Reimagining program monitoring and evaluation for disaster resilience outcomes

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About this project

Emergency service and emergency management agencies have undertaken to better understand and support disaster resilient communities. These agencies have developed resilience-based doctrine, policy, programs and projects to strengthen and support communities before, during and after emergencies. Community disaster resilience is a goal of many community engagement programs, but the contributions of these programs to disaster resilience can be difficult to quantify and assess. The gap in the sector is to monitor and evaluate the impact that policies and programs are having collectively in building community disaster resilience.

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Introduction

Resilience is an approach to living with, managing, and adapting to aspects of change, complexity and uncertainty, including that arising from emergencies and disasters. A resilient community has the capacities and opportunities to: identify risk; absorb disruptive events and return to a functioning state; and, adapt or transform in anticipation of, or in response to, disruptive events. Community resilience arises from the ways that these capacities are valued, prioritised and addressed by community, government, business, and individual actions and activities – a so-called system of resilience.

Disaster resilience is a new organising principle for the work that Australian emergency agencies undertake with communities. Agency programs directly or indirectly seek to enhance the capacities of communities to survive, thrive and adapt within a landscape of bushfires, floods, storms and cyclones. Yet agencies are also required to demonstrate the contribution that their programs make to disaster resilience.

A suite of monitoring and evaluation (M&E) frameworks and techniques are available to track the effectiveness of community engagement, and other programs. Many emergency management agencies in Australia, and other disaster-related organisations such as insurers, adopt these frameworks and techniques. Yet the challenge heard from practitioners is how to monitor and evaluate the contributions of programs to disaster resilience. Traditional measures of disaster resilience include preparedness, recovery and mitigation, but disaster resilience also encompasses aspects of communities such as connectedness, social capital, co-learning, participation, access, adaptation, behaviour change, diversity, governance and networks. Monitoring and evaluating therefore needs to address the impacts of programs on these aspects of disaster resilience. This endeavour is not unique to emergency management agencies: practitioners in climate change adaptation, international development, community development and environmental science are also developing ways to monitor and evaluate resilience outcomes.

There is no easy answer to the challenge of monitoring and evaluating programs for disaster resilience outcomes. This is partly because the adoption of resilience concepts into policy and programs is in its early stages, and partly because resilience thinking requires fundamental transformation in the design and implementation of community engagement programs, and the collection of data to track effectiveness. In essence, emergency agency practitioners and the communities they work with are themselves generating the new monitoring and evaluation frameworks, techniques, program designs and governance structures required to progress towards disaster resilience goals.

Emergency management agencies face the challenge of monitoring and evaluating the contribution of their programs for disaster resilience. However, given the diversity of legislative and strategic environments in Australia, the implementation of monitoring and evaluation frameworks will be unique to each agency.

This report is a self-reflective guide for taking program evaluation for disaster resilience outwards to examine progress and tracking towards the goals of disaster resilience.

It does not set out a method of program monitoring and evaluation to follow. Most emergency management agencies already have a preferred method in place. Rather it reimagines how agencies might approach and structure program monitoring and evaluation to include some of the foundational characteristics of disaster resilience. It is also the foundation for building comparability, collegiality and combined effort in an area where all Australian states and territories are working.

Monitoring and evaluating for disaster resilience outcomes is a mindset change

Emergency management agencies seeking to monitor and evaluate the contributions of community engagement or other programs to disaster resilience are immersed in new and complex concepts (see Figure 1, page 6). These resilience concepts are only just beginning to be operationalised into public policy and programs, presenting challenges for adoption into monitoring and evaluation practice.

Disaster resilience is a process

Disaster resilience is a desired attribute of communities faced with natural hazards. A resilient community has the capacities and opportunities to form positive trajectories of functioning and adaptation in anticipation of, or in response to, disruptive events. Disaster resilience arises from networked resources or capacities that define and shape the process of community resilience through a continuous process of learning, adaptation and adjustment supported by social, economic and institutional factors.

Building community disaster resilience is a continuous process. It is a desirable target of emergency management agencies but is not 'achieved' as an endpoint. Therefore, monitoring and evaluation of disaster resilience should consider the ongoing processes that build capacities and opportunities for disaster resilience.

Absorbing and adapting are core concepts of disaster resilience

Supporting communities to develop the capacities to absorb and adapt to the effects of natural hazards is at the core of disaster resilience. Communities have inherent strengths in many aspects of disaster resilience, but may need to enhance strengths in other areas. Approaches to building disaster resilience advocate principles of partnership, co-learning, community participation and agency. Rarely is the contribution of programs to these aspects of disaster resilience included as measures of program success.

Monitoring and evaluation of disaster resilience should include assessment of the ways that programs encourage or embed these practices, where appropriate. Moreover, organisations need to be cognisant that these measures do not always align to traditional program and project management logic.

Disaster resilience is a system

Disaster resilience includes all the resources and capacities that individuals, households, communities and nations can draw on for living with, managing, and adapting to aspects of change, complexity and uncertainty, including that arising from emergencies and disasters. These resources and capacities are generated in social, economic, environmental and political systems (see Figure 2, page 7). The responsibilities for, and opportunities to influence, disaster resilience may sit outside the core response mandate of emergency agencies, or in other government sectors such as environment, social services and finance. Monitoring and evaluation programs for disaster resilience outcomes need to consider these broader structural influences on resources and capacities, because they may inhibit or enhance the goals of programs and design of associated activities.

The system of disaster resilience also generates non-linear relationships between resources, capacities and structural factors. These relationships complicate monitoring and evaluation because they may not be causal or linear, and feedbacks may amplify or dampen the relationships between an action and an intended outcome. For example, the relationship between hazard risk awareness and hazard preparedness is complex, and situated within an environment of varying capacity, resources, and willingness to change. Thus, monitoring and evaluation of programs for disaster resilience needs ways of capturing the non-linear ways in which disaster resilience can be enhanced.

Disaster resilience is scaled

Disaster resilience can apply to an individual, a household, a community, a state or a nation. The resources or capacities that shape disaster resilience are different at each level. For example, the resilience of an individual may be influenced by personality, sense of coherence, self-efficacy, social support and life events, or community resilience may be influenced by collective social, economic and institutional resources. The factors shaping disaster resilience at one level are inextricably related to factors occurring at other levels, although the nature of these relationships is often unclear. Disaster resilience is also dynamic, and changes through time. Therefore, monitoring and evaluation of programs for disaster resilience should consider the scales at which a program is targeted.

Influences on monitoring and evaluation of programs for disaster resilience

Figure 1

The fundamentals of disaster resilience

Mindset change

resilience as a process

absorbing and adapting

resilience as a system

scales of resilience

Program monitoring and evaluation

- demonstrating impact and value
- evaluating disaster resilience goals
- learning environment

new concept of disaster resilience

Organisational settings for monitoring and evaluation

Organisational process

authorising environment

staff resourcing and capacity

Resources and capacities
for disaster resilience are
generated through multiple
factors

Figure 2

Disaster resilience (ANDRI)

Coping capacity
- Social character
- Economic captial
- Emergency services
- Planning and the built environment
- Community capital
- Information access

Adaptive capacity
- Social and community engagement
- Governance and leadership
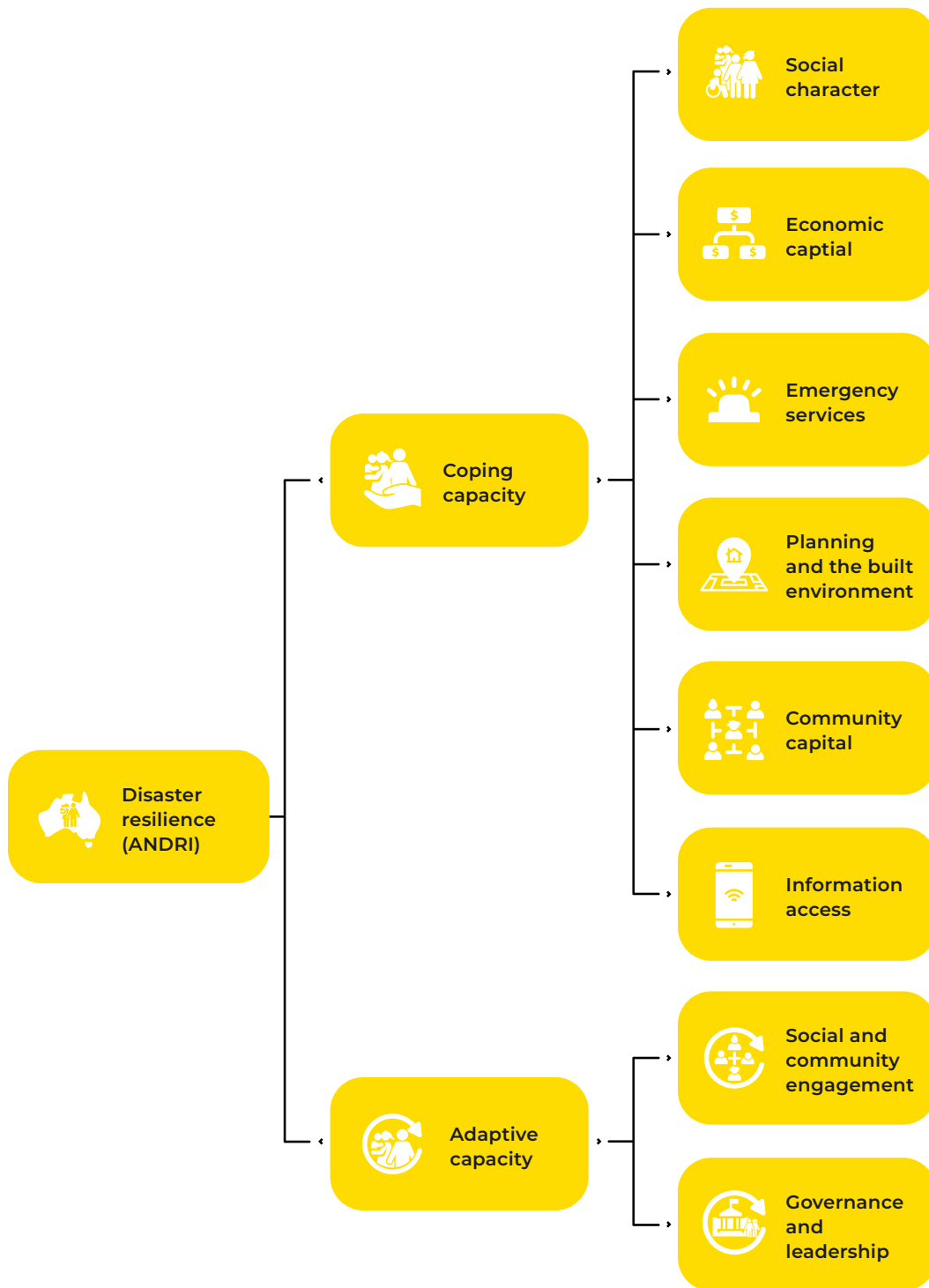
Source: The Australian Natural Disaster Resilience Index,
Bushfire and Natural Hazards CRC.

Organisational settings for monitoring and evaluation need to reflect the foundations of disaster resilience

In addition to integrating the new concepts of disaster resilience, emergency agencies seeking to monitor and evaluate the contributions of community engagement or other programs to disaster resilience are influenced by organisational settings (see Figure 1, page 6). These settings position monitoring and evaluation as an organisational practice but may require adjustments to suit the foundations of disaster resilience.

Disaster resilience is a relatively new concept within agencies

The implementation of disaster resilience into public policy and programs is relatively new. The comprehensive Prevention-Preparation-Response-Recovery (PPRR) model continues to be applied to guide community engagement and other programs, but there is now an additional requirement to show how programs contribute to disaster resilience. While aspects of PPRR have been translated into clear measures for evaluation purposes, the links to disaster resilience need to be articulated in an outcomes architecture using foundational aspects of disaster resilience, such as social capital, adaptive capacity and systems thinking. These aspects of disaster resilience necessitate the development of new measures of success that are outside traditional metrics of response times, events undertaken or household preparation activities. Thus, monitoring and evaluation for disaster resilience outcomes may require new and experimental measures to be developed, alongside traditional metrics and implementation measures.

The authorising environment for monitoring and evaluation

Multiple agency priorities influence opportunities to create an authorising environment for monitoring and evaluation activities. Emergency management agencies work within complex legislative and policy settings, which can be driven by external (e.g. change of government) or internal (e.g. strategic planning) factors. Community engagement and other similar programs are undertaken next to core response and public safety functions, and may be less visible or valuable to management in strategic planning and funding cycles. There may also be incongruity in underlying culture and philosophy between operational, policy and community advocacy teams within organisations. Thus, monitoring and evaluation for disaster resilience outcomes needs to be situated within an organisational authorising environment that values such activity, and can embrace the unresolved aspects of disaster resilience evaluation. This may involve: executive sponsorship within an agency; programmatic support from central agencies for longer-term commitments to build evidence of impact; and, identification of a monitoring and evaluation 'champion' to socialise, coordinate and integrate monitoring and evaluation ideas within agencies.

Building staff capacity

Staffing capacity also influences the prominence of monitoring and evaluation activities within agencies. Monitoring and evaluation of program effectiveness is often considered as an add-on to other duties. Monitoring and evaluation may create a large additional workload within small teams or sections. Funding for monitoring and evaluation often occurs as short-term, one-off grants, constraining long-term monitoring and evaluation of sequential programs. Internal staff may be engaged to undertake specific monitoring and evaluation tasks, or outsourced to external consultants. This may result in ex-post (after the event) evaluation designs which try to retrofit program outcomes into newer strategic directions, rather than integrated ex-ante (before the event) evaluation designs which are embedded into programs as core business.

Perhaps most importantly, the learning and feedback cycles of monitoring and evaluation are often not embedded into agency practice, diluting the potential for ongoing development of better and more effective disaster resilience programs. Therefore, monitoring and evaluation for disaster resilience outcomes needs to be embedded within a learning organisation, and integrated as a whole-agency concern, with associated staff and resources to realise this function.

The benefits of monitoring and evaluation programs for disaster resilience

Many benefits arise from monitoring and evaluation of agency programs for disaster resilience outcomes including demonstrating value, evaluating achievement of goals and creating learning environments.

Demonstrating impact and value of a program

Public agencies have embedded governance requirements for demonstrating the value of their programs. For example, community engagement teams within emergency services are required to demonstrate the value of their work to improve efficiency of programs and to advocate for future funding. Evidence can also demonstrate how programs contribute to agency strategic goals, and those of broader state and national emergency management policy.

Monitoring and evaluation highlights and amplifies successes so that these can be built up, potentially over several short-term funding cycles, or in preparation for times when disaster resilience may come into particular focus (e.g. at the beginning of a hazard season or following an event).

Evaluating achievement of community resilience goals

Monitoring and evaluation is important for assessing the achievement of disaster resilience goals that agencies set within programs. Standardised evaluations with common points of reference allow comparisons to be made across different types of activities and among different agencies. Pooled evaluations may also demonstrate sustained achievements and generate greater upwards influence because the impact of any one program within a broader system of disaster resilience is likely to be meaningful, but small.

Creating a learning environment for agencies and the communities they serve

Monitoring and evaluation of disaster resilience outcomes creates opportunities for social learning. Given that the adoption of resilience concepts into policy and programs is in its early stages, reflective practice, and the accompanying learning cycles, builds knowledge and trust between practitioners.

Community engagement enhances disaster resilience by 'working with' communities, rather than 'directing' communities. Often the value of this community-centric approach is difficult to demonstrate in a governance model that assesses value using a currency of outputs. There is a need to demonstrate that the desired goals of disaster resilience require effective community engagement, which may require a change in the way agency investments are viewed.

Reimagining program monitoring and evaluation for disaster resilience outcomes

The challenges and benefits associated with monitoring and evaluation of programs for disaster resilience outcomes suggest that there are opportunities to adjust current practice to better align with disaster resilience as an organising principle within emergency agencies. In essence, these adjustments address the notion of disaster resilience as a process by reimagining aspects of monitoring and evaluation as 'how are we progressing disaster resilience as a collective of communities and agencies?'. This reimagining does not replace the strategic and legislative requirements of monitoring and evaluation where, for example, a state-level directive sets the architecture required in a monitoring and evaluation framework, or where strategic organisational goals drive community engagement functions.

Reimagining opens monitoring and evaluation up to legitimise the empirical or experiential evidence of community engagement practitioners that building disaster resilience is about trust, collaboration, understanding communities, system interdependencies and working collectively to learn, adapt and thrive. It sets evaluation on a path to demonstrating how programs progress the fundamental determinants of disaster resilient communities, alongside the more widely-used progress measures of preparation, response and behaviour change. It recognises that disaster resilience approaches require new ways of thinking. It acknowledges that answers about disaster resilience sometimes take years to emerge,

across multiple programs, communities and funding cycles. It embeds a notion of resilience as a process of strengthening the capacities of communities to absorb shocks and stresses, including those generated by natural hazards.

The reimagining presented here consists of four self-reflective elements that complement existing agency practice of program monitoring and evaluation. It is not a 'how to do monitoring and evaluation for disaster resilience outcomes', but rather a guide to 'what to think about when embarking on monitoring and evaluation for disaster resilience outcomes'. These self-reflective elements are additions to the practices currently associated with monitoring and evaluation, extending them into notions of disaster resilience as a process.

Element 1. Consider adopting a range of evaluation methods

Program evaluation practice is supported by a range of available approaches (see Table 1, page 12). These approaches reflect different philosophies and methods of evaluation. Program theory is often used to frame program monitoring and evaluation because it tracks the causal links between the efforts of a program and the intended results or changes expected to occur as a result of that effort.

The pathway from action to results is expressed through a program logic. Program logic has been successfully applied in many Australian emergency agencies as the guiding monitoring and evaluation approach (see Breakout Box 1, page 10-11).

Expressing the logical pathway from an action to a disaster resilience outcome may be challenging because these pathways are not always causal. Rather, aspects of disaster resilience such as connectedness, social capital or adaptation occur in a system of feedbacks and multiple processes acting together over time. As a result, capturing disaster resilience outcomes of programs may require a mix of evaluation methods, depending on the suite of program objectives. For example, evaluation could explore the stakeholder experiences of program participation, learning and behaviour change and how that contributes to disaster resilience. A controlled experiment could be used to gather empirical evidence of the impact of a program on social connectedness. These evaluation approaches are supported by well-developed social-science theory, and are a way to capture the effectiveness of programs in relation to the characteristics of disaster resilience.

BREAKOUT BOX 1 - **EXAMPLES OF APPROACHES TO MONITORING AND EVALUATION OF DISASTER RESILIENCE PROGRAMS THAT USE ELEMENTS OF PROGRAM LOGIC**

· Victoria State Emergency Service Community Resilience Strategy 2016-2019: Indicators and Evaluation Framework

This strategy uses program logic, together with example inputs, activities and outputs to integrate flagship measures of: 1) build capacity; 2) increase collaboration; 3) foster connections; 4) reducing disaster impacts - define success in the longer-term into VICSES community resilience activities.

· Western Australia Department of Fire and Emergency Services Monitoring and Evaluation Framework for Community Preparedness Programs

This framework is aligned to monitoring and evaluation practice and program theory and provides a structure for evaluating preparedness programs against three objectives:

1. Individuals and householders have an increased understanding of risk and undertake effective actions to prevent, prepare for, respond to and recover from disaster

2. Community leaders, networks and organisations have an increased understanding of risk, and an increased capacity to work with their communities towards disaster

3. Organisations involved in emergency management show increased collaboration and coordination in enhancing community preparedness and disaster resilience.

- **Insurance Australia Group Shared Values Framework**

The Shared Value Framework is embedded in IAG's business strategy, linked to strategic objectives, and centres around its organisational purpose – we make your world a safer place.

To measure progress against the shared value framework, IAG has developed an overarching impact map based in a theory of change context of awareness, acceptance, action and perception. The impact map outlines the short, medium and long-term outcomes they are looking to realise through their community investments. Under each outcome sits one or more measurable indicators that are used to quantify if an outcome has been achieved. This approach allows IAG to prioritise investment and define both the social and business value these initiatives create.

- **Victorian Department of Environment, Land, Water and Planning Monitoring, Evaluation and Reporting Framework for Bushfire Management on Public Land**

Associated with the Victoria State Government Safer Together Program, the program logic in this framework focuses on the fuel management activities of planned burning, slashing and construction of strategic fuel breaks, to achieve the primary objectives within the Code of Practice for Bushfire Management on Public Land (2012) which are:

1) to minimise the impact of major bushfires on human life, communities, essential and community infrastructure, industries, the economy and the environment and 2) to maintain or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water, carbon storage, and forest products.

The program logic identifies the activities and associated outputs from fuel management and describes desired outcomes at short, intermediate and long-term time scales for the primary objectives.

- **New South Wales Rural Fire Service Behavioural Insights Toolkit**

To support individuals and communities along a pathway of behavioural change some tactics such as behavioural interventions or community development may be delivered to a targeted audience at the right time and 'shortcut' the process to change behaviours. Behavioural Insights uses evidence from social psychology and behavioural economics to help design nudges for behaviour change.

The TESTER behavioural insights framework follows a program logic-like sequence of Target, Explore, Solution, Trial, Expand and Results as a structured process for developing, applying and evaluating behavioural insights solutions.

Table 1: Broad approaches and component theories of program evaluation and their potential relationships to assessing resilience outcomes

Approach	Potential resilience outcomes	Central tenet of approach	Theories
Participation	Resilience as a process Resilience as a system Absorbing and adapting	Stakeholder participation	Participatory evaluation
			Empowerment evaluation
Stakeholder	Resilience as a system Absorbing and adapting	Stakeholder participation	Contribution analysis
			Outcome mapping
			Most significant change
Social justice	Resilience as a process Resilience as a system	Perspectives and needs of marginalised groups	Transformative evaluation
			Reflective evaluation
Program theory driven	Adapting and absorbing Scales of resilience	Causal – how a planned program process will causally lead to change	Program theory
Learning	Resilience as a process Resilience as a system	Reflective and reflexive practice	Realist evaluation
			Appreciative inquiry
			Case study research
Use	Resilience as a process Resilience as a system	Use of evaluation results in program development and organisational change processes	Utilisation focused evaluation
Systems	Resilience as a system Scales of resilience	Evaluation of complex systems environment	Developmental evaluation
Experimental	Absorbing and adapting	Causal – experiments, quantitative emphasis on proof and measurement	Controlled experiment (e.g. longitudinal, randomised trials)
Cost benefit	Resilience as a process Absorbing and adapting	Assessing value for money and cost-effectiveness	Social return on investment

Adapted from: Markiewicz A and Patrick I (2016), *Developing Monitoring and Evaluation Frameworks*, Sage: Los Angeles.

Element 2. Ask about the fundamentals of disaster resilience

The very characteristics that make evaluation of programs for disaster resilience outcomes challenging are those needed to be considered in evaluation of programs: absorbing and adapting; disaster resilience as a process; scales of disaster resilience; and disaster resilience as a system. A reimagined evaluation of programs would begin to ask about these characteristics of disaster resilience. The questions do not replace evaluation based on program objectives such as preparedness, response or risk awareness. Rather, asking about the characteristics of disaster resilience extends evaluation into the fundamentals of what underpins progress towards disaster resilience in society.

While these questions will mature over time, some initial questions to consider in the design of an evaluation program may include:

· How well are stakeholders participating and partnering in the program?

· How did co-learning occur among stakeholders?

· How has community or institutional adaptation occurred as a result of the program?

· Has the program been able to join with the institutional stakeholders that influence disaster resilience outside of the emergency management sector?

· Has the program used the right approach for the scale of desired change – individuals, communities, states?

· How has the program empowered communities to absorb and adapt to natural hazards?

As discussed above, alternative evaluation approaches need to be applied to answer these questions (see Table 1, page 12). These alternative evaluations may report in a range of formats such as narratives, evaluative exercises, empirical data or case studies. Public governance models tend to favour evaluations based on empirical data. Other types of evaluation approaches with a basis in social theory also have a place, depending on the mode and style of evaluation required.

Element 3. Develop a framework of disaster resilience to guide evaluation

Resilience is a meaningful organising concept for anticipating and responding to shocks and stresses. Resilience encompasses the shocks and stresses associated with natural hazards, but also those associated with other sources such as personal hardship, illness, environmental and social change and terrorist acts. Given that resilience is a broad concept, framing disaster resilience is important for setting the aspirations, founding principles and scope for programs within emergency agencies, and subsequent monitoring and evaluation of those programs for disaster resilience outcomes (see Breakout Box 2, page 13).

Agency-specific frameworks for the relationships between programs and disaster resilience may discuss elements such as: definitions of resilience; properties and characteristics of disaster resilience; factors enabling community disaster resilience; scales of disaster resilience; resilience as a system and a process; and ways of working with communities to enhance disaster resilience.

Scoping elements of disaster resilience enables agencies to better address goals of monitoring and evaluation to demonstrate how programs contribute to disaster resilience outcomes. The main advantage of frameworks that conceptualise the relationship between programs in a certain area (e.g. community engagement) is that programs can be planned and designed around desired disaster resilience elements, supplemented with ex-ante (before the event) monitoring and evaluation planning.

BREAKOUT BOX 2 - EXAMPLES OF COMMUNITY ENGAGEMENT FRAMEWORKS DEVELOPED FROM PRINCIPLES OF DISASTER RESILIENCE

· **South Australia Country Fire Service Disaster Resilience Through Community Engagement Framework (Draft, 2019)**

· **Victoria State Emergency Service Community Resilience Strategy (2016-2019)**

· **Emergency Management Victoria Community Resilience Framework for Emergency Management (2017)**

· **Western Australia Department of Fire and Emergency Services Community Engagement Framework (2016)**

· **Tasmania Fire Service Community Development Framework (2017-2020)**

Element 4. Create communities of practice

Communities of practice are people informally bound together by shared expertise and passion for a similar endeavour. Communities of practice add to organisations by helping to drive strategy, solve problems quickly, transfer best practices and build and exchange knowledge. Communities of practice are self-forming but may need to be supported to reach their full potential, and to join across different policy areas.

Monitoring and evaluation of programs for disaster resilience outcomes may benefit significantly from a community of practice that goes across multiple agencies, states and stakeholders. Although the need for program evaluation in public agencies is not new, the need to demonstrate disaster resilience outcomes of programs is new. Practitioners, communities and public agencies are generating and trialling ideas together and learning and adapting within a complex and dynamic institutional and natural hazard environment. In essence, practitioners are not just talking the talk of disaster resilience but also walking the walk, by applying community-centered principles of participation, shared understanding and learning. The extent to which these principles are valued as effective work practice within public agencies with a traditionally tactical mandate can be strengthened by partnering with others. A community of practice progresses program monitoring and evaluation for disaster resilience outcomes by:

- creating opportunities to undertake pooled evaluations of disaster resilience outcomes. Pooled evaluations group evaluation results across agencies or states to enhance the available evidence for program impact.
- developing consistent and comparable evaluations of disaster resilience outcomes and sharing methods and data.
- identifying champions to promote new styles of thinking and new knowledge within agencies. Champions socialise new ideas among groups, integrate details into general principles, engage with senior executive and coordinate into decision making processes where new thinking can be beneficial.
- creating a learning environment for practitioners. There are many options for evaluation but less experience of applying these for disaster resilience outcomes. A learning environment acknowledges that practice is developing within a dynamic policy and legislative environment, and that there may not necessarily be any one correct answer.
- undertaking periodic review of resilience evaluation practice. Periodic systematic review can highlight the collective contributions of community engagement programs for policy targets, agency vision or strategic goals.
- linking into other communities of practice and professional societies across related areas, including the Australian Evaluation Society (https://www.aes.asn.au) and the International Association for Public Participation (https://www.iap2.org/).

A reflexive learning cycle for monitoring and evaluation of disaster resilience outcomes

Forward planning, anticipation, adaptation and learning are desirable attributes of disaster resilient communities. Understanding the effects of programs on these attributes is fundamental to the application of disaster resilience as an organising principle for emergency management. Monitoring and evaluation should not be seen as an optional extra within programs, but should be embedded into business cycles with commensurate programming, funding and staffing commitments. Knowledge of the impacts of programs on disaster resilience obtained through monitoring and evaluation provides strategic foresight for internal planning, and outwards public and political influence. Yet, embedding program evaluation for disaster resilience into agencies also requires adaptive practice to remain relevant within changing policy settings, organisational priorities and funding cycles.

A reflexive learning cycle is presented here to help embed monitoring and evaluation of disaster resilience outcomes across multiple levels of governance.

The basic program development - program evaluation cycle

At the heart of reflexive learning is the basic program development-program evaluation cycle. This is the process of community engagement program design, development, implementation, monitoring and evaluation, and program adjustment, divided into two components.

The first component is the development of the program itself. Programs may include multiple projects, falling under the same broad objective. For example, community engagement programs often form a key element of agency disaster resilience strategy and may be operationalised through an agency community engagement framework.

The second component is program monitoring and evaluation. Monitoring and evaluation is generally supported by a framework that sets out the overall plan for undertaking monitoring and evaluation functions within a program. The monitoring and evaluation framework may be supported by an evaluation architecture that maps the theory of change expected through undertaking a program, and indicators for measuring that change.

Program development and program evaluation occur in a cycle (see Figure 3, page 16). Feedbacks between these components are critical for effective practice. Program planning, design and implementation feeds into the monitoring and evaluation framework. The learnings and insights from evaluation then feed into further program planning, design and implementation.

The reflexive learning cycle

The program development and program evaluation cycle is always occurring within broader agency and government mandates, and practitioners work across multiple levels of

governance to establish impact: teams/sections, agencies and governments. Because each governance level is associated with a different temporal scale, there are three associated learning loops to consider: single loop learning is about routine processes and procedures; double loop learning is about changing practice; and, triple loop learning is about altering governance arrangements (see Figure 4, page 17). Critical to progressing through the levels are the learning feedbacks that occur through the program development and program evaluation cycle.

Monitoring and evaluation practice at the lowest level of governance occurs within agency teams or sections (see Figure 4, page 17). Here single loop learning predominates and learning feedbacks improve program monitoring and evaluation procedure and efficiency. This level of practice is where most effort is expended. Learning feedbacks occur relatively fast (less than two years) and output routine assessments of disaster resilience outcomes from community engagement programs.

Influencing upwards to embed the value of community engagement for disaster resilience outcomes requires a move into double and triple loop learning.

In double loop learning, monitoring and evaluation practice at the agency level of governance produces periodic syntheses of multiple lower-level routine assessments of program impacts on disaster resilience, combining the assessments from multiple agencies (see Figure 4, page 17). Double loop learning and associated learning feedbacks reframe program strategy by challenging program assumptions and advancing disaster resilience as an organising principle for community engagement programs. These feedbacks occur at medium time scales (two to five years).

In triple loop learning, monitoring and evaluation practice at the highest level of governance brings together the syntheses from different agencies – ideally at a state or national level – to provide policy evidence (see Figure 4, page 17). Triple loop learning and associated learning feedbacks transform the policy and governance arrangements of community engagement for disaster resilience to (depending on the evidence) embed the importance of community engagement programs in alignment with community and government expectations and values relating to natural hazard management. These feedbacks occur over longer time scales (five to 20 years).
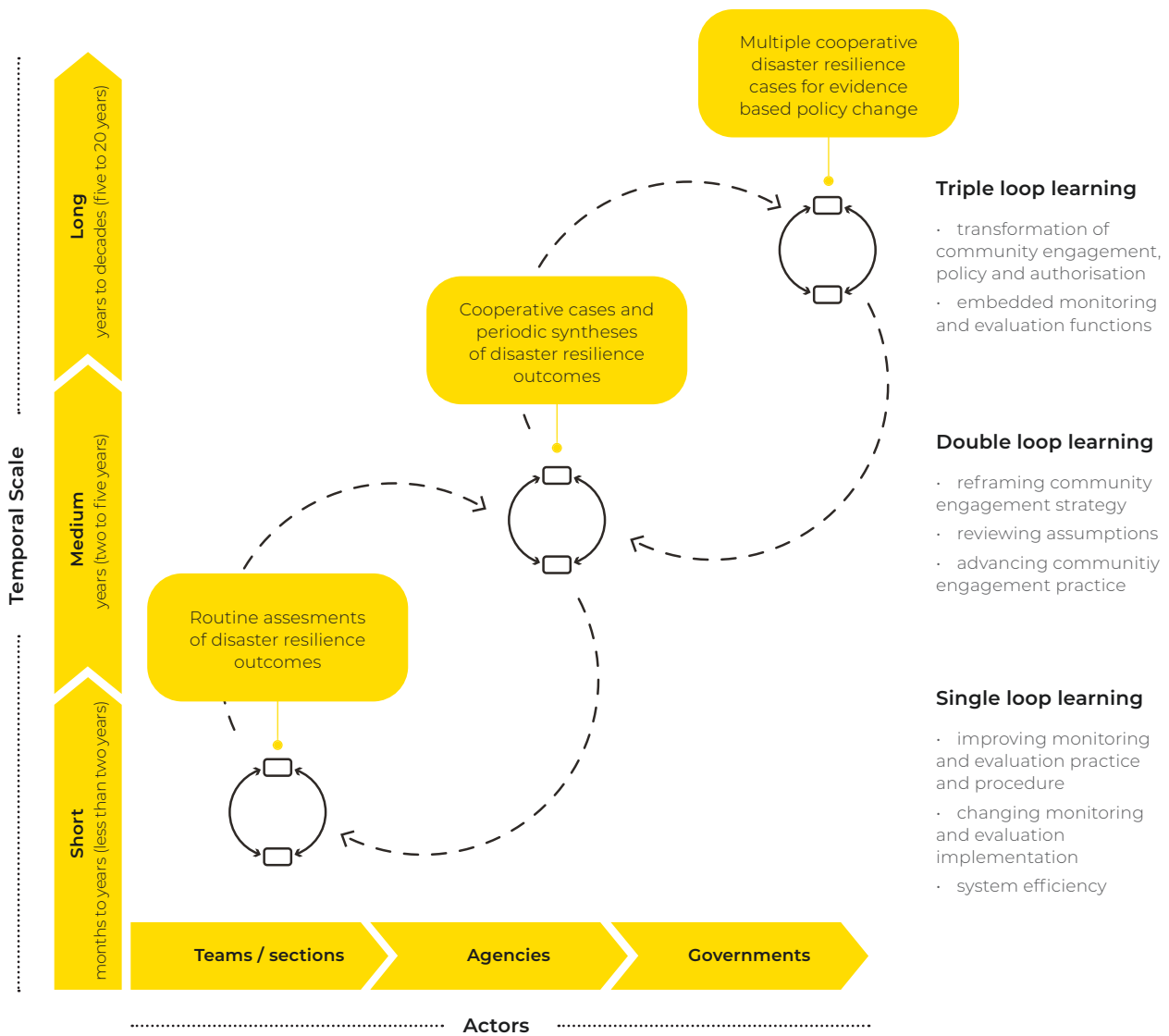
The basic program development – program evaluation cycle

Figure 3

A reflexive learning framework
for monitoring and evaluation
of programs for disaster
resilience outcomes

Figure 4

Multiple cooperative
disaster resilience
cases for evidence
based policy change

Cooperative cases and
periodic syntheses
of disaster resilience
outcomes

Routine assesments
of disaster resilience
outcomes

Triple loop learning

· transformation of
community engagement,
policy and authorisation

· embedded monitoring
and evaluation functions

Double loop learning

· reframing community
engagement strategy

· reviewing assumptions

· advancing communitiy
engagement practice

Single loop learning

· improving monitoring
and evaluation practice
and procedure

· changing monitoring
and evaluation
implementation

· system efficiency

Temporal Scale

Long
years to decades (five to 20 years)

Medium
years (two to five years)

Short
months to years (less than two years)

Teams / sections

Agencies

Governments

Actors

Acknowledgements

Further reading and resources

The Australia and New Zealand School of Government (2019), Better Evaluation website, available at https://www.betterevaluation.org

Handmer J and Dovers S (2013), *Handbook of Disaster Policies and Institutions: Improving Emergency Management and Climate Change* Adaptation, Routledge: London.

Markiewicz A and Patrick I (2016), *Developing Monitoring and Evaluation Frameworks*, Sage: Los Angeles.

Parsons M, Glavac S, Hastings P, Marshall G, McGregor J, McNeill N, Morley P, Reeve I, Stayner R (2016), Top-down assessment of disaster resilience: A conceptual framework using coping and adaptive capacities, *International Journal of Disaster Risk Reduction*, 19: 1-11.

Social Impact Measurement Network Australia (2019), Social Impact Measurement Network Australia website, available at https://simna.com.au/

Tierney K (2014), *The Social Roots of Risk*, Stanford University Press: Stanford.

Wenger E and Snyder W (2000), Communities of Practice: The Organizational Frontier. *Harvard Business Review*, January-February, Article R00110.