EV3606:03
Diaster: Vulnerability, Mitigation and Planning
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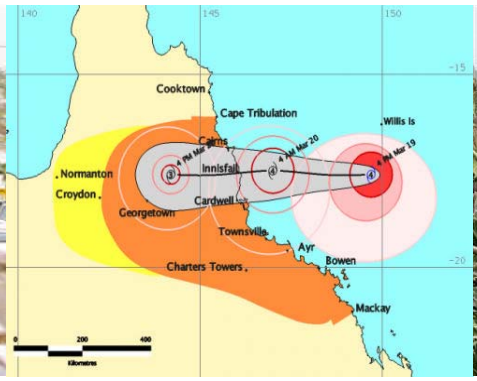
Does the Media Prepare People for a Disaster?
(Cyclone Larry Secondary Data Project.)



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Contents

Summary

Cyclone Larry caused a great deal of havoc in the northern Queensland region of around Innisfail when it struck the coast on the 20th March 2006. A post disaster study was conducted in the days following to see how this natural disaster affected the residents of the Johnstone and surrounding shires that were directly impacted by cyclone Larry. This survey was then reviewed to determine the usefulness and adequacy of media coverage during such an event and how media coverage aided the residents in preventing further devastation and destruction by allowing them, individually and as a community to be prepared for the impact that Larry would have.

Introduction

Cyclone Larry struck the northern coast of Queensland on March 20th 2006 near Innisfail. At the time of landfall the tropical cyclone was rated as a Category 4 (although satellite picture interpretation techniques indicated that Larry could have had an estimated intensity of a Category 5) with recorded winds of 294km/hour recorded at some weather stations (although this is the extreme end of the wind gusts recorded during the event) (Bureau of Meteorology 2006) It was expected to cause widespread damage to the area of the Johnstone Shire and surrounds. Areas that reported damage included Mareeba, Eacham, Millaa Millaa, Babinda, Flying Fish Point, Innisfail, Etty Bay, East Palmerston, Silkwood, Kurrimine Beach, El Arish, Bingil Bay, Mission Beach, South Mission Beach and Jappoonvale. See Appendix 1 - Reported Damage to the region after Cyclone Larry for damaged recorded in the region.

After the impact of cyclone Larry struck the Johnstone Shire and its surrounding communities on March 20th, 2006, a team of five researchers from the Centre for Disaster Studies conducted a post disaster household survey within days of the event (King and Goudie 2006). The researches led a face to face interview-based survey with residents from eight separate areas/communities representing 147 households that held a total of 471 people at the time the cyclone impacted (King and Goudie 2006). The survey was a short answer questionnaire that required respondents to answer questions regarding their experiences of the build-up to, during and after the cyclone (King and Goudie 2006).

This report reviews the use of the cyclone Larry Post Disaster Residents Survey in regard to how respondents prepared themselves for the impending disaster. Particularly how different sources of media helped them to prepare for the effects of the cyclone, how these preparations helped in coping with the cyclones impacts and if it helped to reduce the impacts caused by cyclone Larry.

The literature review was used to help determine the importance of effective media communication in issuing important information to people and how to ensure that the messages are being received and interpreted correctly by the audience.

In an increasingly dangerous and uncertain world, preparedness, at all levels for all key aspects of effective emergency management and of public reassurance must be insured (O'Brien 2006). Media throughout the world plays a vital role in educating the public about disasters; warning of hazards; gathering and transmitting information about affected areas; alerting government officials, relief organisations and the public to specific needs and facilitates discussion about disaster preparedness and response (Cate (ed) 1994). Disasters, with the increase in technological advances now have greater warning to time to help evacuate and prepare residents in the immediate danger zone of where a disaster may impact. It is still difficult however with the erratic behaviour of disasters to make final disasters until about twelve hours from impact (Goudie and King 1999). Therefore community-wide involvement in preparation for disaster responses is critical for adequate preparedness. It has been the case where emergency services have been prepared for the effects of the disaster but the community were not informed or warned of the impending disaster (Goudie and King 1999).

Literature Review

Media coverage of disasters is often a very common occurrence (Telg and Raulerson 2000) although media coverage is usually perceived as somewhat 'superficial and stereotypical' level depicting stories that lead people to believe exaggerated circumstances that are associated with the most graphic (and best selling) pictures (Telg and Raulerson 2000). Timely, accurate and sensitive communications in the face of natural hazards are demonstrated, cost-effective means of saving lives, reducing property damage and increasing public understanding of impending disasters (Cate (ed.) 1994). These communications can educate, warn, inform and empower people to take practical steps to protect themselves from natural hazards (Cate (ed.) 1994). Responding to the news media following a mass disaster is crisis communication in action (Kelly 1998).

A significant proportion of the population in many communities fail to respond appropriately or adequately to emergency warnings. Many people tend to rely on emergency services to provide the essential information on which they may base their defensive action that will ensure their immediate and longer term safety (Bushfire Cooperative Research Centre n.d.).
Communication during a major disaster needs adequate improvement and remains a critical issue requiring additional effort and assessment of effective communication and is essential for the safety of both people and property in the face of prominent looming disasters (Telg and Raulerson 2000). Advancements in communications technologies have saved many lives and money by allowing for greater emergency preparedness and early warning measures to be established (Cate (ed.) 1994; Ferrier and Emdad Haque 2003).
Mass media contributes to emergency management in several ways including;

- Relaying information to citizens about potential hazards and giving citizens information about what local emergency management organisations do;
- During disaster news coverage, print and broadcast media play different roles, due to technology, method of transmission and style of newsgathering; and
- Broadcast media are the primary distributors of immediate news, while newspapers are more dominant during the post-impact period (Telg and Raulerson 2000).

For the vital role of the media to be filled effectively, the scientific and disaster mitigation organisations need to establish and strengthen working relationships with the media. Providing reliable information to the media, as early as possible, in a concise and readily understandable form is an important aspect of ensuring the media can be used effectively to help reduce the effects of disasters (Cate (ed.) 1994). One essential factor in effective communications is the creation and repetition of precise, effective messages, both through the mass media and in other alternative forms of communication. Having a meaningful data retrieval system and anticipating what type of data the media might request, having statistics readily available and perhaps suggesting topics for articles that will provide the most useful information to the public (Kelly 1998). This will allow people to become empowered to take practical steps to protect themselves from natural hazards and to demand attention by private and governmental organisations for disaster prevention, mitigation and response (Cate (ed.) 1994).

Risk communication is an ongoing difficulty for emergency services. The need for better, timely warnings and advice particularly on preventative action is a critical component needed to be added to information broadcasted by the media (BCRC n.d.; Ferrier and Emdad Haque 2003). Communities need support to achieve effective risk communication networks, by having working relationships with the media and all emergency services so these services can provide the most adequate support to their community (BCRC n.d.) The media plays a fundamental role in this support network in allowing the flow of information to the greatest amount of people most efficiently.

Many publications have expressed that disaster mitigation organisations should focus more on public information efforts and that the media should focus more of its coverage on disaster prevention and reduction rather than loss of life and damage to property. It was also noted that disaster mitigation agencies and the media should identify and communicate to the public specific measures that have either succeeded or failed to reduce the impact of natural hazards. The public and media obsession with death and dying could be focussed on other aspects of the disaster. For example, not just inform how much destruction was caused but provide information about the types of structures that survived compared to those that did not (Cate (ed.) 1994).

There is often a large amount of work necessary to inform and involve the public in precautionary disaster approaches, especially in highly vulnerable and densely populated regions (such as areas along the Australian coast) (Goudie and King 1999). Additional warning strategies, besides the use of mass media needs to be implemented to produce more effective communication for times when traditional media sources can not be used (i.e. no electricity to view television broadcasts, radio transmitting towers in the local area have been destroyed during the disaster thereby radio broadcasts are unable to be heard.). This is why community preparedness is essential for the public to be pre-informed (particularly of issues that will effect their local area) of what to do when a disaster strikes (Goudie and King 1999). A cross cutting theme for all disaster management is public education; it is an integral component yet is often poorly handled or incorporated (O'Brien 2006). As more disasters occur there is a shift in the way emergency and disaster management is now being approached (See Appendix 2 – Changes in Disaster Management Paradigms).

Societal attitudes shape the ways we respond to information, including warnings of possible danger. Increasing scepticism or disbelief in official pronouncements undermines attempts to ensure the public are properly informed (O'Brien 2006). When risks are difficult to quantify or are far off, either spatially or temporally the difficulties of establishing an effective approach to risk reduction and an informed public are compounded (O'Brien 2006) making management even more difficult. After a disaster, lessons learned from the event should be incorporated into future responses and relayed to the public in order to try to prevent similar issues occurring in the case of another disaster.

It is often a fear of officials that the public may panic when given information about an impending disaster. This is usually not the case. The public usually behaves in rational and responsible ways provided they are given the correct information and are seen as part of the process. Not informing the public may increase the danger to the public as they are unable to make necessary preparation and survival decisions. Mass media is responsible for supplying this information and it is essential that the information is portrayed in a manner that will not create unnecessary panic (O'Brien 2006)

Methodology

The database created by the cyclone Larry post disaster surveys was reviewed to determine the results of the responses given by those interviewed. Particular attention was given to questions that pertained to the use of media used in relation to obtaining information on the impending cyclone.

The data was manipulated using SPSS to cross-tabulate different variables in order to help determine the effectiveness of communication using the different modes of media used.

Variables such as preparation for the cyclone season and which media sources were the most useful, which information sources prompted preparations after cyclone warnings were issued, whether the tracking maps were utilised and where they were assessed, the timing and adequacy of preparations and whether the Bureau of Meteorology advice was useful and how it ranked in providing adequate information to the public.

Results

Table 1 – Preparation for the Cyclone Season and Information Source

Preparation for Cyclone season * Source of Information for Season Crosstabulation

Count

		Source of Information for Season										
		Council	Newspaper	Brochures	TV	Personal knowledge/ experience	Radio	TV & radio	none	internet	council & radio	Total
Preparation for Cyclone season	Yard clean up	2	7	3	3	8	5	7	2	2		39
	House preparation	1	3		4	4	3	1	1			17
	Emergency kit	2				3	1					6
	Nothing	1	3	1	6	17	7	9	5	2	1	52
	Shopping	1	4		4	10	3	4				26
	all		1			3	1	1				6
Total		7	18	4	17	45	20	22	8	4	1	146

The above graph depicts the preparation undertaken by people as part of their planning for the coming cyclone seasons. This is being compared to the information source in which promoted their preparations. Yard clean-up was the most undertaken action with personal experience and mass media (television, radio and newspaper) being the mostly acknowledged sources for prompting actions. A great deal of people took no action, with many of those citing personal experience/knowledge as being the basis for their information.

Table 2 – Preparations prompted by warnings and the information source.

Preparations prompted by warning * Info source on Sunday Crosstabulation

Count

		Info source on Sunday							
		Radio	TV	Friends & Relatives	BoM website	Local Authorities	Multiple sources	TV & radio	Total
Preparations prompted by warning	tape windows	1	1	1	1		1		5
	Clear yard	10	4	1	7		10	11	43
	Buy supplies	2	1		1		3	1	8
	Buy fuel	1							1
	Evacuate		1				2		3
	Repair building/trim vegetation	1					1		2
	Secure car and/or boat		2						2
	Secure other belongings	1	1		1		1	2	6
	Nothing	7	7	2	1		6	3	26
	Store water	2	4					1	7
	food preparation		1						1
	clear yard & secure boat	5	1		1		1	2	10
	Clear up, shop & secure	5	2		6	1	6	6	26
	Buy supplies & store water	2	1	1					4
	Store water & secure belongings	1			1			1	3
Total		38	26	5	19	1	31	27	147

The above graph depicts further actions that were undertaken after the cyclone Larry warning was issued. It notes the information source on the Sunday when cyclone Larry was perceived to pose a threat to the area. Yard clearing was the most undertaken action on the Sunday with mass media again being the most acknowledged sources. Also securing other items (i.e. boats) and shopping for supplies were also other actions undertaken. A significant proportion of people undertook no further preparations at this time.

Table 3 – Source of tracking map and its use

Source of tracking map * Used tracking map Crosstabulation

Count

		Used tracking map		
		Yes	No	Total
Source of tracking map	BoM website	29	1	30
	Phone book	4	1	5
	Brochure	1	1	2
	Council	6	10	16
	Did not use map		83	83
	newspaper	6		6
	family/friends	2	1	3
	phone book & shop		1	1
Total		48	98	146

This graph portrays the amount of people surveyed who used the tracking map and where the sourced the map. Nearly two-thirds did not use the tracking map and those who did, the Bureau of Meteorology website was the major source for utilising this information.

Table 4 – Time preparations began and there adequacy.

Time of beginning preparations * Adequacy of Preparations Crosstabulation

Count

		Adequacy of Preparations					
		Excellent	Good	Pretty good	Fair	Poor	Total
Time of beginning preparations	Before Saturday	3	13				16
	Saturday	5	23	1	1		30
	Sunday before 9		2	1			3
	Sunday 9-1	1	16	4	1		22
	Sunday 1-5	3	30	5	2		40
	Sunday 5-8	1	5	1	1	3	11
	Sunday after 8		8		2		10
	none made	1	9		1	1	12
Total		14	106	12	8	4	144

This cross-tabulation depicts when people began preparations for the impending Cyclone Larry and the adequacy their preparations. One-third of people only undertook preparations Saturday or Sunday just prior to Larry's landfall. Over two-thirds of people rated their actions as adequate for the situation in preparing for cyclone Larry's impact.

Table 5 – Bureau of Meteorology Cyclone advice and its usefulness

BoM cyclone advice * Usefulness of BoM messages Crosstabulation

Count

		Usefulness of BoM messages		
		Yes	No	Total
BoM cyclone advice	spot on	18		18
	reliable	46	1	47
	could be more frequent near landfall	9	4	13
	more prominent/louder	10		10
	okay/pretty good	42	2	44
	missed/didn't hear them	2	1	3
	contradictory messages	4	2	6
	exact locations impacted	1	2	3
	NESB	1		1
Total		133	12	145

A vast majority of people perceived to find the Bureau of Meteorology cyclone advice to be useful, reliable and ‘pretty good’. More prominent and more frequent advice notices were a concerns noted about the adequacy of these warning advices.

Table 6 – Bureau of Meteorology Cyclone advice and its ranking.

BoM cyclone advice * Ranking of BoM messages Crosstabulation

Count

		Ranking of BoM messages									
		excellent	good	Okay	poor	Make them more regular	media exaggerated	no access to radio/power loss	needed more info	siren frightening	Total
BoM cyclone advice	spot on	10	1	1		1		1	2		16
	reliable	2	14	7	1	10	1	1	3		39
	could be more frequent near landfall	1		2		9					12
	more prominent/louder	1		1		7			1		10
	okay/pretty good	3	14	10		9		1	1	1	39
	missed/didn't hear them		1			1			1		3
	contradictory messages				1	1	1		3		6
	exact locations impacted		1		1	1					3
	NESB			1							1
Total		17	31	22	3	39	2	3	11	1	129

This graph corresponds with Table 5 - Bureau of Meteorology Cyclone advice and its usefulness. The major concerns are making the advices more regular, more information should be included in the advices and contradictory messages between sources.

Table 7 – Property damage and adequacy of Preparations.

Property damage * Adequacy of Preparations Crosstabulation

Count

		Adequacy of Preparations					
		Excellent	Good	Pretty good	Fair	Poor	Total
Property damage	Minor	9	46	2	1	1	59
	Some damage	3	31	4	2	2	42
	Minor to windows		6	2	1		9
	Roof damage from trees	1	7				8
	Damage to walls		4	1	1		6
	Vegetation destroyed	1	2	1	1		5
	house shaking		1				1
	damage to other properties/farm		1				1
	roof loss		7	1	2		10
	none		1	1		1	3
Total		14	106	12	8	4	144

The graph above shows that people that were prepared seemed to suffer little significant damage on their properties. There were only minor instances where there was significant damage to homes and their properties even if adequate preparations were undertaken.

Discussion

The main continuing themes that appears to be most prominent in the cross tabulations between media sources and the usefulness, adequacy and the assistance provided by the information given by the media included:

- Most people perceived warnings and advice notices to be helpful and instigated action to prepare for the coming cyclone;
- Radio and television (and newspapers) were the most accessible and noted media sources for obtaining current information. The Bureau of Meteorology website was also noted as a well utilised source although given the demographics of the affected area was not accessed by many residents;
- Cyclone warnings promoted more action than the general pre-cyclone season advice;
- Many people did not take action (yard clean-up, securing belongings) until the disaster was near – a day or two before the cyclone struck;
- The cyclone tracking map was not utilised by over half of the interviewed people
- Many improvements were noted to make media communication more effective in times of an impending disaster;
- Much of the knowledge used was gained through personal experience and knowledge;
- Many people also did nothing as a result of advice and warnings given by the media; and
- Many people suffered little significant damage to their properties and perceived to have adequately prepared for the cyclone.

These common themes provided a basis to state that the media, in this case, was an effective way to announce important and up-to-date information to the most people adequately and at the times when it is most needed. Suggestions to improve the community communications and community preparedness would be to include suggestions of what actions to take in the lead up to the cyclone season, what actions to take during the cyclone and how to recover from its affects. This will aid those people that have not experienced a cyclone event before or are not familiar with the local area.

It was also noted that those that many people did not take action in response to the cyclone season advice or cyclone warnings. However, these people appeared to have relied on their own personal experience and knowledge to prepare them for the event. This does not portray a failing in the successfulness of the media to get its message across, but that many people may have already been prepared and did not act on the advice of the warnings as they already had completed these tasks and knew what precautions they should undertake to be best prepared for a disaster. Two-thirds of those surveyed indicated that the received little damage to their properties. Of these two-thirds most of them perceived themselves to have taken adequate action to prepare for the effects of the cyclone.

The most noted and common recommendations on how to improve communications in the event of a disaster included:

- More frequent and prominent warnings;
- More advice on ‘what-to-do’ actions;

- Ensure up-to-date coverage particularly within the local zone to allow for residents to make informed decisions especially at times when the disaster is close to landfall; and
- Have stronger campaigns for pre-season actions to avoid 'last-minute' clean-ups and risks.

Noted improvements by Telg and Raulerson (2000) on how to use improve effectiveness of communication during a disaster could be to;

- Better utilisation of public information network systems to help maintain contact with local public information givers during a crisis;
- Establishing experience-based classification levels for public information officers in various management response agencies; and
- Being informed of the skill levels and experience of public information officers dispatched in impacted area (Telg and Raulerson 2000).

Specific communication-related recommendations include catering to local media area before the national media. Local reporters will often provide immediate, important information to the area's residents (Telg and Raulerson 2000), where it is most needed. Initiate more World Wide Web page development and campaigning to allow easy access to information and provide other automated services, such as 24-hour telephone hotlines with update news coverage to allow easy access to information.

Alternatives means of communication with the public other than through the mass media also need to be considered to allow a broader-based approach to disaster preparedness (Cate (ed.) 1994). An example in Ecuador has not only utilised cooperating television and radio stations, but also printed on soccer balls, colouring posters and in colouring books to reach communities that may be beyond the reach of mass media. The balls, posters and books appeal more directly to children and provide a more interactive and entertaining educational mechanism that allows for a wider audience to be reached.

A suggestion by a former television network executive in the USA would be to develop a collection of simple, consistent, readily understandable icons providing instructions for disaster preparedness (like the widely recognised emergency exit indicators or "no smoking" signs) these would be able to provide specific warnings (i.e. high wind warnings, cyclone watch) or instructions (i.e. move to higher ground; take cover) (O'Brien 2006).

Another important issue to be raised it that much of the media coverage is focussed on the immediate aftermath of a disaster 'event' where a more useful approach would have a focus on disaster prevention and response especially within local areas (Cate (ed.) 1994). Resilience is not a science, it is a process, using human capacity and ingenuity to mitigate vulnerabilities and reduce risks both of which are socially constructed (O'Brien 2006).

Conclusion

Early warning of impending disasters and their effective broadcasting using telecommunications including broadcast services are key factors to successful disaster prevention and preparedness. Utilising the resources of communications technologies, skills, and media are an essential part of the means to a cost-effective means of saving lives, reducing property damage and increasing public understanding irrespective of location, population or level of economic development. Such communication can educate, warn, inform and empower people to take practical steps to protect themselves from natural hazards (Cate (ed.) 1994).

Better warning systems are being more widely called for and a clear need for more public awareness and involvement has been noted as a key core issue that needs to be addressed, this is where media could be used to relay information to the target audience (Goudie and King 1999). Community preparedness and access to information is vital in ensuring the best outcome for all in the event of a disaster. The media play a most crucial role in relaying up-to-date information that allows people to make the necessary decisions to ensure their survival and take measures to protect their properties and belongings. Therefore it is fundamental that the media is given the means to report accurate and current information and that the public have the means to access what is being reported throughout the entire duration of the disaster event.

Appendix

Appendix 1 – Reported Damage to the region after Cyclone Larry.

Location Damage	
Mareeba / Eacham / Millaa Millaa	93 damaged properties
Babinda	80% of buildings damaged
Flying Fish Point	15% of homes damaged
Innisfail	50% of homes damaged 35% of private industry damaged 25% of Government buildings damaged (schools etc)
Etty Bay	40% of homes suffered roof damage
East Palmerston	70% of homes damaged
Silkwood	worst affected location 99% of homes lost roofs or suffered structural damage
Kurrimine Beach	30% of homes damaged 15% of private industry damaged
El Arish	30% of homes damaged 50% of private industry damaged
Bingil Bay	30% of homes damaged
Mission Beach	30% of homes damaged 20% of private industry damaged 45% of caravan park damaged
South Mission Beach	20% of homes damaged 20% of private industry damaged
Jappoonvale	Possible tornado damage

Source: Bureau of Meteorology 2006

Appendix 2 – Changes in Disaster Management Paradigms

DOMINANT PARADIGM	NEW PARADIGM
Isolated Event	Part of Development
Risk Not Normal	Risk of Disaster/Conflict
Techno-legal	Social Capacity
Centralized	Participatory
Low Accountability	Transparent
Post Event Planning	Predisaster Plans
Status Quo Restored	Transformation
Cross-Cutting Theme: Public Education	

Source: O'Brien 2006

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