

# Mapping for Public Awareness of Imminent Natural Hazards

Experience from Cyclone Larry, March 2006



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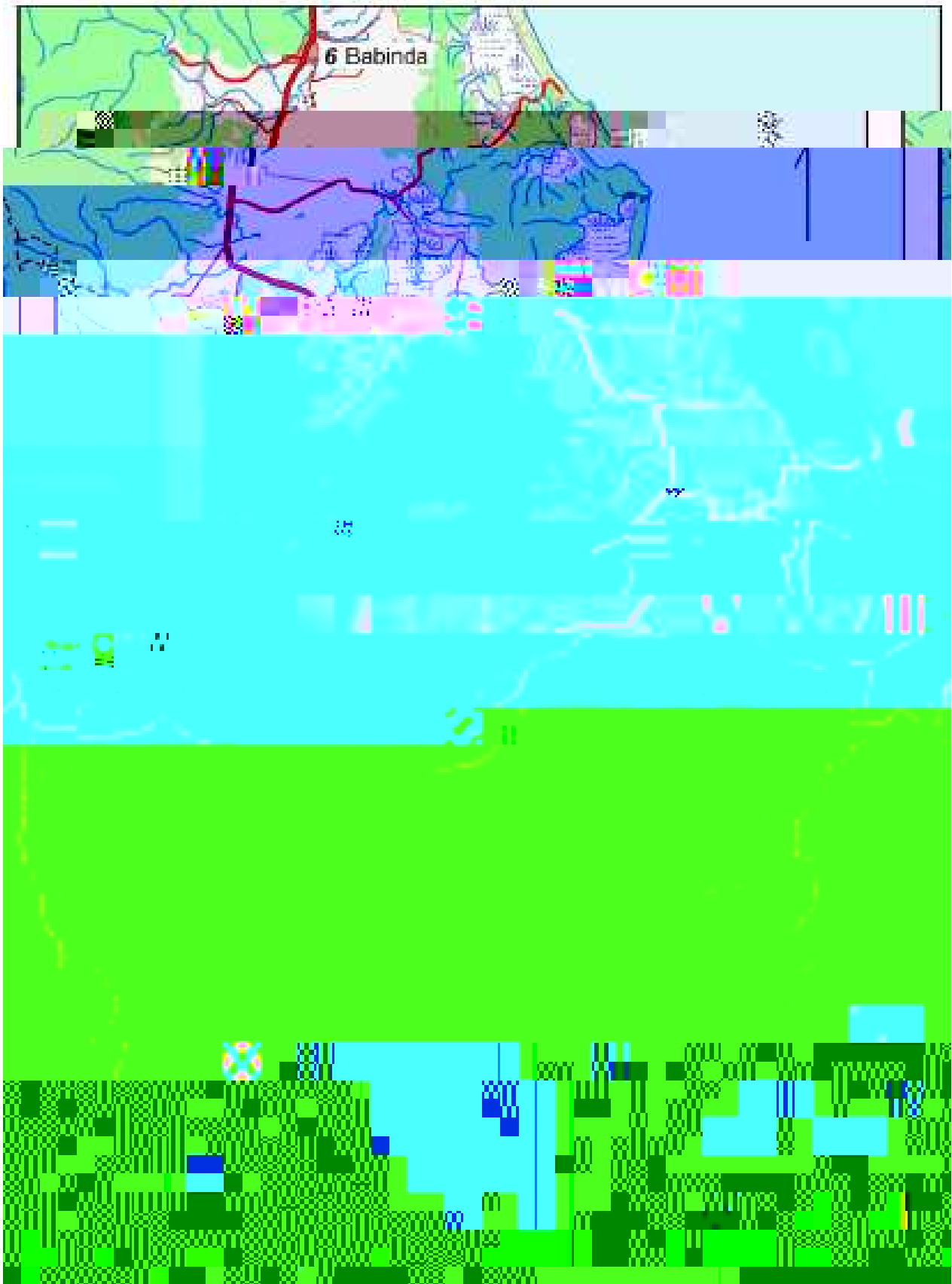
2102 Words



# 1 Introduction

Cyclone Larry impacted Innisfail and surrounding areas of the Johnstone Shire on March 20<sup>th</sup> 2006, causing significant material, social and economic damage. In the midst of recovery and reconstruction efforts over the days immediately following the cyclone's passage, activities to assess the nature and extent of damage, along with the actions, feelings and observations of affected residents were unde

**Figure 1 - Survey Localities** (King & Goudie, 2006)



## **2 Methods**

Full descriptions of methods used to undertake the surveys

**Figure 3 - Forecast Track Map (BOM, 2006)**



## 2.1 Qualification of Results

**Q39A Have previously experienced a cyclone? (which ones and where)**

Responses: No previous experience, Other Cyclone, Cyclone Winifred

Data analysed regarding feelings (Section 2.5) and preparedness (Section 2.6) was also

Questions 14-16 were the only included in the survey relating specifically to map products. Simple tallies provided utilisation of both maps and the source from which the tracking map was obtained (forecast track maps as in Figure 3 are only available from the BOM website).

### **2.3 *Accessibility***

Questions 7 and 8 are the only two which relate specifically to feelings of residents prior to the cyclone's arrival. Question 7 was matched with responses to questions 14 and 16 (Section 2.1) to suggest the effect of map information on resident disposition.

## **2.6 Preparedness**

**Q2 *At the beginning of this cyclone season did members of this household discuss the possibility of a cyclone affecting you this year?***

Responses: Yes, No

**Q21 *When did you begin to make preparations for Cyclone Larry?***

Responses: None made, Before Saturday, Saturday, Sunday before 9am, Sunday 9am-1pm, Sunday 1-5pm, Sunday 5-8pm, Sunday after 8pm

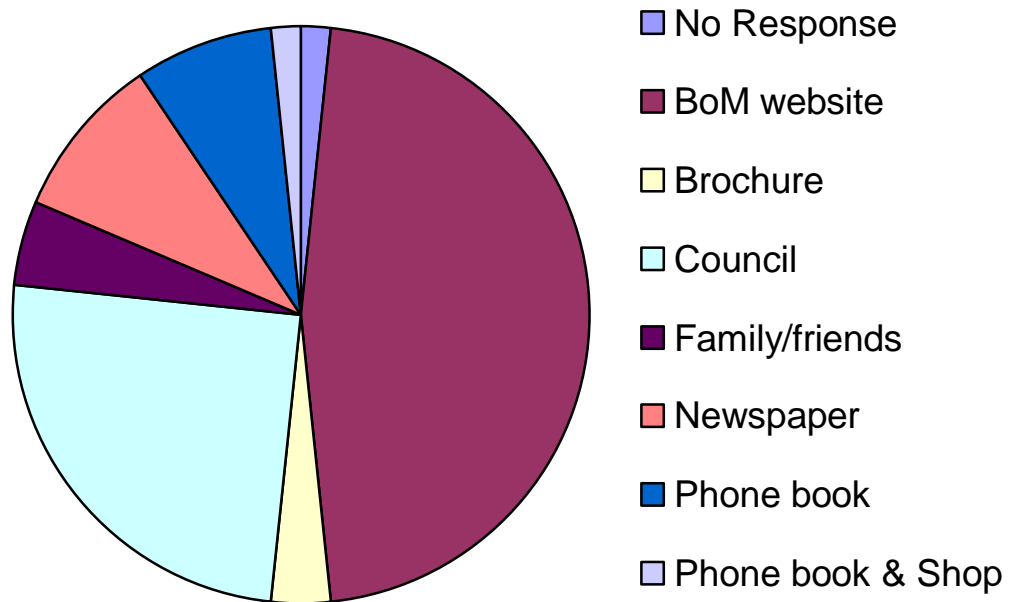
**Q23 *How adequate do you think your household's preparations were for Cyclone Larry?***

Responses: Excellent, Good, Pretty Good, Fair, Poor

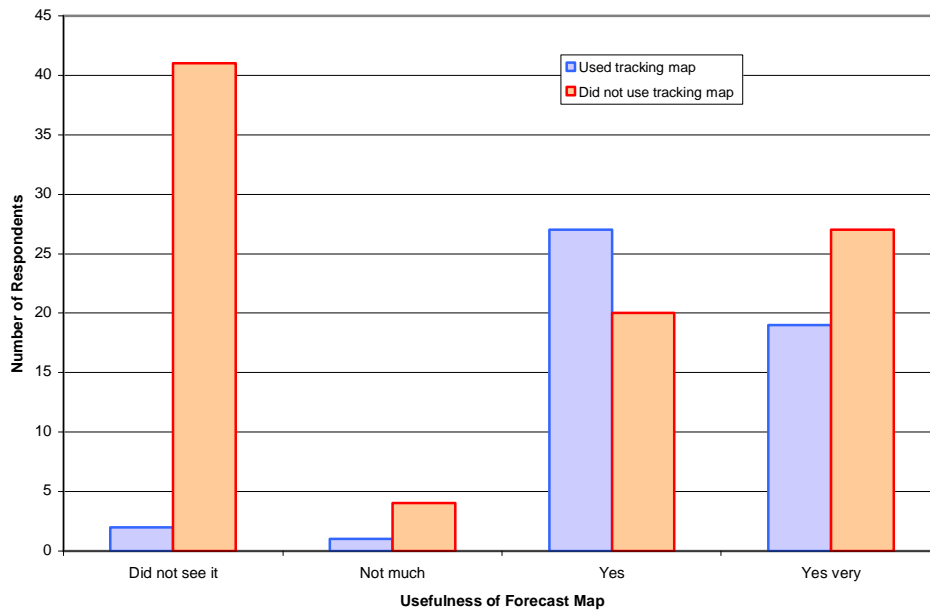
Questions 2, 21 and 23, represented awareness of the cyclone hazard, an objective measure, and a subjective qualification of preparedness respectively. Responses to these question were placed in terms of questions 14 and 16 (Se



**Figure 4 - Tracking Map Source**



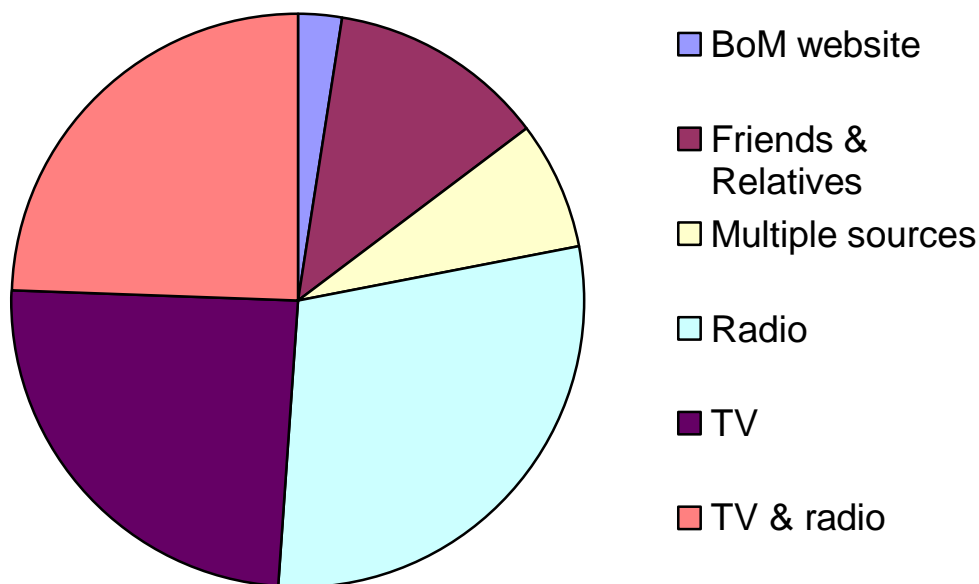
**Figure 5 - Usage of tracking and forecast track maps**



### 3.2 Accessibility

Based on the lack of use of forecast cyclone track maps, sources used for obtaining information as the cyclone approached, by those respondents who did not sight the forecast map are shown in Figure 6. Even if the internet were assumed to be used by respondents listing multiple sources, it rates lower than all other forms of communication. This in turn may explain the large number of residents who did not see the forecast cyclone track map.

Figure 6 - Information Source (Forecast map not sighted)



### 3.3 Understanding

For responses to question 35, both part A and B listed around twelve of the total 143 respondents who found BOM information to be difficult to understand or too technical. These negative responses were not provided by the same dozen residents for both sub-questions.

### 3.4 Feelings

Table 1 demonstrates the type of action which resulted from different respondent states of mind. These feelings are shown with reference to both tracking maps and forecast track

maps in Figure 7 and Figure 8. Overwhelmingly, despite their feeling regarding cyclone Larry, residents increased preparation as a result of advices. Most respondents who did not use a tracking map identified as being either scared or worried, while this was reversed for the forecast track map.

**Table 1 - Manifestation of Feelings**

		Action						
		<i>Confused</i>	<i>Evacuated</i>	<i>Increased Preparations &amp; activity</i>	<i>Listen to warnings</i>	<i>No action</i>	<i>Stay calm/don't scare others</i>	<i>Upset</i>
	<i>Annoyed/angry</i>			2				
	<i>Calm</i>		1	6		8	3	
	<i>Concerned</i>		1	13		3	2	
	<i>Did not take it seriously</i>	2		4		3	4	

**Figure 8 - Feelings related to forecast cyclone track map**

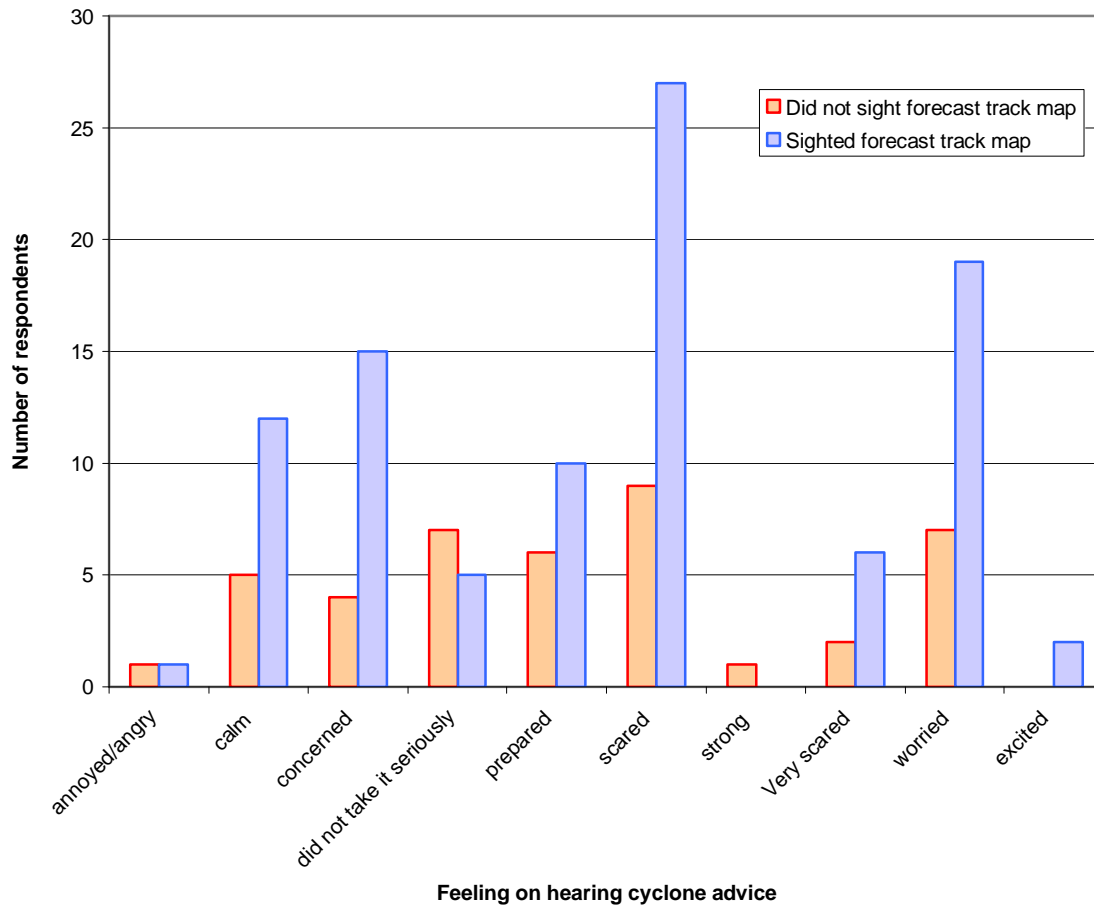


Figure 9 and Figure 10 show the influence of past cyclone experience on feeling and action. It appears that previous cyclone experience caused many people to become scared, worried or concerned, however it also enabled some to remain calm, unlike those with no prior experience. This is also reflected in the subsequent actions taken, with a large increase in preparations and significant numbers taking no action on feelings, or remaining calm







The utility of mapping, specifically GIS, for hazard assessment and emergency management tasks is well recognised amongst the research and public service sectors (Granger & Hayne, 2000; Free, 2004; GHD, 2006). This is not the case however, in providing members of the public with enhanced levels of situational awareness pending extreme events. Rohrmann (2003) assesses a number of public websites available for fire hazards, and cyclone location information has been provided online and in televised warnings for number of years, nevertheless this is by no means a comprehensive coverage of disaster information needs. Additional research is required to determine the information which could usefully be disseminated in map form to members of the public for a range of natural hazards, along with means to combine multiple existing bulletin sources into a single access point. The experience in Innisfail has shown that pc-based internet is



## References

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Bureau of Meteorology (2006) *Tropical Cyclone Forecast Track Map*, Commonwealth of Australia, Brisbane, viewed 18<sup>th</sup> March 2006 at <http://www.bom.gov.au/weather/qld/cyclone>.

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