

Citizen Science and Hazard Research

How can public participation in scientific research be used as a tool to build community resilience to hazard events?

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Citizen science

Citizen science can be defined as the inclusion of community members (geographical or interest groups) in scientific projects. There are multiple ways of setting up a project, depending on the purpose. Some projects aim to increase science education, where as others use citizens to gather large datasets. There are projects which are developed and run by scientists, while others are co-designed with community groups who share the data gathering, coding and publishing of the science with the academic researcher.¹⁻³

Citizen science for natural hazards

There are many examples of citizen science being used in natural hazard management internationally, including Aotearoa New Zealand's own Geonet app.⁴ However, the impact of these projects on the participants and their communities is often not well studied. This research presents the opportunity to create projects with the explicit goal of analysing the processes behind citizen science and explore how participation in these projects can build community resilience to natural hazards.

Initial method

A literature review of 160 articles related to citizen science was undertaken, and analysed through thematic analysis. The initial themes were drafted into a logic model format which has been included in the box below.

Initial citizen science themes as a draft logic model

Input	Activities	Output	Outcome
<ul style="list-style-type: none"> Purpose Resources Finance Ethics Terminology Diversity Knowledge Motivation 	<ul style="list-style-type: none"> Participation Roles Engagement Collaboration Local context Reciprocity Diverse activities 	<ul style="list-style-type: none"> Create knowledge Data quality Partnerships Publishing 	<ul style="list-style-type: none"> Learning Science for change Empowerment Trust in science Upskilled citizens

Next steps

The draft logic model will be expanded upon and used to feed into the creation of two citizen science projects based on hazards. One project will be researcher led, while the other will be co-designed with a community group. The projects will be analysed for how they increase the resilience capabilities of a community in three areas – knowledge creation, participation, and trust. The resulting data will be compared with the original draft logic model and used to create a framework for providing guidance on how to use citizen science to increase resilience to natural hazards.

References:

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