Climate Change Adaptation Research Grants Program
- Emergency Management Projects

Project title:
Developing an Excel spread sheet tool for local governments to compare and prioritise investment in climate adaptation.

Principal investigators: Associate Professor Stefan Trueck
Lead organisation: Macquarie University

Objectives:
The analysis of climate extremes is particularly important because of their high impact nature. Unfortunately, often end users do not understand the range of uncertainties surrounding the research outputs they use for extreme events. This project will design a tool to equip end users to analyse and prepare for extreme events in a less predictable, complex world. The project will use a combination of quantitative and qualitative methods to frame the decision making tool. The tool will allow users to conduct sensitivity tests, examining the impact of uncertain parameters ranging from climate impacts to discount rates. The final product will include a user-friendly decision tool in the form of an excel sheet together with a user manual booklet which will demonstrate sample worked out projects. The tool will also be made flexible enough to be contextualised to suit decision making under uncertainty for sectors such as human health, agriculture, water sector, tourism or insurance. This will be achieved by inviting stakeholders from various sectors and refining and adding on to the tool's capacity.

Project design and methods:
The project will be completed in 4 stages: The initial phase of each stage will be to develop and test appropriate software routines in Matlab or Visual Basic for Applications (VBA). Data collected during a Macquarie University / Bond University pilot project for two councils (Kuring- gai Council (KC) in Australia and Kochi Council in India) will be used for testing the tool in every stage. Further, involvement of staff from local governments (Gosford City Council (GCC) has already agreed to be a partner organisation in this project while we are aiming to have a number of additional councils involved) will regularly test and evaluate the tool with respect to practical real-world applications.

Stage 1 focuses on the analysis of extremes. Here data available from disaster data bases, KC and GCC will be used to study the frequency and severity of events. Two councils within NSW have been deliberately chosen for tool development as these councils already have information relevant for the research. This will aid the development of the tool before September 2012.

Stage 2 and stage 3 will focus on the use of quantitative and qualitative methods for evaluating the potential adaptation options. At these stages, there will be consultation with other key stakeholders such as Alice Springs Council and Queensland councils. A workshop will also follow stage 3 (September 2012) to test and refine the tool. A council in Queensland, preferably Gold Coast City Council has been proposed, considering the contacts Prof Ros Taplin already has in this location and the potential future exposure of this location to climate impacts. The council in Alice Springs has been chosen to cover the indigenous and remote characteristics under which that council works. Climate adaptation research is usually skewed towards coastal locations and hence inclusion of Alice Springs Councils' should help them to benefit from connections with other councils and researchers. Moreover, the research associate already has established connections with CSIRO in Alice Springs which will make contacts within the location easier.

Finally, the tool and the handbook will be updated in stage 4 using all the feedback obtained from previous stages.