

1 Introduction

Climate change is regarded as one of the greatest policy challenges ever faced by governments and policy makers¹. To understand and compare the impact of climate change between regions requires a clear and consistent measure. To date, there is no one simplified scale for measuring climate change impacts. This research designed a simplified scale for measuring and communicating climate change impacts.

2 Method

The scale was designed on methodology contained within the Australian risk management standard and other scaling methods^{2,3,4}. The simplified climate change impact scale (Figure 1) was distributed to over 20 Pacific nations as part of a climate change impact survey in early 2011. Participants assessed the impact of climate change across a number of sub systems^{5,6,7,8,9} (terrestrial and marine, water, tourism, socio economic, culture, health, food and agriculture and meteorological) using the simplified impact scale.

A rating of...	Scale	Means that the occurrence of the impact
Severe	5	<ul style="list-style-type: none"> Threatens the survival of the country. Has extreme impacts of the viability of the country/island Or has extreme impact on natural or human systems of the country/island.
Major	4	<ul style="list-style-type: none"> Threatens the survival or continued effective function of a natural or human system of the country/island. Has a major impact on the governments strategic objectives; Or have a major impact on natural or human systems of the country/island.
Moderate	3	<ul style="list-style-type: none"> Does not threaten natural or human systems, but would mean that the system could be subject to significant maintenance or changed ways of operation. Moderately impacts on the governments strategic /operational objectives; or Have a moderate impact on the natural or human systems of the country/island
Minor	2	<ul style="list-style-type: none"> Threatens efficiency or the effectiveness of some aspect of natural or human systems but can be managed by adaptation actions. Minor impact on the governments strategic/operational objectives; or Has a minor impact on natural or human systems of the country/island.
Negligible	1	<ul style="list-style-type: none"> Results in impacts that can be dealt by routine adaptation actions.

Figure 1: The simplified climate change impact scale used to assess climate change impacts in the Pacific Islands in 2011

3 Results

Pacific climate change impact assessment - Water sub systems

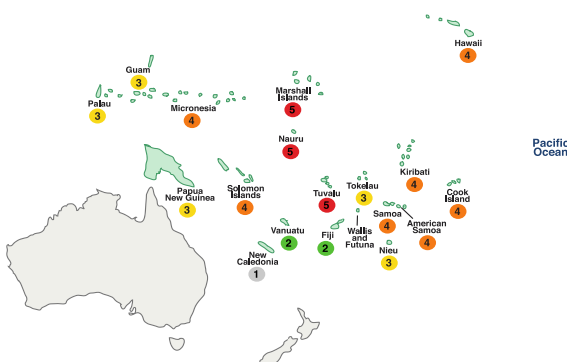


Figure 2 above maps results from the **WATER** sub systems assessment. Over half the respondents (58%) reported either a major or severe impact by climate change on water sub systems. Of these 37% reported a major impact to water sub systems. A severe level 5 rating was provided by The Marshall Islands, Nauru, The Pitcairn Islands and Tuvalu. The results of the survey point to a moderate to severe impact to water sub systems across the Pacific due to climate change.

Pacific climate change impact assessment - Health sub systems

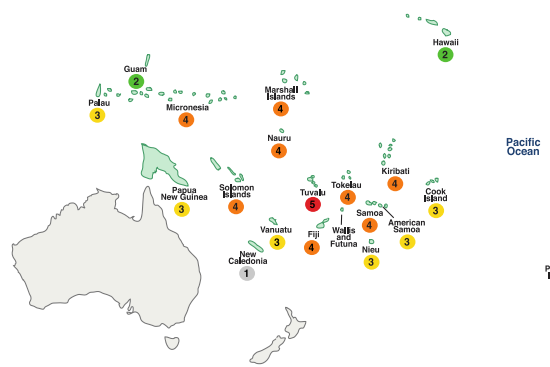


Figure 3 above maps results from the **HEALTH** sub systems assessment. In total, 79% reported either a moderate or major impact to health Sub-systems due to climate change. Of these 42% reported a major impact level. Health Sub-systems have the highest number of major ratings by any sub-system followed by water (37%) and Meteorological (35%).

Pacific climate change impact assessment - Marine and Terrestrial sub systems

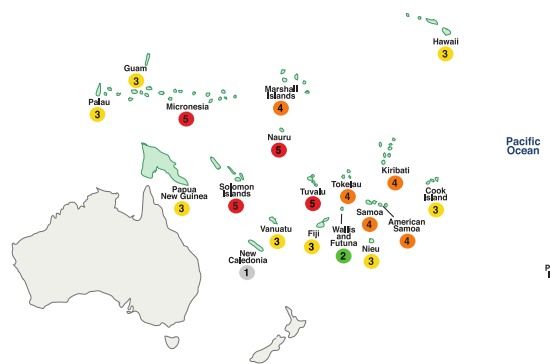


Figure 4 above maps results from the **MARINE & TERRESTRIAL** sub systems assessment. 20% of respondents recorded a severe impact to marine and terrestrial sub-systems. There are 30% of respondents that recorded a major impact. The remaining 40% of respondents have indicated a moderate level of impact Overall, there is a moderate or greater level of impact to marine and terrestrial sub-systems.

Pacific climate change impact assessment - Food and Agriculture sub systems

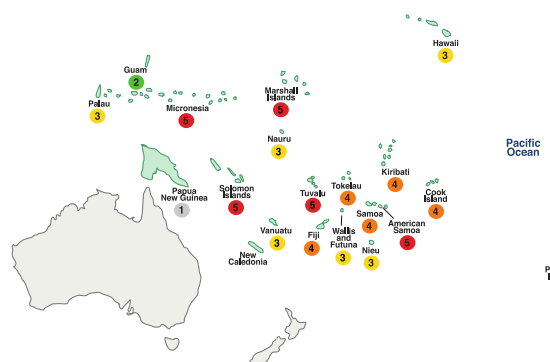


Figure 5 above maps results from the **FOOD & AGRICULTURE** sub systems assessment. These systems reported the highest level of severe category 5 ratings (26%). This is the most stressed sub-system across the Pacific Island region. Countries with a Category 5 level rating included The Solomon Islands, Micronesia, The Marshall Islands, American Samoa, and Tuvalu. 90% of countries reported a moderate to severe impact rating.

Summary

The main finding of this research is that a simplified scale can effectively assess climate change impacts for a region. In addition, the use of the scale could improve ease of understanding and communication of climate change impacts to both policymakers and the general public.

References
 1. Solomon, H. (2006). The Global climate change review: third report. Paris:McMillan, Vc., Cambridge University Press.
 2. ANZSIS (2002). Australia and New Zealand Standard Risk Management. Queensland Australia, Brisbane New Zealand. 2001
 3. Daniels, W. P. (1991). State development: theory and application. Hobart: Praeger, 1990. viii + 340 pages. University Press
 4. Climate variability and change and the role of the Pacific islands region: a report for policy and decision makers, ministers and other stakeholders. South Pacific Regional Environment Programme and Japan Ministry for Environment
 5. South Island Climate Change 2007: Impacts, Resilience and Adaptability. Collaborative Working Group for the South Island Climate Change 2007
 6. Australian Bureau of Meteorology and CSIRO. (2011). Climate change in the Pacific: scientific assessment and new research. Volume 1: regional overview, volume 2: country reports.
 7. United Nations Environment Programme. (2007). Report of the Australian Government Minister for Sustainable Development and Communities. G20/CMP.2, Canberra, 2011.
 8. Australian Bureau of Meteorology and CSIRO. (2011). Climate Change in the Pacific Region, Australia, 2011.