

UQ Fire Project #2019.14

RESILIENCE OF COMMUNITIES AND BUILDINGS TO FIRE

Advisory Team

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Background and motivation

Resilience as a design paradigm in engineering projects is gaining significant traction. It is closely related to the UN's Sustainable Development Goals, in particular SDG 11 - Make cities and human settlements inclusive, safe, resilient and sustainable. The built environment is particularly vulnerable to the effects of fire and while fire safety objectives consider both life safety and protection of adjacent property as an objective, they do not consider recovery times from fire and indeed this is rarely if ever considered in design. This reflects a perversion in the way that communities interact with the built environment, whereby the value of a business using a facility very often far exceeds the capital costs of that facility. Limiting the damaging impact of fires on communities therefore must consider recovery of fires on businesses and communities.

Research objectives

- 1) Identify how communities are affected by fire, and how for example the institutional, economic, administrative capitals contribute to the recovery of communities from the effects of fires.
- 2) Look for indicators of the above capabilities as a means to being able to evaluate the resilience of communities exposed to fire qualitatively.
- 3) Benchmark such analyses against historical incidents.

Methodology

This project will be based on desktop studies.

Recommended literature

- [1] H. Rosenqvist, N.K. Reitan, L. Petersen, D. Lange; IMPROVER Societal Resilience Analysis (ISRA) for critical infrastructure: a pilot test; ESREL 2018 - European Safety and Reliability Conference; 17-21 June 2018; Trondheim