Knowledge transfer between communities, practitioners, and researchers: A case study for community resilience in Wellington, New Zealand

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Abstract

In 2014 the Integrated Research for Disaster Risk programme endorsed the establishment of the International Centre of Excellence in Community Resilience, Wellington, NZ. This Centre of Excellence is co-hosted by the Joint Centre for Disaster Research (Massey University/GNS Science) and the Wellington Region Emergency Management Office, with the objective of enhancing collaboration between researchers and individuals, organisations, and communities in the Wellington Region. Through a range of activities the International Centre of Excellence in Community Resilience aims to provide an evidence base for the Wellington Region Emergency Management Office's Community Resilience Strategy, act as a vehicle to share good practice in Community Resilience, and promote the Wellington Region as a living laboratory for research and learning. The current article reports on the recent International Centre of Excellence in Community Resilience trans-disciplinary workshop on knowledge sharing which aimed to investigate challenges to, and solutions for, enhanced collaboration. Over 50 participants attended this workshop, including practitioners, researchers, community leaders, and business representatives. Participants identified a number of key issues that create challenges to collaborative knowledge sharing, ranging from adequate communication and resources through to political influence and partner equity. Solutions ranged from creative resourcing to personalisation of issues. Facilitation and the question of who should be the appropriate facilitator (internal or external) was identified as vital for knowledge transfer and community resilience building.

Keywords: community resilience, knowledge transfer, facilitation, research, practice, communities, disasters

Acknowledgements

Introduction

A resilient society can be defined as one that can anticipate and adapt to the challenges and stressors encountered before, during and after a disaster occurs (Paton, 2007a). Research has identified factors that help build the capacity of individuals, communities and institutions to respond and adapt to a disaster (Paton & Johnston, 2006). For example, people must possess a 'self-efficacy' that they can do something about a problem, and believe that getting ready for a disaster will lead them to having a good outcome or 'positive outcome expectancy' (Becker, Paton & McBride, 2013; Lindell & Whitney, 2000; Paton & Johnston, 2006; Paton et al., 2010). Elements of *social capital* such as community participation, sense of community, place attachment and collective efficacy also contribute to community resilience (Aldrich & Meyer, 2014; Becker, Paton, Johnston, & Ronan, 2014; Paton et al., 2010; Norris et al., 2008; Norris, Stevens, Pfefferbaum, Wyche & Pfefferbaum, 2008).

Institutions also have a role in building resilience by empowering communities to solve problems. According to McIvor and Paton (2007a) and Paton (2007b), this role depends on trust developed between the public and institutions. Other resilience factors include physical actions that protect people from harm (e.g. for earthquakes, retrofitting buildings), ensuring adequate resources are available (Cutter et al., 2008; Norris Stevens, Pfefferbaum, Wyche & Pfefferbaum,, 2008; Eiser et al. 2012), ensuring people have some psychological preparedness to cope with disaster disruption (Paton, Johnston, Mamula-Seadon, & Kenney, 2014), and placing learning at the centre of science and policy to encourage a paradigm shift for understanding and acting on resilience and transformation (Pelling, Visman, & Gibson, 2013).

Given the complexities of contemporary societies, achieving resilience requires an approach that recognises and accounts for interdependencies and interactions, which occur both on a daily basis and during emergencies (Kapucu, 2012; Rubin, 2012). Research has identified that building collaborative networks within communities, between communities and agencies, and between agencies, contributes to a resilient society where adaptation can take place post-disaster, by giving people a means of sharing knowledge and resources (Paton, Mamula-Seadon & Selway, 2013; Paton, Anderson, Becker & Petersen, 2015a).

Internationally, previous projects have attempted to establish strong collaborations with communities and to provide examples of good community resilience practice. These include the Project Impact initiative in the US in the early 2000's which encouraged the building of partnerships and empowerment of communities to build resilience (see Wachtendorf, 2000)[1], as well as collaborative initiatives applied to floods (White, 1994; 2009), earthquakes (the Earthquake and Megacities Initiative, 2015), in a post-hurricane context (NORC, 2014, Young et al., 2014), and in a multi-hazard context (see Eisenman et al., 2014). Some projects have considered specific frameworks and methodologies for integration of natural and social science research into community based planning and action for disasters and climate change (for example: Cardona, Bertoni, Gibbs, Hermelin & Lavell, 2000). In the Wellington Region of New Zealand, which is the focus of this paper, collaborative community resilience building was initiated in the early 1990s (Hopkins, Lumsden, & Norton, 1993; Gregory, 1995) with a focus on earthquake disaster recovery needs and lifeline engineering resilience. Now the region has established the International Centre of Excellence in Community Resilience and in 2014 Wellington City was named one of the 100 Rockefeller Resilient Cities.

Given the complexities and the number of stakeholders involved in disaster risk management (DRM), establishing effective collaboration can be challenging. Collaboration is required between diverse groups who may not be accustomed to working with each other, including national government agencies, local civil defence and emergency management (CDEM) groups, community organisations, NGOs, businesses and researchers (Kapucu, 2012). Therefore, effective relationship–building, planning, and implementation are vital.

New Zealand (NZ) legislation and guidance provides a pathway for collaboration to take place through its CDEM Act 2002 and National Strategy (CDEM, 2008), which both establish how emergency management should be undertaken. The latter articulates the vision: "to build a resilient and safer New Zealand with communities understanding and managing their hazards and risks" (CDEM, 2008, p. 1). These documents promote a comprehensive risk management approach in addressing the consequences of hazards across the four elements of emergency management, Reduction,

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1   For a review of Project Impact, see www.emergencymgmt.com/disaster/Project-Impact-Initiative-to.html

Readiness, Response, and Recovery (4Rs). Local CDEM Groups are required to follow these aspects and others of the CDEM Act and National Strategy. Collaboration is required between national and local CDEM, and communities, to ensure successful resilience–building efforts. Research, under such initiatives as the Natural Hazards Research Platform[2] (NHRP), needs to be collaborative to integrate research and funding across agencies and disciplines, together with research users, to achieve these aims.

Introduction to Wellington's ICoE: Community Resilience. Internationally, the important role of collaboration between research and practice and the role of *local science*, reflecting a place-based approach to hazards. has been recently highlighted by the Integrated Research on Disaster Risk[3] (IRDR) programme (see Rovins, Doyle, & Huggins, 2014). This programme has established a number of International Centres of Excellence (ICoE) to provide regional research foci for the IRDR. Each ICoE institutionalises an integrated approach to disaster risk reduction that directly contributes to the

global Integrated Research on Disaster Risk science plan objectives (see ICSU, 2008). In Wellington, NZ, an ICoE in Community Resilience (ICoE:CR), was launched in March 2014 by the Joint Centre for Disaster Research[4] (JCDR) (Massey University/ GNS Science) and the Wellington Region Emergency Management Office[5] (WREMO) as a region-wide initiative to answer the question: "How does a community make itself resilient to future disasters?" (ICoE:CR, 2014, p. 1). The key objectives of the ICoE:CR are to:

1. provide an evidence base for the Community Resilience Strategy (CRS) (WREMO, 2014a);

2. act as a vehicle to share international good practice in Community Resilience; and

3. promote the Wellington Region as a living laboratory for research and learning.

The CRS (WREMO, 2014a) forms the core of the ICoE:CR structure which is illustrated in Figure 1, with membership of the ICoE:CR open to all practitioners and researchers within the region. WREMO and the JCDR help facilitate engagement with the ICoE at regional, national and international levels, with the JCDR providing the link to active researchers in the ICoE, and WREMO providing the link to active practitioners. All

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2   NZ's Natural Hazards Research platform is a multi-party research platform funded by the Ministry of Business, Innovation and Employment, that is "dedicated to increasing New Zealand's resilience to Natural Hazards via high quality collaborative research." (NHRP, para. 1).

3   The IRDR programme is sponsored by the International Council for Science (ICSU), the International Social Science Council, and the UN-ISDR (IRDR, 2015).

4   http://www.getprepared.org.nz/

5   http://www.massey.ac.nz/massey/learning/departments/school-of-psychology/research/disaster-research/disaster-research_home.cfm
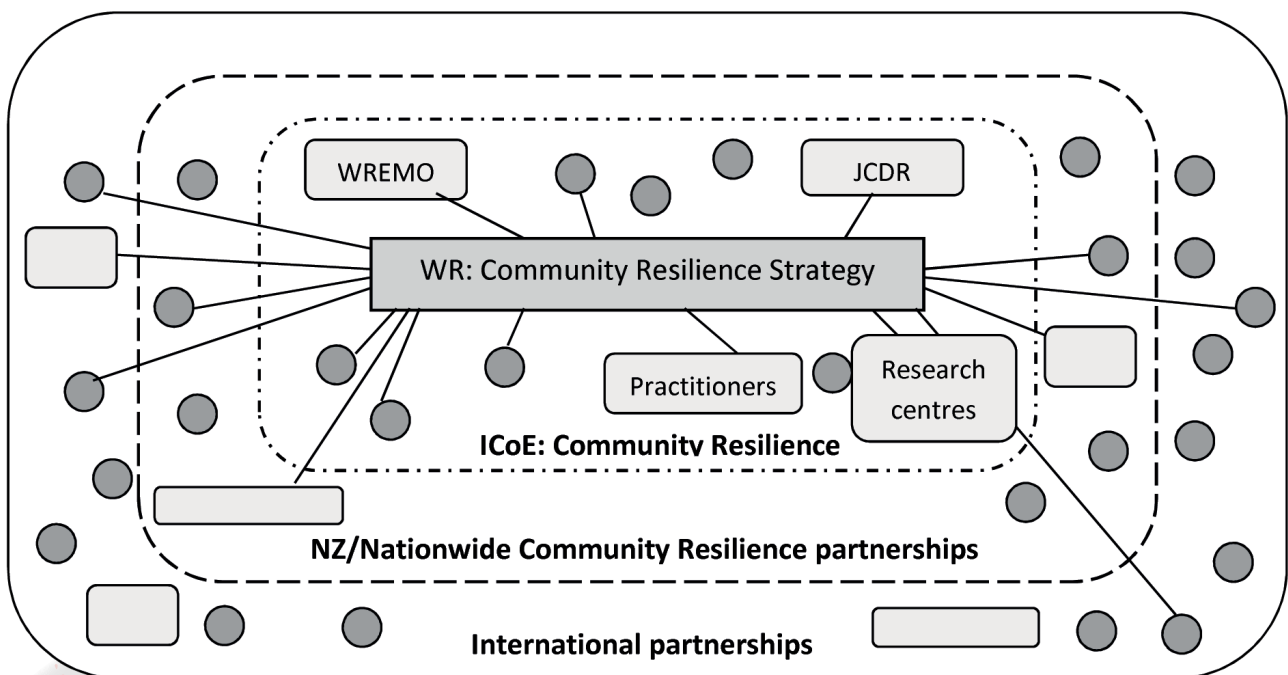

*Figure 1.*The structure of the ICoE: Community Resilience, Wellington, co-hosted by the JCDR and WREMO, with its foundation being the Wellington Region's Community Resilience Strategy (WREMO, 2014a).

Table 1

The Guiding Principles for Active Membership in the International Centre of Excellence in Community Resilience, Based upon the Guiding Principles of WREMO's Community Resilience Strategy (WREMO, 2014a).

Principle	Details
Listen first	Understand and abide by the interests and needs of stakeholders before offering options that can enhance resilience.
Local solutions	Communities generate innovative ideas to local and regional challenges. The ICoE:CR will encourage and support local solutions.
Ownership	Facilitate activities and research that enhance resilience in a manner that is adopted and owned by the user. Individuals, organisations and communities must be responsible for their own preparedness.
Purposeful outcomes	Each engagement with the community will have a clear purpose and measurable outcome. The ICoE:CR will make a point of encouraging all members to value the time and energy of individuals who make themselves available for research, or who make an effort to get themselves or their community prepared or connected through enhanced practice.
End-user focused	Preparedness solutions developed from international best practice and from empirical research findings will be easy for communities to adopt and use. Messaging will be delivered to convey positive outcome expectancies.
Evidence Informed	The ICoE:CR will draw upon current good practices in the implementation of research findings and either adopt or adapt these as appropriate. Where available, these good practices will be complemented by a robust suite of metrics in order to better understand cause and effect, thus aiding decision making.
Innovation	Seek out and try new ideas to enhance resilience where they are well reasoned, planned and meet the needs of the community.
Proactive engagement	Seek out stakeholders to work with and actively follow up on inquiries and opportunities to engage. Researchers must actively engage stakeholders from research inception to implementation and beyond.
Inclusiveness	Seek the input from a cross section of the community during the engagement process of any research or practitioner initiative, and ensure people affected by outcomes have the opportunity to participate in the process.
Transparency	Act as honest brokers with communities and any potential research participants or collaborators. The actions and intentions of members of the ICoE:CR will be transparent.
Relationship building	Foster relationships with community and organisational leaders with the aim of building trusting and honest partnerships between the community, practitioners, and researchers.
Ethics	Researchers will act in a way that is in line with the ethical codes for research with human participants as outlined by their universities or organisations.
Have fun	Treat every single engagement as an opportunity to have fun. Good energy creates great outcomes.
Reporting	At six monthly intervals (early February and August), members will report to the co-ordinating organisations with a 250-500 word summary of activities that fall under the ICoE:CR. A reporting template will be set up for this purpose, and will include a list of outcomes, findings and publications. These reports will help form a research, practice and network database for the ICoE:CR. Activities will be collated into an annual report (released in March), and highlights also reported in bulletins such as the JCDR newsletter.

active members are expected to follow the membership code described in Table 1. This collaborative framework has been utilised by a number of recent research projects to explore community resilience (for example, Huggins, Peace, Hill, Johnston, & Cuevas, 2015). To help facilitate a database of community resilience knowledge, the Community Resilience Toolbox[6] has also been launched to facilitate the sharing of ideas, resources, and tools for collaboration within and beyond the ICoE.

The structure of WREMO is unique in that staffing and resources are weighted towards enhancing community resilience, in addition to the traditional approach of providing operational response capability. The core CRS aims to create a "structured pathway for the Community Resilience Team (CRT) to enhance resilience" (WREMO, 2014a, p.6), where the overarching aim of the CRT is to facilitate the ownership of preparedness and to increase social capital amongst the region's stakeholders. This aim concerns an effort to improve response and recovery outcomes, acknowledging that individuals, organisations and communities will engage with emergency management in ways that they find appropriate.

WREMO has coordinated a number of activities as part of the CRS, including public-private partnerships in the development of affordable and quality Preparedness Enablers[7] such as Grab & Go emergency kits, 200 litre home rainwater tanks, 10 litre water bottles, and QuakeFlex brackets. Community activities have

6   See www.resiliencetoolbox.org

7   See http://www.getprepared.org.nz/prepare

included redeveloping the CDEM community volunteers[8] programme, emergency skills training, public education, establishing emergency text alerts , development of 'It's Easy' preparedness brochures[9], helping to develop school response plans, and establishing the community driven Tsunami Blue Line project[10] (See Leonard et al., 2008; Johnston et al., 2013; Johnston et al., 2014; WREMO, 2014b) for hazard awareness, education and response.

In addition, WREMO has facilitated Community Response Plans[11], to help community leaders and residents build more connected, prepared, and empowered communities[12]. Through community development methods and exercises, communities identify their known hazards, anticipate risks, develop a realistic expectation of what they can expect from emergency services, develop contact lists, assess critical needs, and ways to meet those needs.   Arrangements include some communities being able to spend up to NZD5000 in a disaster with no need for prior approval. This kind of approach appears to have helped build more trusted relationships between these communities and local government, as well as empowering them with a sense of control over their outcomes in a disaster (McIvor & Paton, 2007; Paton, 2007b).

Procedures: The trans-disciplinary community resilience workshop

A fundamental goal of the ICoE:CR is to encourage strong relationships between researchers and practitioners, such that research informs practice and vice-versa. Thus, as part of the 7th Australasian Natural Hazards Management Conference (ANHMC), the ICoE:CR hosted the Community Resilience: Knowledge Sharing workshop at WREMO, in September 2014, to explore collaborative knowledge sharing and answer the question: How do we ensure that lessons from past disasters and day-to-day good practice in one region are implemented in future pre-disaster recovery plans in other regions. The main workshop agendas were: 1) to act as a network event, centred on *boundary objects* concerning knowledge transfer to enable discussions across diverse interests and experiences (Star & Griesemer, 1989); and 2) to identify community and

8   See www.getprepared.org.nz/CDEM-volunteer
9   See www.getprepared.org.nz/publications/itseasy
10   See www.getprepared.org.nz/tsunami/what-to-do
11   See www.getprepared.org.nz/response-plans
12   See www.getprepared.org.nz/communityresponseplans

agency perspectives on challenges and solutions to collaborations and knowledge transfer. The current article reports on the procedures and outcomes of this workshop.

Recruitment, structure and participants. Participants were recruited via email through the ICoE:CR, WREMO and JCDR contact lists, and through ANHMC advertising. The 54 workshop participants came from universities, local and regional councils, government bodies, science agencies, local businesses and industry, and special interest and community groups. Figure 2 illustrates proportions of the primary roles of participants, grouped as practitioner (44%), community leader (19%), researcher (22%), and facilitator (15%). As shown in Figure 3, representation was from the Wellington Region (65%), national organisations (11%), elsewhere in NZ (11%), and overseas (11%).
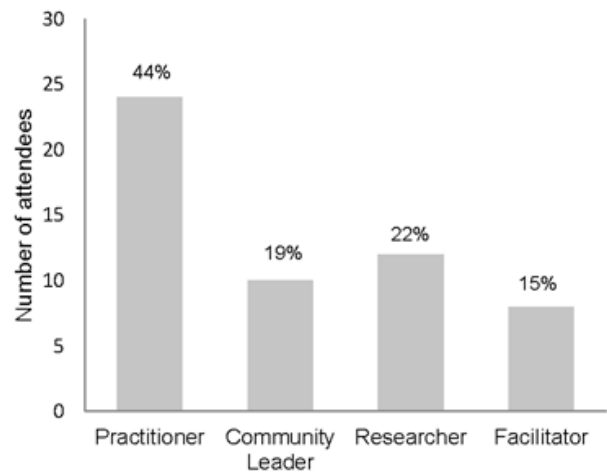

Figure 2. Primary role of workshop, where 'Community Leader' includes volunteers, trusts and neighbourhood support.
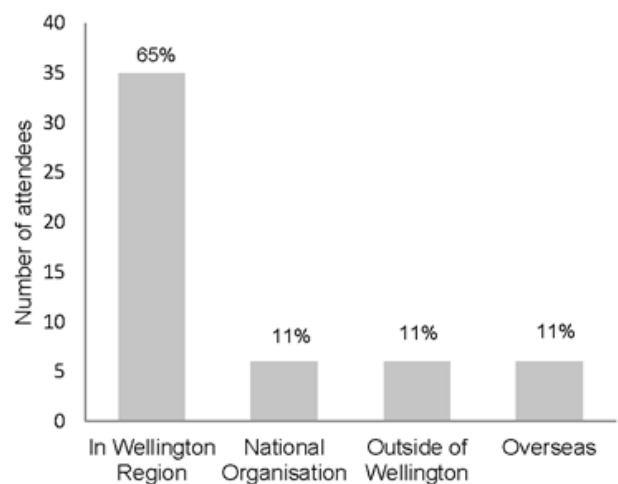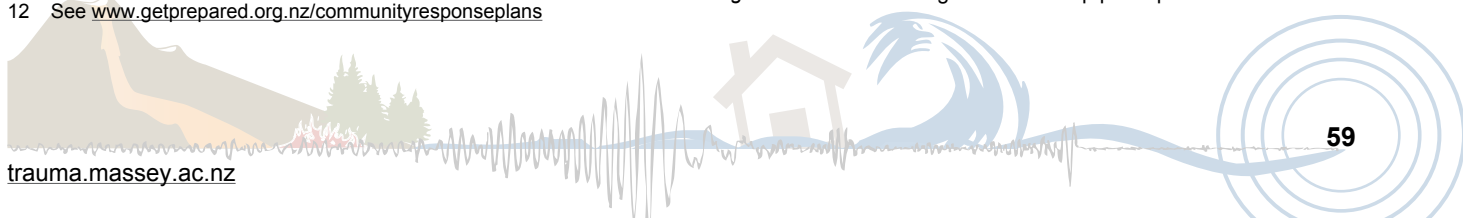

Figure 3. Location of origin for workshop participants.

After an initial introduction to the ICoE, two presentations provided context for workshop discussions. The first presentation introduced WREMO and its Community Resilience strategy. The second outlined the current state of research in the field of Community Resilience, and alignment with WREMO's strategy, as shown in figure 4. In Activity One, entitled Collaboration, groups considered the question: What are the challenges to collaborating on activities that build more connected and prepared communities? Some of the challenges identified are shown in figure 5. Following this activity, each group considered the challenges of another group to debate: How do we solve some of these identified challenges? In Activity Two, called the Living Laboratory of Community Resilience, participants considered a hypothetical scenario called Suburbalicious to think more practically about these challenges and solutions. Groups were asked to imagine that a vacant lot had become available within their neighbourhood. They were asked: Using this opportunity, [discuss] how do we help Suburbalicious to build resilience to future disasters? As

Figure 4. Bruce Pepperell of WREMO and the ICoE:CR Wellington introduces participants to the workshop
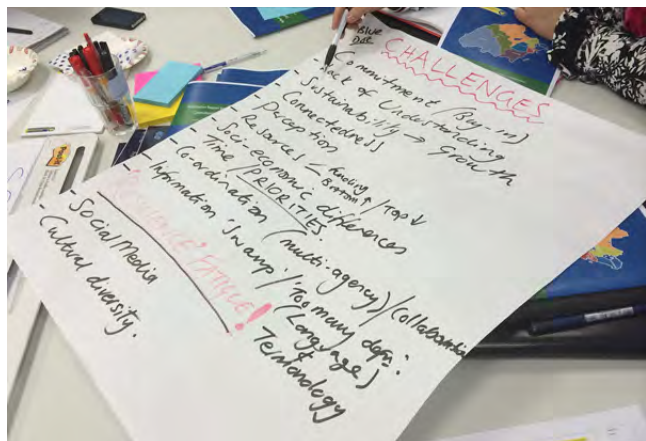

Figure 5. Challenges to research and practitioner collaboration were discussed in the workshop

part of this activity, participants were asked to consider collaboration, research informed practice, and practice informed research. Finally, participants considered how to improve digital collaboration tools, in Activity Three.

Early Observations from the Trans-Disciplinary Workshop

This section outlines our main observations from Activities One and Two of the resilience workshop, considering challenges and ideas to improve collaboration. During the workshop, each group took notes of their discussions on flip charts, and facilitating members of the ICoE also took notes. These notes were both transcribed and analysed, and a basic thematic analysis (Braun & Clarke, 2006; Ryan & Bernard, 2000) was conducted to find patterns using basic coding procedures. The final themes found for each activity are listed in Tables 2 and 3, discussed below.

Challenges to collaboration. As shown in Table 2, seven distinct themes concerning barriers to collaboration were identified from the group discussions. Theme titles are marked in inverted commas below, including:

1. The role of 'communication'**.** This must include accurate, easily understood information that is not too specialised and is translated into 'something coherent'.

2. A lack of 'capacity' or 'resourcing**'** (even if expectations of collaboration exist), due to lack of funding, personnel, and/or time.

3. The 'political aspect**',** where a community's desired projects may not match with an agency's priorities and vice versa. Addressing these competing priorities, and aligning agendas is a vital step prior to project implementation.

4. The need to 'understand the community context**'** prior to collaboration, as misunderstandings about diversity and desires can breakdown working relationships; as well as to understand who can be of best assistance in the project.

5. The need for 'personalisation**'** of the issue, such that a project has 'something in it for them' for individual engagement. Projects deemed to be of little relevance (due to a poorly defined context) would often result in low levels of engagement and support.

Table 2

Challenges to Collaboration between Researchers, Practitioners, and Communities, as Identified by Participants during Activity One of the Workshop.

Theme	Explanation
Communication	Not ensuring sufficient information is available.
	Not ensuring accurate information is available, and avoiding/correcting any mis-information.
	Not ensuring that information is easy to understand, including using accessible language and framing it in an accessible way.
Capacity and resources	Not ensuring adequate capacity building and resourcing required at a variety of levels including individual, community and organisational levels.
	Not ensuring a wide variety of resource types available e.g. Financial resources, people resources, time resources, etc.
	No maintenance of resourcing over time.
Priorities / politics / agendas	How to make resilience a priority given competing priorities and agendas?
	How to make better 'connections' between people/agencies, or encourage better integration, to facilitate resilience.
	Efforts need to be made to align agendas and ensure communities and agencies are in agreement over the treatment of disaster-related issues, before projects can be successfully implemented.
Community Characteristics	Not understanding the community context (e.g. community concerns, motivations, vulnerabilities, diversity, connections, desires, etc.) to allow connecting and working with them on resilience.
	Lack of understanding these characteristics can lead to a breakdown in working relationships.
	Need to understand wants and needs to prevent disillusionment due to projects that do not feel relevant or needed by the community.
	Not understanding who is located and active in the community, will often lead to agencies not working with people who can be of best assistance in the project.
Personalisation of the issue – relevance ('what's in it for me'?)	Not finding out what is of benefit to the local community in building resilience, e.g. undertaking interesting activities, novelty and excitement, provision of relevant resources.
	Individuals need to feel that community resilience projects had "something in it for them".
	If a project seems to have little or no relevance (probably because the context has been poorly defined), individuals are unlikely to get involved and support that resilience building (or resilience research) project.
Transparency / trust	Ignoring the need to build trust both ways (practitioners/researchers vs community and vice versa). Placing an element of trust in communities, can empower them to run successful community resilience projects themselves.
	Not providing transparency on a particular project (including aims, objectives, goals and related outcomes or partner projects).
	Can be compromised by overpromising and under delivering, and not tackling conflicts of interest (linking to agendas listed above).
Partner equity / equity at the table	Not ensuring that partners are equal at the table in terms of being heard, recognised, and included in the process. Can impact trust and effective collaboration.
	Refers not to equity in knowledge and skills, but rather a recognition of everyone's unique contribution, skills and knowledge, and involving them fully in the process.
	If partner equity is not recognised, can lead to disenchantment and collaboration breakdown.

6. The role of two-way 'trust' and 'transparency' which can be a barrier to collaboration if not present. In particular, agencies needed to be transparent about their aims and objectives, and needed to place an element of trust in the communities for them to be empowered to drive community resilience projects themselves.

7. The need for 'partner equity' to further built trust and enable effective collaborations. This requires recognition of everyone's unique contribution, knowledge, and skills in a project and involving them fully in the process.

Ideas to improve collaboration. Different ideas were raised by participants on how collaboration could be improved in response to Activity One, concerning how we solve these identified challenges. This compared to Activity Two, which considered the hypothetical case study, Suburbalicious. The first activity brought up ideas around overall best practice approaches to collaboration, communication, and facilitation, while the second brought up ideas around detailed practical processes. The results from both were combined, and table 3 lists the 10 distinct themes that were identified concerning how to overcome collaboration challenges.
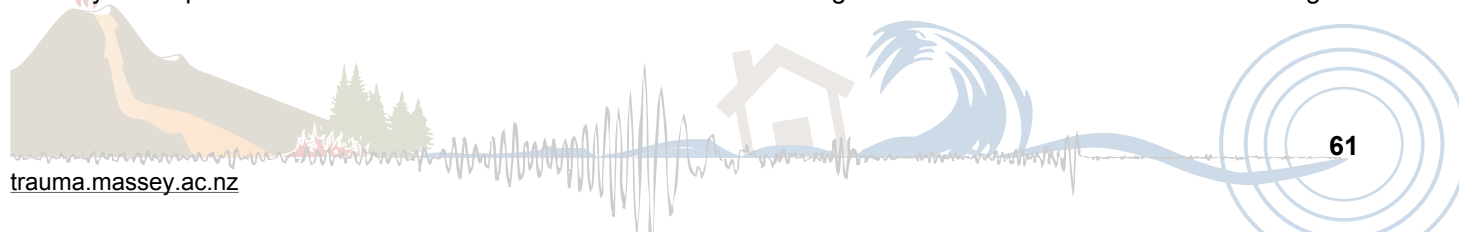
Table 3

Suggested Solutions to Collaboration Challenges that Exist between Researchers, Practitioners, and Communities, and Reasoning for those Solutions; as Identified by Participants during Activity One and 2 of the Workshop.

Theme	Explanation
Adopt a community-driven approach	A community-led and community-owned approach enhances understanding of the context of the community, including the diverse problems they face, what they wanted to solve and how they wanted to solve it. Assists with buy-in to community resilience projects and helps answer the question of "What's in it for me". Makes use of people's skills, and assists in developing a creative approach to capacity buildings and resourcing. Could include methods such as citizen science, advocates, local science, and identifying and acknowledging community expertise.
Ensure facilitation is available	Facilitation is needed to provide support for communities. Facilitators should provide guidance, rather than drive entire projects. Facilitators could work with groups to help set up project outlines and boundaries, work to reduce conflicts and agendas, help develop networks and connections for collaboration, assist with coordinating activities across groups and agencies, provide assistance to access resourcing (e.g. funding, locations for meetings, access to skills, etc.), and provide assistance with translating complex information into accessible information. Facilitation should be seen as an on-going investment, rather than just a one-off input, for example, at the set-up of a project.
Ensure the scope and process of projects are well defined	If the initial planning process is done correctly, then collaboration will be easier, and the project will be more effective. Scoping will assist in identifying the community context often seen as an issue. It will help develop a vision, activities that fall under that vision, a timeframe for activities, and identify people to be involved in those activities. Proper planning will allow diverse and innovative community resilience activities to be developed rather than just the usual, standard activities. It will also account for sustainability of the process, with the identification of on-going commitments and required maintenance.
Enable diverse methods of collaboration	A wide range of methods of collaboration should be considered and implemented, such as co-production of knowledge, engagement, use of social media, working groups, cost-sharing arrangements, use of advocates, use of facilitators, creating spaces for community exchanges or workshops, empowerment, use of small committees, using everyday activities to build collaborative networks, local science, citizen science, and including researchers in every aspect of a community resilience project.
Enable diverse methods of communication	Communications should be accessible and in language and formats that are easy to understand. Communications should be contextualised in a way that made sense to community members (e.g. relevant to their local situation), which again links with people's desire to understand "What's in it for me?" (see also "personalisation" below). Channels and methods could include: social media, a resilience toolbox, e-solutions, regular workshops (face-to face), exchange visits, email networks, exercises, making use of *translators* who can translate complex technical information into accessible information, and establishing prior agreements about what certain terms mean.
Adopt a creative approach to capacity building and resourcing	Need to address the limited amount of resources available to develop community resilience. Ideas include: financial cost-sharing, knowledge sharing, tapping into local experts and expertise, and integrate resilience-building projects into "business-as-usual" activities (e.g. work with existing community or school groups, other existing networks, social capital, etc.).
Ensure the "What's in it for me?" question is addressed (personalisation)	Participants felt that if community members didn't see that there was any real benefit for them in a project, then they would be reluctant to take part. Benefits will differ from community to community, but may include ensuring that any project matches any achievements or outcomes the community wants to make. The concept of 'socialisation and fun' is seen as an important part of answering people's question about "What's in it for me?". From a science community perspective the "What's in it for me?" question applies also, and should be addressed as part of project development.
Ensure trust, equity and fairness	Needed for successful projects, and can be engendered by ensuring that local authorities leading projects openly listened to community members' ideas about their needs and desires, and practiced true collaboration in the development and implementation of those ideas. It is key to identify existing stakeholders and groupings, and involve them in the process, as well as identifying and building relationships with new stakeholders.
Long term and sustainable project	Community projects need to have a future vision to enhance buy-in from community members in the short term. In a practical sense, sustainable projects need to ensure resourcing (e.g. funding, personnel, agency support) is also available in the long term. In a research sense, sustainability may mean a long term commitment from researchers to work with a community in an area.
Flexibility	Community resilience projects need to evolve and adapt to needs as the project progresses. They need to be flexible enough to "capitalise on ripple effects", make use of any benefits or activities that are developed from the community resilience project, and develop those benefits further.

Identified themes include the need to adopt a 'community-driven approach' that would help address the challenging question of: What's in it for me? Ideally, this approach would make use of individual and collective skills in the community. Other themes concerned: the need for available 'facilitation' to provide support and guidance for communities, while ensuring that the 'scope and process of projects are well defined'. Participants also highlighted that 'diverse methods of collaboration' and 'communication' would enable success, such as co-production of knowledge, use of social media, and working groups. It was highlighted how these should all be conducted in a language and format that were easily accessible and which will also encourage a 'creative approach to capacity building and resourcing' such as cost-sharing arrangements between community, business and government groups. Other important solutions included 'personalisation' to address the question: "What's in it for me?" Another solution included ensuring there is 'trust, equity and fairness' between partners; and that the project is developed with a 'long term and sustainable' framework that has 'flexibility' to 'capitalise on ripple effects'.

Discussion and Conclusions

Through the trans-disciplinary workshop conducted by the ICoE:CR, we identified issues that create challenges and barriers to collaboration including: communication, capacity, resourcing, political influences, community
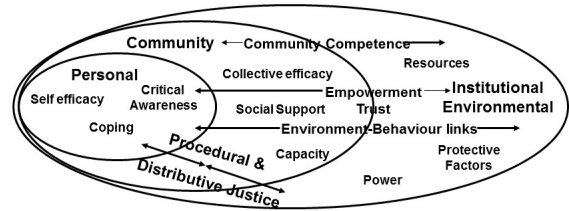
characteristics, and the need for personalisation, trust, transparency and partner equity. Solutions suggested by participants included a community-driven approach, facilitation, well defined scope and process, diverse methods of collaboration and communication, creative resourcing, personalisation, trust, equity, fairness, and flexibility and sustainability of the project. These participant- and practitioner-identified challenges and solutions are in line with those highlighted in academic research literature, and with the associated resilience models illustrated in figures 6 and 7. In sum, research literature and the resilience models outlined have identified the important role of empowerment, trust, collective and self-efficacy, community participation, sense of community, place attachment, and adequate resources for enhancing community resilience and engagement in the process (Lindell & Whitney, 2000;

Figure 6. Multi-level resilience model showing selected resources at each level and selected transactional resources. Reproduced from *Disaster resilience: Integrating individual, community, institutional, and environmental perspectives* (p. 311) by D. Paton, 2006, In Paton, D., & Johnston. D. (Eds), Disaster Resilience. Springfield, Illinois, USA: Charles C Thomas Ltd. Copyright 2006 by Charles C Thomas Ltd. Reproduced with permission.
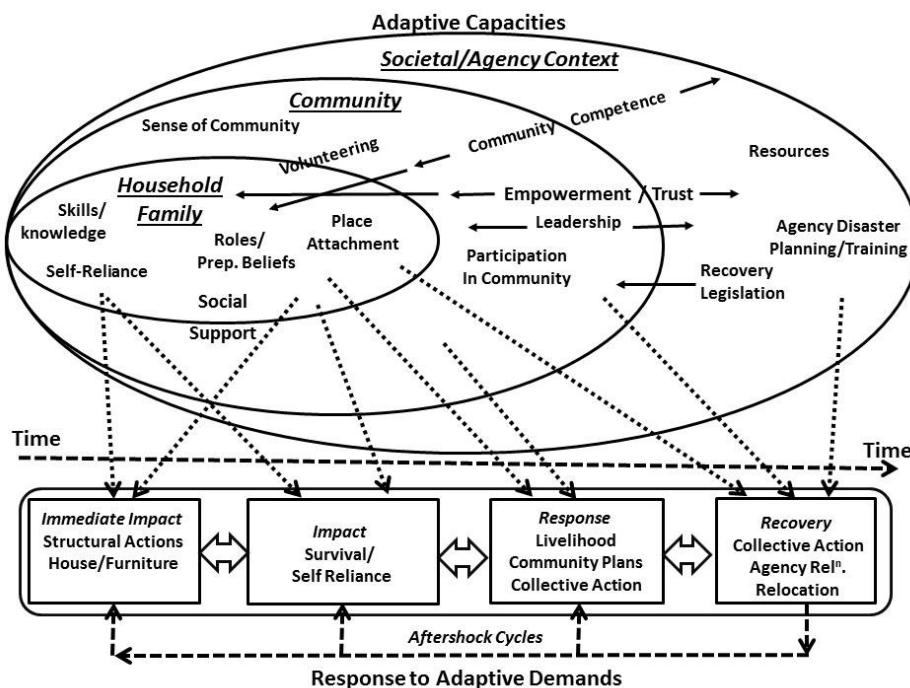
Figure 7. Summary of how adaptive capacities at person, family, household and societal levels interact to influence earthquake recovery. Reproduced from *Community recovery following earthquake disasters* (p. 2) by D. Paton, S. Johal, & D. Johnston, 2014, In Beer, M., Kougioumtzoglou, I.A., Patelli, E., Au, I.S.-K. (Eds.), Encyclopedia of Earthquake Engineering. London, UK: Springer. Copyright 2014 by Springer. Reproduced with permission.

Norris et al., 2008; Paton & Johnston, 2006; Paton 2006; Becker et al., 2013; Becker et al., 2014; Paton et al., 2010; Paton et al., 2014; Paton et al., 2015b).

Facilitation was identified as very important for collaboration and knowledge transfer when developing community resilience, as a way to coordinate activities and discussions, help develop networks, to assist with resourcing and project goals, timelines and boundaries, and to reduce conflicts and the development of divergent agendas. Discussions highlighted that this facilitation should provide guidance to communities, and not drive the entire project, so that the result is a community-driven initiative that helps to ensure the elements listed above are developed and maintained. This reflects the current WREMO approach outlined in the CRS (WREMO, 2014a). Workshop participants highlighted that facilitation should be less top-down and stated that it should be more "facilitating at an equal level" due to potential power balance issues between leadership and facilitation (see also Paton & Johnston, 2006; Paton 2006). However, both leadership and facilitation are often needed to start community resilience processes.

The participant suggestions outlined above also reflect findings from research on the effective use of facilitation for community development which, according to Vidal (2009), should empower communities to identify and solve their own problems. The facilitator should be skilled enough to drive the process, engender trust, and encourage group dynamics in a positive way to achieve a desired outcome (Vidal, 2009; Diaz-Puente, 2014). Additionally, a facilitator's level of commitment with a group will be greater when he or she shares the same interest in the activity or outcome (Fetterman & Wandersman, 2005). Based upon participants' desires for effective facilitation, we suggest future resilience work in the Wellington region should investigate the relative merits of external and internal facilitation, and the practicalities of having a non-governmental facilitator to address issues of politics, equity, trust, justice, transparency, and policy.

Other solutions of particular note for future research and practice include the role of creative resourcing and non-traditional ways of working together (such as WREMO Community Response Plans linking to other community development projects). Another solution concerns the need for hypothetical scenarios within networking and workshops, to encourage participants to think about these issues from multiple angles and explore processes practically. Such tools appear to allow people to think

more strategically, to challenge existing assumptions (Paton & Auld, 2006). They also appear to provide a novel way of extending response-driven simulations into to a resilience planning and networking environment, to help enhance relationships, a shared understanding of the issues, and novel problem solving (Davies et al., 2015; Doyle, Paton & Johnston, 2015).

In conclusion, the ICoE:CR Knowledge Transfer workshop aimed to act firstly as a networking event as part of the growing ICoE, and secondly to investigate the challenges and solutions to knowledge sharing and collaboration across communities, researchers and practitioners in the Wellington region. Effective facilitation was identified as particularly critical to such knowledge transfer. Workshops such as this are vital for enhancing community-driven approaches and creating opportunities for individuals from disparate backgrounds to work together. By conducting such events, we hope to enhance these networks and enable the engagement of local science (see Pelling et al., 2013; Rovins et al., 2014) in local community resilience practice.

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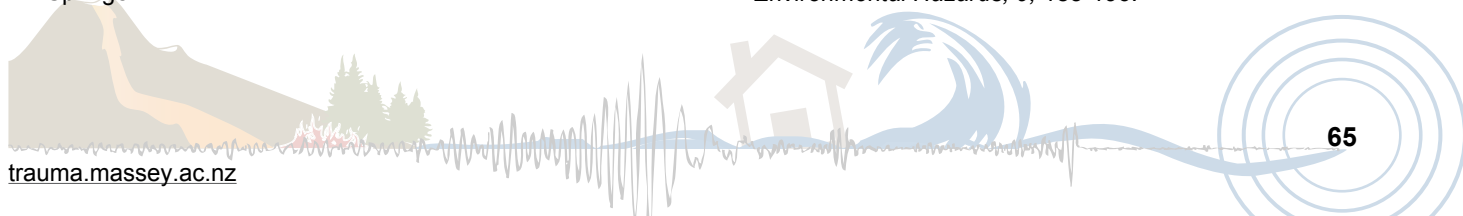
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