TE ARA O TAWHAKI

WHAT MATTERS MOST TO PEOPLE IN AN EMERGENCY

Community Resilience Indicators Project

Final Report: July 2019 – September 2020

CIVIL DEFENCE

HAWKE'S BAY EMERGENCY MANAGEMENT GROUP

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Image 1

Marine Parade, Napier

Acknowledgements

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Kaupapa

Introduction:
Project background

On the eve of the emergency management systems reform and after the Nelson fires, the Christchurch mosque shootings, the Whakaari/White Island disaster, and COVID-19 there is an increasing focus on the emergency management sector. Of growing importance is the need to focus on people and strengthening their resilience. Historically there has been an emphasis on readiness and response through community resilience plans. However, there are still knowledge gaps including better understanding of resilience at the community level and the effectiveness of CDEM groups initiatives towards strengthening resilience. Given the inequities facing Māori, reports from Kaikoura and the TAG report in full, there is also a need for greater responsivity to Māori when designing solutions in the emergency management sector.

In the National Disaster Resilience Strategy (MCDEM, 2019) a community is defined as "A group of people who: live in an area or place ('geographic' or 'place-based' community); are similar in some way ('relational' or 'population-based' community); or have friendships, or a sense of having something in common ('community of interest'). People can belong to more than one community, and communities can be of any size. With increasing use of social media and digital technologies, communities can also be virtual. The National Resilience Strategy (MCDEM, 2019) defines resilience as the ability to anticipate and resist the effects of a disruptive event, minimise adverse impacts, respond effectively post-event, maintain or recover functionality, and adapt in a way that allows for learning and thriving. Historical difficulty has come when these definitions meet frontline practitioners and local communities.

Designing resilience

The Te ara o Tawhaki is a three-year project that aims to better understand resilience of local communities through designing indicators. This shall allow both practitioners and local communities to work together to increase emergency preparedness and enhance welfare during response and recovery. This project attempts to increase trust between local people and practitioners and ultimately contribute to strengthening community resilience. The current project directly aligns with the National Disaster Resilience Strategy (MCDEM, 2019), and has a unique alignment with Māori values as it places people at the heart of emergencies and the resilience building process. Furthermore, the Hawke's Bay CDEM Group Plan and Community Resilience Strategy identify that communities can build resilience through sharing knowledge, cohesion and ongoing cooperation. The project aims to enhance the ability of CDEM groups to measure resilience at the local level. One of the outcomes of the project is the replication the proposed approach and tools at the national level.

This report starts with providing a short background on resilience and how it is usually measured. Section 3 explains the methodological approach of this project and section 4 details step-by-step the toolkit or methods for developing indicators of resilience. The following sections provide the key results from the trial of this toolkit with four communities. Section 6 analyses the strengths and positive outcomes of the toolkit, the limitations and challenges linked to it, and the potential for replication in different parts of New Zealand.

1. A short review of the concept of resilience

The concept of resilience has a long history intersecting several disciplines and fields of study (Alexander, 2013). It became popular in environmental studies with Holling's (1973) paper on the resilience of ecological systems that underlines the capability of a system to absorb shocks and its ability to reorganise itself completely into either its pre-existing state or a new recovered one. The concept eventually arose in disaster studies in the late 1970s (i.e. Torry, 1979), to thereafter spread rapidly. Nowadays, resilience is a priority of most agendas for DRR at many scales. The Sendai Framework for Disaster Risk Reduction (DRR) uses the term resilience 35 times, while the Hyogo Framework for Action 2005-2015 utilised resilience 9 times. Furthermore, international organisations, governmental agencies as well as local Non-Governmental Organisations (NGOs) also use frameworks, toolkits and reporting systems that are informed by resilience.

Community led

In New Zealand, resilience is integral part of the national strategy since 2019. The National Disaster Resilience Strategy emphasises its goal is to "strengthen the resilience of the nation […] by enabling, empowering and supporting individuals, organisations and communities to act for themselves and others, for the safety and wellbeing of all" (MCDEM, 2019: 3). Furthermore, the objectives of this strategy strongly emphasise the key role local communities should play in building resilience, including through objectives 2,3,8,10,13,14,17,18 in bold (Figure 1). This reflects a shift of approach from the top-down to the bottom-up gradually occurring over the last few years.

Image 4

Volunteers at Tihei Mauri Ora

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Figure 1: Objectives of the New Zealand disaster resilience strategy

1. Managing risks	2. Effective response to and recovery from emergencies	3. Enabling, empowering, and supporting community resilience
1 Identify and understand risk scenarios (including the components of hazard, exposure, vulnerability, and capacity), and use this knowledge to inform decision-making.	**7** Ensure that the safety and wellbeing of people is at the heart of the emergency management system.	**13** Enable and empower individuals, households, organisations, and businesses to build their resilience, paying particular attention to those people and groups who may be disproportionately affected by disasters.
2 Put in place organisational structures and identify necessary processes – including being informed by community perspectives – to understand and act on reducing risks.	**8** Build the relationship between emergency management organisations and iwi/groups representing Māori, to ensure greater recognition, understanding, and integration of iwi/Māori perspectives and tikanga in emergency management.	**14** Cultivate an environment for social connectedness which promotes a culture of mutual help; embed a collective impact approach to building community resilience.
3 Build risk awareness, risk literacy, and risk management capability, including the ability to assess risk.	**9** Strengthen the national leadership of the emergency management system to provide clearer direction and more consistent response to and recovery from emergencies.	**15** Take a whole of city/district/ region approach to resilience, including to embed strategic objectives for resilience in key plans and strategies.
4 Address gaps in risk reduction policy (particularly in the light of climate change adaptation).	**10** Ensure it is clear who is responsible for what, nationally, regionally, and locally, in response and recovery; enable and empower community-level response, and ensure it is connected into wider coordinated responses, when and where necessary.	**16** Address the capacity and adequacy of critical infrastructure systems, and upgrade them as practicable, according to risks identified.
5 Ensure development and investment practices, particularly in the built and natural environments, are risk-aware, taking care not to create any unnecessary or unacceptable new risk.	**11** Build the capability and capacity of the emergency management workforce for response and recovery.	**17** Embed a strategic, resilience approach to recovery planning that takes account of risks identified, recognises long-term priorities and opportunities to build back better, and ensures the needs of the affected are at the centre of recovery processes.
6 Understand the economic impact of disaster and disruption, and the need for investment in resilience; identify and develop financial mechanisms that support resilience activities.	**12** Improve the information and intelligence system that supports decision-making in emergencies to enable informed, timely, and consistent decisions by stakeholders and the public.	**18** Recognise the importance of culture to resilience, including to support the continuity of cultural places, institutions and activities, and to enable the participation of different cultures in resilience.

Source: adapted from MCDEM (2019)

Aumangea

1. A short review of the concept of resilience

Although resilience is used extensively, the concept is poorly defined with diverging views on its meaning and applications (Pelling, 2003; Twigg, 2009; Oliver-Smith, 2009; Cutter, 2008a; 2016). Three elements are nonetheless recurrent in the literature. Firstly, resilience reflects people's and/or societies' ability to resist or absorb unusual stresses and shocks without needing much outside support (Horne and Orr, 1998; Mileti, 1999). Secondly, resilience relates to the capacity to cope with hazards and disasters, and adapt to pressures and shocks such as demographic changes and climate change (Pelling et al., 2015; Weichselgartner and Kelman, 2014). Lastly, resilience is generally linked to the idea of 'bouncing back' quickly after a disaster (Wildavsky, 1991). This notion of bouncing back has been criticised because it aims for a return to the original position, which implies a return to pre-disaster vulnerability or the conditions that caused the disaster in the first place. Therefore, scholars, practitioners and policy makers increasingly claim that resilience is more about 'bouncing forward', which instead underlines the reduction of disaster risk (Manyena, 2006; 2011).

Defining resilience

The concept of resilience is subject to both positive and negative critiques. Different scholars and practitioners argue that the concept of resilience reframes the exact same challenges that have been previously discussed as vulnerability and DRR (Weichselgartner and Kelman, 2014). For example, Twigg (2009: 8) states that "DRR is the collection of actions, or processes, undertaken towards achieving resilience". Nonetheless, with resilience and resilience building, there is a tendency to focus on people's capacities, resources, knowledge and skills and by extension notions of self-organisation, self-efficacy and self-reliance (Mackinnon and Derickson, 2013). Therefore, many scholars recognise the positive nature of enhancing resilience since it suggests 'building something up' rather than just 'reducing something' such as vulnerability and poverty (Manyena, 2006; 2011).

Critique

In recent years, resilience has been increasingly criticised for being part of a Western discourse that reflects neoliberal values and agenda. Bankoff (2019: 219) states that "it [resilience] recasts the world according to culturally-specific dictates. Depending on the context in which it is evoked, resilience either tries to restructure non-Western societies according to prescribed economic formulae". Some argue that resilience tends to be used for labelling places, people, and societies as 'resilient' or 'non-resilient', which either avoids supplying external support and reduces governments' role in development work or justifies external aid intervention based on an outsider-driven agenda (Mackinnon and Derickson, 2013; Kelman, 2018). Those critiques pinpoint the fact that resilience is mostly defined, assessed and measured by outsider experts rather than by those primarily concerned – local people (Gaillard and Jiyatsu, 2016; Jones and D'Errico; 2019; Jones, 2019). Several scholars thus point out the need for locals to play a central role in this process, which implies to actively participate in defining their own resilience and self-evaluate accordingly.

2. How is resilience measured?

The quest for quantification and measurements of resilience is nothing new. International institutions, governmental agencies and NGOs have gradually felt the need for measuring resilience to guide their policies and actions, monitor progress 'on the ground' and foster accountability (Gaillard and Jigyasu, 2016). This demand for measurement of resilience has generated a wide diversity of approaches, methods and tools created by researchers, international organisations, NGOs and research institutes to appraise the many dimensions of resilience at different scales (Béné, 2013; Levine, 2014).

Objective

The dominant approach to measure resilience, which has been termed 'independent' (Béné, 2013) or 'objective' (Jones, 2019; Jones and D'Errico, 2019), relies mostly on outsiders' viewpoints and understanding of resilience. Outsiders are those external to the places, people or societies where they conduct research, carry out project or develop policies aimed at strengthening people's resilience. They are scholars or technical staff from governmental agencies, NGOs or research institutes, and are generally considered 'experts' in their field. The dominant approach implies a process where 1) outsiders have defined resilience and its several components; and 2) have decided how resilience shall be measured. Usually, outsiders develop a resilience framework based on the existing academic literature, extensive expert consultation, and their specific goals or capacities to support resilience. Some form of community engagement occasionally occurs to validate the defined framework, but rarely are the perspectives of local people meaningfully included (Gaillard and Jigyasu, 2016; Jones, 2019). Once the criteria of resilience have been selected, measurement toolkits are developed with proxy indicators – usually a long list of indicators or sub-indicators. Typically, these include households' income, level of education, access to insurance schemes, performance of social security system and so on (Cutter et al. 2008; Cutter, 2010; Stevenson et al., 2018).

Outsider driven

There are different advantages linked to such dominant/outsider-driven approach. First, most utilise comprehensive and tangible definitions of resilience which often look strong to policy makers, donors and decision-makers at large (Clare et al. 2018). Second, the approach and toolkits utilised to measure resilience are easily replicable in different places. As a result, it enables compiling standardised metrics that allows comparing different communities, cities or regions (COSA 2017). Lastly, this approach relies on proxy indicators, many of which are regularly collected by governments and development agencies and made available freely to public (Schipper and Langston 2015). For example, the New Zealand Resilience Index (Resilient Organisations, 2018), which adopts such outsider-driven approach, draws on six main indicators defined by experts based on the existing academic literature and existing secondary data publicly available nationwide (Stevenson et al., 2018) (Figure 2).

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Social Resilience

Social capital
Health
Education
Welfare
Justice and protection

Cultural Resilience

Cultural values and identity
Cultural life, heritage, and taonga
Traditional knowledge and practice

Economic Resilience

Economy
Businesses
Livelihoods
Financial management
Insurance

Resilience of the Built Environment

Infrastructure
Transport
Buildings and housing
Engineering and construction
Urban growth and design

Resilience of the Natural Environment

Resource management and land-use
Indigenous ecosystems, biodiversity, & conservation
Climate change

Governance of Risk and Resilience

Leadership
Policy
Strategy
Coordination
Safety and security

RESILIENT HOMES, FAMILIES & WHĀNAU
RESILIENT BUSINESSES & ORGANISATIONS
RESILIENT COMMUNITIES & HAPŪ
RESILIENT CITIES, DISTRICTS, & REGIONS
ENABLING, EMPOWERING & SUPPORTIVE GOVERNMENT

2. How is resilience measured?

While outsider-driven approaches and methods have some values, they are not without limitations (Levine 2014; Jones and D'Errico, 2019) (Figure 3). Although the resilience of individuals and household is partly shaped by assets accumulation and availability of infrastructure or physical resources, much of it is linked to intangible elements such as social networks and cohesion at the community level (Aldrich, 2012). Outsider-driven approaches tend to use large lists of proxy indicators to account for them, but generally fail capturing such intangible elements of resilience (Bahadur and Pichon 2017). For Chambers (2007) more quantitative data does not mean better information, but generally means more bad data. Furthermore, such approaches tend to be bias by outsiders' views of what resilience means to them. As a result, definition or conceptualisation of resilience are not context-specific and thus do not fit with local people's realities. This limits resilience indicators' utilisation to tackle local issues and guide actions to build community resilience (Gaillard and Jigyasu, 2016). Critiques of outsider-driven methods also emphasise that the built indicators are used to advance a pre-defined agenda driven from the top-down rather than guided by local needs (Mackinnon and Derickson, 2013; Kelman, 2018; Bankoff, 2019). Lastly, outsider-driven approaches often fail to consider the capacities of local people (i.e. knowledge, level of preparedness) very hard to capture with traditional methods, but yet critical in shaping local communities' resilience (Norris, 2008).

Image 6

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Figure 3: Characteristics of outsider-driven and community-centred approaches

	Dominant – outsider driven approach	Alternative – community centred approach
Epistemology	**Resilience** as an attribute or consequence	**Resilience** as a process
Methods	**Quantitative** (i.e. questionnaire-based surveys, census, expert consultation, etc.)	**Participatory** (i.e. participatory quantitative methods)
Approach	**Extractive**	**Self-reflective/self-organisational**
Role of local people	**Respondents/passive**	**Analysts/active**
Users	**Policy makers and practitioners**	**Local people and practitioners**
Strengths	• Comprehensive/tangible framework of resilience • Quick to set up • Can be replicated in different places, enabling comparison • Output look strong to decision-makers and donors	• Reflects people's own and diverse views (indicators are context-specific) • Addresses local concerns and priorities • Empowers people in the process of building indicators • Enables dialogue between local people and practitioners
Limitations	• High level of generalisation (very little use at local level) • Biased by outsiders' views/definition of resilience • Difficult to capture intangible aspects of resilience	• Highly dependent on facilitators' skills • Consistent participation across the process and issue of who participate • Hardly comparable because context specific

Source: authors' own (2020)

Another view

With these elements in mind, alternative approaches and tools have recently been sought for measuring resilience (Marshall 2010; Maxwell et al. 2015; Jones and Tanner 2017; Jones and Samman 2016; Claire et al 2017; Seara et al. 2016; Béné et al. 2016). Termed 'inductive' (Bene, 2013), 'subjective' (Jones and D'Errico, 2019; Jones, 2019) or 'participatory pluralism' (Chambers, 2007; Gaillard and Jigyasu, 2016), these approaches start from the premise that local people have knowledge about their surrounding environment, including the hazards they are exposed to, as well as their own vulnerabilities, capacities and elements of resilience. Such alternative approaches and tools also recognise the legitimacy of people in actively participating in the decision-making process on matters that affect their lives and/or meant to lift their wellbeing. They attempt to place people at the centre of the resilience building process, including on defining resilience in their own terms and in self-evaluating. These alternative approaches and tools ...

... are 'community-centred', and therefore very different from the more traditional and dominant approaches, including in their epistemology, methods and role played by local people (Figure 3). They usually draw on participatory methods and rely strongly on people's own perceptions, viewpoints and priorities (Maxwell et al., 2015). Scholars and practitioners usually emphasise a number strengths attached to them, including to better address local issues through context-specific indicators, contributing to empower people in identifying ways to build their own resilience, and strengthen the collaboration with outsiders who rather play a role of facilitator or 'enabler'. Such alternative, people-centred, approaches and tools have been trialled in a number of different contexts with variations in their design (Jones and Samman 2016; Marshall, 2010; Seara et al. 2016; Béné et al. 2016).

Keeping a balance

While they comprise different strengths and generate positive outcomes, they also have limitations and pose several challenges for both be successfully developed and implemented. One of the main limitations is that while context-specific, the indicators hardly enable any comparison between locations or communities with whom they have been developed. Secondly, the process can be time-consuming as it requires building trust and/or engaging with people in their diversity (Cornwall, 2008). Thirdly, the 'quality' of both the process for building the indicators and the final/produced indicators are highly dependent on facilitators' skills: a genuine process requires that everyone at the community level has a voice in defining resilience and identify ways to measure it, including those highly vulnerable, marginalised and/or generally excluded from the decision-making process (Chambers, 2007).

Image 7

Working with communities

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3. Methodological approach

The objectives of the project were twofold: 1) fostering the participation of local people in the process of defining what resilience means to them and 2) developing indicators that would help enhance the communication/dialogue with outsider agencies and meaningfully contribute to plan and act towards strengthening resilience. The methodological approach adopts a community-centred approach to measure community resilience. It draws on participatory methods, which have been used extensively by scholars and practitioners in disaster and development work (Chambers, 1983). While enabling to produce rich qualitative information, they have increasingly been used to measure elements linked to disaster risk and resilience (Chambers, 2007; Le De et al., 2015; Gaillard et al., 2016).

Our approach

The development of the methodology involved a series of workshops with both practitioners and local community members to trial, get feedback and refine the methodology used to develop the community-centred resilience indicators. Three workshops took place in different regions of New Zealand where the project would take place, including Bay of Plenty (BoP) and Hawke's Bay. It also involved practitioners from Waikato region who were involved in the project. Once the indicators would be trialled and co-developed with practitioners, local people and the researchers, they could be rolled out with local communities. As a result of COVID-19 and the national lockdown, the team of researchers and practitioners had to reconsider the locations and communities with whom the indicators would be built.

Diversity

The project involved four different case studies, including one in Papamoa (BoP) composed largely of Pākehā (n=22), and three in the Hawke's Bay region with Migrants (n=20), Māori (n=17) and Pasifika communities (n=8). The choice of these community groups is reflective of the different ethnicities that compose New Zealand. It offers different viewpoints and worldviews in conceptualising resilience and its different facets. Before conducting fieldwork, the project involved obtaining ethics approval from Auckland University of Technology Ethics Committee (AUTEC). This was granted in August 2019 with number 19/353. A total of about 67 participants across the four locations were involved. Three workshops took place in Papamoa and lasted about one hour and a half each. The first workshop occurred on the 16th October 2019, the second workshop took place on the 5th February 2020 and the third on the 4th March 2020. The three in Hawke's Bay took a different approach, being conducted over one day each and lasting between 4 and 6 hours. The workshop with migrant participants was held on the 4th July 2020, Pasifika participants met on the 18th July 2020, and the workshop with Māori was conducted on 8th August 2020.

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Kete

Community Toolkit

Kete – Community Toolkit

12-page extract from Te ara o Tawhaki/Community Resilience Indicators Project

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4. Methods: a toolkit for community-centred resilience indicators

The method developed to produce community-centred resilience indicators involved six steps that form a toolkit (Table 4). The activities can take from 4 to 7 hours to conduct (depending on the level of engagement of communities and including breaks between each step). This can be done within one day or be broken down into several sessions/community meetings. This toolkit is not a rigid 'plan' but should allow for some level of flexibility such as adding activities/steps if needed.

Table 4: Toolkit methodology to conduct community-centred resilience indicators

Activity	Time	Material needed
#1 Get to know each other	20 to 30 min	N/A
#2 Expectation check	30 min	• Flip charts • Masking tape • Markers
#3 Hazard history	45 min to 1.5 hour (note: the activity can last more than 45 depending on the debriefing of the information)	• Flip charts • Ruler • Marker • Masking tape
#4 Defining resilience main indicators and sub-indicators	45 min to 1 hour	• Flip charts • Scissors • Masking tape • Markers
#5 Refining the sub-indicators of resilience	30 min to 45 min (depending on the number of main indicators)	• Flip charts • Sticky dots • Timer (cell phone) • Markers
#6 Planning session	1 hour to 2 hours depending on the context	• Flip charts • Markers

The different steps of the methodology are described below with a rationale for each activity. The activities are usually facilitated by the practitioners and co-facilitated by community members. Involving a community member in the facilitation process can be a good way for local people to take ownership over the process of building their own indicators. Nonetheless, the choice of the local people as facilitator or co-facilitator needs to carefully consider the power dynamic at the community level to ensure the person will work towards giving a voice to everyone, including those usually excluded or perceived as less knowledgeable, more vulnerable or even marginalised.

Step #1 | Get to know eachother

Rationale:

It is important that everyone gets to know who all the participants are. The facilitator should not assume that all the community members know each other. It also helps the facilitator to know who is in the room and which position people hold in the community.

Description:

There are different activities that may range from 'simple' mutual introduction to more fun activities. This step may include a karakia, prayer or any other formal acknowledgement as appropriate.

## Step #2 | Expectation check

Rationale:

It is essential for the facilitator to understand the participants' expectations and reasons for participating. This gives the facilitator the opportunity to clarify what the project is about and what it can or cannot achieve. Failing to be precise about the project objectives and what it can or cannot achieve can have very negative consequences. For the participants, it is also an important activity as it helps foster ownership and reinforce the feeling that it is about the community.

Description:

The facilitator should divide the room into smaller groups of 4 to 7 people (this depends on the size of the group). Participants are provided with a flip chart and asked to list 1) what they want to achieve with the resilience indicators; 2) what would make this process/project successful; and 3) what would prevent this project/process from being successful. Expectation check is about both the outcomes of the project and its format (i.e. facilitation, people's participation etc..). Once participants have written down their ideas (after about 10 minutes) (Figure 5), the facilitator asks the group to show the flip chart (people can stick them on the wall) and read it to the rest of the participants/facilitator. The facilitator can therefore use the information produced to explain what falls/does not fall within the project, agree on 'rules' around the format (i.e. ensuring everyone can speak), and address any questions that may arise.

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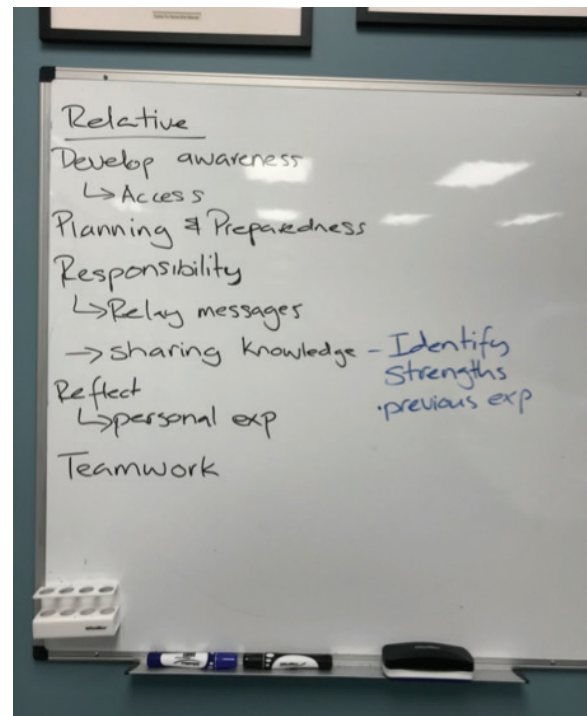
Rationale:

The objective is for the participants to start thinking about their community, the hazards that impacted them in the past, what/who was affected, and the ways people coped with and recovered from the events. This enables the community to think about key elements that form part of resilience (i.e. exposure and impacts on people, vulnerability, coping capacities, abilities to bounce forward, etc..) to later be able to define resilience indicators. This activity is much more powerful than asking the community to define an abstract concept (i.e. Resilience) but shall rather help them define resilience in function of their daily realities and their local context (Figure 6 and Figure 7). This activity also helps fostering ownership over the process of defining indicators: it is about participants' own resilience telling their stories – not that from outsiders. The facilitator may learn about hazards, disasters and other elements shaping community's vulnerability he/she ignored (i.e. small-scale/recurrent events, vulnerable community members badly affected etc.).

Description:

On several flip charts, the facilitator draws a table with 6 columns that have the following headings: 1) event, 2) where did it occur? , 3) when/which season?, 4) Who was affected?, 5) what was affected?, 6) how did the community cope?, 7) how did the community recover? The flip charts should be placed on the wall or on a large table for the community members to collectively brainstorm about each aspect. Once completed, the facilitator debriefs with everyone who explain about the events. The participants should read/share their stories about hazards, impacts and community response and recovery.

Figure 6

Māori participants working together during the Hazard History activity

Hazard History from Pasifika participants

Step #4 — Defining resilience main indicators and sub-indicators

Rationale:

This activity is meant to define main and sub-resilience indicators. Rather than imposing a view on what resilience means at community level, this activity is meant to build the indicators and sub-indicators in function of local communities' perspectives and experiences.

Description:

The facilitator should give participants strips of flip charts or cards. Many are needed and must be prepared in advance. The facilitator asks the participants to write on the strips what resilience means to them or in other words what are the key elements that are part of community resilience to hazards (Figure 8). They should reflect upon the previous activity (step#3). This can be done individually, in pairs or small group of three to four participants maximum, depending on the size of the group.

When the participants are done (after about 5 minutes), they dispose the strips on the floor. The facilitator should then discuss with the participants the main themes/group of strips to make sure there is no overlaps between themes and that this is really what they mean (Figure 9). You should come up with 3 to 6 themes/ groups of strips (note: this could be more but keep in mind that the more themes the more indicators).

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Figure 8

Māori participants using post it notes instead of strips to write their perception of resilience

The themes will become the main resilience indicators: the facilitator should discuss carefully with the participants these themes/resilience indicators. Participants should be given the opportunity to add new or missing themes. This is the same for the strips: participants have the opportunity to write new ones and add them on the floor if needed. The result should be: 1) themes are your main resilience indicators; 2) the strips are your sub-indicators. Once a consensus is reached, each theme is provided with a name: this is your main indicator.

Note: this step is probably the most critical and difficult to facilitate. It is very important that the facilitator explains before starting the activity what is its purpose: to define main indicators and sub-indicators. Facilitators may show existing pictures of activities done with another community or an example of indicators/sub-indicators. Participants need to know what they are building.

Figure 9: Papamoa participants collectively categorising their resilience indicators

Rationale:

The objective is to come up with a limited set of sub-indicators. Refining enables the participants to select the most important sub-indicators, which avoid having a very long list of sub-indicators. Ideally the community will have identified around 4 to 5 main indicators and 3 to 4 sub-indicators. This is much shorter than more traditional approaches. The rationale here is that it provides rich information while being easy to understand and measure, including the option of administering them via mobile phone.

Description:

The main themes/resilience indicators from the previous activity are written on flipcharts: 1 main indicator = 1 flip charts. Flip charts are disposed in different parts of the room, ideally on the walls (can be on tables or on the floor). The strips from the previous activity are placed on the flip charts. Participants are then given sticky dots to score each sub-indicator as follow: 3 sticky dots = very important; 2 sticky dots means important; 1 sticky dot means not very important; 0 sticky dot is not important at all. Divide the participants into smaller groups of 3 to 5 people and do a carousel activity. The carousel implies participants having 3 minutes in front of each flip chart to score the sub-indicators. After 3 minutes, the groups move clockwise until every group had a chance to score every flip chart (Figure 10 and 11). Once completed, the facilitator runs a debrief and the participants write next to the sticky dots how many there are. Keep the four most important sub-indicators so the final list of indicators is short enough to score quickly (i.e. send on people's phone) while capturing people's resilience (Note: if there is duplication among indicators there might be less than four sub-indicators).
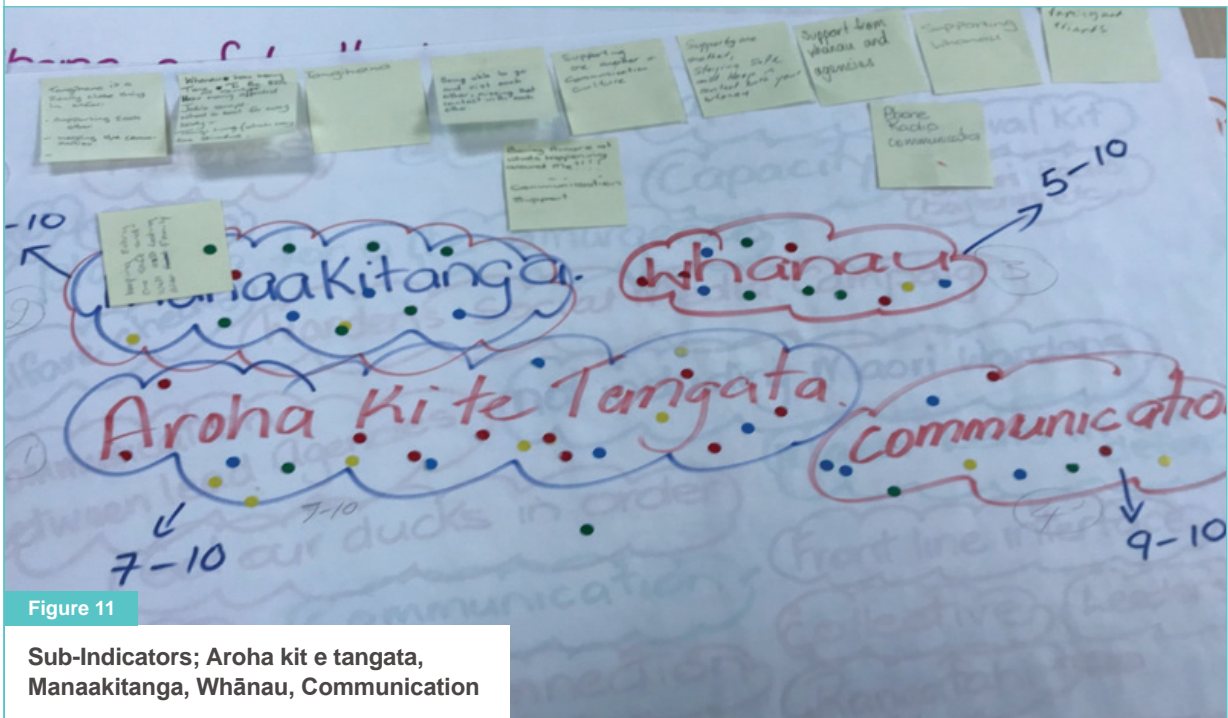
Figure 11

Sub-Indicators; Aroha kit e tangata, Manaakitanga, Whānau, Communication
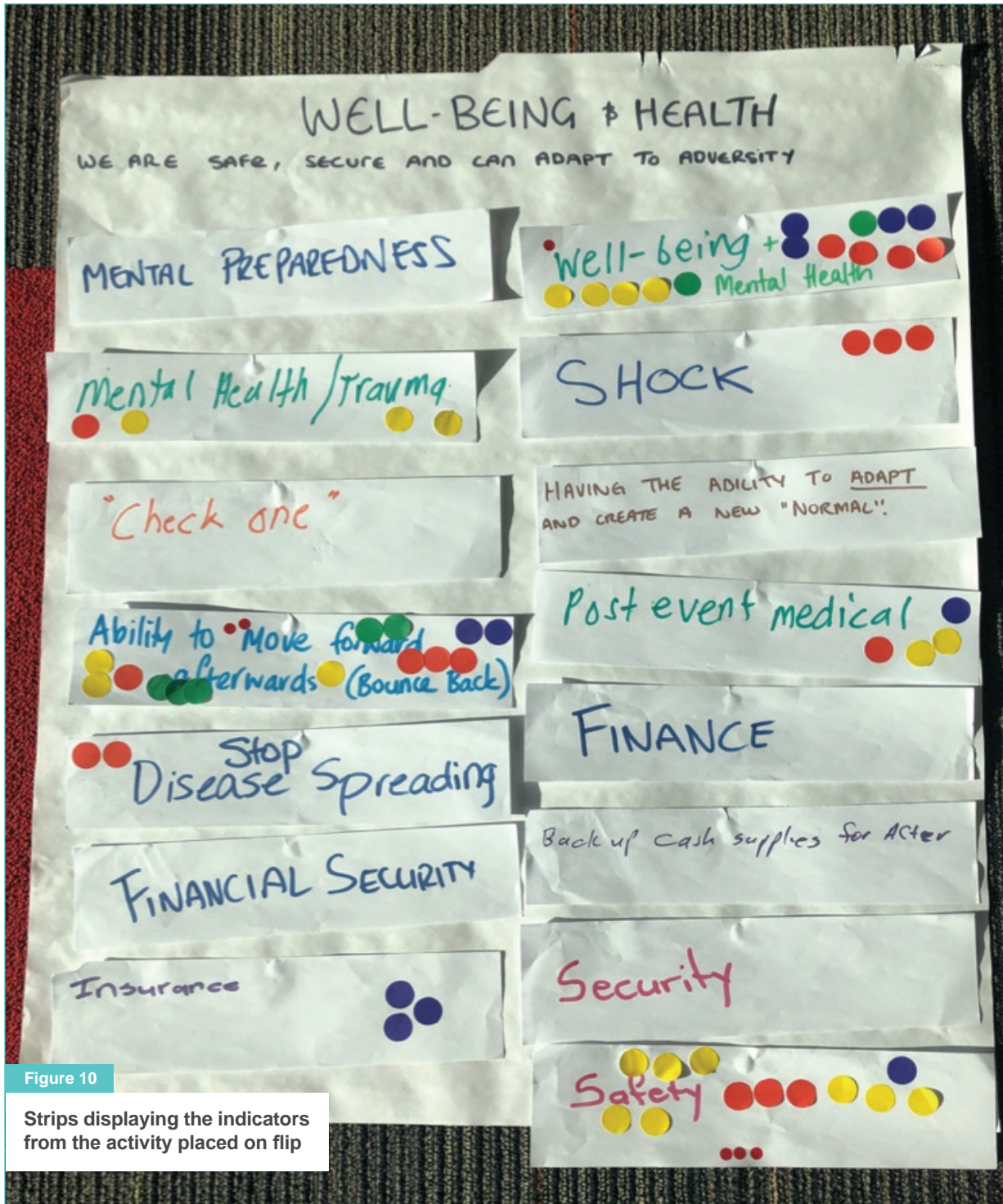
Figure 10

Strips displaying the indicators from the activity placed on flip

Note: Facilitators with the participants should write in front of each sub-indicators its meaning or a definition of it (Figure 12). This allows for practitioners or community members who were not part of the steps to understand what each sub-indicator means. This is particularly important when the indicators are measured, re-visited, or when there is turnover of practitioners or new community members involved.

Indicator		Explanations of each sub-indicator
Migrant community	**Information**	**Adaptability** Being aware of the language used to reach migrant communities and using the appropriate channels to reach out (mainstream tv vs migrant tv). **Expectations** The type of language used. Communicating to community in a language they understand (everyday language via community champions). **Rebuilding** Access to information on rebuilding what is broken.
	Attitude	**Individual** Having the right attitude i.e., patience, perseverance, optimistic and staying present. **Community** Awareness of community needs, vulnerability, mana enhancing.
	Communication	**Know what is going on** Have access and knowledge of communication channels for alerts such as radio stations. Also, a way to share information between people. Ability to communicate in cells or communities – mosque or international students. **Communication/inform family you are safe** Have a way to communicate to your family about your safety and location. **Having someone to talk to** Developing a support system that you can use.
	Preparation	**Being organised** Essential papers, medication and contacts. Food and water, emergency kit/ grab bag. **Family concern** Being able to let people back home know that they are okay and vice versa.
	Safety	**Financial** Financial safety and job security. Horticultural workers and hospitality and couldn't access mainstream welfare system. **Wellbeing and mental health** Individual/religious freedoms. Knowing what resources are available for people who need them. **Physical** Safety in the sense of self, loved ones and property.

Source: Migrant participants, 2020

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Rationale:

At this stage the community has defined the main indicators of resilience and the associated sub-indicators (Figure 13). In other words, the indicators have been built. These can be reported on a printed document and/or emailed to the participants (Figure 14). Ideally, you would have defined around 4 to 5 main indicators and 3 to 4 sub-indicators, which means there are between 12 and 20 criteria of community resilience. The objective of this planning session is to ensure that the indicators are used in ways that match communities needs and are utilised in a sustainable way/in the long term.

Figure 13

Final list of indicators produced by local people

Source: Papamoa, 4th of March 2020

Description:

The facilitator can either run FGD with all the participants or break down a large group into smaller groups and then debrief to reach a consensus. This session is quite flexible as it depends a lot on the participants and the local context. It shall cover the following:

1) **Scale:** define the scale the scoring will use (i.e. 0 to 5, 0 to 10 etc.); usually the indicators will be scored from 0 to 10 – but this is up to the community to decide.

2) **Who:** what unit is used (i.e. households, individuals) and if specific groups are involved (i.e. schools). Usually the household will be used as unit to understand community resilience – but this is a discussion to have with the participants.

3) **When the measuring or indicators takes place** (i.e. every 6 months, every year, post-disaster) and how often are they reviewed; usually the indicators will be revised every year. However, there can be a willingness from the community to measure their own resilience more regularly or after a specific event. This can also be useful for practitioners to have a snapshot on 'how well' the community is doing and what needs to be done to strengthen community recovery and/or resilience.

4) **Which format** (i.e. online, print, public meetings, Community Resilience Plans, a combination of these). There are many ways to get the community to measure their resilience. The choice of channel (i.e. phone, mail, face-to-face) depends on your community members (i.e. elderly won't necessarily respond if sent on their phone).

Indicator		Explanations of each sub-indicator
Papamoa community	**Resources**	**Emergency supplies** – Have an emergency kit located in different places such as in the car, at home and at work. **Community medical resources** – Know and having access to personal medication, community clinics, and identifying trained individuals that may have first aid certificates to help when emergency services are not available. **Community facilities** – Know where community centres are located in an event. **Physical community resources** – Know and have ability to access alternative basic needs such as generators and water supplies.
	Community	**Neighbourhood support network** – Have or be a part of a neighbourhood support network. **Ensure family/neighbours/friends are safe** – Have a plan in case of an event for your loved ones that is discussed prior to an emergency. **Pets (undervalued aspect)** – Know that you can take your pets with you or where to take them in case of an event (i.e. temporary shelter). **Teamwork** – Working together within the community and knowing people who would want to get involved in preparedness, response or recovery.
	Knowledge and Education	**Hazard awareness** – Have knowledge about hazards and what to do in case of an emergency. **Have a plan** – Have a plan at each level such as household, street and community. Also, at a macro level, have a business continuity and school plan. **Tsunami evacuation** – Know the evacuation routes and how to get there. Also, having identified alternative routes in case the main one is affected.
	Communication	**Know what is going on/what is the situation/having a plan** – Have access and knowledge of communication channels for alerts such as radio stations. Also, have ways to share information between people. **Communication/inform family you are safe** – Have a way to communicate to your family about your safety and location. **Notice boards** – Know where the location of a central communication point is in the community. **Identify hazards via communication** – The ability to know of hazards through communication channels such as fallen power line.
	Wellbeing and Health	**Ability to move forwards afterwards (bounce back)** – This has been highlighted at a community level. How will a community survive if it loses its main source of income? For example, communities that rely on tourism to survive when that has been impacted. **Wellbeing and mental health** – This has been highlighted at an individual level. What resources are available for people who need them? For example, financial and social services. **Safety** – Safety in the sense of self, loved ones and property. Also, this can be seen as financial safety and job security.

Source: Papamoa community

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TE ARA O TAWHAKI

WHAT MATTERS MOST TO PEOPLE IN AN EMERGENCY

Whānau tūārangi

5. Developing community-centred indicators: key results

This section provides some of the key findings of the project. It details the different indicators produced in each community. It also highlights some of the key results linked to the process of building the resilience indicators.

5.1 How is resilience measured?

In Papamoa, the main indicators produced included Resources, Community, Knowledge and Education, Communication and Wellbeing and Health (Figure 15 and 16). The participants highlighted the importance of Resources, including having emergency kits, stockpiling of medical supplies, and other resources to deal with power cut and telecommunication breakdown. Having a plan such as knowing evacuation routes was perceived as critical to being resilient. The participants also identified the importance of communication at different levels, within their household, their broader community and with key stakeholders involved in disaster risk reduction and emergency management.

Caring for communities

The importance of resilience was not only identified on the individual or household level, but emphasis was also placed at the wider community level. For instance, the participants highlighted that resilience was not only about taking care of themselves, but also to ensure that community members were provided with the adequate resources and support. The notion of sharing was seen as critical to being resilient. For example, physical Community Resources indicator emphasises the importance of identifying community members that have equipment to help in an emergency (i.e. generators, drinkable water, etc.). The notion of social cohesion is also shown in Community Medical Resources indicator: the participants identified the need to have trained individuals to assist others in the case of emergency services would not be able to provide support quickly.

Collaboration

Working collaboratively and forming a support network was perceived as an integral aspect of resilience. Interestingly, participants identified pets as critical component of resilience. While this may appear without much importance to outsiders, it was seen as essential to the participants. Local people emphasised that pets are considered members of the family who need to be considered as key element of resilience. For example, the participants mentioned the importance of being with their pets if having to evacuate during a tsunami or an earthquake, implying having a plan in place and a shelter where pets are allowed.

Awareness and planning

Knowledge and Education focuses on being aware of hazards and having a plan in place. The community members thought being resilient meant ongoing preparedness work, including regularly updating their disaster preparedness plan. For example, one of the participants, a teacher, shared that high school ...

... students tried to follow an evacuation route indicated on their plan, but this implied for students to cross a highway as the previously identified routes have not been updated. Furthermore, the participants also explained about having a 'macro plan' for businesses that are present in Papamoa. This aspect was also emphasised under the Ability to Move Forward indicator. The participants particularly commented on the Whakaari/White Island event that impacted some business owners in the community.

Wellbeing

Individuals' wellbeing in regard to safety and security is noted in, Wellbeing and Health indicator. The participants valued safety in the sense of self, loved ones and property but also wanted to know that they were secure financially to provide basic needs for their household. The participants also emphasised the importance of knowing what resources are available to assist with the wellbeing of individuals and households, including being aware of the financial and social services that people can access during and after disaster. Lastly, Communication was identified as essential component of resilience. Having the access and knowledge to the correct channels of communication to identify areas of need, hazards and to communicate with loved ones as well as the broader community was perceived as key elements of resilience.

The Papamoa community did not have a planning session to decide on how to score the indicators that they developed and did not explore the next steps to take with regards to putting in an action plan. This step was lacking and need to be delved into as working with the community on improving areas of weakness to minimise adverse impacts of events is vital to the resilience of the community.

Timing is crucial

Primary indicators and sub-indicators were developed in the first workshop. The community decided to involve the youth ambassador from Papamoa College who participated to the workshop to remove technical jargon. This helped foster make the concepts used relatable to all individuals irrespective of age, background and promote a deeper level of understanding. On a more negative note, there was a four-month period between the first and second workshop, which lowered the participation of community members. Participants appeared to have forgotten about the discussions that took part in the previous workshop and needed time to reflect upon the past activities. However, as there was an hour to two hours to work on one activity this allowed the participants flexibility to unpack each task and saw for some interesting discussion. A collective decision was made to compress the time between each workshop.

Figure 15: Papamoa Community Indicators

Resources
- Emergency Supplies
- Community Medical Resources
- Community Facilities
- Physical community resources

Community
- Neighbourhood support network
- Ensure family / neighbours/friends are safe
- Pets (undervalued aspect)
- Teamwork

Knowledge & Education
- Hazard Awareness
- Have a plan
- Tsunami evacuation

Communication
- Know what is going on/what is the situation/having a plan
- Communication/inform family you are safe
- Notice boards Identify hazards via communication

Wellbeing & Health
- Ability to move forwards afterwards (bounce back)
- Wellbeing + Mental Health
- Safety

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Indicator		Explanations of each sub-indicator
Papamoa community	**Resources**	**Emergency supplies** – Have an emergency kit located in different places such as in the car, at home and at work.
		Community medical resources – Know and having access to personal medication, community clinics, and identifying trained individuals that may have first aid certificates to help when emergency services are not available.
		Community facilities – Know where community centres are located in an event.
		Physical community resources – Know and have ability to access alternative basic needs such as generators and water supplies.
	Community	**Neighbourhood support network** – Have or be a part of a neighbourhood support network.
		Ensure family/neighbour/friends are safe – Have a plan in case of an event for your loved ones that is discussed prior to an emergency.
		Pets (undervalued aspect) – Know that you can take your pets with you or where to take them in case of an event (i.e. temporary shelter).
		Teamwork – Working together within the community and knowing people who would want to get involved in preparedness, response or recovery.
	Knowledge and Education	**Hazard awareness** – Have knowledge about hazards and what to do in case of an emergency.
		Have a plan – Have a plan at each level such as household, street and community. Also, at a macro level, have a business continuity and school plan.
		Tsunami evacuation – Know the evacuation routes and how to get there. Also, having identified alternative routes in case the main one is affected.
	Communication	**Know what is going on/what is the situation/having a plan** – Have access and knowledge of communication channels for alerts such as radio stations. Also, have ways to share information between people.
		Communication/inform family you are safe – Have a way to communicate to your family about your safety and location.
		Notice boards – Know where the location of a central communication point is in the community.
		Identify hazards via communication – The ability to know of hazards through communication channels such as fallen power line.
	Wellbeing and Health	**Ability to move forwards (bounce back)** – This has been highlighted at a community level. How will a community survive if it loses its main source of income? For example, communities that rely on tourism to survive when that has been impacted.
		Wellbeing and mental health – This has been highlighted at an individual level. What resources are available for people who need them? For example, financial and social services.
		Safety – Safety in the sense of self, loved ones and property. Also, this can be seen as financial safety and job security.

Figure 16: Detailed indicators developed by the Papamoa community members

5.2 Indicators developed by the Pasifika participants

During the workshop with the Pasifika community members, the themes of family, faith and resource security were predominating in the discussions. The participants mentioned that their faith in their religion is important to the Pasifika culture and by extension being resilient. Resilience is also highly linked to their connection to their families. These are intertwined in the indicators of resilience the participants identified. The Pasifika community identified four key main elements of resilience that they termed Preparedness, Communication, Essentials and Social Priorities (Figure 17 and 18). The discussion surrounding preparedness focused largely on developing emergency plans for the community. The participants emphasised the importance of being prepared and acknowledged that many have no plans in place should a disaster occur. For instance, the participants identified that during COVID-19 most of the Pasifika community was not prepared and that the lack of preparedness amplified the impacts on people.

Languages are key

Communication was identified as an important element shaping the resilience of the Pasifika community. The participants stated that frequently the community is presented with misinformation, understanding often get lost when message is translated, and many members of this community have a tendency to spread rumors and wrong information. To overcome this issue, the participants discussed that trusted individuals need to be identified to communicate information to the wider community. In turn, information that would not come from them should not be trusted. To ensure that the information from the CDEM is understood correctly, the message should be tailored to the community, including being presented in various Pasifika languages.

Faith

The participants identified what was termed 'Essentials', which they defined as having access to consumable goods that would provide their families with basic needs. The recent impact of COVID-19 greatly shaped the discussion on such key element as many lost their job, impacting their level of security. Pasifika participants also voice the access and possession of emergency equipment such as torches and batteries. Social Priorities was focused mainly on faith and family. The participants voiced that faith is an essential part of their culture which contributes to their resilience. This aspect was twofold: being able to actively practice their faith makes them more resilient spiritually and psychological. Besides, practicing their faith help foster family connections and collaboration, which is deeply rooted in the Pasifika culture. For instance, these connections help them cope with the disasters. The participants explained that resilience was being able to communicate and get support from their families both in New Zealand and overseas.

Sustainability

The participants highlighted that conducting more workshops would be required to further develop the indicators and apply them within the community. Discussions around implementing workshops annually or even monthly was considered for evaluation of the indicators, including evaluating their success within the community and whether they are useful to strengthen resilience.

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Image 9

Volunteers at
Tihei Mauri Ora

Preparedness
- Emergency/Safety plan
- Prepare (Action Phase
- Identifying safe havens

Communication
- Ways to Communicate
- Who? (Delivers
  the message)

Essentials
- Food & Water
- Equipment
- Money/Security

Social Priorities
- Faith
- Family

Figure 18: Detailed indicators developed by the Pasifika community members

Indicator	Explanations of each sub-indicator
Preparedness	**Emergency/safety plan** – Develop the steps at the community and individual level. **Prepare** – Implementing a plan that will provide a smooth transition for conducting their emergency plan. **Identifying safe havens** – Shelter at a communal and individual levels (spaces for whānau/aiga).
Communication	**Ways to communicate** – Finding ways to connect to whānau/Aiga. Applying pasifika language when delivering messages. Understanding the importance of face to face communication for the older generation. Learning about the purpose of work that the CDEM conducts. **Who delivers the message** – Identify community champions who deliver the message to the community. Work beside the CDEM for the communities.
Essentials	**Food and water** – Access and supply to fast moving consumer goods. Ensuring a stable supply chain for secure access to consumables. **Equipment** – Having emergency equipment/tools – batteries, torches etc.. **Secure income** – Having a sustainable source of income to support Aiga (family).
Social Priorities	**Faith** – Safe environment for practicing faith (church). **Family** – Being able to connect with family, in their community, around the nation or overseas.

Note: left column spans as "Pasifika community"

Wairuatanga

5.3 Indicators developed by Māori

When defining and conceptualising resilience, the Māori participants predominantly discussed the concepts of whānau and support for one another. Most of the participants confirmed that they hold strong connections with their communities, which make them resilient individuals. These connections give them a sense of responsibility to take care of each other. When asked to organise their definitions of resilience into groups, the categorised them into three groups; Safety, Wairuatanga (spiritual connections), and Hauora (wellbeing) (Figure 19 and 20).

Planning

The notion of Safety was linked to having plans to help prepare whānau (family) in the face of hazards and disaster, ensuring that they have the proper equipment (radio, PPE), as well as knowledge and information surrounding hazards and disaster management. The participants also highlighted that educating whānau in technology and emergence of the digital era was critical to resilience building. This was emphasised particularly due to the occurrence of COVID-19 where participants emphasised the need to be equipped with digital and technology skills.

Wairua

Wairuatanga (spiritual connections) focused on providing support to whānau in need, ensuring that there are avenues of support for all the community members, particularly in looking after community health. The participants explained about having access to their medications or other health related items (i.e. insulin, inhaler) during and after a disaster. This indicator also revolved around having channels of communication that work both ways between governmental agencies and community members.

Holistic

Hauora (wellbeing) indicator is focused on protecting and taking care of whānau's hauora, observing their health beyond the physical realm. The participants highlighted the importance of ensuring that community members have the access to adequate tools and services that enable caring for their spiritual, emotional, physical and family health. Furthermore, Māori participants explained that in a disaster, the focus is generally on the physical nature of health, ensuring that community members have a shelter, food, medical assistance for injury. While this is important, the participant raised that the mental health aspect post-disaster and getting adequate support is central component of resilience.

Wairuatanga
- Aroha ki te Tangata
- Manaakitanga
- Whānau
- Communication

Safety
- Preparation
- Education
- Planning

Hauora (Wellbeing)
- Physical Wellbeing
- Mental Wellbeing
- Spiritual Wellbeing
- Family Wellbeing

Figure 19: Māori Community Indicators

	Indicator	Explanations of each sub-indicator
Māori community	**Wairuatanga (Spiritual Connection)**	**Aroha ki te tangata** – Provide support within the community to whānau in need. **Manaakitanga** – Ensuring that all whānau are receiving the support they need/(access to whānau in need). **Whānau** – Ensuring safety for whānau health, (e.g have access to their medication, taking their medication). **Communication** – Having an avenue of communication, working both ways (to whānau and to Māori wardens).
	Safety	**Preparation** – Ensuring that whānau are equipped with resources and knowledge to endure an event of a disaster. **Education** – Educating whānau, equipping them with the ability to cope with the impacts of disaster. Develop whānau's skills with technology to aid in their ability to communicate. **Planning** – Help whānau develop plans for the event of a disaster.
	Hauora (Wellbeing)	**Physical wellbeing** – Aid whānau in upkeeping their physical wellbeing. **Mental wellbeing** – Provide supports/methods that helps whānau cope mentally. **Spiritual wellbeing** – Support whānau's spiritual wellbeing. **Family wellbeing** – Ensure that whānau's wellbeing is kept positive.

Image 11

Rangiāhua Marae

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CIVIL DEFENCE
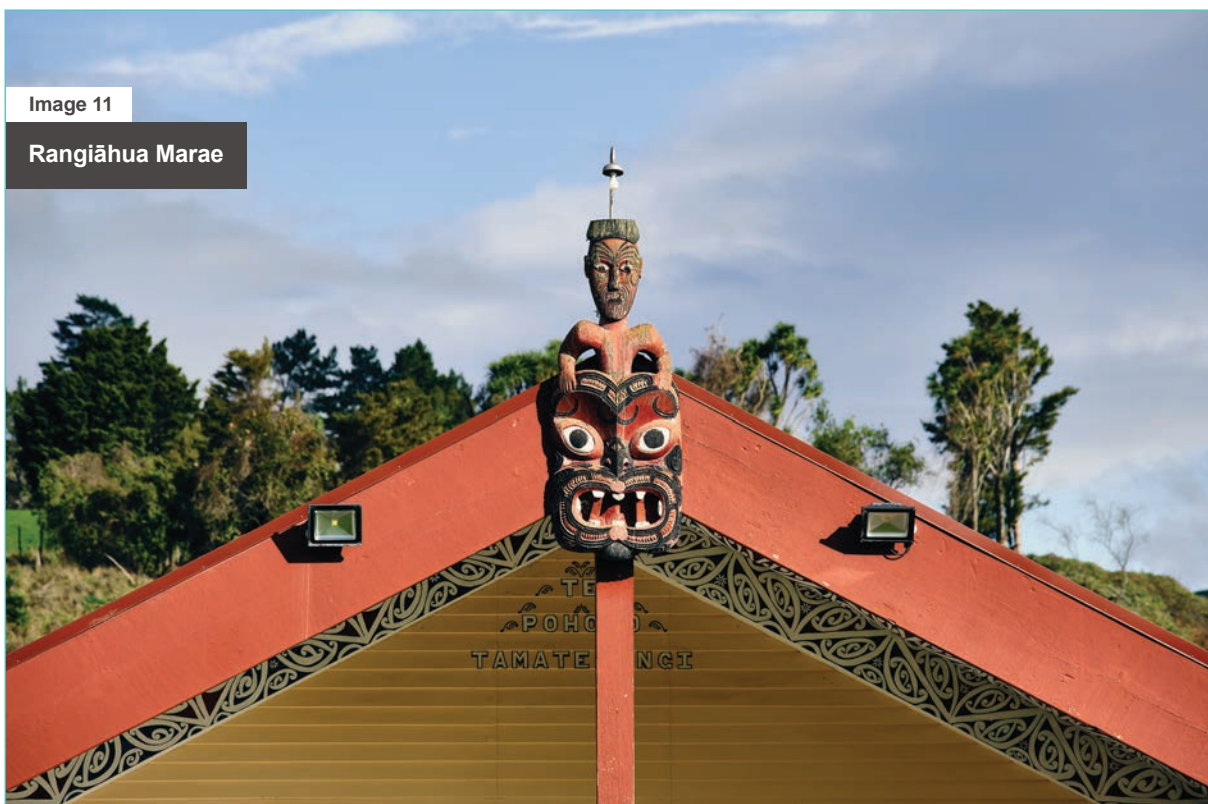
5.4 Indicators developed by migrant participants

The primary indicators developed with the migrant participants included Information, Attitude, Communication, Preparation and Safety. Participants identified that accurate, understandable and timely information is critical before, during and after a disaster. This encompasses how the information is delivered, including accurate translation, and the type of information that is presented to the community. In regard to the type of information being provided to the community the participants highlighted that they prefer guidance and instruction how they can rebuild their community both physically (i.e. housing) and mentally (i.e. psychosocial recovery). The migrants explained that often, when the CDEM/Government organisations provide information about hazards and disasters, the type of language that is used is difficult to understand due to the lack of understanding English. Access to knowledge surrounding disasters influences an individual's level of resilience, the participants highlighted that improving this access will support the improvement of their resilience. An additionally benefit of creating more effective channels of communication is providing the ability to communicate outside of their community, informing family within and outside of New Zealand about their wellbeing. This was highlighted as an important factor to the migrant community since all them emphasised their strong family ties and its importance is being resilient.

Attitude

Attitude was considered as an important aspect of resilience amongst the migrant community, stating that this factor is the main determinant that predominately determines individuals and community's abilities to recover and rebuild after a disaster. Cultivating a social environment that reflects positive reinforcement towards supporting the community was highlighted as important regarding resilience by the participants. Additionally, the participants stated that local people hold capacities, skills and knowledge. Part of resilience building implied having organisations that take into account such capacities and adequately draw on them.

Communication

The indicator Preparation focused on the importance of having a plan to be implemented in the face of hazards and disasters. This involves determining the necessary steps to undertake should a hazard occur. The participants also identified that stockpiling of emergency supplies is an essential component of strong emergency plans. They also highlighted the importance of communicating in a timely fashion with their family members both within New Zealand and overseas.

Sustainable relationships

The last indicator was Safety and encompassed financial security and support for individuals' wellbeing and mental health. The participants identified that often disasters can result in the loss of employment. The participants reflected on COVID-19 and the direct impact on job security. The migrant participants highlighted that resilience is also about access to welfare systems to supporting those who have lost their jobs. Overall, the process of engaging migrants in building their own indicators was highly positive as it enabled them to point out aspects that matter to them and areas where resilience can be strengthened. The participants suggested to conducting more workshops to further develop the indicators and discuss community resilience.

Image 12

Sikh community celebrating

Information
- Adaptability
- Expectations
- Rebuilding

Communication
- Know what is going on?
- Communication/inform family you are safe
- Having someone to talk to

Safety
- Financial
- Wellbeing + Mental Health
- Physical

Attitude
- Individual
- Community

Preparation
- Being organised
- Family Concern
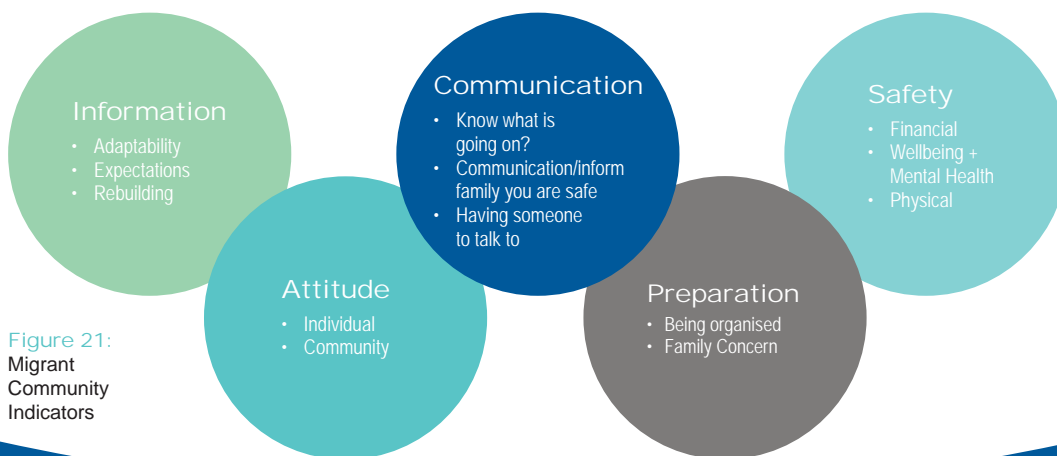
Figure 21:
Migrant Community Indicators

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Indicator	Explanations of each sub-indicator
Information	**Adaptability** – Being aware of the language used to reach migrant communities and using the appropriate channels to reach out (mainstream tv vs migrant tv).
	Expectations – The type of language used. Communicating to community in a language they understand (everyday language via community champions).
	Rebuilding – Access to information on rebuilding what is broken.
Attitude	**Individual** – Having the right attitude i.e., patience, perseverance, optimistic and staying present.
	Community – Awareness of community needs, vulnerability, mana-enhancing.
Communication	**Know what is going on** – Have access and knowledge of communication channels for alerts such as radio stations. Also, a way to share information between people. Ability to communicate in cells or communities – mosque or international students.
	Communication/inform family you are safe – Have a way to communicate to your family about your safety and location.
	Having someone to talk to – Developing a support system that you can use.
Preparation	**Being organised** – Essential papers, medication and contacts. Food and Water, emergency kit/grab bag.
	Family concern – Being able to let people back home know that they are ok and vice versa.
Safety	**Financial** – Financial safety and job security. Horticultural workers and hospitality and couldn't access mainstream welfare system.
	Wellbeing and mental health – Individual/religious freedoms. Knowing what resources are available for people who need them.
	Physical – Safety in the sense of self, loved ones and property.

Left vertical label: **Papamoa community**

Image 13

Marine Parade, views toward Te Awanga

Kōrerorero

6. Discussion

This section discusses both the process and outcomes in using a community-centred approach to develop resilience indicators. It focuses on the strengths, limitations as well as lessons learned for replication.

6.1 Positive outcomes of community-centred indicators

While the communities differed in terms of ethnicity, cultural background or geographical locations, there were many cross over amongst the indicators and sub-indicators developed. Communication is primary indicator that emerged across three case studies, excluding the Māori Community. For Māori, communication fell under the category of Wairuatanga (Spiritual Connection) reflecting their world view creating their own indicators. Each community has its own interpretation of communication. The Pasifika participants focused around the methods of communication and identifying who is to deliver the message while the migrant and Papamoa participants underlined the importance of 'being informed of what is going on' not how the message is delivered. Another theme that recurrently emerged was 'preparation' or 'preparedness', primarily discussing the notion of developing an emergency plan or having access to the knowledge or tools to create a plan, either for the direct family or wider community. Three of the communities (Māori, Pākehā, Pasifika) talked about the implementation of a plan. Migrants, in turn, identified the importance of being organised, not a direct link to developing safety plans, but a form of individual and community management that enables to cope with and respond to a disaster.

Wellbeing is central

Another recurrent indicator was 'wellbeing and mental health'. This was identified across the Papamoa, Māori and migrant community but it was absent from the Pasifika community. Yet, one can argue that religious beliefs and practices are strongly linked to mental health and wellbeing as emphasised in the literature (Tamasese et al., 2005; 2010). The Papamoa and the Māori community had wellbeing as one of their primary indicators, but the Migrant community placed the wellbeing under the primary indicator of safety. This highlights that the three communities are able to identify the importance of their own personal mental health and would want to know what resources are available for those that need them. Notably, Māori and Pasifika participants have highlighted the aspects of faith and spirituality as an area of importance for them, which reflects the cultural lens that these communities use to appraise resilience (Thornton et al., 2010; Webber, 2008). Financial aspect (i.e. income, insurance, employment) were recurrently mentioned as element of resilience, but generally associated directly with wellbeing, mental health and safety. Lastly, local people underscored social connections and cooperation which they termed 'teamwork', 'community collaboration', 'whānau', 'mutual help' and 'neighbour support network', pointing out that resilience takes place at different levels, individual, family and the wider community (Twigg, 2009; Aldrich, 2012; Béné, 2013).

Communities are connected

Most of the indicators and sub-indicators relate directly to key aspects often emphasised in the literature (i.e. Cutter, 2008; Twigg, 2009; Pelling et al., 2015; Seara et al., 2016), including those developed as ...

Image 15

RSE workers support TIhei Mauri Ora

... part of the RNC1 (Stevenson et al., 2018). For instance, 'two-way communication' or 'access to communication hubs' relate to the concept of communication; 'income', 'employment' and 'insurance' relate to financial capital; 'mutual help', 'neighbour support network', 'teamwork' or 'whānau' relate to social capital; 'preparation', 'preparedness', 'having a plan', 'hazard awareness' or 'tsunami evacuation' refer to anticipatory capacity and early warning; 'wellbeing and mental health', 'ability to move forwards', 'manaakitanga', or 'information to rebuild/recover' also refer to adaptive capacity, physical capital and notions governance all emphasised in the different frameworks designed to define resilience (Cutter et al., 2008; Twigg, 2009; Pelling et al., 2015; Claire et al., 2017). Thus, results stress that people have knowledge about disaster risk and ways to strengthen resilience, although not always worded or conceptualised the same way experts would do. The approach used in this project enabled people to define resilience in their own terms and make connections with their values, belief as well as the risk faced at the local scale. This enabled people to take ownership over the process and be actively implicated in assessing their own vulnerabilities and elements of resilience.

Involvement

The literature has long emphasised that building resilience can only take place when people feel highly concerned about DRR and are actively involved in such process – rather than an approach than comes from the top-down (Cornwall, 2011l Gaillard and Mercer, 2013). A community-centred approach permitted people to actively participate in the development of the indicators and by extension analysing and sharing their own views, beliefs and priorities about resilience building. This approach resonates with the National Resilience Strategy (MCDEM, 2019) which has as core objective "Enabling, empowering, and supporting community resilience". The produced indicators enabled people to measure each element of their own resilience that they have themselves defined. This is rarely the case when filling questionnaire-based surveys designed by outside experts and which are often abstract concepts (i.e. transformative capacity, absorptive capacity, political capital, cultural values) that have very little meaning or applicability at the local level (i.e. Stevenson et al., 2018).

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Know your communities

Although some aspects may appear pointless to outsiders, they are often meaningful to local people. For example, including pets as an element of resilience may seem inappropriate to outside experts. However, it was critical to local people who explained pets are like family and this might affect their behaviour to evacuate or capacity to recovery psychosocially. For instance, Howlett and Turnbull (2009) indicate that more than 80% of animal owners in the US would risk their lives to save their pets. In Australia, about 10% of fatalities from floods result from people's attempts to save 'stock, property or pets' - even when the animal or pet is not their own (Coates, 1999; Thompson, 2013). In the same vein, faith and religion emphasised by Pasifika community members may seem without importance to outsiders, but it is a critical component of their wellbeing and resilience (Hudson and Hughes, 2007). Similarly, for the Māori community having the ability to actively practice tikanga (cultural protocols) can hold a strong impact on their wellbeing (Webber, 2008). More generally, this brings the questions around how 'perfect' an indicator of resilience needs to be? Whose views matter? And whose measure of resilience is it for? (Gaillard and Jyagiasu, 2016). On the one hand, an outsider-driven indicator may look strong with a well-conceptualised resilience framework but little meaning to local communities. On the other hand, a community-driven framework that is imperfect (according to experts' assumptions on what the framework should look like) can be used for planning by both local people and local practitioners.

Image 16

Community celebration

Rangatira

It's about the process

A key outcome of using community-centred approach was that the produced indicators provided a platform for dialogue, which is at the core of effective and sustainable disaster risk reduction process (Chambers, 2007; Gaillard and Mercer, 2013). At the end of the process, both practitioners and local people had a common understanding of the issues faced at local level, which might help increase trust, collaboration and more effective planning. This is the opposite to the more traditional top-down approaches where indicators are purely extractive with local people having a passive role of respondent or recipient of resilience building programs (Jones and D'Errico, 2019; Jones 2019). Furthermore, such aspect questions the function of an indicator, and whether it should only be reduced to "something that shows what a situation is like" as defined in the Cambridge English dictionary, or, beyond providing a measure of resilience, also be a tool that provides mutual understanding to different stakeholders and help discuss ways to address "the situation".

Collaboration with CDEM

Developing community-centred indicators enabled people to pinpoint gaps and needs for improvement, including how they could work better with CDEM groups and other relevant stakeholders. As an illustration, the Pasifika participants discussed the need to develop a resilience plan that was largely missing in their community. The participants identified different initiatives such as conducting more fono (meetings) and involving more members of the community, involving the Pasifika health team and the Pasifika health leadership groups, which they thought are organisations that can support the work to implemented in the Pasifika community. Migrants requested more workshops with CDEM and explore how to strengthen the area of communication. For practitioners, the produced indicators allow for a strong understanding of areas of importance for the community and work with them to improve on these areas. This means that the indicators help practitioners better target their preparedness, response and recovery activities in ways that fit local needs. It shall also imply more sustainable actions to resilience building, since they have been discussed throughout the entire process (Cornwall, 2008).

Readiness

Beyond defining resilience indicators, the process enabled people to share knowledge about hazards and risk, concerns and ways to be more resilient. For example, in Papamoa, the participants discussed about local capacities and social cohesion, identifying individuals in the community who had access to tools such as machinery to clear physical obstructions in case of a disastrous event. The Māori participants shared that "typically no work gets done until an emergency occurs. Then the community scrambles to cope with it, to return into the same routine without learning from the community's previous mistakes holding the same level of vulnerability before the occurrence of the event". The participants said they wanted to change this approach in ways that the community would be more prepared by identifying their vulnerabilities and reducing them. These findings emphasise the importance of the actively involving people in discussing their own components of resilience (Chambers, 2003; 2007). These aspects are largely intangible, difficult to quantify or report on to donors and policy makers. Nonetheless, these discussions contributed to place people at the centre of emergencies and empower them in the risk reduction process, one of the key goals of the New Zealand Resilience Strategy (MCDEM, 2019).

6.2 Limitation and challenges in developing indicators

Successfully developing community-centred indicators is not without difficulties. Most of the participants from the four communities were very open to the idea of creating resilience indicators reflecting their own views and the process was largely successful. Yet, fieldwork revealed that a more bottom-up/community-centred approach can be challenging because people have been used to workshops run in a more top-down fashion. This was indeed obvious in Papamoa where a few elderly participants came with their CDEM booklets and expected to be told what to do. For example, the older participants kept highlighting the contents of 'grab bags' and CDEM check list of being prepared. However, none of this was experienced with the other groups (Māori, migrants, Pasifika). Another element to consider is an history of lack of trust from local people towards CDEM groups and therefore a change of approach in the way practitioners engage with local communities can be challenging. Doing groundwork and developing strong relationship with local people prior to facilitating the workshops made the process easier.

Process is key

Results revealed that some aspects are essential to ensure people are actively involved in the process. One of these aspects includes the duration and timing of the activities. Having too much time between the workshops affects the momentum over the process. For example, in Papamoa there was almost four months between the first and second workshop, which affected the engagement of community members in the development of the indicators. In the three communities of Hawke's Bay, a decision was made to run a one-day workshop instead, which proved effective. However, facilitators and communities need to be mindful that being constrained by time presents the risk to rush the process, including discussions on some important aspects of community resilience (Cornwall, 2011). By not having time as a constraint, individuals are more able to unpack each aspect of the workshop, ask questions, share ideas, and come to a mutual understanding and collective decisions.

Community engagement skills

Facilitation skills are also key for local people to actively participate and produce meaningful indicators. For example, it was found that the words 'indicators', 'resilience' and 'vulnerabilities' were not intelligible to the participants. Removing professional jargon and using simple wording that everyone could understand contributed to create an environment where individuals could value and voice their own experience. Words like 'being ready', 'being prepared' or 'bouncing back/bouncing forward' seem more appropriate as noted in other studies (Jones, 2019). In Papamoa, the facilitators used the analogy with the All Black to communicate about the concept of resilience and idea of preparedness, coping, collaborating and adapting to difficult situations such as disasters. This indeed proved useful and helped both creating confidence and reducing power relationship between the practitioners and locals. In the same vein, the facilitators of the Māori and Pasifika communities were knowledgeable about the Māori/Pasifika concepts: this helped generating trust, communicating ideas and discuss key aspects of resilience. In turn, a facilitator not having such skills or background might struggle to discuss concepts such as manaakitanga and hauora for Māori and the importance of religious believes and practices for Pasifika people.

Responsive agencies

A challenge associated with this community-centred approach lies on the need for accountability from the government agency towards the participants (Twigg, 1999). While the focus is on placing people at the centre of DRR, empowering them with the resilience building process, failing to support local communities, once low-performance indicators of resilience have been identified, may have very negative effects such as creating or increasing distrust in CDEM groups. Therefore, both the groundwork aimed at building relationship and the 'expectation check' activity are essential to clearly identify the purpose of the indicators and what can or cannot be achieved – including resourcing from the government and CDEM groups in supporting local initiatives.

6.3 Replication and upscaling: opportunities and challenges

The sequence of tools worked well together as it gave the participants a steady step-by-step guide on developing resilience indicators for themselves. This toolkit described in section 4 provides facilitators directions on how to lead a workshop, providing them tools to work with community members in an effective manner. This toolkit is designed to engage any participant independent of its ethnicity, age, educational level, experience of disasters, and therefore could be replicated nationwide. Replicating in other communities in New Zealand could be done easily with facilitators having the right skills and an engaged audience willing to work through this process.

Scalability

One limitation or challenge lies in the number of persons involved in the community workshops, between 10 and 25 per community in this project. Running this kind of workshops with a larger group is entirely possible and manageable up to about 100 people. Nonetheless, this requires resources (more facilitators) and the process would be slightly more time consuming.

Continued engagement

Although not everyone at the community level is able to participate (i.e. not available, no access to information, no interest) in the development of the indicators, the definition of indicators enables anyone not present at the meeting to understand and assess/score them. The definition of each indicator ensures two things: 1) capacity to distribute the indicators to a larger population not necessarily present when these were developed and 2) capacity of 'new' participants (people new to the community, not available previously) to be involved in refining these. This also allows practitioners who are new in their position where indicators have been developed (i.e. staff turnover) to also understand these indicators.

Technology assisted

One opportunity associated with replication and dissemination lie in that the indicators developed result in a fairly short list of elements of resilience, from 10 (Pasifika) to 17 (Papamoa). This enables people having the indicators (and question/definition attached to them) sent on their phones thus scoring each of them (i.e. from 0 to 10) very easily, as emphasised in other studies using similar approach (Jones, 2017; 2019). We estimate this should take approximately 5 minutes.

Image 18

Tihei Mauri Ora

Capacity

One of the challenges linked to replicating a community-centred approach is related to the resources required to conduct the workshops. CDEM groups often only have a limited number of staff. Yet, opportunities exist with actively involving volunteer groups and other local organisations who are already doing work at the local level. The toolkit is very easy to use and does not require expensive material. CDEM groups could therefore build on such local resources by training local volunteers or organisations in implementing and regularly updating the indicators and produced data. In addition, there are opportunities with online platforms such as Mural, Miro or Zoom which enable facilitating workshops online and potentially reducing the resources required to implement the indicators. These aspects would require further research.

Image 19

Working collaboratively

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Conclusion

This report aimed to 1) explain the rationale for using a community-centred approach to developing resilience indicators; 2) detail the methodology used in the Te ara o Tawhaki project and describe a toolkit that can be used by facilitators; 3) provide the key results from the trial of this toolkit in four communities; and 4) analyse the strengths and positive outcomes of the toolkit, the limitations and challenges associated to it, and the potential for replication in different parts of New Zealand.

The way forward

The community-centred approach to developing resilience indicators is meant to produce indicators that are context specific, place people at the centre of the risk assessment and resilience building process, and ultimately strengthen collaboration with CDEM groups. The positive outcomes included:

+ The toolkit works very well as it enables participants to develop their own indicators of resilience;
+ It permits people to take ownership over the process and place them at the centre of the DRR and resilience building process;
+ The process enables people to include their values, beliefs, worldviews in the indicators;
+ Anyone can participate, including those highly vulnerable or marginalised;
+ The produced indicators enable locals/practitioners mutual understanding on local issues;
+ The indicators help measure areas of low level of resilience that need to be strengthened. It means policymakers and practitioners can better target their activities aimed to addressing local needs;
+ The process creates more trust and help foster collaboration;
+ The set of indicators is short and can easily be sent to people's phones taking about 5 minutes to complete;
+ If people have not been involved in the initial development of the indicators (new community members, not available etc.), they can still measure resilience in their community;
+ Definition of each indicator enables new staff (i.e. staff turnover) to build on the work previously done;
+ The toolkit is easy to use with opportunities to build on local resources such as volunteer groups.

Nonetheless, developing and implementing the indicators present different challenges and limitations, largely inherent to the nature of the methodological approach and resources required. These include:

+ Developing the indicators requires facilitation skills which necessitate training;
+ The process takes 4 to 7 hours that can be divided in different workshops: this potentially requires resources to implement;
+ The obtained indicators represent communities' unique experiences and understanding of resilience: this means they are context specific and not comparable from one community to another;
+ Lack of accountability from CDEM groups to the local people in areas that have been identified as 'low performing' in terms of resilience could increase distrust and be disempowering instead of increasing trust and empower people in building their own resilience.

Building our country's resilience

Overall, the Te ara o Tawhaki project showed very positive results and has great potential to fill gaps in building community resilience. The approach used is in line with the National Resilience Strategy, whose goals are to "strengthen the resilience of the nation [...] by enabling, empowering and supporting individuals, organisations and communities to act for themselves and others, for the safety and wellbeing of all" (MCDEM, 2019: 3). It is nonetheless essential to recognise that such an approach is still novel both in New Zealand and, to some extent, internationally. As such, it is an ongoing learning and reflection on how to develop resilience indicators that can result in tangible impacts at the community level. More ongoing work providing longer-term perspectives could be highly beneficial and include 1) conducting ongoing work with the communities already involved in this project; 2) disseminating at a larger scale in the communities were indicators have been developed, 3) testing the toolkit in other parts of New Zealand, and 4) assessing the effectiveness of these indicators for local communities, and practitioners and decision makers.

Image 20

Working together

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Te Rākau Whakamarumaru

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TE ARA O TAWHAKI

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Image 21

Te Rito

Ka pū te ruha, ka hao te rangatahi

TE ARA O TAWHAKI

WHAT MATTERS MOST TO PEOPLE IN AN EMERGENCY

CD CIVIL DEFENCE

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