub A GIS web platform of European wide risk data and methodologies for Disaster Risk Assessment. It adopts the comprehensive administrative frameworks and policies (Union Civil Protection Mechanism, Sendai Framework for DRR), data sharing initiatives (OpenDRI) and spatial data infrastructures (INSPIRE) with the purpose of setting the bases for knowledge for DRM at local, national, regional and EU-wide level. The Risk Data Hub is expected to be the point of reference for curated EU-wide risk data, either through hosting relevant datasets or through linking to national datasets. Collecting and producing an inventory of relevant methodologies and datasets will set the bases for qualitative evaluation of science-based approaches on risk assessment and will locate and propose alternative sources. Risk Data covers research, policy and operational actors.	https://drmkc.jrc.ec.europa.eu/risk-data-hub#/
UK Government 2016 Community Emergency Plan Toolkit This is a step-by-step guide to help people and their communities produce a Community Emergency Plan. A Community Emergency Plan. It should be linked to a template plan, and general information about Preparing for Emergencies but that link is not working. However, there is one hosted by Huntingdonshire, which is a local government district of Cambridgeshire, UK.	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/552869/community_emergency_plan_toolkit.pdf https://www.huntingdonshire.gov.uk/media/1242/community-emergency-plan-template.doc
Department of Communities, Child Safety and Disability Services, Australia 2017 People with vulnerabilities in disasters A framework for an effective local response This Toolkit provides organisations with an augmented approach to applying the Framework, including a range of actions and strategies that can be tailored relative to their respective resource and capability levels. This Toolkit also provides tips and resources to help support good-practice.	https://www.qld.gov.au/__data/assets/pdf_file/0022/55219/supporting-people-with-vulnerabilities-toolkit.pdf

UNDERSTANDING RISK - Where can you get information? **CPAs**	
The Union Civil Protection Knowledge Network is one of the tools of the Union Civil Protection Mechanism and its community. The Knowledge Network is a hub that connects first responders, disaster risk managers, scientists, and decision-makers and matches their needs for expertise and good practices with methodologies, tools, solutions, and resources.	https://civil-protection-knowledge-network.europa.eu/
EU 2022 Overview of the Wildfire Prevention Action Plan This plan from the European Commission lists 10 actions, organised around three themes, to help safeguard forests from wildfires: i) improved capacity to prevent wildfires, ii) improved knowledge on wildfires for prevention, and iii) increased financing for wildfire prevention actions. It is expected the plan will be taken forward through reinforced dialogue and cooperation with the Member States on these actions, with clear legal base and proposed deliverables.	https://civil-protection-knowledge-network.europa.eu/system/files/2022-12/Wildfire%20Prevention%20Action%20Plan.pdf
EU Civil Protection Mechanism Peer Review Program A peer review of disaster risk management and civil protection systems provides a country or a region with a unique opportunity to reflect on its readiness to cope with natural hazards and human-induced disasters and to identify ways of strengthening its prevention and preparedness policy and practices. It also facilitates the exchange of good practices.	https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/peer-review-programme_en
DRMKC INFORM INFORM is a collaboration of the Inter-Agency Standing Committee Reference Group on Risk, Early Warning and Preparedness and the European Commission. It is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. INFORM includes organisations from across the multilateral system, including the humanitarian and development sector, donors, and technical partners. The Joint Research Center of European Commission is the scientific lead for INFORM.	https://drmkc.jrc.ec.europa.eu/inform-index
UNDERSTANDING RISK - Where can you get information? **Citizens**	
The American Red Cross and the International Federation Red Cross and Red Crescent Societies (IFRC) Global Disaster Preparedness Center (GDPC) - Community Risk Assessment The American Red Cross and the International Federation of Red Cross and Red Crescent Societies (IFRC) have established the Global Disaster Preparedness Center (GDPC) as a reference center to support innovation and learning in disaster preparedness. GDPC provides services in three main areas — Knowledge Management, Research and Technical Assistance — in order to build national and community level preparedness.	https://preparecenter.org/topic/community-risk-assessment/
Cornwall Council UK Community Emergency Plan	https://www.cornwall.gov.uk/fire-and-

Toolkit A toolkit providing practical support to help communities plan ahead and become better prepared for emergencies. It also has a template with guidance on how to complete.	rescue-service/keeping-safe/emergency-management/cornwall-community-resilience-network/community-emergency-plan-toolkit/ https://www.cornwall.gov.uk/media/0r5af15r/cep-template-with-guidance.pdf
Government of Canada 2012 Your Emergency Preparedness Guide This is an example of preparing a family emergency plan. It includes checklists to build a 72-hour emergency kit. It is two formats: online, and in PDF format.	https://www.getprepared.gc.ca/cnt/rsrcs/pblctns/yprprdnssgd/index-en.aspx https://www.getprepared.gc.ca/cnt/rsrcs/pblctns/yprprdnssgd/yprprdnssgd-eng.pdf

TABLE 12: RESOURCES FOR RISKPACC FRAMEWORK MODULES – UNDERSTANDING RISK INFORMATION CONTEXT

9.2 ANNEX 2: Resources for RiskPACC Framework Modules – UNDERSTANDING Social-Political (People) Context

UNDERSTANDING SOCIAL-POLITICAL (PEOPLE) CONTEXT CPAs	
Resources	**Links**
OECD Background Document on Public Consultation This offers more information for those wanting to learn more about public consultation. It differentiates between Notification, Consultation and Participation which denote increasing levels of dialogue and shared decision making power.	https://www.oecd.org/mena/governance/36785341.pdf
Socialpinpoint, How Diversity Affects Decision-Making in Communities This site offers some introductory ideas on how diversity improves decision making. It includes links to downloadable guides such as: How To Become An Expert in Inclusive Engagement. Discover how to involve a representative cross-section of the community with online technology and turn your ambition for inclusivity into a reality.	https://www.socialpinpoint.com/how-diversity-affects-decision-making-in-communities/ https://socialpinpoint.wpenginepowered.com/wp-content/uploads/2023/02/How-To-Become-An-Expert-In-Inclusive-Engagement-Social-Pinpoint.pdf
McKinsey & Company 2022 What is diversity, equity, and inclusion? Although this is focused on the (US) business community it has useful information on e.g. the differences between diversity, equity and inclusion, on intersectionality, racial equity and other topics.	https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-diversity-equity-and-inclusion
McKinsey & Company, 2020 Diversity Wins How inclusion matters This resource builds on What is diversity, equity, and inclusion? And provides some supporting evidence and analyses in support of diversity and inclusion in improving (business) practice.	https://www.mckinsey.com/~/media/mckinsey/featured%20insights/diversity%20and%20inclusion/diversity%20wins%20how%20inclusion%20matters/diversity-wins-how-inclusion-matters-vf.pdf
EU 2023 Annual report on gender equality The report takes stock of where the EU and its Member States stand on gender equality. It highlights the EU's achievements in key areas covered by the strategy and gives examples from the Member States and EU-funded projects in these areas.	https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en#:~:text=increasing%20female%20labour%20market%20participation,and%20protecting%20and%20supporting%20victims
OECD Innovative Citizen Participation This explores innovative ways that governments can effectively engage with citizens and stakeholders to source ideas, co-create solutions, and tackle complex policy problems. It focuses on new research in the area of deliberative, collaborative, and participatory decision making that are evolving across the globe. It includes deliberative processes for public decision making including a Deliberative Democracy Toolbox.	https://www.oecd.org/governance/innovative-citizen-participation/ https://www.oecd.org/governance/innovative-citizen-participation/deliberative-democracy-toolbox-overview.pdf

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. They identify six categories as among the most commonly accepted in terms of social vulnerability: socioeconomic status, age, gender, race and ethnicity, English language proficiency, and medical issues and disability. Importantly, they remind us to keep in mind that many people might fit more than one category.	https://www.cdc.gov/nceh/hsb/disaster/atriskguidance.pdf
EU JRC DRMKC - Risk Data Hub Vulnerability to Disasters in Europe. Risk Data Hub is a GIS web platform of European wide risk data and methodologies for Disaster Risk Assessment.	https://drmkc.jrc.ec.europa.eu/risk-data-hub#/vulnerability-in-europe
UNDERSTANDING SOCIAL-POLITICAL (PEOPLE) CONTEXT **CPAs & Citizens**	
Council of Europe Gender Equality Strategy 2018-2023 The focus for the Gender Equality Strategy 2018-2023 is on the following six strategic areas: • Prevent and combat gender stereotypes and sexism; • Prevent and combat violence against women and domestic violence; • Ensure the equal access of women to justice; • Achieve a balanced participation of women and men in political and public decision-making; • Protect the rights of migrant, refugee and asylum-seeking women and girls; • Achieve gender mainstreaming in all policies and measures.	https://www.coe.int/en/web/genderequality/gender-equality-strategy
EU European citizens' panels: A new phase of citizen engagement Commission convened a Citizens' Panel (140 citizens from 27 Member States) to deliberate and make recommendations on actions to be taken by Member States, citizens and public and private stakeholders, to guide the development of desirable and fair digital environments. The Citizens' Report from the Panel has the full set of recommendations.	https://citizens.ec.europa.eu/index_en https://digital-strategy.ec.europa.eu/en/news-redirect/794411
Nextdoor Discover Your Neighbourhood, UK This is a platform to enable people to connect to people in their neighbourhood to improve community level strength. It includes people in United States, United Kingdom, the Netherlands, France, Germany, Italy, Spain, Australia, Denmark, Sweden and Canada.	https://nextdoor.co.uk/news_feed/
Morchain, D. and Kelsey, F. 2016. **Finding ways together to build resilience: A vulnerability and risk assessment** methodology. Oxfam GB.	https://oxfamilibrary.openrepository.com/bitstream/handle/10546/593491/ml-vra-150116-en.pdf;jsessionid=0752AE5ED318A80B

A methodology for a participatory, multistakeholder contextual analysis that assists stakeholders to understand the main hazards and issues affecting people in a social-ecological landscape.	0B501E060801BCC1?sequence=1
Children/Teachers	
Social scientists at Lancaster University have researched the effects of floods on the lives of adults and children in three major projects: Hull Floods Project (2007-2009), Hull Children's Flood Project (2007-2011) and Children, Young People and Flooding: Recovery and Resilience (2014-16). They have produced 'Flooding – a social impact archive', which contains a number of interactive games:	https://wp.lancs.ac.uk/floodarchive/
Flood Snakes & Ladders developed in 2009 by Lancaster University researchers from the Hull Floods Project, is an interactive game that invites participants to walk in the shoes of flood-affected children. It can be used to stimulate discussion and learning around flood preparedness and response.	https://wp.lancs.ac.uk/floodsnakesandladders/background/
A **360 virtual reality video** in which viewers experience flooding and the difficult road to recovery from the perspective of a young boy and his family.	https://wp.lancs.ac.uk/floodarchive/help-callum/
The Flood Suitcase is designed to support recovery and resilience building with flood-affected children, young people, families and teachers.	http://wp.lancs.ac.uk/floodarchive/resources/interactive-tools/flood-suitcase-2/
Get Flood Ready! is a digital game for primary-aged children, aimed at promoting flood awareness and preparedness.	https://wp.lancs.ac.uk/floodarchive/interactive-tools/get-flood-ready/
Global Disaster Preparedness Center (GDPC) The American Red Cross and the International Federation Red Cross and Red Crescent Societies (IFRC) have established the Global Disaster Preparedness Center (GDPC) as a reference center to support innovation and learning in disaster preparedness. **Teen Prep Kit** was a project that engaged RCRC youth across the globe to develop preparedness content related to Disaster Risk Reduction; Emergency Planning; Climate Change; Health; Wellness & Resilience; and Leadership & Future Building. Teen Prep Kit Climate Change Activities – English	https://preparecenter.org/ https://preparecenter.org/resource/teen-prep-kit-disaster-risk-reduction-activities-english/
Disaster Preparedness Games The American Red Cross' International Services Department has teamed up with the Red Cross/Red Crescent Climate Centre and Parsons The New School of Design's Prototyping, Evaluation, Teaching and Learning Lab (PETLab) to develop a set of **participatory games about disaster preparedness and changing**	https://preparecenter.org/topic/games/

climate risks. The games serve as a platform for experiential learning and have the aim of enabling community members better understand specific risks; make decisions; deal with the consequences of their decisions; and have a shared learning dialogue about what must be done in order to make better decisions in the future.	
People With Disabilities	
UNDRR Disability and disaster risk knowledge base A resource guide including case studies, challenges and best practices to ensure the full participation of persons with disabilities in disaster risk reduction.	https://www.preventionweb.net/collections/disability-and-disaster-risk?_gl=1*ibljab*_ga*ODc2MDkyOTAwLjE2OTAyNzU2ODA.*_ga_D8G5WXP6YM*MTY5MDQ3MzAyMS4yLjEuMTY5MDQ3MzEwMi4wLjAuMA..
MAJOR HAZARDS AND PEOPLE WITH DISABILITIES A toolkit for good practice It provides guidance and good practice examples for CPAs and decision makers, disaster officers, emergency managers, disabled peoples' organisations and people with disabilities and their families to ensure the active involvement of people with disabilities in disaster-related activities. The focus is on Council of Europe and EUR-OPA member states, but other examples from around the world are also included to give a wider perspective	https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=0900001680467003
EDF 2021 Review of Disability-inclusive Disaster Risk Reduction Policy and Practice across Europe and Central Asia, European Disability Forum In preparation for the 2021 European Forum for Disaster Risk Reduction (EFDRR), the European Disability Forum (EDF) has worked on the first-ever review of disability-inclusive disaster risk reduction (DiDRR) policy and practice across countries of the Europe and Central Asia region. The aim of the DiDRR review was primarily to provide a baseline of information for this region on the current state of disability inclusion in DRR-related policies and practices and to support consistency of reporting on disability inclusion in DRR across the rest of the regions of the world.	https://www.edf-feph.org/publications/review-of-disability-inclusive-disaster-risk-reduction-policy-and-practice-across-europe-and-central-asia/
Person-Centred Emergency Preparedness (P-CEP) Toolkit An all-hazards approach to enabling emergency preparedness. Co-designed and tested with people with disability, Person-Centred Emergency Preparedness (P-CEP) enables people to self-assess their preparedness, capabilities and support needs and develop a personal emergency plan for how they will: (a) manage their support needs in emergencies; and (b) act together with their support network before, during, and after a disaster.	https://collaborating4inclusion.org/home/pcep/
UNDERSTANDING SOCIAL-POLITICAL (PEOPLE) CONTEXT Citizens	

Din Säkerhet (Your Security) Advice for private individuals Information on how to prepare for a flood and how to see signs of landslides; fire safety in forest land; tips on how you can pack an emergency box; joining an association or voluntary defense organization. Citizens	https://www.msb.se/sv/rad-till-privatpersoner/

TABLE 13: RESOURCES FOR RISKPACC FRAMEWORK MODULES – UNDERSTANDING SOCIAL-POLITICAL (PEOPLE) CONTEXT.

9.3 ANNEX 3: Resources for RiskPACC Framework Modules – SHARING Risk Perceptions and Actions

SHARING RISK PERCEPTIONS & ACTIONS **CPAs & Citizens**	
Resources	**Links**
Centers for Disease Control and Prevention (CDC). (2021). **Access and Functional Needs Toolkit: Integrating a Community Partner Network to Inform Risk Communication Strategies**. Atlanta, GA: U.S. Department of Health and Human Services (HHS). Includes guidelines and ideas for emergency management officials, public health professionals, and other stakeholders to achieve effective risk communication by developing messages for the whole community. This includes individuals who may be at greater risk or who need additional assistance because of access and functional needs. Also includes Communication Planning for Children – see the **'Ready Wrigley'** series of information booklets for children https://www.cdc.gov/orr/readywrigley/books.htm	https://www.cdc.gov/orr/readiness/00_docs/CDC_Access_and_Functional_Needs_Toolkit_March2021.pdf
SHARING RISK PERCEPTIONS & ACTIONS **CPAs**	
World Health Organisation (WHO). (2017). Communicating risk in public health emergencies: A WHO guideline for emergency risk communication (ERC) policy and practice. Geneva: World Health Organization. Includes guidelines and recommendations for policy/decision makers, public health professionals, risk communication practitioners, and other stakeholders. See section 7 for the recommendations for building trust and engaging with affected populations CPA	https://apps.who.int/iris/bitstream/handle/10665/259807/9789241550208-eng.pdf
Henderson, F., and Helwig, K. 2022 **A Smart Guide to Flood Risk Communication**. CRW2018_04. Scotland's Centre of Expertise for Waters (CREW). See Participants Case Study: Raising flood risk awareness amongst older people CREW – Scotland's Centre of Expertise for Waters (page 18). CPA	https://www.crew.ac.uk/

TABLE 14: RESOURCES FOR RISKPACC FRAMEWORK MODULES – SHARING RISK PERCEPTIONS AND ACTIONS.

9.4 ANNEX 4: Resources for RiskPACC Framework Modules – RELATING Risk Reduction Relationships

RELATING – RISK REDUCTION RELATIONSHIPS CPAs	
Resources	**Links**
Civil Defence Emergency Management Canterbury, New Zealand: **Community ready.** Points out the value of communities connecting, even without a disaster focus, to enable better disaster response and recovery.	https://www.cdemcanterbury.govt.nz/community-ready
WREMO Mō Mātou (About Us)	https://wremo.nz/about-wremo/
Australian Red Cross 2020 **Community-led Resilience Teams.** A guide to provide advice for engaging community members, emergency and recovery agencies, and other community stakeholders. It explains the simple steps required to establish and develop a CRT.	https://www.redcross.org.au/globalassets/cms-assets/documents/emergency-services/red-cross-community-led-resilience-teams.pdf
CDC Reaching At-Risk Populations in an Emergency. Despite its US focus, it has useful ideas and guidance for specific activities to help create and maintain a Community Outreach Information Network (COIN).	https://emergency.cdc.gov/workbook/pdf/ph_workbookFINAL.pdf
National Science Foundation (USA) 2018 **The importance of community networks to disaster resilience**. Short article referring to research identifying a missed opportunity to benefit from existing community social networks to improve risk awareness or to improve individual or household preparedness.	https://new.nsf.gov/news/importance-community-networks-disaster-resilience
For an academic piece that discusses the role of **social capital (social assets and connections) in disasters**, see: Russell Dynes 2006 Social Capital: Dealing with Community Emergencies Homeland Security Affairs VOLUME II / JULY 2006	https://www.hsaj.org/articles/168
WHO 2021 Operational guide for engaging communities in contact tracing	https://www.who.int/publications-detail-redirect/WHO-2019-nCoV-Contact_tracing-Community_engagement-2021.1-eng
RELATING – RISK REDUCTION RELATIONSHIPS CPAs & Citizens	
Collaborating 4 Inclusion, Australia: Person-Centred Emergency Preparedness (P-CEP) Toolkit. Co-designed and tested with people with disability, Person-Centred Emergency Preparedness (P-CEP) enables people to self-assess their preparedness, capabilities and support needs and develop a personal emergency plan.	https://collaborating4inclusion.org/home/pcep/
National Flood Forum UK, Flood Action Groups	https://nationalfloodforum.org.uk/worki

The National Flood Forum exists to support individuals and communities at risk of flooding and has been doing so across the UK since 2002. They provide support to individuals and advice on setting up local Flood Action Groups made up of a core of local people who act as a representative voice for their wider community. They have a simple introductory guide to setting up a Flood Action Group.	ng-together/communities/what-is-a-flood-action-group/ https://nationalfloodforum.org.uk/wp-content/uploads/2023/03/How-to-set-up-a-Flood-Action-Group.pdf

TABLE 15: RESOURCES FOR RISKPACC FRAMEWORK MODULES – RELATING RISK REDUCTION RELATIONSHIPS.

9.5 ANNEX 5: Resources for RiskPACC Framework Modules – BUILDING Risk Communication Approaches

BUILDING RISK COMMUNICATION APPROACHES CPAs	
Resources	**Links**
Technological	
LINKS Social Media and Crowdsourcing (SMCS) Technologies Library EU project which gathers and structures information about existing technologies to provide an up-to-date overview and thus support the selection of suitable technologies.	https://links.communitycenter.eu/index.php/List_of_Disaster_Community_Technologies
Juhani Latvakoski, Risto Öörni, Toni Lusikka, Jaana Keränen, (2022) **Evaluation of emerging technological opportunities for improving risk awareness and resilience of vulnerable people in disasters**. International Journal of Disaster Risk Reduction, 80, 103173 An academic paper which contains analyses and evaluations of emerging technological opportunities for improving risk awareness and resilience of vulnerable people in disasters.	https://doi.org/10.1016/j.ijdrr.2022.103173
Conceptual	
Interstate Technology and Regulatory Council (ITRC) Risk Communication Toolkit Although a US-based resource and focused on environmental issues and contamination, it does provide some good overview materials (including videos) on risk communication as well as a Risk Communication Plan Description and Template amongst other resources. This is a resource to help broaden understanding.	https://rct-1.itrcweb.org/
PAHO Risk COVID-19 Communication and Community Engagement (RCCE) Planning Template PAHO is the Pan American Health Organization. This resource is to support PAHO Country Offices and national/subnational emergency management mechanisms to develop or update their risk communication and community engagement (RCCE) plans related to COVID-19.	https://www.paho.org/en/file/63164/download?token=UqaMVMKy
Lisa S. Meredith, Lisa R. Shugarman, Anita Chandra, Stephanie L. Taylor, Stefanie Howard, Ellen Burke Beckjord, Andrew M. Parker, Terri Tanielian 2008 **Analysis of Risk Communication Strategies and Approaches with At-Risk Populations to Enhance Emergency Preparedness, Response, and Recovery'** Final Report. RAND Health Working Paper	https://www.rand.org/pubs/working_papers/WR598.html
PAHO Risk COVID-19 Communication and Community Engagement (RCCE) Planning Template PAHO is the Pan American Health Organization. This resource is to support PAHO Country Offices and national/subnational emergency management	https://www.paho.org/en/file/63164/download?token=UqaMVMKy

mechanisms to develop or update their risk communication and community engagement (RCCE) plans related to COVID-19.	
IRC Risk Communications & Community Engagement The International Rescue Committee (IRC) has developed a comprehensive resource package for practitioners to implement effective Risk Communication and Community Engagement (RCCE) in the midst of disease outbreak. It has a Resources Library https://rescue.app.box.com/s/cbggaq8nizx2p2e4irt5fqjr4r8lqhds	https://rcce.rescue.org/
BUILDING RISK COMMUNICATION APPROACHES CPAs & Citizens	
Technological	
NL-Alert warns and informs you about emergency situations. An NL-Alert tells you what is going on, what you should do and where you can find more information via an NL-Alert on your mobile.	https://crisis.nl/nl-alert/over-nl-alert/
DIMDICI – INCLUSIVE CO-DESIGNS, DIMDICI Digital Mapping with Disabled Citizens Engaging a group of people with disabilities in the co-design of an inclusive digital collaborative mapping tool in Herne, Germany	https://dimdici.hypotheses.org/
Conceptual	
Lisa S. Meredith, Lisa R. Shugarman, Anita Chandra, Stephanie L. Taylor, Stefanie Howard, Ellen Burke Beckjord, Andrew M. Parker, Terri Tanielian 2008 **Analysis of Risk Communication Strategies and Approaches with At-Risk Populations to Enhance Emergency Preparedness, Response, and Recovery'** Final Report. RAND Health Working Paper A one-year study including a review of the literature on emergency preparedness risk communication and public health messaging strategies; the compilation of educational and outreach materials for emergency preparedness communication with at-risk populations; and site visits in three states and the Washington, DC area to identify gaps in the practice of risk communication with at-risk populations. The findings should be of interest to emergency managers, community-based organizations, public health researchers, and policy makers.	https://www.rand.org/pubs/working_papers/WR598.html
LINKS Community Center EU project - Strengthening links between technologies and society for European disaster resilience. Contains a Social Media and Crowdsourcing (SMCS) Technologies Library (73 resources); A guidelines library supporting the implementation and use of social media and crowdsourcing in disaster management organisations (71 resources); and A Social Media and Crowdsourcing (SMCS) Use Cases	https://links.communitycenter.eu/index.php/Welcome! https://links.communitycenter.eu/index.php/List_of_Disaster_Community_Technologies https://links.communitycenter.eu/index.php/List_of_Disaster_Community_Technologies https://links.communitycenter.eu/index.

Library (25 resources)	php/List_of_Use_Cases
World Health Organization 2021 Operational guide for engaging communities in contact tracing. This resource emphasises the place of community engagement and participation in the contact tracing process. The guidance and related products articulate best practice principles for community engagement and how they can be operationalized as part of any community-centred contact tracing strategy.	https://www.who.int/publications/i/item/WHO-2019-nCoV-Contact_tracing-Community_engagement-2021.1-eng

TABLE 16: RESOURCES FOR RISKPACC FRAMEWORK MODULES – BUILDING RISK COMMUNICATION APPROACHES.

9.6 ANNEX 6: Guidelines for Participatory Mapping Activity

Guidelines for participatory mapping exercise

This document provides a table of prompts and activities to guide the process of the participatory mapping exercise that will be conducted in your workshop (see end of the document). This is designed to be a useful tool to aid in your workshop, but you should feel free to adapt it to your needs. It is a guideline to help us meet our objectives and not a formal set of instructions. The table identifies:

1) General questions the facilitator can ask the workshop groups.
2) The **suggested activities** that the participants in each group will be doing.
3) **Prompts** to help with noting down the responses of the participants so the scientific partners can conduct later evaluation and analysis.

The aim of the exercise is to facilitate discussion and activities amongst participants that address each of the modules of the RiskPACC framework, and so help you to close the risk perception-action gap between yourselves and your citizens:

1) **Understanding context** (of the risk and community)
2) **Sharing** (of knowledge and risk perceptions between different participant types)
3) **Relating** (building relationships of trust between citizens and civil protection groups)
4) **Building** (of techniques and tools for communication)

A copy of the RiskPACC framework along with some brief notes is included at the end of the document for reference (not reproduced here).

Group types and requirements:

Stages 1,2,3,4,5 (see table): Participants should be split into two group types:

1) Citizen/stakeholder representative only group(s)
2) CPA/CPA's professional stakeholders only group(s)

Note that if you find you have an imbalance in the number of participants of different types, you may wish to have more than one of each group type (e.g. if you have many more CPAs than citizens, you could consider having several CPA-only groups, and just one citizen-only group).

Stage 6 (see table): Participants from the original separate group types should be combined into mixed groups that contain both citizens and CPAs.

Each table should have a ***microphone to enable audio recording*** of the discussions to provide a transcript for later translation. Conference microphones are best.

Roles within groups:

Numbers of participants will vary and so it may be necessary to combine some roles but, ideally, each group should have assigned to it:

1. **A "Facilitator"** from the host team:

The facilitator role should probably be the Case Study partner lead or similar. Using the table of prompts as a guide (see end of this document), the facilitator will be asking the questions and then when the groups are doing their work, they can walk around observing, listening and taking notes to provide some overall reflections for later analysis. These notes might include observations on things like:

- How the Lab is working;
- How well the discussion is going;
- Are there any differences or conflicts within and between the groups;
- Are some participants talking too much or too little (e.g. it is common in mixed gender groups for women to speak less than men; facilitators should try to think of ways to even out the discussion if this is happening).

2. An "Observer Notetaker" from the host team:

Again, using the table of prompts as a guide (see end of this document), the Observer Notetaker should be taking notes on the specific discussions that happen within their group, and along with the facilitator should help lead the discussion on each table. Ideally, notes would be made for each section of the table of prompts below, and might include observations such as:

- What risks/hazards are identified in the group;
- To what extent are the identified hazards/risks the same as or different to the set hazards/risks that your case study is focusing on;
- Which modules of the RiskPACC framework is the discussion addressing at different points (if any) – understanding, sharing, relating, building;
- Is there a risk perception gap that can be seen;
- Is there disagreement or consensus within the group.

Note that if a host team member is not available to take notes, then each group should nominate a participant group member to do this.

In addition to the Facilitator and Observer Notetaker, each group should nominate:

3. **A "Reporter"** who is a participant:

The reporter is a participant from the group who will report back on the group's work and discussions.

Example materials each group will need:

- **An A0/A1 size print out of the target map area (essential that each group has its own copy)**
- Sticky notes
- Pens/markers
- Flip chart
- Paper

- A microphone for audio recording

This will give us a set of maps, notes and data for each group, for comparison of risk perception and action differences.

Timing[8]	Facilitator Question prompts	Activity	Frame-work
0900-0920	Welcome everybody to the RiskPACC Co-Creation Lab. RiskPACC is…. Please introduce yourself (name, organisation or particular interest group you are representing. Everybody here has a voice and it is of equal importance. We are all experts in our own ways. Please listen to each other respectfully…. This is what we plan for today… Are there any questions so far?	Meet and greet – view and sign GDPR statement and consent form. Brief introduction to RiskPACC for those who have not been before. Who is in the room? Self introductions Share the values of the meeting based on democratic and equality principles. Women and minority groups may need more encouragement to speak. Go over your programme for the day (show on a slide or provide a handout of the basic schedule you have planned) Deal with any initial queries	
0920-0930	We have allocated you to different groups to begin with and later we will join back together. Please be prepared for one of your group to report back the findings later. This is a map of our location and we will begin to explore how we all see the risks in our area	Split into groups or already have their names on the table in the places you want them. Encourage them to volunteer or choose a reporter Place agreed location map on table (A0/A1 size so everyone can gather around and write on it. Provide enough marker pens for everybody)	
0930-0950	1a What are the main risks and hazards in this location from your perspective?	Each group draws on their own map NB Citizens/ stakeholders might want to point to things outside the boundary so the notetaker should note that.	UNDERSTANDING

[8] These are suggested guidelines only. Adjust for actual start and end times and local conditions. Please factor in breaks for your participants as you see fit.

Timing[8]	Facilitator Question prompts	Activity	Frame-work
	Please write them on the map and mark the location/ locations you think they occur Make clear that they will have 20 minutes to do this.	This is an opportunity for people to begin to get to know each other and share their ideas.	
0950-1010	Time is up! Please now can someone from each group show us your map and explain what you marked down and why (present back to whole room)	Each group then presents/ talks through their own map in turn **Important**: start with the citizen-only group first Take photos of maps and any sticky notes used	
1010-1020	1b Are there particular social groups (elderly, people with disabilities, migrants, etc) who might be more affected?	Each group discusses amongst themselves what they know about the diversity in their locality and whether some people are more vulnerable or some have more resources to help, etc.	
1020-1030	1b What similarities and differences do you see between your different groups?	Open discussion. Aim here is that each group should **understand** the risk from each other's perspective (and possibly identify any RPAG). Can we reach a consensus?	
1030-1040	2 How can we select from/ prioritise the shared list of risks and hazards that have emerged across all the groups so far?	Open discussion. Aim here is **sharing** of knowledge, perspective and priorities, leading to relationship building	SHARING
1040-1100	3a Returning to your groups and taking just one of these agreed hazards/ risks, what actions would you take if you received a warning that this was about to happen?	Each group uses sticky notes to list actions. Have some flipchart paper ready and stick the sticky notes on that (write the question name at the top) Stick them on the map if the location is relevant Draw a line along a route if relevant	
1100-1110	3b What actions would you expect the other group to take if they received a warning that this was about to happen? [Citizen groups think about what actions they would expect CPA groups to take, whilst	Each group uses sticky notes to list actions they would expect the other group to take on receipt of a warning.	

Timing[8]	Facilitator Question prompts	Activity	Frame-work
	CPA groups think about what actions they would expect citizens to take].	Have some flipchart paper ready and stick the sticky notes on that (write the question name at the top) Stick them on the map if the location is relevant Draw a line along a route if relevant	
1110-1120	3c Each group, please tell us all: • What actions you would take; • What actions you expect the other group to be doing	Each group then presents/ talks through their own map/ lists of their actions and the actions they expect of the other group to the whole room.	
1120-1140	3d Discuss as a whole room - What are the shared or different expectations of the other group?	Open discussion on results and highlight the main similarities and differences (maybe underline in a different colour the most important ones).	
1140-1150	4a Returning to your groups: Who do you know that you could call on for help in this event? For citizens ask about: friends, neighbours, family, others. For CPAs ask about those in their professional networks)	Exploring social capital in citizens' communities and in CPA's professional networks. This helps us understand e.g. the context for people being able to take actions	RELATING
1150-1155	4b Who do you have the most trust in?	Exploring trust – underline or mark in different colours who this is	
1155-1200	5a After hearing all the discussions so far, do you want to change anything on your map and list?	Each group works separately for 5 minutes to agree any changes.	
1200-1210	5b Each group please report back to the whole room and then let's open it up to a discussion	Each group shares their decisions and reasoning. Open discussion.	
1210-1220	6a New groups that mix citizens and CPAs will now be formed and given a new blank map to work with. What would a shared map and list of actions look like (i.e. inputs from both citizens and CPAs in collaboration)? Think about the different social groups in the locality	We mix up the groups to produce these. We should consider not just the hazards and risks but how different groups might be more or less affected, and how to engage with different parts of the local population to ensure knowledge of risks is shared	BUILDING

Timing[8]	Facilitator Question prompts	Activity	Frame-work
1220-1230	6b Each group please share your ideas with the whole room and then let's discuss	Share the results with the whole room and discuss	
1230-1250	7a What should we do now with what we have learned? 7b Would it be useful to keep talking and sharing on a regular basis? 7c Would you be prepared to come back for some other activities to help reduce risk and share good practice actions?	Open discussion to explore the desire for ongoing collaboration. Explore options for doing this through CPA-Citizen Risk Management Groups Through sharing via the RiskPACC online platform Explore interest in coming back for Round 2 of the Co-Creation Labs	
1250-1300	8 Any comments or questions you would like to make?	Open discussion. Complete evaluation sheet.	

9.7 ANNEX 7: Guidelines for Risk Communication Activity

Guidelines for risk communication exercise

What does this risk communication exercise involve?

Participants will work in small groups to discuss their understanding and opinions of a typical form of risk communication (e.g. Location X has a 1 in 100 year flood risk; the chance of an earthquake within the next 50 years is X%). They will also suggest ways to improve the communication.

What are the aims of this risk communication exercise?

1. To address a need by CPAs to communicate to citizens and/or volunteers a particular risk that they have identified.
2. To open up a structured space for dialogue and sharing of risk perceptions between CPAs and citizens/volunteers on the meanings and measurements of this particular risk.
3. To identify the best forms of risk communication to help citizens and/or volunteers to take informed and appropriate risk reduction actions.
4. To meet the needs of co-design and build relationships of trust through working together on a defined activity.

What is this document for?

This document contains a table of prompts and activities (in the same way as the previous Workshop) to guide a risk communication exercise to be conducted during your workshop. The document is designed to be a helpful aid, but you are free to modify it to suit your needs. For example, the document suggests some simple communications of risk to use as the basis for the exercise, but you can use your own if you prefer. Remember – these are just guidelines to assist in meeting our objectives, and not strict instructions.

The table identifies:

1. General questions the facilitator can ask the workshop groups.
2. Suggested activities that the group participants will be doing.
3. Prompts to help with noting down the responses of the participants, so the scientific partners and task leaders can conduct later evaluation and analysis.

The aim of the exercise is to facilitate discussion and activities amongst participants that address each of the modules of the RiskPACC framework, and so help you to close the risk perception-action gap between yourselves and your citizens:

A copy of the RiskPACC framework along with some brief notes is included at the end of the document for reference (not reproduced here).

Group types and requirements:

At the beginning of the workshop, participants should be split into small groups that contain a mix of different types of participants (e.g. CPAs/volunteers/citizens/citizen representatives).

During the workshop, the groups will have discussions separately, and then come together for whole-group discussions. The table of prompts below indicates when participants should work in their groups and when they will participate in discussions as a whole group.

Each table should have a microphone to enable audio recording of the discussions to provide a transcript for later translation. Conference microphones are best.

Roles within groups:

Numbers of participants will vary and so it may be necessary to combine some roles but, ideally, each group should have the following roles assigned:

1. **A "Facilitator**" from the case study partner team:

The facilitator should probably be the Case Study partner lead or similar. Using the table of prompts as a guide (see below), the facilitator will be asking the questions. While the groups are doing their work, they will also walk around observing, listening and taking notes to provide some overall reflections for later analysis. These notes might include observations on things like:

- How the workshop is working;
- How well the discussion is going;
- Are there any differences or conflicts within and between the groups;
- Are some participants talking too much or too little (e.g. it is common in mixed gender groups for women to speak less than men; facilitators should try to think of ways to even out the discussion if this is happening).

2. **An "Observer Notetaker"** from the case study partner team:

The Observer Notetaker should use the table of prompts as a guide to take notes on the specific discussions that happen within their group, help the facilitator lead the group's discussion. Ideally, notes would be made for each section of the table of prompts below, and might include observations such as:

- What are the group's impressions of the communication?
- Which modules of the RiskPACC framework is the discussion addressing at different points (if any) – understanding, sharing, relating, building;
- Is there a risk perception gap that can be seen;
- Is there disagreement or consensus within the group.

Note that if a case study partner team member is not available to take notes, then each group should nominate a participant group member to do this.

In addition to the Facilitator and Observer Notetaker, each group should nominate:

3. **A "Reporter"** who is a participant:

The reporter is a participant who will report back on their group's work and discussions.

Example materials each group will need:

- Pens/markers
- Flip chart
- Paper
- A microphone/smartphone for audio recording

This will give us a set notes and data for each group, for comparison of risk perception and action differences.

Timing	Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)	Activity	
	PART 1		
0900-0920	Welcome everybody to the RiskPACC Co-Creation Lab. RiskPACC is…. Please introduce yourself (name, organisation or particular interest group you are representing. Everybody here has a voice and it is of equal importance. We are all experts in our own ways. Please listen to each other respectfully…. This is what we plan for today… Are there any questions so far?	Meet and greet – view and sign GDPR statement and consent form. Brief introduction to RiskPACC for those who have not been before. Who is in the room? Self introductions Share the values of the meeting based on democratic and equality principles. Women and minority groups may need more encouragement to speak. Go over your programme for the sessions Deal with any initial queries	UNDERSTANDING
0920-0930	We have allocated you to different groups to begin with and later we will join back together. Please be prepared for one of your group to report back the findings later. 1. This is an example of a communication of risk about [flooding]. We will begin to explore what we all think of this communication:	Split into mixed groups or already have their names on the table in the places you want them. Encourage them to volunteer or choose a reporter Write on flipchart or use projector to show the first	

Timing	Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)	Activity	
	[CPA: Please insert your communication] OR use the following example: **"[Your location] has a 1 in 100 year [flood/earthquake/wildfire etc] risk."**	risk communication example: "[Your location] has a 1 in 100 year [flood/earthquake/wildfire etc] risk."	

		so that everyone can see and discuss the questions that follow. You could also provide a **printout** of the communication to each group member.	
0930-0950	1a What was your first impression of this communication? Here participants might comment on different things. If they are struggling to answer, you could ask them more specifically: • How they initially understand the communication (confusing/makes sense, not detailed enough/too detailed) • How the numbers shown make them feel on first impression (worried, relieved, uncertain?); 1b Based on this communication: • How worried do you feel about the risk of a serious [flood] in your area? • On a scale of 1-100, how risky does the chance of a [flood] in your area feel to you? • How often do you think a serious [flood] might occur in your area? • If a serious [flood] had occurred in your area last week, how likely do you think another serious	Each group discusses the questions posed by the facilitator This is an opportunity for people to begin to get to know each other and share their ideas. Here they can talk through what the communication means to them **Make clear that they will have 20 minutes to do this.**	

Timing	**Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)**	**Activity**	

	[flood] would be to occur next week? *[Probe: Do you think it would be more likely, less likely, the same likelihood?]* • How trustworthy do you think the information being communicated is? 1c Would you find this communication useful to know about your area? *[Probe – why/why not]* 1d Would you take any action(s) in response to this communication? *[If yes, what action(s)? If no, why not?]* 1e Is there any other information you would like to see in this communication that is not included at the moment? 1f What other suggestions do you have for how the communication could be improved? Please take notes on your answers to these questions, and the discussions you have, ready to present back.		
0950-1010	Time is up! Please now can someone from each group talk us through your impressions of the communication, the answers to the different questions, and detail on the discussion you had? (Present back to whole room) What similarities and differences do you see between your different groups in terms of your answers to the above questions?	Each group then presents/ talks through their discussion in turn Open discussion. Aim here is that each group should **<u>understand</u>** and **<u>share</u>** with each other the risk from each other's perspective (and possibly identify RPAGs), and acknowledge that the same communication	**SHARING**

Timing	**Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)**	**Activity**	
		can be interpreted in different ways.	

1010-1020	2. Returning to your groups… 2a Can you discuss the diversity you know of in your locality (e.g. elderly populations, migrant populations, people with disabilities etc)? Are there particular social groups who might find this communication of [flood] risk more or less useful? Why? 2b Considering these different diverse groups, do you think they would/could take any actions in response to the communication? *[If yes – what actions? If no – why not?]*	Each group discusses amongst themselves what they know about the diversity in their locality and whether some people might find the communication more or less useful. Make clear that they will have 10 minutes to do this.	
	PART 2		
1020-1025	3. Designing an alternative communication of [flood] risk. Here we would like to explain the technical meaning of this risk communication and why it is sometimes misunderstood. • A 1 in 100 year flood is a flood that is so severe that it only has a 1% (or 1 in 100) chance of occurring in a given year. • This communication is sometimes misunderstood – many people believe that if they experience a 1 in 100 year flood in the current year then a similar sized event will not occur for another 99 years, which is incorrect. • In fact, the chance of such a serious flood each year is the same – 1% - regardless of whether a 1 in 100 year flood has recently occurred or not.	First explain to participants what a risk of a 1 in 100 year flood means, and why it is sometimes misunderstood:	**BUILDING**
1025-1055	3. The Group task is to jointly design a communication of flood risk. 3a Your task is to imagine you live in an area where the risk of a damaging flood is 1% each year, and to design a communication of this risk to be provided to	Then give them this task: This is an opportunity for participants to reflect on what has been discussed so far and collaborate together to integrate this information into their	

Timing	**Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)**	**Activity**	
	the people in your local area. Please use the pens and paper provided to draw out your ideas.	improved risk communication.	

	Try to make your communication as easy to understand and useful for the audience as possible. Think about what they might want to know about the risk, and how best to communicate this information. To help you, you might want to consider the following in completing this task: • How you communicate the numbers representing the risk (what format will they be in? Can you provide any context to help the audience better understand the numbers?). • Whether you would use any visuals to help communicate that information • If there is any other information you could add to help in the understanding of the risk numbers • If there is any information you could provide that would help the audience know what to do in response to the risk information communication • How the audience, including those from the diverse groups you identified might interpret the communication, and if and how they might act in response to it 3b Once you have designed your communication, please also think about: • What medium you would use to communicate via (e.g. website, radio broadcast, TV, magazine, app) • What are the pros and cons of these different media for the different and diverse audiences who might be receiving your communication?	Remember to take a photograph of the final communication designs, but also of any iterations and note the groups made during the process. **Make clear that they will have 30 minutes to do this.**	
1055-1110	Time is up!	Each group then presents/ talks through their communication design in turn	

Timing	**Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)**	**Activity**	
	4a Please now can someone from each group talk us through the communication you designed?		

	• Please talk about why you designed it the way you did, and comment on the discussions and considerations that helped you as a group make those decisions. • Please also comment on the media you think you would communicate via and why (Present back to whole room) 4b What similarities and differences do you see between your different groups in terms of your answers to the above questions?	Open discussion about the different communication designs, their pros and cons, their similarities and differences.	
1110-1115	8 Any comments or questions you would like to make?	Open discussion. Complete evaluation sheet.	

9.8 ANNEX 8: Guidelines for Eilat Volunteers' Risk Communication Activity

Risk Communication Exchange Activity for Eilat Task objective:

This task aims to create a safe space for understanding and exchanging ideas on why sometimes we don't perform risk-reducing actions even though we recognize there is a risk.

Although the activity contains some questions with simple rating scales attached, the objective of this activity is to engage in open, two-way communication, which is a core objective of the RiskPACC project.

The focus of the activity should be on understanding the contexts for why people do or do not act and not to focus on exposing shortcomings.

We can collaborate to design a subsequent Workshop to take this discussion further and develop ideas for solutions if wished.

Task description:

You will share a risk communication message of your choice with the volunteers. An example could be:

There is a 10% chance of a damaging earthquake in Eilat/Israel within the next 50 years.

Next, the volunteers will answer three questions measuring earthquake risk perceptions and preparedness levels, first at a general level and then from a more personal perspective. Following each question, the volunteers will discuss the answers and possible solutions as a group.

Finally, the group will have a collective discussion about the impact of risk communications, evaluating whether certain messages promote or discourage action.

Issues of anonymity:

So that the volunteers feel comfortable in sharing why they may not have done something that might have been expected of them, the activity begins with an opportunity to answer the questions anonymously. This allows them to see that they are not alone having this response and then they can gain more confidence in sharing their own responses more openly.

You can use the tool Mentimeter (www.mentimeter.com) to enable the volunteers to answer questions anonymously when in a group setting. To use it, a computer and projector are necessary to display responses on a large screen. Additionally, all participants will need a smartphone. We can offer guidance on how to use this tool.

Alternatively, participants can write any anonymous answers on small pieces of paper, which can then be placed in a container. An individual from the host team can then read out the anonymous responses.

Materials required:

If using Mentimeter: Computer and projector to display on screen, participant smartphones, flipchart

If not using Mentimeter: Pens and small squares of paper or just use sticky notes for the anonymous responses, flipchart.

Note to Facilitator:

This is not a questionnaire to be shared with the participants because we need to maintain a separation between expectations of others' perceptions and actions, and their own. Less time should be spent on the first general questions and more time should be given to listening to what the volunteers say about themselves/their households.

Timing	Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)	Activity
	Welcome everybody to the next RiskPACC co-creation lab. Today we want to explore some perceptions of earthquake risk and the extent to which risk-reducing actions are taken. Optional: We are going to use Mentimeter for the first part and show you how it works. Does everyone have a smartphone? We can provide a separate guideline to use Mentimeter if you choose to use it. Are there any questions so far?	Meet and greet – view and sign GDPR statement and consent form. Brief introduction to RiskPACC for those who have not been before. Go over your programme for the sessions We will discuss with you whether you wish to use Mentimeter and we will simplify this activity guideline accordingly Deal with any initial queries
	MENTIMETER ONLY We will start with an example question to show you how Mentimeter works [trigger example question]: Did you have breakfast this morning? Yes No Please select your answer and view the projector screen to see the data coming in. [If you are not using Mentimeter you can skip this question] [Project on screen or flipchart and/or provide print out of chosen communication] Using [Mentimeter/pen and paper] we would like you to answer each of three questions in turn. After each question has been answered, we will have a brief discussion about the answers	MENTIMETER ONLY If you are using Mentimeter, trigger the breakfast question. This question is to show them how Mentimeter works and to demonstrate to the volunteers the anonymity it maintains. The volunteers will be able to see the answer data coming in on the screen – mentimeter will graph the data automatically for you. The size of the word 'yes' or 'no' will be bigger or smaller depending on how many people voted for it: Yes No If you are not using Mentimeter you can skip the breakfast question.
	1. We will now show you an example of a risk communication about earthquakes. [Trigger/ask first question. Here is an example:]	Write on flipchart to show the risk communication example so that everyone can see and answer the questions that follow.

Timing	Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)	Activity
	1a. "There is a 10% chance of a damaging earthquake in [Eilat/Israel - select] in the next 50 years." Based on the communication you have seen, how likely do you think it is that a damaging earthquake will occur in Eilat/Israel within the next [50 years]? 1 Highly unlikely 2 Unlikely 3 Likely 4 Very likely Please enter the number/write down your answer now.	If using Mentimeter, trigger the first main question about risk perceptions. Ask people to just input the number corresponding to the rating they choose Mentimeter will again visualise the data for you, and you can read out the answers to the room. If you are not using Mentimeter, collect the pieces of paper the volunteers have written their answers on and put them in a container. You can then shake up the container contents and then read out the answers. This is an opportunity for the volunteers to see how they and their colleagues perceive the risk from earthquakes in [Eilat/Israel].
	1b. We will now very briefly discuss the results shown. According to the results, how similar or different are the risk perceptions of the communication you saw? Why do you think this is?	Open discussion but keep it short because the main discussion will be later. The aim is that volunteers should understand and share with each other the risk from each other's perspective (and possibly identify RPAGs) and recognize that the same communication might be interpreted in different ways.
	2. We will now present you with the second question [trigger/ask second question] 2a. How prepared do you think the average household in [Eilat/Israel] is for an earthquake? [e.g. have prepared a household earthquake plan; have made sure all household members know what to do in case of an earthquake etc – insert examples of MDA-specific advice] 1 Not at all prepared 2 A little prepared 3 Very prepared Please enter the number/write down your answer now	If using Mentimeter, trigger the second main question about general household preparedness for earthquakes in Eilat. Ask people to just input the number corresponding to the rating they choose. Alternatively, repeat the paper response process above. You can then once again show the mentimeter results to the room/read out the paper results. This is an opportunity for the volunteers to see each others' perceptions of general household preparedness in Eilat.
	2b. We will now very briefly discuss the results shown. How much do the perceptions of household preparedness in Eilat differ? Why do we think preparedness is low/high?	Open discussion. This is an opportunity for the volunteers to see how they and their colleagues perceive household preparedness in [Eilat/Israel], to discuss why they think preparedness

Timing	Facilitator Question prompts (please adapt these to the way you would normally speak with the participants)	Activity
		is high/low, and what the challenges to preparedness are.
	3. We will now present you with the final question before we get onto more open discussions [trigger/ask the third question] 3a. How prepared is your household for an earthquake? 1 Not at all prepared 2 A little prepared 3 Very prepared Please enter the number/write down your answer now.	If using Mentimeter, trigger the third main question about their own household preparedness for earthquakes. Ask people to just input the number corresponding to the rating they choose. Alternatively, repeat the paper response process above. You can then once again show the mentimeter results to the room/read out the paper results. This is an opportunity for the volunteers to see each others' perceptions of their personal household preparedness.
	3c. We will now discuss the results shown. How much do perceptions of risk of earthquakes in [Eilat/Israel] differ from your ratings of your own household preparedness? Why do you think this is? What are the barriers to preparedness for your household?	If the responses show a clear gap between risk perception and preparedness action, explore in an open (non-judgemental) discussion why that is the case and what are the barriers to taking action.
	4. General discussion about risk communications Finally, we want to discuss your views on how particular risk communication messages can encourage or discourage people to act. What types of message? (E.g. 10% risk of an earthquake in Israel in the next 50 years or some other form of information?). What are the barriers which stop people from carrying out preparedness/risk- reducing actions even though they might recognise a risk? What are the things which encourage people to take risk-reducing actions?	This final section aims to facilitate a discussion about the impact of risk communications on action, why gaps between risk perception and action might occur, and what are perceived as the main barriers to preparedness. This can also be a good opportunity for volunteers to reflect on their own personal gap between risk perceptions and preparedness actions, and why they might have such a gap.

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The RiskPACC Consortium

FIGURE 18: RISKPACC CONSORTIUM