

The role of science, engineering and risk identification in catastrophic disaster preparedness and response

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Abstract

Severe natural hazard events are an inherent risk within the Australian environment. Disasters in Australia have resulted in significant loss of life and property, stifled development and resulted in physical, economic, social and psychological costs, placing pressures on communities. The emergency management context and the nature of risks in a changing environment presents developing challenges. The challenge for emergency managers is to improve mitigation and prevention measures, preparedness, response capability, and recovery arrangements.

Science and engineering can make a significant contribution to these processes in a range of ways. Community resilience can be increased by furnishing a better understanding of natural hazard risks and impacts on communities. Severity of disaster impact can be reduced through mitigation. Scenario modeling can supply credible consequence against which capability can be measured and deficiencies identified. At the tactical and operational levels improved impact consequence prediction can facilitate informed warnings, evacuation arrangements, resource deployment, and build important credibility. Expeditious and accurate damage assessments can reduce disruption and misdirection of resources.

A forward vision for advancing prevention, mitigation, preparedness, response and recovery through partnerships between emergency management, science and engineering is presented.