

Disasters: Vulnerability, Mitigation and Planning

Secondary Data Project:

Factors affecting preparedness for Cyclone Larry.



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Contents

1.0	Introduction.....	1
2.0	Literature Review.....	1
3.0	Methods.....	2
4.0	Results.....	3
4.1	Table 1. Preparations Prior to Cyclone Season.....	3
4.2	Figure 1. Time of Beginning Preparations for Cyclone Larry.....	4
4.3	Table 2. Preparations and Purchases During Cyclone Warning.....	5
4.3	Figure 2. Adequacy of household's preparations.....	6
4.4	Table 3. Previous Experience of a Cyclone.....	6
5.0	Discussion.....	7
	References.....	10
	Appendix 1.....	12
	Appendix 2.....	12

1.0 Introduction

The aim of this report is to examine the cyclone preparedness levels within a sample of the community who experienced Cyclone Larry in Johnstone shire (Innisfail) in 2006. Issues such as standards of preparedness, actions taken to prepare and previous cyclone experience will be examined, with the intention of revealing what (if any) effects these factors had behind the overall preparedness of this community.

Tropical Cyclone Larry crossed the North Queensland coast near Innisfail between 6.20am and 7.20am on the 20th of March, 2006 (see appendix 1) when it had developed into an estimated category five cyclone (Bureau of Meteorology 2006). Given the intensity of this cyclone it was surprising that individuals in the area were relatively unharmed from the impact. Emergency Management Australia (2006) reports that there were no deaths and only thirty people sustained minor injuries. This could be a result of a well prepared community that had some idea of the effect of severe cyclones.

2.0 Literature Review

Household preparedness for a cyclone is the key element in helping to save lives, reduce injury and assist in recovery. The Bureau of Meteorology as well as local council websites has detailed information on preparedness for cyclones. Before the cyclone season begins the Bureau of Meteorology recommends checking that your home is built to cyclone standards, checking that house structures are secure, tidying up the yard, trimming branches and clearing the property of any loose material (BOM 2002). When a cyclone watch is issued it is recommended to re-check the property for loose material and tie down light items, fill fuel tanks and water containers, board or tape windows and pack an evacuation kit (BOM 2002). Having previously experienced a cyclone can allow people greater knowledge of what to expect and what may be required of them in an event of a cyclone.

The more recent, most damaging cyclones to impact on the North Queensland coast prior to Cyclone Larry were:

- Aivu in 1989 - category 3 impact near Ayr (south of Townsville)
- Winifred in 1986 - category 3 impact near Innisfail
- Althea in 1971 - category 4 impact just north of Townsville

(Emergency Management Australia 2006).

Cyclone Winifred was the most recent cyclone to strike in the Innisfail area and although it was weaker than Larry at a category three, it destroyed up to fifty homes, damaged many large buildings, destroyed crops and three people died (Arvier 2006). Even though Cyclone Larry caused more destruction to properties and the environment, relatively few people were injured and there were no deaths.

In a report by Enders (2001) measuring community preparedness in emergencies, the author outlines factors relating to previous experience of emergencies that can have an influence on levels of preparedness. Some of the key factors are the type and timing of the last experience, the degree of impact on the individual and others that they know, the actions taken during the last experience and the experience of a warning that was not followed by an impact (Enders 2001). These factors can all have an effect on levels of preparedness in Cyclone Larry.

3.0 Methods

The data to be used is secondary data which comes from a larger post-disaster survey of Cyclone Larry (King & Goudie 2006). Five days after Cyclone Larry swept through North Queensland a team from the Centre for Disaster Studies at James Cook University visited communities in the Johnstone Shire carrying out a total of 147 face to face household interviews. These responses were coded and entered into a SPSS database. For

the purpose of this report, not all questions covered within the survey will be analysed, instead the issue of cyclone preparedness (trends, time taken & adequacy of these preparations) is the main area of focus.

Questions 3, 21 – 23 and question 39 (see appendix 2) from the original report (King & Goudie 2006) that relate to preparedness and previous experience of cyclones are the issues covered within this report.

The following analysis intends to reveal any major trends contained within the data, and to assess what levels of preparedness were undertaken by different respondents.

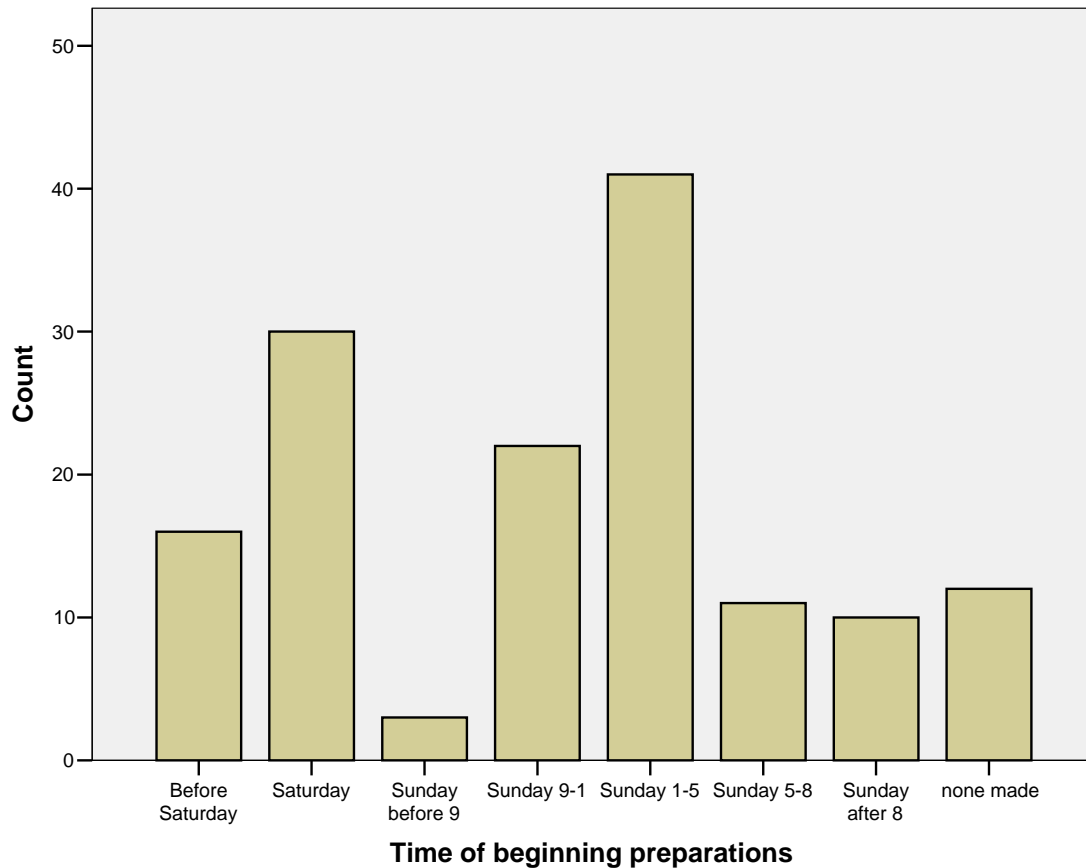
4.0 Results

4.1 Table 1. Preparations Prior to Cyclone Season

	Count	Percent
Yard clean up	39	26.7%
House preparation	17	11.6%
Emergency kit	6	4.1%
Nothing	52	35.6%
Shopping	26	17.8%
all	6	4.1%

As table 1 above demonstrates, 64.4% of residents surveyed carried out some form of preparations prior to the cyclone season. It was indicated by many people however that they maintain a level of preparedness without necessarily having a formal plan or taking specific action (King & Goudie 2006: Appendix 1). It is interesting to note that approximately 1/3 of all participants (ie 52 participants) reported 'doing nothing' to prepare for this cyclone.

4.2 Figure 1. Time of Beginning Preparations for Cyclone Larry



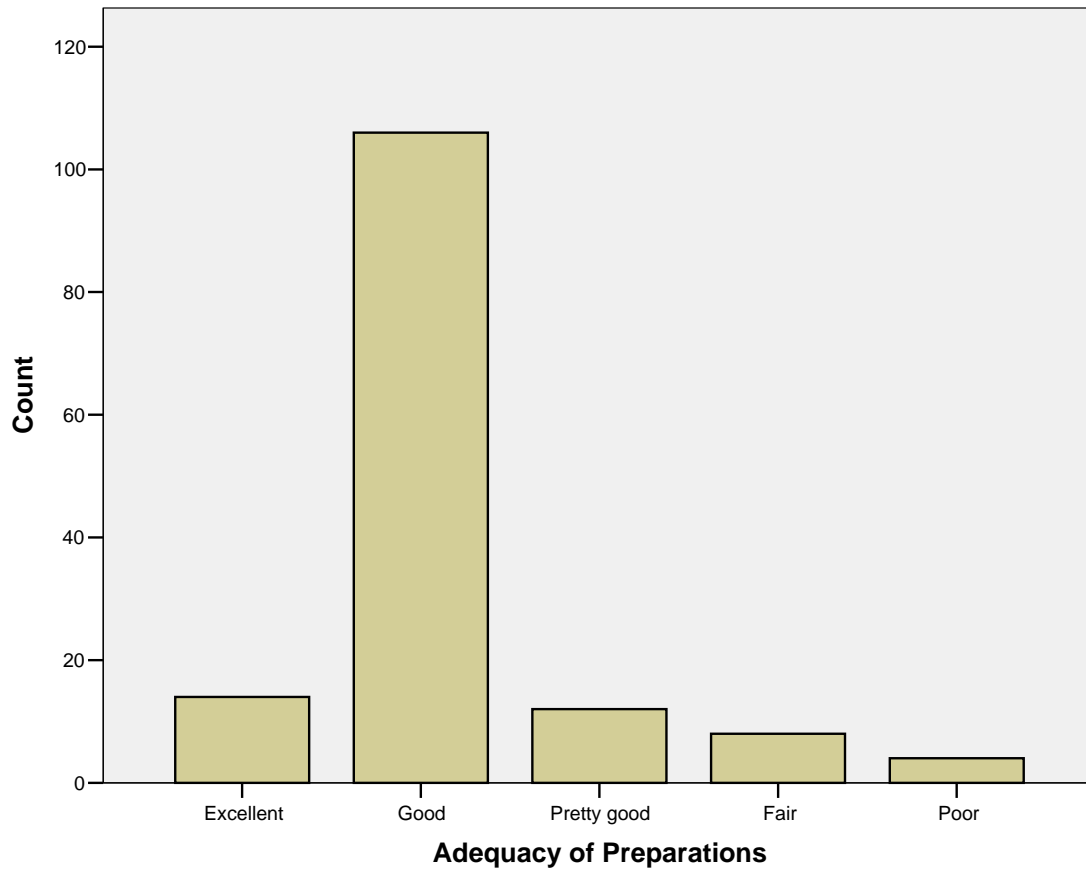
Most residents were aware of the approach of Cyclone Larry before Saturday the 18th March (King & Goudie 2006). A cyclone warning was in place throughout Sunday the 19th of March (King & Goudie 2006) and Cyclone Larry struck the North Queensland coast between 6.20am and 7.20am on the Monday morning. A large proportion of residents (63%, as demonstrated in Fig. 1 above) reported beginning preparations on Sunday afternoon (between 1pm – 5pm), when the cyclone warnings were in full force and the knowledge was more accurate as to where the cyclone would strike. 30 individuals claimed to begin preparations 2 days prior to the cyclone’s landfall, while approximately equal numbers of respondents began preparations later on the Sunday between 5pm-8pm & after 8pm.

4.3 Table 2. Preparations and Purchases during Cyclone Warning

		Count	Percent
Purchases during warning	Batteries	4	2.7%
	Tinned Food	3	2.0%
	Fresh food	2	1.4%
	Fuel	3	2.0%
	Check or buy generator	2	1.4%
	All of batteries, candles, food, fuel	42	28.6%
	Nothing	37	25.2%
	Batten down/clear yard	28	19.0%
	store water	2	1.4%
	Store water & clear up	9	6.1%
	batteries & candles	1	.7%
	food	7	4.8%
	Secure,clear & shop	6	4.1%
	secure personal belongings	1	.7%

Table 2 above demonstrates what types of purchases were made and specific actions were taken by the survey participants during the build up to the cyclone coming ashore. Batteries, food and fuel were amongst the most frequently purchased items, while battening down & securing belongings were the most common actions taken leading up to the cyclone. Fresh food (1.4%) was not purchased at a rate as high as tinned food (2%), while batteries appear to have been the most purchased individual item included within the survey.

4.3 Figure 2. Adequacy of household's preparations



Most respondents indicated that they prepared for Cyclone Larry to a level which was 'Good'. Very few indicated that their preparations were poor, while only a slight variance between the number of households who felt their preparations were excellent, fair & pretty good.

4.4 Table 3. Previous Experience of a Cyclone

		Count	Percent
Previously experienced a cyclone	Winifred	97	66.0%
	Other Cyclone	22	15.0%
	No previous experience	28	19.0%

A total of 81% of respondents to the survey had previously experienced a cyclone (see table 3 above), with the largest proportion having experienced Cyclone Winifred in 1986.

5.0 Discussion

As stated in a 2004 report into cyclone preparedness commissioned by the Western Australian government, gaining knowledge regarding a community's understanding of cyclone preparedness can 'be used to design appropriate and effective safety initiatives to educate community members... and ultimately build resilience.' (FESA WA, 2004).

The data explored within this report only touches upon the function(s) of warning systems, government, the media and community involvement which both directly and indirectly have bearing upon a community's level of preparedness in regards to cyclones. A number of apparent trends, however, do emerge from this analysis.

One stark observation is that of the high level of survey participants who reported doing nothing to prepare for this cyclone. A number of reasons could be responsible for this large proportion. It could be inferred from this trend that government/council information is not having an effect on the members of this community to a satisfactory level. Another possible reason for the large percentage of 'do nothing' respondents may be found within an apparent correlation between that figure (35%) and the figure of respondents who had never experienced a cyclone and those who were not present for Cyclone Winifred (ie not present in the Johnstone shire for the most recent cyclone previous to Larry) – also approx 35%. It could be postulated that those who had never experienced a cyclone, or who had experienced one elsewhere were somehow less susceptible to warnings and local information provided before Cyclone Larry.

The evidence does however, point to the fact that the warning system in place for this event did have a positive effect. No deaths were recorded, and the bulk of respondents claimed that their adequacy of preparation was 'good'. Cyclone warnings provided by the BOM provide residents with knowledge of a cyclones path. When a cyclone is imminent, residents are often 'triggered to engage in preparedness' (FESA WA 2004). This was the case prior to cyclone Larry, where most respondents began preparing only 1 day before the cyclone arrived.

Media outlets & government departments are directly responsible for these warnings. These organizations are also responsible for longer term strategies, such as rubbish removal, advertising and designation of refuge centers and management of the affected areas. Given the lack of fatalities, and the swift response to the emergency, it can be said that both the residents and the responsible bodies were well prepared.

The long term preventative measures taken by the above agencies are demonstrated within the responses regarding the type of preparation & the purchases made by those involved in the survey. Items such as batteries, water and tinned foods are advocated as essential items, with clearing of the yard also being encouraged. Most respondents followed these guidelines – and all (obviously) survived.

These possibilities regarding the level/adequacy/type of preparedness amongst this community are just that – *possibilities*. To determine if any of these hypotheses are valid, a more in depth investigation would be warranted. It must also be noted that the survey may not have been a comprehensive (and random) cross section of the residents of this region following this natural disaster. Human error and other methodological problems may have arisen during the survey process. It is fair to say that a certain level of emotion would be found behind the respondents answers following such an event (shock, fear etc), which could have impacted significantly upon the objectiveness of the said responses.

In the event of another cyclone, these results will be of use in post-disaster research examining whether levels of preparedness were maintained or increased due to the experience of Cyclone Larry. This research may lead to improved warning, education and preparation methods within the tropical regions of Australia & the globe, which will ensure that fewer of these natural hazards become ‘disasters’ in terms of human loss and suffering. Andrew Macalister of the New Zealand Red Cross (2003) has effectively surmised the importance of achieving high levels of cyclone preparedness, where the author has stated, ‘Disaster preparedness is not an easy concept to promote, because its

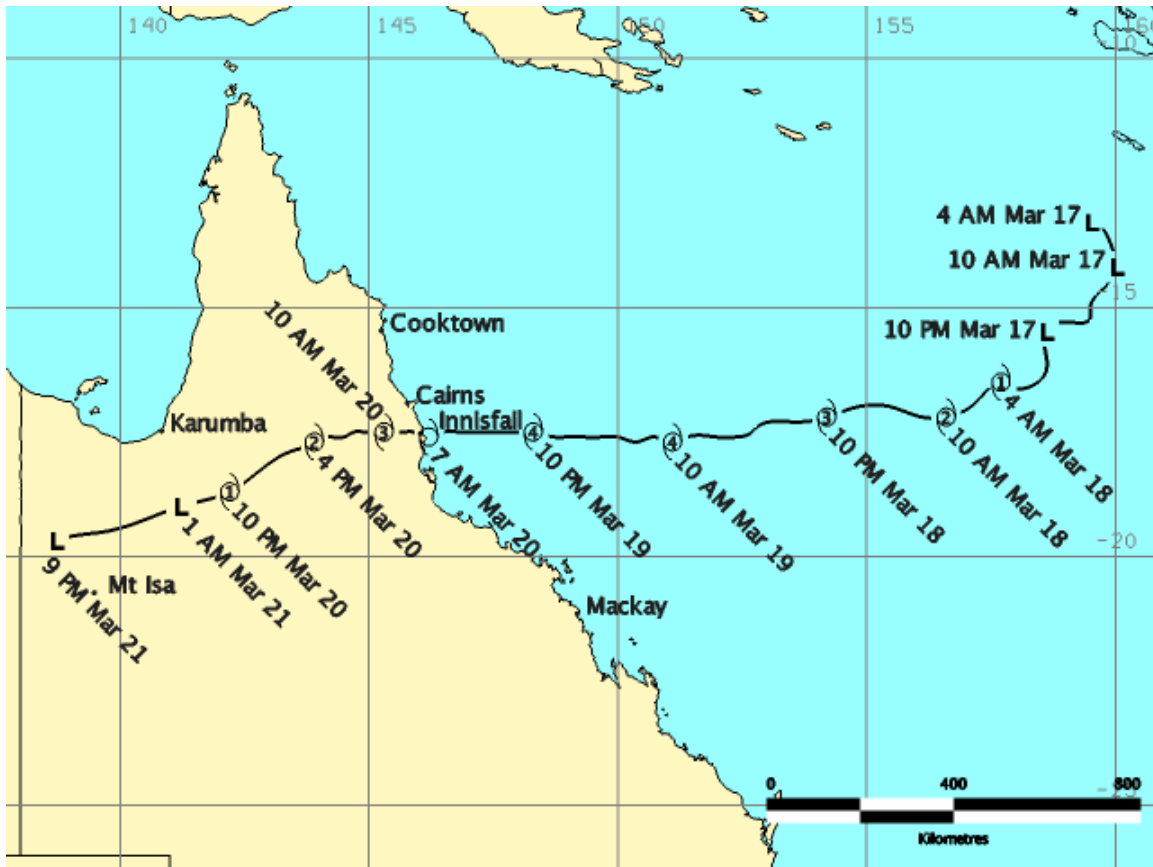
usefulness is only apparent when a disaster strikes....disaster preparedness programmes were something that actually helped in times of need.’ Studies such as these may assist in raising awareness of the importance of being prepared within all tropical regions.

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Appendix 1



(Bureau of Meteorology 2006)

Appendix 2

Survey questions

3. What did you do to prepare for the cyclone season?
21. When did you begin to make preparations for Cyclone Larry?
22. When the cyclone was in force, what preparations, including purchases did you make?
23. How adequate do you think your household's preparations were for Cyclone Larry?
39. Have you previously experienced a cyclone? (which ones and where)