

Seagulls on the Airstrip: Indigenous Perspectives on Cyclone Vulnerability Awareness and Mitigation Strategies for Remote Communities in the Gulf of Carpentaria

McLachlan's study shows how understanding indigenous communities' coping mechanisms can lead to better disaster management strategies.

By *Eddie McLachlan*

On the northern coast-line of Australia, during the annual Australian wet season period—from November to March – residents of coastal towns and cities are aware of the dangers posed by natural hazards. In the area stretching from the northern west coast region of Western Australia, to the south-east corner of the Queensland coast, weather-wise, the most potentially dangerous hazard is tropical cyclones (Johnson et al 1995, Bryant 1991). Much research on tropical cyclones concerns associated effects, focusing on property damage, storm surge, floods and financial ramifications (King et al 2001, Smith 2001, Granger et. al. 1999). It is expected these hazards will continue to be the subject of future research studies, because apart from their frequency, they are also relatively predictable, and the associated dangers can be avoided with appropriate preparation.

In northern Queensland, the majority of the population is centralised on the east coast into two cities, Cairns and Townsville, and several towns in between, such as Innisfail and Ingham. Past cyclone research has been mainly confined to these urban centres, where disaster lifelines and support services have been developed. Platt gives a wide definition of lifelines as: “systems or networks which provide for the circulation of people, goods, services and information upon which health, safety, comfort and economic activity depend” (Platt 1991:173). According to Manock, “Each community has

a differing view as to what type of service is essential and is classified as a lifeline” (Manock 1997:12). In this paper, a definition similar to Manock's (1997) is used, where lifelines are defined as: transport systems – namely road, air, and sea links, as well as communications such as radio, television, telephone and satellite links. All of these are vital in monitoring and assessing hazardous situations in remote communities, and more importantly, essential in supplying assistance to them.

In the Gulf of Carpentaria, and the western region of Cape York Peninsula, there is an isolated and scattered population concentrated into small towns and communities. With the exception of Weipa and Karumba, the majority of the population in most of these remote towns and communities is made up of indigenous people. In normal conditions, all are extremely isolated and their lifelines and communications are limited. On occasions when the destructive effects of wind damage and floods caused by a tropical cyclone are added to the situation, some communities' connections to the rest of the country are completely severed, often for several weeks. Essential communication like phone services are affected by destruction of poles and lines and roads are often cut by floodwaters. Some of the larger communities such as Mornington Island, Doomadgee and Normanton have established all-weather sealed airstrips, so when roads are cut, supplies can be flown in if necessary.

In cyclone research and assessment studies conducted in coastal north-east Queensland urban centres (Butterworth 1991; Granger et al. 1999), and Cape York remote communities (King et al. 2001), the main focus was



Supply ferry from Karumba docked at Gununa jetty.

damage to property, and the cost of repairs. They were part of overall damage assessment reports, and while they touched on some human aspects, they did not detail the social ramifications of the impact of the cyclones.

The strategies of cyclone awareness, preparedness and vulnerability are elements that are the main focus of authorities in the development and maintenance of disaster management in remote communities. The reports and studies from remote communities do not contain the indigenous inhabitants' views. In some of these areas, live elders whose ancestors have survived in these areas long before European's devised disaster strategies were introduced.

Given the specific parameters of the subject of this paper, there was virtually little relevant literature available for reference, so publications on natural hazards concepts and issues, in the context of disasters management, were reviewed (Smith 2001; Gough 2000; Chapman 1999; Kellert 1997; Kovach 1995; Blaike et al. 1994; Alexander 1993).

In Australia, apart from old newspapers, there is limited material available regarding cyclones and people's actual experiences of them. In 1994, Bill Bunbury released a book entitled, *Cyclone Tracy: picking up the pieces*, that "tries to tell the story of the cyclone through the eyes of people who went through it and to look at some of the issues that emerged ... " (Bunbury 1994: 12). The interesting thing about the book was that most of the text is personalised accounts that were recorded verbatim. A similar approach was used by Kevin Murphy in his 1984 publication, *Big Blow Up North*, which was primarily an "historical account highlighting the effect of tropical cyclones on the progress of

settlement in the Northern Territory"(Murphy 1984: x). Like Bunbury, Murphy included numerous excerpts of recorded accounts that were taken from settlers' personal diaries and journals. Another pertinent reference was a James Cook University study by Eric Butterworth, *Cyclone Impact* (1991), which focused on the socio-economic effects of cyclone Winifred which crossed the coast near Innisfail in 1986.

A similar study to that being discussed in this article was conducted by Skertchly and Skertchly (1999), on the coast of the Northern Territory. Their project involved investigating severe natural hazards in the Australian monsoon region. They contended that over a long period of time, indigenous inhabitants of the area had developed effective methods of survival, which incorporated, "devising solutions for living and thriving in their challenging environments, and designing viable means of protection against severe natural hazards" (Skertchly and Skertchly 1999: 48). Included in the study were cyclones, and the role they played in local traditional Aboriginal knowledge, in association with stories and the natural environment. This article, and others mentioned previously, suggested a need for more research based on disaster management in remote cyclone prone areas. Studies of this type could investigate survival strategies of Aboriginal people in a region such as the Gulf of Carpentaria. It may also involve examining whether traditional attitudes, stories, myths and survival techniques have been passed on, and if they play a part in any of the communities today. Most importantly, such a study could obtain an indigenous perspective on natural hazards, which may be of benefit to both disaster management authorities and local people in remote communities. The acknowledgement and inclusion of traditional Aboriginal hazard strategies in emergency management



Alma Moon and Ossie Escott, residents of Gununa.

practices could consolidate and further improve relationships between local indigenous people and authorities.

There have also been a number of projects carried out in remote communities in northern Queensland by the Centre for Disaster Studies at James Cook University in Townsville. Recent research by King and others, investigated vulnerability to cyclone and natural hazards, in indigenous remote communities of north Queensland (King et al 2001). In the final report, important disaster management issues such as preparedness, mitigation and lifelines were examined, and although acknowledged in some capacity, the inhabitants played a minor role in the studies. Of course, many reports are guided by research that prioritize other topics.

It is the author's contention that in these various research and assessment studies, whether in the large eastern coast cities (Granger et al. 1999) and towns, or the remote communities, one important element that has not been focused on, is the indigenous people. In some of these areas, live elders whose ancestors have survived in these areas long before European devised disaster strategies were introduced. During recent research fieldwork in the Gulf of Carpentaria on Mornington Island, a local elder was asked when he knew a cyclone was getting closer. He replied, "When I saw the seagulls all flying in and landing on the airstrip". He explained that it meant conditions at sea and along the coast of the island were so rough due to the approaching storm, the birds sought shelter inland. It is an example of how indigenous people in these regions employ observations of nature to forecast events, a fact that may be overlooked by authorities responsible for planning disaster management strategies for remote indigenous communities.

Mornington Island

Mornington Island is an isolated community, located in the Gulf of Carpentaria, approximately 125km northwest of Burketown, 400km west of Cairns and

444km north of Mt Isa. Comprising an area of about 700 square kilometres, it is the largest of the twenty-two islands, which form the Wellesley Islands group in the Gulf. Located reasonably close to the mainland in the southern half of the Carpentaria Gulf, the island appears to be in a relatively sheltered position. However this is not the case, as over the years Mornington has felt the direct effects of numerous tropical cyclones and has been consistently exposed to extreme weather conditions from cyclones and storms in the vicinity. The reason for the island's vulnerability is that its location is in an area that is subject to the forces of the seasonal monsoon activity that occurs in northern Australia during the annual wet season. The island is also flat – there are no mountain ranges or other significant geographic features to face the full force of strong weather conditions. The township of Gununa, which is the Lardil language name for Mornington, is located on the southern coastline of the island, in a small bay where it is somewhat sheltered from northerly winds by the island's land mass. Additionally, to the south of the township, about one kilometre across the Appel Channel, is Denham Island, offering limited protection from southerly winds. At a point where Gununa is directly opposite Denham, the channel is narrow, so it provides some protection from waves. However, the town would be extremely vulnerable to cyclone winds coming in from a westerly direction.

The island has a population of about 1200, most of whom are indigenous and reside in Gununa. The original indigenous inhabitants of Mornington were the Lardil Aboriginal people. They formed the largest tribal group formerly occupying the North Wellesley Islands, including Mornington, Sydney and Wallaby islands. However, a number of people have stated they were born in Mornington but either one or both parents were born elsewhere. Although there are many descendants of Lardil people on the island, it appears a large number of the people are descendants of Aboriginal groups from the surrounding Gulf mainland regions such as Doomadgee, Burketown, Normanton and as far north as Aurukun and Weipa. Wherever their ancestors may have come from, the local people have a long cultural history, closely linked to the physical environment of the island. Part of the adaptation to their natural surroundings, is their way of coping with the effects of cyclones.

History

A Presbyterian mission with a school was established in 1914. Four years later a dormitory system was set up for the children attending school. A few of the missionary buildings are still standing. The old missionary's residence is now a guesthouse and a community library is housed in the former church building. Many of the older people relate tales of either being part of the missionary system or living on the island in the early 1900s.

In 1978, with support of the Commonwealth Government, the community reached an agreement with the State Government for self-government via a local authority. Under this system, the community developed a series of enterprises including a cattle farm, bakery, handicrafts and a guesthouse. The cattle and bakery no longer exist however many locals currently manage services initiated by the community under the system. These services provide employment to a number of residents. Enterprises include a general store, an aged-care home, art and crafts centre and a child-care centre. Public utilities in Gununa are well developed with reticulated power, water, sewerage and storm water drainage. Education to junior secondary level is available but there is no access to TAFE or tertiary education. The majority of people are employed in community service areas. The Mornington Shire Council provides the bulk of the work for most of the men, through general labouring jobs and other specialised services such as machinery operators and truck drivers. Most men are either employed full time by the Council or partake in the local CDEP schemes where they generally work 4–5 days a week.

Cyclones

Several of the elder Aboriginal people were born and raised on Mornington, and apart from a few years away working on the mainland, have lived there all their lives. From their narratives, the author established most people had experienced a number of cyclones while on Mornington. They talked about cyclones as a way of life on the island, and some of the more senior elders commented they have experienced a number of storms. The elders maintained cyclones and storms do not necessarily pose any threat if people do the right thing and carry out pre-cyclone preparations. Early in 2002, cyclone Bernie passed to the north of the island, but did not have any significant effect on the island other than providing gusty winds and much needed rainfall. Most of the older residents spoke of past cyclones but all agreed that as far as they could remember, the last cyclone to cause significant damage was Ted in 1976.

Cyclone Ted

On Sunday 19th of December 1976, cyclone Ted, category 4, passed directly over the Gununa township, with destructive wind gusts over two-hundred kilometres per hour, and then proceeded south where it crossed the coast near Burketown in the evening. The storm caused extensive property damage estimated at about \$8million, in the Mornington and Burketown communities. Although 700 people on Mornington were left homeless, fortunately there was no loss of life or sustained serious injury. Houses in the old village located along a low sandy shoreline section of the settlement were constantly subjected to annual flooding. Cyclone Ted demolished all houses in the old village resulting in a large-scale government housing project



The old Presbyterian church which is now used as the community library.

where about one hundred and twenty pre-fabricated, cyclone resistant houses were erected on the higher ground where they currently stand.

Cyclone Abigail

The most recent direct hit was in 2001, when Cyclone Abigail, rated a category 2, struck Gununa causing minimal damage to residential houses. The extent of the damage reported was confined to rooftops, where breeze-catchers and arials were blown off, and some solar panels were broken. Many properties experienced damage to trees that either lost leaves and branches or were blown over. There were several houses where water was blown under doors and through windows causing problems with electrical goods and floor coverings. There was one building that suffered extensive damage, but it was a public facility and fortunately was not occupied at the time of the storm. The cause of the damage to the facility was a freak gust of wind, which can happen during cyclones. All residential houses lost power and water for periods ranging from a couple of hours, up to in some cases, two days. Few of the residents complained about the lack of electricity because they perceived it as a normal event during the cyclone season. The estimated damage for property was placed at approximately \$245,000 for Mornington Island, and fortunately there were no fatalities or serious injuries reported.

Residents agreed that cyclones tended to bring the community together, especially family groups. For various reasons some residents stayed with relatives to sit out the storm and that time gave them the opportunity to talk and generally catch up with family matters. In the clean-up process afterwards, people helped each other clearing yards and talked about how they fared when the storm struck. A few people raised concerns that there should be more local people involved with the SES service, and that there could be more coordinated organisation by authorities in the clean up afterwards. There were some complaints about shortage of some of the equipment used in the cleaning up process, but overall, the people agreed that the

tidying up process by the local authorities was carried out effectively.

Warnings

The majority of residents received information and warnings about cyclones from household radios and television, and these people also informed family and friends who did not have these facilities, about the cyclone's movements. Many people assert that not enough local information was given in the warning messages before the cyclone impact period, and perhaps local authorities could have been more involved. They said there was no visible presence of authorities such as police or SES, and it was suggested that perhaps people from these departments could have driven around the streets and flashed their sirens or used a loud speaker to warn people to stay indoors as the cyclone approached. Council employees stated that warnings of impending bad weather were transmitted from the shire office, to two-way radios in worker's vehicles. They could then drive around to relatives and friends and notify them of the oncoming severe weather conditions.

Although the island does receive television and radio signals, these are on relay from vastly distant broadcast stations on the mainland. The three radio stations that are available are broadcast from centres on the eastern coast of north Queensland. These are, regional ABC from Cairns, on AM and FM frequencies, and 4K1G on FM from Townsville. Television programs are broadcast via IMPARJA based in Alice Springs, Channel Seven and national ABC relayed from Brisbane. There is also a Queensland Bureau of Meteorology radar station based in Gununa next to the hospital. It operates 24 hours a day and has a radius range of 256 kilometres that enables it to encompass a good view of the surrounding Gulf of Carpentaria area. The purpose of the radar is to show images of rainfall in relation to local features such as the coastline. The radar at Mornington, combined with similar facilities at Weipa and Gove in the Northern Territory, helps keep a reasonably current weather surveillance of most of the Gulf region. Images from the radar are available to Mornington Island residents via the internet, but in such a community indigenous people do not generally possess computers. However, all the local authorities such as the council, police station, hospital and the school are able to access this information through their office communications network such as computers and fax machines. The appropriate authorities can then inform residents with information about image updates of any major threatening weather features, namely severe storms and cyclones.

While these communication systems appear to be adequate for providing Mornington Island with weather information, some residents did voice concerns about the time lapses between the warnings issued. In one case, a person stated that during a cyclone, by the time

they received the hourly radio update, the storm had moved much quicker than anticipated, and it was bearing down on the township midway through the scheduled warning time. In another case, residents noted that after the eye of cyclone Abigail had passed over Gununa, the winds coming from the opposite direction appeared to be noticeably stronger. This was confirmed later by weather records indicating, almost immediately after crossing Mornington, Abigail rapidly deepened to a category 3 cyclone. Those locals who noticed the increase in winds expressed some concern that perhaps the official warning system had underestimated the cyclone intensity. Despite these discrepancies, most people on the island think the television and radio warning broadcasts are reasonably accurate and sufficient. With regards to official warnings and interpretation, perhaps there could be some assistance from local authorities. For instance SES personnel could be trained to give talks or seminars to the local population on how to interpret the synoptic maps and satellite images which are shown on television.

Nature's warnings

Several people told of how past and present indigenous Mornington Islanders read warnings from nature of impending "bad weather", a local term applied to severe storms as well as cyclone conditions. The event is preceded by a sea bird seen to be flying around, as well as the sea becoming rough or referred to locally by several people as "churning up". Also, when birds called manowar, from an outlying island are observed flying over Mornington, islanders know there is either a severe storm or a cyclone approaching. A resident said that on one occasion, they noticed that when they went down to the local jetty fishing, the seawater and the caught fish were unusually warm, and the colour of the water was a deep green. Within several days, radio and television warnings were broadcast of a cyclone that had developed in the area. It is a fact that warm sea water temperatures are an integral element in the initial formation of a tropical cyclone, so once again, by reading nature's signs, people know there is going to be some change in the weather. According to locals, another reliable natural indicator of impending rain is the flying ant, which is attracted to lights at night, and comes out in swarms a few days before the event.

Pre-cyclone Preparations

Mornington Island receives advice on natural disaster procedures from the District Manager's office of the Queensland Counter Disaster and Emergency Services, which is based in Mt. Isa. The office covers most of the area in the lower Gulf of Carpentaria, including Burketown, Doomadgee and Mornington Island, and over the years a system of emergency management with Mt. Isa as the base, has been established. State, and local

governments, as well as the local community councils are involved.

Due to local knowledge, most residents expect a cyclone to either pass by or hit Mornington Island every year, so at the start of the wet season, the majority of people do make pre-cyclone preparations. Family and friends help to clear yards of loose debris, trim overhanging tree branches and carry rubbish away. A noticeable example of years of cyclone preparations are the trees in Gununa close to houses and power lines which have been dramatically cut back by workers. Most have major branches and limbs lopped off close to the trunk, and other trees have had the entire top half removed. Relatives also organise the cleaning up of properties for the elderly who are incapable of doing it themselves. Those with vehicles offer to take residents who have no transport, to the store where they can purchase emergency rations. With a cyclone imminent, those people who felt their houses would not be safe, moved into relatives with more secure buildings for the duration of the storm, then returned home after it had passed. However, as with cyclone Abigail, sometimes there are a number of residents who will wait until it was certain that the cyclone was heading towards the island before they reacted, and then implement disaster precautions like buying tinned food and candles, storing water and cleaning yards of loose rubbish.

When asked, most people said they would have evacuated their homes if they were advised to do so by authorities. Most would have preferred to move into a relative's place on the island that was in a safer location, or to a recognised evacuation centre. Surprisingly, when asked whether they knew if there was such a centre on the island, most said they did not know. Places that can be used for this purpose are the new hospital and the police station. A non-indigenous worker said they would have preferred to be flown to Normanton on the mainland, if the cyclone was particularly strong and people were asked to evacuate their homes.

Elders told of how their ancestors prepared and coped with cyclones, utilising natural materials. An elder recalled his father telling him how in the old days, people dug large holes in the sheltered sides of sand dunes to seek refuge from cyclonic winds. They would then cover the pit with branches, leaves, and paper-bark, then cover the structure with sand, leaving a small entry space. Primarily a protection from wind and flying debris, the shelters were also claimed to keep the people reasonably dry from the rain. The knowledge of these valuable skills, including cyclone survival strategies although not practised, are maintained in the community at present. As one elder commented, even though they now live in brick, cyclone-safe houses, that can withstand a moderately strong storm, they could still utilise survival skills taught by their ancestors. For example, a participant stated that they know of shelters

in low cliffs located on the north coast of the island, where Aboriginal people from the past sought cover from severe weather conditions. The person was adamant that if the situation warranted it, these rock shelters could still be used to provide refuge. Even though they may never have to revert to such measures, the Mornington people still retain and maintain this important survival knowledge.

These days, most long-term residents do not expect a storm surge to affect residential houses in the town, because all homes are now built on a high sandy ridge, located back some distance from the shoreline. They do acknowledge there is some increase in the sea height, but it does not have a great affect on the community. Although, if conditions at sea are too rough, the weekly supply barge from Karumba can be delayed.

Outstations

Outstations play a significant role in the maintenance of the traditional culture of indigenous Mornington Island people. These are homesteads that are erected on ancestral homelands on various sites around the island. Before the missionaries arrived, the Lardil group was divided into four clans residing in different areas on the island. Each of the four clans consisted of several families who owned their special piece of land within their traditional boundaries (Binnion 1987). Present day residents on outstations are descendants of those traditional owners. Most of the owners of the outstations also have relatives in the town, and usually go out to the outstations to spend time with family and practice cultural activities like hunting and fishing. A lot of the



Looking east along mainstreet. Note trees trimmed below power lines.



House built post-cyclone Ted (1976).

outstations have permanent residents who are family of the owners in town, but who do not want to be involved with the town lifestyle. They are connected by two-way radio to the town and can be reached by four-wheel drive vehicles by dirt roads. However, during the wet season some of the tracks become inaccessible, and for several weeks the outstations are isolated except by radio contact. After cyclone Abigail, some places could not be reached by vehicle for weeks, due to the boggy conditions caused by the associated rain. This does not usually pose any major problems, as people on the outstations ensure sufficient stocks of food and water are maintained. All outstations are situated in close range to a permanent water source, such as a fresh water creek or well, and water is pumped to house water tanks for human use. If there is a food shortage, stocks can be replenished by hunting nearby bush-land for traditional food sources like wallabies and goannas, and fish are caught in the creeks and along beaches. Sometimes in the cyclone season, nature provides food for people on outstations near the coast, when rough seas produced by strong winds, wash up fish, turtles and occasionally dugongs, onto the beaches. One elder recalled a story told by his elders of people's eagerness to leave their shelter after a cyclone, to go down to the shoreline and collect a variety of seafoods washed up on the sand at the height of the storm.

Mornington Island Literature

Mornington Island has been the subject of a number of studies, and though dated, there are several pieces of literature available on the island. In the 1970s John Cawte, produced two books from studies on the island: *Medicine is the Law* (1974) and *Cruel Poor and Brutal Nations* (1972). Essentially in *Medicine is the Law*, he examined sorcery and its effects on individuals and the people of Mornington as a society. The second book was an "... assessment of mental health in an Australian Aboriginal community ..." where he examined the mental and social problems of the community. Also in the '70s Virginia Huffy, conducted research exclusively on the role of indigenous women on the island. The

book she published in 1980, was *The Sweetness of the Fig*. The title comes from the Lardil word 'Labbarnor' which means sweetness of the fig, and is the traditional name of Elsie Roughsey, a Lardil woman who Huffy befriended and became close to during her time there. These books provide background material on the cultural and social side of Mornington in the 60s and 70s. In particular, they offered a brief insight into the socio-cultural changes happening at the time to the Lardil people, due to the European culture forced upon them by the missionaries. In 1999, anthropologist David McKnight, produced *People, Countries and the Rainbow Serpent*, a collection of data he gathered from visits to Mornington Island over 30 years from 1966-1996. The book is a detailed investigation of the Lardil classification system— how they classified an extensive range of subjects, such as space, people, plants, and animals. However, it is the cultural and social issues he writes about that are of most interest. When he started fieldwork on the island in 1966, Aboriginal people in their 70s spoke traditional Lardil fluently, and only understood and spoke little English, while those in their 30s normally spoke English and only a few could understand general Lardil language. Also, children spoke only English, and could not understand Lardil at all. McKnight makes the point that in 1966, "... it was obvious that the Lardil were rapidly losing their traditional culture ..." (McKnight 1996:6). More information was contained in Paul Memmott and Robyn Horsman's 1991 text, *A Changing Culture: The Lardil Aborigines of Mornington Island*, which provides a detailed study of cultural and social changes to the Lardil before mission settlement, through to the 1980s. Even though the Laril were experiencing constant changes, they managed to keep alive stories and legends which contained important cultural information. This history was passed on from the old generation to the next by word of mouth, despite the efforts of the missionaries to ban such beliefs (Memmott and Horsman 1991). One important story to survive and is part of Lardil legend, is the flood-making ceremony.

References to cyclones have been recorded in Percy Trezise's (1993) *Dream Road*. A chapter headed, 'The floodmakers of Langu Narnji', tells about a traditional ceremony performed by certain men, to cause floods which were usually caused by the heavy rains of a cyclone.

Moon And Rainbow (1971), is an autobiography of Dick Roughsey, a Mornington Island Lardil man, who was renowned nationally, for his traditional artwork. As well as telling his life story, Roughsey included also a chapter on the flood ceremony, similar to Trezise's (1993) version, but with more details. One story involves a Lardil man called Shilling and Reverend McCarthy, who was in charge of the mission in 1948. Apparently Shilling punished his wife for an indiscretion, and McCarthy made him work in the garden for a week as punishment, which he hated. When he had done his time, Shilling went to the floodmaking place and performed the traditional ceremony. A couple of weeks later, a cyclone hit the island and the mission garden was wiped out by flooding seawaters. Records show a cyclone struck Mornington in 1948, and on the island the ocean rose four metres above the highest normal tide mark (Roughsey 1971). Percy Trezise was a personal friend, instrumental in establishing Dick Roughsey's art career and bringing his paintings to public attention. Dick's Lardil name was Goobalathaldin, which roughly translated means big waves or rough sea, hence the surname.

Discussion

There are a number of issues derived from the Mornington Island fieldwork experience, and the consequent analysis of gathered data. Making initial contact with the appropriate person or people, in a community such as Mornington is highly important. Most of the males in Gununa were employed by the shire council or worked on the CDEP program, so scheduling suitable interview times with prospective participants was on occasions, difficult. After meeting at least one well-known person of the community, further introductions flowed on from that point. As it worked out, many of the female elders had some free time during the days, and were willing to sit and give interviews. By making contacts, and living in the community while conducting fieldwork, the researcher can learn how individual remote communities operate socially and politically, which can be highly beneficial to both parties. Unfortunately, there were a couple of funerals during the period of fieldwork, which naturally, were unanticipated. In a closed small community such as Gununa, where the deceased was known to everybody, it would be considered extremely insensitive and culturally inappropriate to go to people's houses and ask questions until a suitable length of time had passed.

One subject of interest that emerged from the fieldwork, and is being pursued further, is the resilience of the

people. The Lardil are Aboriginal people who, while not only surviving nature's hazards on a remote island, also had to adjust to dramatic changes imposed by another culture. While talking about cyclones, one old fellow said, "We live in brick houses and it's good", but he insisted that Lardil people still have the knowledge and ability to maintain their traditional culture. Cultural influences may have changed certain practices, like hunting for dugongs and turtles in motor boats, but traditional hand-made spears are still used, and the catch is divided up according to traditional law. The location of the island is probably also a big factor in helping the people remain self-reliant in times of crisis. They know that being isolated by the sea and with a small population, in times of crisis, they have to rely on each other and adapt and utilise facilities that are available to them.

An elderly woman said that she was surprised and pleased, to see that a number of young people with parents and grandparents from the island were coming back to live in Gununa. She was particularly happy to know they knew the names and language names of relatives and their skin group and totems. They were also asking questions about family connections and wanted to know and learn about the traditional Lardil culture, or as she put it, the "old ways".

Some also related stories about the times that were spent as youngsters living on the island when the mission was established. Their memories of people, places and events during those times were still easily recalled. They were able to point out where the mission vegetable garden was, the names of the missionaries, and the site where the fence was which separated their parent's camp from the mission grounds. Other details were recalled, such as the location of fresh water wells around the island that are not used any more, and where to go to catch sea turtles and dugong. In conversation, they expressed regret that the Aboriginal culture on the island, especially in the Gununa community was constantly changing. Elders also lamented that sadly, most of the younger people were being side tracked from indigenous cultural traditions by modern influences such as television, contemporary music, and alcohol. All of these factors are essential in defining what constitutes the community profile, which is important in identifying where knowledge of survival originated and how it has been passed on. Dance was an important part of Lardil culture. It provided the opportunity for the community to gather for an event that was a leisure activity as well as used to strengthen the religious, social and political customs of the people. Importantly, for the Lardil, knowledge of their traditional dances is still maintained and practised on the island, through the Mornington Island Dance Group, which is operated by the Woomera Aboriginal Corporation. Although they do most of their performances out of the community, all over Australia and the world, the dances they do are influenced by origins on the island. They learn and rehearse new and

old dances when they go back to Gununa, with the supervision and advice from elders. Young dancers are selected from within the community, so through dance, they have the opportunity to learn and maintain the culture, as well as educate audiences with performances. There is a dance performed by the local dance group telling the story of a water-spout, which occasionally forms in the Appel Channel. In the dance, a water-spout is seen heading towards a village, so to ward it off, a dancer holds a baby- which is represented by a bailer shell- towards the storm and the storm is then diverted around the village. Another dance involves a man cutting the water-spout in two with a boomerang.

Conclusion

Like many Australian indigenous communities, Mornington Island has experienced its share of dramatic changes, due to European colonisation. The original inhabitants of the island, the Lardil Aborigines, were forced to adapt to cultural changes imposed upon them by the Presbyterian mission. However, despite having the basic structure of their traditional culture dismantled by a foreign religious influence, the people have managed to maintain important traits of original Lardil culture. The strategy to survive in a cyclone prone area, is one such ability that has been passed down through generations. A vital part of their natural hazard management process, is the people's resilience. The capacity to adapt to the island's natural environment, and the climatic conditions has been instilled in the Lardil lifestyle, and may be seen as an important factor in their ability to adapt to western culture. The skill used to establish an environmental hazard strategy, and incorporating it into helping their traditional culture survive western influences, indicates Lardil resilience, which is one of many issues requiring further investigation. The findings may be significant in understanding remote indigenous communities' coping strategies for natural hazards in their regions and assist in local authorities' disaster management strategies.

References

- Alexander, D. 1993, *Natural Disasters*, UCL Press Limited, London.
- Binnion, J. 1987, *The Lardil People of Mornington Island*, Aboriginal Community College, Port Adelaide.
- Blaikie, P., Cannon, T., Davis, I., and Wisner, B. 1994, *At Risk: natural hazards, people's vulnerability, and disasters*, Routledge, London and New York.
- Bryant, E. 1991, *Natural Hazards*, Cambridge University Press, Melbourne.
- Bunbury, B. 1994, *Cyclone Tracy: Picking up the Pieces*, Fremantle Arts Centre Press, Western Australia.
- Butterworth, E. 1991, *Cyclone Impact: Socio-economic Aspects of Cyclone Winifred February 1986*, School of Behavioural Sciences and Centre for Disaster Studies, James Cook University of North Queensland.
- Cawte, J. 1974, *Medicine is the Law*, The University Press of Hawaii, Honolulu.

---- 1972, *Cruel, Poor and Brutal Nations*, The University Press of Hawaii, Honolulu.

Chapman, D. 1999, *Natural Disasters*, Oxford University Press, London, New York.

Gough, J. 2000, 'Perceptions of risk from natural hazards in two remote New Zealand communities', *The Australasian Journal of Disaster and Trauma Studies*, 2, pp.1-13.

Granger, Ken; Trevor Jones, Marion Leiba and Greg Scott (Winter 1999). "Community risk in Cairns: a multi-hazard risk assessment." *The Australian Journal of Emergency Management* 14(No 2): 25-26.

Huffy, V. 1980, *The Sweetness of the Fig: aboriginal women in transition*, New South Wales University Press, Sydney.

Johnson, R. W., R.J.Blong, and C.J.Ryan. 1995, *Natural Hazards: their potential in the Pacific Southwest*. Canberra, Australian Government Publishing Service.

Kellert, S.R. 1997, *Macmillan Encyclopedia of the Environment*, Simon & Schuster and Prentice Hall International, New York.

King, David; Alison Cottrell, Linda Anderson-Berry, Scott Cunliffe, Colin McGregor, Eddie McLachlan and Jane Antrobus. 2001, *Cyclone and Natural Hazard Vulnerability in Remote and Indigenous Communities of North Queensland: Final Reports*. Townsville, Centre for Disaster Studies, James Cook University.

Kovach, R.L. 1995, *Earth's Fury: an introduction to natural hazards and disasters*, Prentice-Hall Inc, New Jersey.

Manock, I. 1997, "The Tasmanian Lifelines project." *The Australian Journal of Emergency Management* 12 (Number 1): 11-15.

McKnight, D. 1999, *People, Countries, and the Rainbow Serpent: systems of classification among the Lardil of Mornington Island*. Oxford University Press, New York.

Platt, R. H. 1991, "Lifelines: An Emergency Management Priority for the United States in the 1990s." *DISASTERS* 15 (Number 2) pp. 172-176.

Roughsey, D. 1971, *Moon And Rainbow: the autobiography of an Aboriginal*, Rigby Limited, Sydney.

Skertchly, A. and Skertchly, K. (Summer 1999-2000). "Traditional Aboriginal knowledge and sustained human survival in the face of severe natural hazards in the Australian monsoon region: some lessons from the past for today and tomorrow." *The Australian Journal of Emergency Management* 14 (Number 4) pp. 42-50.

Smith, K. 2001, *Environmental Hazards: assessing risk and reducing disaster*, Routledge, London.

Treize, P. 1993, "The floodmakers of Langu Narnji." *Dream Road: A journey of discovery*, Allen & Unwin, Sydney. pp. 71-81.

Author

Eddie McLachlan is a postgraduate student at the Centre for Disaster Studies and School of Indigenous Australian Studies, James Cook University and can be contacted on eddie.mclachlan@jcu.edu.au