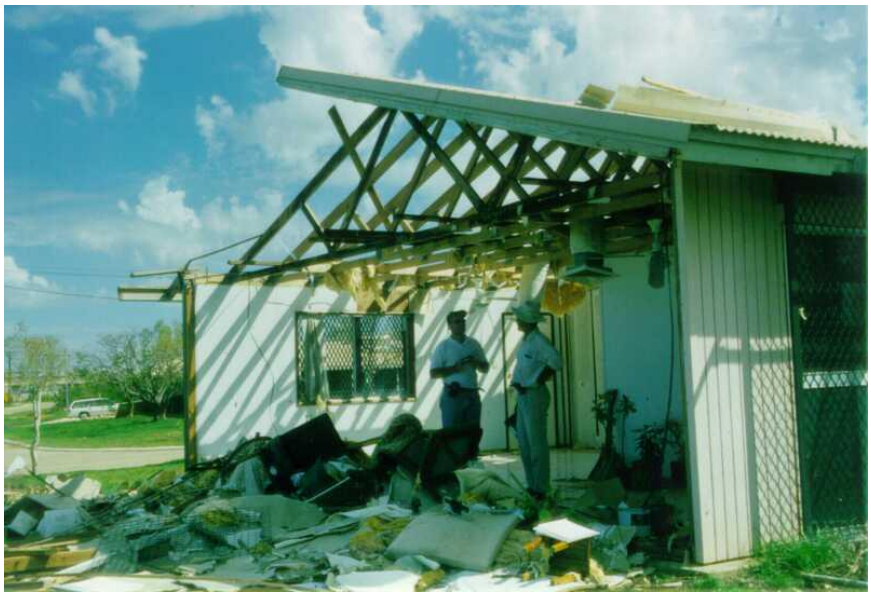
Vulnerability of Coastal Communities to Tropical Cyclone Impacts



PROJECT DESCRIPTION

This study represented a collaborative effort between Systems Engineering Australia Pty Ltd (SEA) and the James Cook University Cyclone Testing Station (CTS) in Townsville. The project outcomes are expected to lead to much more sophisticated and accurate building damage algorithms for application to the difficult problem of estimating community and insurance losses due to extreme winds.

The aim of the study was to deliver a software package that will be capable of accurately estimating the nature and degree of wind-induced damage to different types of housing construction during a tropical cyclone. This will permit Government to assess the true vulnerability of many Queensland coastal communities .

The CTS has built-up an impressive database of house construction joint and roof cladding strengths over many years through specific testing programs, augmented with full scale demolition tests, which has now been combined with results from extensive housing surveys carried out in Townsville by the CTS and surveys done by AGSO in Cairns and Mackay over the past five years.

SEA's role has been to supply the tropical cyclone module and, more recently, to assist in the detailed operational design of the final failure risk module and the creation of a new user-friendly software package. The new package will be made available to the sponsoring Government clients as a tool for estimating the potential community impacts due to specific cyclone scenarios.

SEA plans to implement aspects of the building research into its next generation insurance loss estimating model (SEACAT).

JCU James Cook University — Cyclone Testing Station

Queensland Government
Department of Emergency Services
Department of Natural Resources and Mines

CLIENT:
James Cook University Cyclone Testing Station for Queensland Deptartments of Emergency Services and Natural Resources and Mines; 2003.

LOCATION
Townsville, Mackay and Cairns.

SEA PERSONNEL PROVIDED

- Deterministic tropical cyclone wind field model;
- Joint design of the housing damage loss module;
- Supply of Windows-based software system.

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