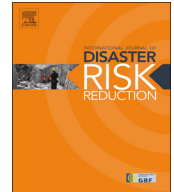




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# Translation and evaluation of the Baseline Resilience Indicators for Communities on the Sunshine Coast, Queensland Australia

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## ABSTRACT

There is a pressing need for longitudinal assessments of a community's level of disaster resilience in order to identify appropriate strategies for building and enhancing resilience. Despite significant challenges, there are several assessment tools available that organize and emphasize specific resilience themes in multiple ways, at multiple scales. In this study we adapt the Baseline Resilience Indicators for Communities (BRIC) to apply to our case study region and call upon local and district disaster management experts to evaluate the appropriateness of the assessment tool for this case study location. Our findings identify that the absence of an ecological resilience theme has limited the usefulness of the BRIC for the case study region, as has the inability of the BRIC to transition between local to regional scale indicators of resilience.

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## 1. Introduction

Enhancing disaster resilience in communities is intrinsically linked to the ability to be able to accurately assess levels of disaster resilience [12]. Accurate assessments of resilience can potentially lead to the identification of relative areas of concern within communities where resilience is declining or the community is unable to respond or adapt. It can also provide an opportunity to enact alternative plans and strategies or locate alternative resources if a community's capacities, assets and resources are assessed as being insufficient [13]. Longitudinal assessment studies can assist a community to trace its progression towards their ideal of a resilient community thereby assisting with the development of enhancement strategies.

Similarly, comparative assessments between communities of similar vulnerabilities, resourcing and capabilities could assist in identifying the efficacy of isolated programs and policies.

Despite this critical need there is much work to do. The identification of metrics for assessing disaster resilience has been described as one of the "grand challenges" of disaster risk reduction [20]. Unfortunately, it is questionable how well we are progressing toward achieving this grand challenge. As there is no universally accepted definition of resilience [26] or community resilience [1], nor is there a uniform approach for assessing a community's disaster resilience. It is also not clear whether assessment methods available satisfy even the most basic of methodological requirements such as validity, reliability, and usability.

This article responds to the call for empirical, academic evidence to identify just how resilience thinking is applied

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and practiced by local practitioners, managers and community members in a disaster risk management context [23,15]. To this end, we present a conceptual translation, application and evaluation of the BRIC [10] for the Sunshine Coast local government area in Queensland, Australia.

### 1.1. The Australian context

As Australia continues to be impacted by more frequent and intense natural disasters; Federal, State and Territory governments have committed to adopt a ‘whole-of-nation resilience based approach to emergency management’ [34]. The Council of Australian Governments (COAG) vision of co-ordination and co-operation to ‘enhance Australia’s capacity to withstand and recover from emergencies and disasters’ was translated into the *National Strategy for Disaster Resilience* (NSDR) by the National Emergency Management Committee in 2011. The NSDR clearly identifies the shared responsibility for individuals, households, communities, governments and businesses to build disaster resilient communities. To this end, the NSDR is proposed to be the ‘first step in a long-term, evolving process to deliver sustained behavioral change and enduring partnerships’ (NSDR, p. 2).

### 1.2. Disaster resilience assessment

Building resilient communities can be a complex endeavor. A community-of-place (see [22]) consists of multiple stakeholders and individuals each of which are nested within complex networks of power, with as [27, p. 172] identifies, ‘highly divergent aims related to resilience’. Community resilience can therefore be viewed as the combination of multiple resiliencies within a community, some of which are enhancing resilience; whilst others may be undermining resilience [24].

Further complexity can be attributed to scaling issues, as perturbation or interruptions at a regional, state, national or even global scale manifest as impacts at the local scale, and vice versa [18,24]. The local level or local scale is emphasized in policy positions and in academic research, as Adger et al. [4] suggests the local scale is the scale at which resilient pathways are put into effect and impacts are experienced. Berkes and Ross [5] argue that it is at the local level, at the community scale that the concept of resilience is least understood. Despite this obvious focus at the local scale, decision-makers on the other hand are required to view risk management from a multiple stakeholder’s risk perspectives, with consideration of their interrelations across and between geographic and institutional scales [14].

Enhancing a community’s resilience by progressively addressing weaknesses and strengths is in keeping with [17] theorizing of resilience as ‘a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance’. Manyena [16, p. 434] views disaster resilience as the ‘intrinsic capacity of a system, community or society predisposed to a shock or stress to adapt and survive by changing its non-essential attributes and rebuilding itself’.

Other complexities that add to the grand challenge of assessing a community’s resilience relates to the conceptualisation of resilience being gender or culturally based [17], or the trajectory of resilience building within a socio-ecological system being largely non-linear [28]. As a result, in order to accommodate these place-specific characteristics and uncertainties, several assessment methods have focussed on assessing the inherent characteristics of a community in regard to their ability to cope, their capacity to innovate and adapt, and the resources, networks and infrastructure that will support mitigation, response and recovery efforts [9].

In practice there are two main forms of community disaster resilience assessment tool: community based participatory assessment tools and top-down assessment tools. Top down assessment tools are typically applied by one institution or stakeholder [10,11,30] whereas, community driven participatory tools are applied by the community in question [1,31]. Hybrid tools have also been developed which have been designed to be applied by one institution/stakeholder, but rely upon extensive community consultation via interviews or surveys [8].

The top-down tools are often simpler to apply, quicker and cheaper which may result in an ongoing monitoring program becoming more achievable to implement. As an alternative to the top-down method of assessment, tools like the Community Disaster Resilience Scorecard Toolkit [1], and the CARRI-CRS [31] employ participatory methods that engage and involve community members in undertaking the assessment. In addition to enabling the community to assess its own level of disaster resilience, participatory methods have other significant co-benefits. They provide an opportunity for building connectivity/social cohesion and for collectively sharing responsibility for disaster responses, co-learning and capacity building opportunities [18,2,19]. As there is no evidence to suggest that a community that scores well on an assessment of community resilience through either method will cope and recover quicker and easier than a community that scored less; these co-benefits are particularly attractive and support the ‘shared responsibility’ mandate promoted at all levels of government.

The scale at which the assessment is undertaken is an important factor, as results of a study may vary in accordance with scale of the aggregate data, often referred to as the modifiable areal unit problem. Similarly, assessment methods utilizing indicators imply homogeneity across the study area [11]. Therefore small scaled, community or local data is preferred by many researchers as it allows for localized characteristics and nuisances to be considered which are important to a community’s resilience [11,32].

Our research project evaluated two disaster resilience assessment methods for the Sunshine Coast local government area. A participatory assessment method developed by the Torren’s Research Institute [1] was evaluated by community members (see [21]). The BRIC represents a second method which was selected as a top-down assessment method. The evaluation results are presented in this paper. Unlike participatory methods of assessment, the BRIC does not claim to enhance or build capacities that

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