

MAYOR'S FOREWORD

I have great pleasure in introducing **THE GISBORNE CDEM GROUP TSUNAMI CONTINGENCY PLAN** to you. Planning is the most crucial tool in the success of any activity even more so in those that happen infrequently.

I take this opportunity to thank the 'team' for putting this plan together for all of us. It has been achieved with minimal resources but is still able to provide a valuable resource for planning, dealing with and recovering from emergencies.

I can say that the Plan should give us more confidence that the Group will be able to cope with an emergency BUT the overall success still depends on the majority of the public being prepared and able to cope without assistance.

I have every confidence in our staff and our trained civil defence coordinators in our region, that all our planning and training will lessen the trauma in case of an emergency.

Our team has experience with Cyclone Bola and the close calls we have had since. This has meant that the team that developed the Plan has reality based knowledge and experience behind them when preparing the Civil Defence Emergency Group Management Plan.

But even so we should still not be complacent as the impact of any event can still provide the unknown and in reality Bola was a small emergency.

We have a good group of civil defence volunteers (community link) ready to provide leadership in an emergency, a good communication infrastructure ready to communicate with the remote parts of our region and our Council will continue to provide funds to ensure that a reasonable level of preparedness is maintained and a response structure is in place.

As long as communities prepare to a credible level and 'organisational' support is maintained we should be able to cope with the majority of disasters that the region can expect.

Meng Foon
Mayor
GISBORNE DISTRICT COUNCIL

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Gisborne Public Library	1
External	
Area Co-ordinators:	
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<i>Te Araroa</i>	1
District Welfare Manager	1
Community Emergency Centres	12
Police:	
<i>Gisborne Station</i>	1
<i>Manutuke</i>	1
<i>Tolaga Bay</i>	1
<i>Tokomaru Bay</i>	1
<i>Ruatoria</i>	1
<i>Te Araroa</i>	1
Fire Service:	
<i>Gisborne Station</i>	1
<i>Tolaga Bay</i>	1
<i>Tokomaru Bay</i>	1
<i>Ruatoria</i>	1
<i>Te Araroa</i>	1
Gisborne Hospital	1
Ngati Porou Hauora	1
Public Health Unit	1
<i>Tolaga Bay Clinic</i>	1
<i>Tokomaru Bay Clinic</i>	1
<i>Te Puia Clinic</i>	1
<i>Ruatoria Clinic</i>	1
<i>Tikitiki Clinic</i>	1
<i>Te Araroa Clinic</i>	1
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1.0 INTRODUCTION

The purpose of this plan is to provide procedures to be followed in the event that the Gisborne District has warning of a distantly generated tsunami to keep communities safe or for a timely response to a locally generated tsunami.

To achieve this the following factors are considered as the priorities for the management of the event.

- pre-event public education
- co-ordinated approach
- warning procedures
- dissemination of information to the public
- communication systems
- logistics

2.0 RESPONSIBILITIES

Individual emergency services are responsible for maintaining their own action plans required to mitigate, prepare for, respond to and recover from a tsunami event. These action plans will need to conform to the overall co-ordination requirements of this plan.

This Contingency Plan will be maintained by Civil Defence.

2.1 Co-ordination - Co-ordination for any confirmed tsunami warning will be done from the Emergency Management Office.

2.2 New Zealand Police - Statutory responsibility for the enforcement of law and order remains with the NZ Police at all times. Requirements for specific police functions prior to, and during, an emergency are stated within the Civil Defence Emergency Management Act 2002 (Sec 63), and detailed in the National CDEM Plan 2005 (clause 22) and the Gisborne CDEM Group Plan. Some of the major roles that Police are expected to plan for, and undertake, during a tsunami emergency include the protection of life, warning those at risk, identification of casualties, missing person procedures, traffic control, evacuation and movement control. Police will also utilise and co-ordinate Surf Life Saving and coastguard assets if required for sea search and rescue/recovery.

2.3 Fire Service - Statutory responsibility for emergencies for the NZ Fire Service are detailed within the Fire Service Act 1975 and Civil Defence Emergency Management Act 2002 and the National CDEM Plan. In brief they relate to fire fighting, temporary water supplies and the rescue of trapped people. In a tsunami event, assistance with warning and evacuation of the public for a potential tsunami or assistance with the rescue and recovery of casualties after an expected event. Rural Coastal Brigades will assist with the warning process.

2.4 Rural Fire - The Gisborne Rural Fire Team will assist with notification to evacuees, cordons and search and rescue. This will generally be under the leadership of Police or Fire

2.5 Tairawhiti District Health - Statutory responsibilities for preparatory and response measures for Health Agencies during an emergency are detailed within the Civil Defence Emergency Management Act 2002, National and Civil Defence Emergency Management Group Plans. In brief they relate to public health and medical issues and to providing triage and care for trauma patients.

2.6 Gisborne District Council (Civil Defence) - The Council has the responsibility of maintaining the Civil Defence Emergency Management Group Plan, Standard Operating Procedures and this Tsunami Contingency Plan. The Council (Civil Defence) under the authority of the Mayor (up to declaration) will co-ordinate and release all general media statements, with advice from the other Emergency Services, on public preparations and updated information about the state of the threat. The Council (Civil Defence) is also responsible for calling a meeting of key responders (see para 3.13) and if necessary other key personnel, to plan a course of action and dependant on the size of the threat, a declaration decision. Civil Defence is also responsible for maintaining the District wide warning system. Once a declaration occurs the Civil Defence Controller assumes co-ordination of the response to the event.

2.7 Life Lines - Essential industries (including utility companies and the Gisborne District Council) have a statutory responsibility for the maintenance and delivery of essential services such as power, gas, roading, telecommunications, water, drainage and sewerage system though this may be at a reduced level (CDEM Act 2002 Sec 60).

As such they are responsible to prepare and maintain their own contingency plans to mitigate, prepare for, respond to, and recover from the effects of any Tsunami emergency within the Gisborne District. Main threats are to power lines along the coast from Tatapouri to Pouawa and the SH35 system and local road networks.

2.8 Government Agencies - Statutory responsibilities and functions of Government Agencies, both prior and during an emergency, are stated within Civil Defence Emergency Management Act 2002 (Sec 58) and are detailed in the National CDEM Plan 2005 (clause 18) and the Gisborne CDEM Group Plan. This generally involves the continuation of service to the public, but may also involve some increase in core activity.

MCDEM is responsible for receiving, analysing and disseminating any warnings to CDEM Groups.

2.9 Logistics - Unless special provisions apply (in a civil defence emergency), supply and transport resources remain under control of their respective agencies and organisations. During a Tsunami event priority will be given to the movement of evacuees, casualties and medical supplies.

2.10 Welfare - Most care agencies and voluntary organisations already have a role in the response to local community needs during an emergency. They are recognised in the Group Civil Defence Emergency Management Plan and are responsible for preparing and maintaining their own contingency plans to ensure they fulfil their role during any event. However central co-ordination will be required for some welfare activities, such as housing, transport and Psychological Support Mechanisms

2.11 Media - The key function of media (both electronic and print) will be to keep the public informed and well advised during the event. News releases will be co-ordinated centrally from the EOC. Local media representatives must be brought into

the loop within an hour of receipt of confirmed warning. (Also see prepared media scripts).

2.12 Event Monitoring and Impact Reports - For a distant Tsunami, warnings are passed directly to Ministry of Civil Defence & Emergency Management (MCDEM) in Wellington from the Pacific Tsunami Warning Centre. If the event is confirmed, or not, information concerning it is passed to CDEM Groups (Civil Defence in Gisborne) and the Police Communication Centres and the Media. Release of information within the Gisborne District is subject to the guidelines in this Plan and/or decisions made by the management group.

After any impact the Emergency Management Office or the EOC will establish through the Coastal Rural Area Co-ordinators, civil defence community link and the emergency services, the extent and impact details of any Tsunami. Contact with MCDEM will also be established.

Collated information will be passed to those listed in para 4.5 plus MCDEM.

Key triggers for decision are arrival times and heights at Easter Island (8hrs to NZ **NB** Easter island is 18 hrs behind us in time) and the Chathams (1.5hrs to NZ **NB** the Chathams are 45 minutes ahead of us in time)

Note: for PTWC 'Warnings' only not 'Advisories'.

2.13 Event Management Team for Tsunami meetings consist of at least Controller, CDEMO, Police, Fire, PRFO, Medical Officer of Health, St John, EIL/Port Company, District Welfare Manager and Mayor and GDC CEO if required.

3.0 OPERATIONAL PRIORITIES/STRATEGIES-

3.1 Established Priorities & Strategies

Established priorities during any Tsunami event will be:

- First priority - the safety of people and the protection of people.
- Second priority - the release of timely information and advice to the public.

Unless the size of the Tsunami event dictates otherwise, general strategies for the management of a confirmed event will be:

- To evacuate people (for up to 24hrs in a distant event) in the "at risk areas" shown on the maps or through education encourage self evacuation for local events (for about an hour) to the national guidelines of at least 1km inland or 35m's above sea level.
- To co-ordinate all matters relating to restoration after an event, so as to return the local community back to normal as quickly as possible.

3.2 Emergency Operations Centre (EOC)

The risk to the District EOC from Tsunami inundation leaves some uncertainty as to its use for anything except the warning phase of an event. If there is a confirmed threat to the EOC then the Health Board Boardroom on the 2nd floor of the Morris Adair building will become the EOC.

Local Tsunami

If an event occurs outside normal work hours, the condition of the EOC will be assessed as to its suitability; if there is substantial damage the alternate EOC will be used. If a large (MM8 or greater) or long duration earthquake occurs during work hours (and the office is occupied) the EOC cannot be abandoned. However preparations will be made for a quick withdrawal. If practical an observer will be sent to Kaiti Hill to see if a Tsunami is generated.

Distant Tsunami

The EM Office will be activated as an EOC and used for the initial planning and implementation of the evacuation (if decided). During this phase preparations will be made to move to the alternate site. If the reported height at the Chatham Islands is greater than 10 metres then the EOC will be relocated. (there is approximately one and a half hours until the Tsunami arrives at Gisborne from the Chatham's. Some decisions could also be made re this relocation after the impact on Easter Island (8hrs).

3.3 Pre Impact Actions:

Locally Generated Tsunami

It is highly unlikely that warnings will be issued for locally generated Tsunami. The only warning the public might get may be a "long duration earthquake" or an earthquake of significant size. A large earthquake with its epicentre on land also has the potential to cause a Tsunami through an undersea landslide. Another sign of an impending Tsunami can be the sudden recession of the sea (this doesn't always happen), which can move out for some significant distance and time. If this phenomenon is observed a hasty retreat to high ground is recommended.

Coastal schools use the earthquakes described above as the trigger to move inland once the shaking has stopped.

Distant Generated Tsunami

The Pacific Tsunami Warning Centre in Hawaii provides a service for the whole of the Pacific Rim and is able to forecast the potential and confirm the presence of Tsunami.

This information is passed to the MCDEM who in turn pass it to Local Authority Civil Defence (the Gisborne Civil Defence Organisation) and the Police if assessed as relevant to New Zealand. It is then the responsibility of the Emergency Management Office to take the appropriate action. This will involve the following:

Step 1 The caller's name is taken and is ascertained to be genuine then proceed to step 2. If the call is not genuine get as much information as possible, and then ring the Police.

Step 2 From the caller the following information is sought; this can be copied straight on to the form at **annex e** or transferred later.

- a. the date and time of call
- b. callers name and title
- c. expected time of wave arrival
- d. expected height (assess impact of current tidal status)

- e. location of source and event that caused it
- f. any further co-ordination detail

If the expected time of arrival is **2hrs or less** go to step 3.

If the expected time arrival is **more than 2hrs** go to step 4.

Step 3 If action needs to be taken under this scenario then the threat is likely to be significant and imminent. Normal procedures will need to be shortcut if any realistic action is to be taken to protect public safety. The following procedures will be followed by the Emergency Management Office after receiving the message.

- Immediately contact the Event Management Team (see 3.13) and request their attendance at the Emergency Management Office.
- Contact someone able to declare an emergency and ask them to attend the Emergency Management Office.
- Ensure Port Eastland is aware of warning
- Depending on the threat contact the 3 coastal Area Co-ordinators and ask them to activate their personnel to start clearing the at risk areas.
- An immediate decision will need to be made on whether to declare and confirm the areas to be evacuated. This decision will be influenced by the time available and the direction the wave is coming from. The Police will need to play a major role in the evacuation of the designated areas to ensure the message is enforced with the public in the at risk areas.
- As a concurrent activity (if it is a weekday) have someone call the schools in the following list

KEY SCHOOLS			
Wainui & Playcentre	867 7160	Gisborne Child Care	867 7565
Tolaga Bay	862 6765	Awapuni	868 6660
Tokomaru Bay	06864 5818	Rangitukia	06864 3850
Waipiro Bay	06864 6808	Hicks Bay	06864 4616
Rerekohu	06864 4853	Muriwai Kohanga Reo	862 8891
Victoria Child Care	867 3853	Tokomaru Bay Kura	06864 5656

- Call Radio Network, Radio Works and RNP to give them the details and timings to broadcast or page 27 of the Media Scripts document they already have. (see media section 5.6, for phone numbers and procedures)
- Try to contact the other people in phase 3 of the warning system (see Annex b).
- Establish EOC.

Step 4

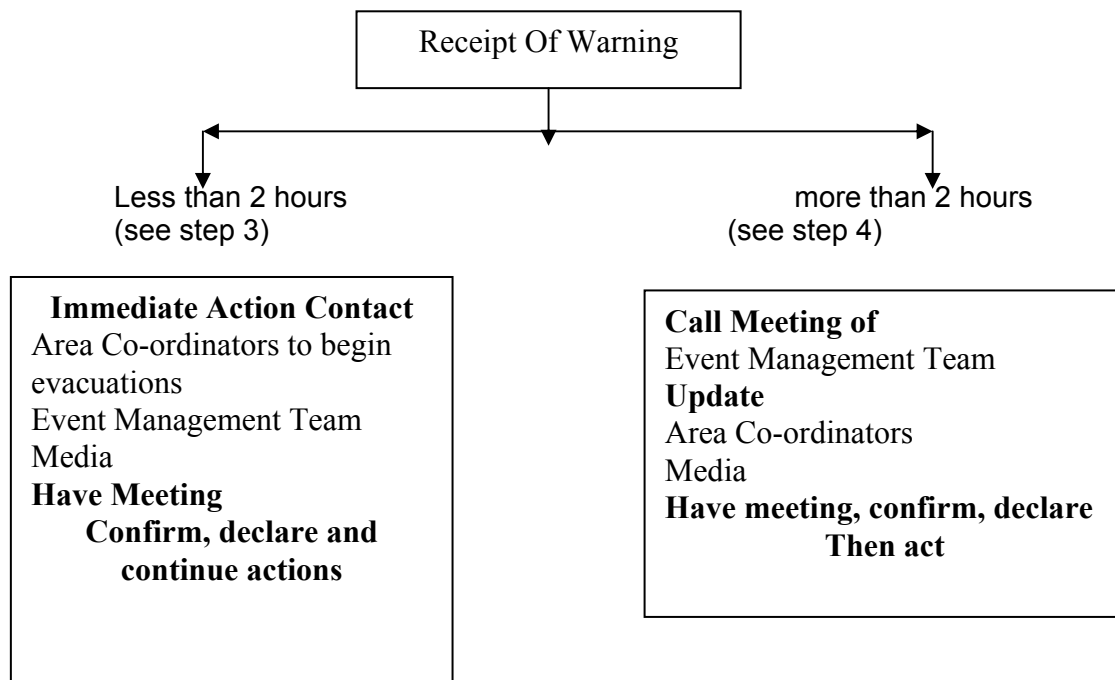
- Contact the Event Management Team with the time and venue for a meeting. (see 3.13)
- Put Area Co-ordinators on standby (they should start contacting Community Emergency Managers)

- Contact Media tell them to keep broadcasts about event to minimum and wait for instruction, they should tell public to stay put and listen to the radio for information.

Any further actions required will develop from the Emergency Co-ordinating meeting.

Note: National Media broadcast request by MCDEM

3.4 Action Summary for Confirmed Event



3.5 Warning System Responsibilities

MCDEM – The Ministry of Civil Defence & Emergency Management is responsible for receiving the information from the Pacific Warning Centre and passing it to the Gisborne Civil Defence Warning System.

MCDEM subjects all PTWC information to New Zealand to assessment before a decision is made to issue an Advisory or a Warning.

- National Tsunami Advisory – heads-up message to pass existing information, threat still being assessed.
- National Tsunami Warning – Tsunami threat imminent more details to follow.

MCDEM is also responsible for contacts with the national and international media.

Gisborne District Council (Civil Defence)

The Gisborne District Council (Civil Defence) is responsible for initiating the appropriate response to the level of warning received. The alerts and warnings are received by the Emergency Management Office and will be passed on to those listed below as required by the threat scenario.

- Civil Defence Controller
- New Zealand Police
- New Zealand Fire Service
- PRFO
- Health
- St John
- Area Co-ordinators
- Community Link
- Chief Executive - GDC
- The Mayor
- Engineering & Works, Environment & Planning
- Eastland Infrastructure
- OPUS
- Media

A summary of the evacuation actions are shown at annex c.

4.0 EVACUATION PROCEDURES

4.1 Declaration

If a locally generated Tsunami impacts anywhere on the coast of the Gisborne District and there have been obvious casualties a declaration of state of local emergency will be considered.

If it becomes apparent that a distantly generated Tsunami is going to impact on our coast and the information indicates that evacuation is necessary then there will be a declaration of state of local emergency.

4.2 Evacuation Timings – Distant Event

Once the decision is taken to evacuate, the road blocks will go in as soon as practical after the receipt of the warning (residents will be allowed in and out until 3 hours before impact) the evacuations will begin 4 hours prior to the expected arrival time. If the event does occur then it is likely the evacuation order will stay in place for 24 hours or until it is obvious that there is no longer a threat. A distant event will have multiple waves, the biggest in 1960 was some 8 hours after the first, the harbour was subject to seiching (prolonged period of undulating waves) for 3 days.

The key decision as to whether to evacuate can be made after information is received from Easter Island which will give an 8 hour lead time.

4.3 Operational Actions

Locally Generated Event

Once it becomes apparent that a locally generated Tsunami has struck any part of the coast reconnaissance will take place to ascertain when the event has finished. Tsunami events rarely consist of only 1 wave (although local events will probably have a maximum of 3-4 waves) and often the first wave is not the largest. Attempted rescue or evacuation before there is certainty that the event has finished may only result in more casualties. Once there is certainty the event has finished search and rescue will commence. This could include the establishment of forward triage units once the worst impact areas have been identified.

As soon as an impact has been confirmed a helicopter will be dispatched to monitor the progress of the event.

Emergency Management Office Role establish an appropriate Emergency Operations Centre to co-ordinate response requirements including authorising all media releases. The relevant community link organisations will also be activated to provide assistance and gather information on the extent of the damage and casualties. Welfare of the 'survivors' will be a priority and while registration of those affected should be done ASAP, some sensitivity will be required.

Police Role

The main role of the Police will be to provide traffic control in the impact area and if necessary facilitate the movement of any resources into the area. There will also be a need to provide search and rescue co-ordination and institute missing person

procedures. Police will also co-ordinate the deployment of Gisborne Surf life saving assets.

The Police DVI Team may also need to be deployed.

Fire Service Role

Subject to operational priorities, any resources that are available for deployment to the impact area will assist with medical recovery and rescue.

Gisborne Rural Fire Team

Rural Fire Fighters will assist Police with cordons and the rescue team will assist Police and Fire with search and rescue in impacted areas.

Medical/Health Role

St John provide transport for casualties to whatever medical facility that has been established to treat the patients and to provide available paramedics/trained first aiders at triage points or for casualties before they are moved from the impact site.

The DHB is responsible for co ordinating the provision/establishment of appropriate staff and facilities to treat casualties. Contact for the DHB is through the Gisborne Hospital switchboard: CE's office during working hours: duty nurse manager after hours.

The DHB will be the source of health advice to the Civil Defence Controller. This will probably be the MoH.

Public Health advice to the Controller will be provided by the MoH or deputy. This activity will be supported by a joint PHU Health Protection/GDC Environmental Health team.

DISTANT EVENT (see annex a for action plan/check list)

On receipt of a warning the Event Management Team will gather for a meeting in the EOC.

If there is notification of a confirmed significant Distant Tsunami then evacuation in the city (including Muriwai) and coastal communities from Wainui to Hicks Bay will be confirmed by the planning team.

At the planning meeting either the Police or NZ Fire Service will be nominated to manage the evacuation process.

This will include taking into account the impact at Easter Island, allowing around 8 hours too complete the evacuation. The evacuations will be done using Police, Ambulance, New Zealand Fire Service, Rural Brigades, Gisborne Rural Fire Force and Civil Defence community link.

If the decision to evacuate is made then a declaration of a state of local emergency will be made.

A declaration may also be made if a wave is confirmed and there is a widespread need to stop 'spectators'. It may be possible to manage this activity without a declaration by making some areas controlled access and only allowing 'people with a genuine reason' e.g. residents.

Areas potential Evacuation

Apart from Makorori, Whangara and Rangitukia, which will need total evacuation, the other areas are shown below and on maps at annex 'da' through 'dj' (See below). The confirmation of which areas to be evacuated will be made by the management team "on the day."

Muriwai
Gisborne City
Wainui
Okitu
Tolaga Bay
Anaura Bay
Tokomaru Bay
Waipiro Bay
Te Araroa
Hicks Bay

Annex 'db' Rivers Map also shows also areas of river bank in the city that should be evacuated due to threat of a bore, although initial evacuations will only take in the identified areas south of the Gladstone Rd Bridge.

Emergency Management Office Role establish an appropriate EOC to co-ordinate response requirements including authorising all CDEM Group media releases.

The relevant community link organisations will be activated to notify the public in the at risk areas on the coast and city, to evacuate and where they should go.

Civil Defence has 3 portable PA units, 2 of which are designed to be attached to vehicles and the other to a helicopter. These units will be deployed to appropriate areas to reinforce the resources in the evacuation of the public in the at risk areas.

Any media releases concerning evacuations and information about the event will be co-ordinated and released by Civil Defence.

Civil Defence will be responsible for opening and staffing welfare centres where necessary. Evacuation centres for areas likely to be evacuated are shown at annex f. Registration of all those evacuated will be a priority. Self-evacuation to family and friends will be promoted as the preferred option.

Police Role

In Gisborne City and Wainui, the Police will provide traffic control points at the road block sites identified on the map at annex db, plus Sponge Bay turnoff and if spare resources are available assist with the notification of those in the at risk areas. There may also be a need to provide some security patrols in the evacuated areas.

In the rural coastal areas where there are Police available, they should work with the Community Emergency Managers and Fire Service to effect the evacuations.

Gisborne Surf life Saving assets and personnel will deploy gather at the Police Station for possible deployment.

Fire Service Role

Subject to operational priorities, the NZ Fire Service will assist with the notification in Wainui and the City, to the public in the at risk areas of the need to evacuate. In rural coastal areas, where there are Fire Service resources, they should assist the Police and Community Emergency Managers notifying the public in the at risk areas.

Gisborne Rural Fire Team Role

The rural fire team will provide within an hour 5 vehicles with lights and sirens and 10 people. These resources will be used to assist Police and Fire with the evacuation of designated areas in the City and Wainui.

Medical/Health Role

St John provide transport assistance for any infirm or elderly and will accompany evacuation teams. After any event St John will assist with triage and the transport of casualties.

The DHB is responsible for co-ordinating the provision/establishment of appropriate staff and facilities to treat casualties. Contact for the DHB is through the Gisborne Hospital switchboard: CE's office during work hours; duty nurse manager after hours.

The DHB will be the source of health advice to the Civil Defence Controller. This may be the MOH.

Public Health advice to the Controller will be provided by the MOH or deputy. This activity will be supported by a joint PHU Health Protection/GDC Environmental Health team.

4.4 All Clear Procedures

Once it becomes apparent that there is no further threat an all clear message will be broadcast on all radio stations and announced at any evacuation centres.

Before the message is broadcast it must be signed off by the Group Controller and the senior Police Officer.

4.5 Radio Stations

Radio stations that people should listen to are:

RNP 98.1FM 585AM	06864 8585
Uawa FM, 88.5FM	862 6826
Classic Hits 90.9FM, Newstalk ZB 945AM,	867 2139
MORE FM 98.9, Radio Live 94.8,	867 9646
Turanga FM 91.7, 95.5, 98.1FM	868 6821

5.0 PLAN MONITORING, TESTING AND EVALUATION

The Civil Defence Officer is responsible for maintaining this plan, but it is important that others inform the Civil Defence Officer if there are any changes to conditions that may affect the plan.

The plan will be tested as part of the tabletop exercise process which will also allow a review of the Plan.

EFFECT ON DISTRICT

The East Coast has experienced nine distant Tsunami confirmed events since 1868. For the distant events five originated from South America, another from the Krakatoa eruption, one from the Aleutian Islands and one from Indonesia. The largest rise in sea level recorded from any of the distantly generated events has been between two and four metres above normal high tide. The Pacific Tsunami Warning Centre in Hawaii would provide sufficient warning (eleven hours) for an event that required evacuation. It is important to **note** that potentially damaging distant Tsunami are really only possible from West Coast of South America.

The district has experienced four local confirmed Tsunami since 1868, the two largest had heights of 10 metres and 5-6 metres respectively. These were generated on the Ariel Bank in 1947 approximately 70 kilometres off the coast. A small earthquake preceded both of them with the waves impacting on the coast about 30 minutes later. Scientists have described the type of earthquake involved as a 'long duration' earthquake as they release their energy over a longer period. (The shaking could continue for 90 seconds or more). It is interesting to note that many on the coast didn't feel the earthquake in 1947, including those in the Tatapouri Hotel.

There is the possibility that the size of the wave was increased by a mud volcanic eruption or undersea landslide. This raises the potential for a wave to be generated with no earthquake at all. Two other smaller events have been recorded in Tolaga Bay in 1926 and 1970 with no earthquake preceding them. These could have been caused either by an undersea landslide or more likely an event associated with meteorological conditions.

The whole Gisborne District coastline is at risk from locally generated Tsunami.

The risk to the City is only partly mitigated by the fact that it is very difficult for it to receive a direct hit because of being protected by the Tuahine Headland and the Mahia Peninsula. Waves often wrap around features and increase in size. They can also 'bounce' around bays and become larger.

Information about tsunami is for a short historic (post-1868 AD) period only and it would be simplistic to entirely rely on this data for Tsunami planning.

The available information relating to distant events indicates the only vulnerable assets that would be affected are ships in the port. Those that are manoeuvring could be capsized as the sea empties from the harbour and then surges back in. During the 1960 Chilean Tsunami, eyewitnesses report the harbour draining of all water before it surged back up to the top of the wharf. Ships that are tied could be damaged as they surge up and down.

For distant Tsunami this should not be a problem as sufficient warning is given to allow ships to put to sea and avoid the effects of the wave.

In emergency management planning it is always better to err on the side of caution and look towards the worst case scenario.

The most likely threat for distant events is from the west coast of South America (Peru is seen as more significant than Chile as a source because of the way they propagate across the Pacific).

The distance of the continental shelf from the shore lessens the impact of the Tsunami. The sudden transition from the depths and then the long distance to the shore means that a lot of the energy is absorbed before the wave reaches the coast.

All events have factors that will affect the size and impacts of the waves, they are:

- the amount of water available
- the amount of energy generated
- direct exposure to the wave (areas behind headlands)
- propagation direction
- the re-amplification properties of land shapes (Poverty Bay causes resonance of the wave and increases its size but not its power of penetration)
- The amount of deformation of the seafloor/the incidence of undersea landslides and/or mud volcanic eruptions

Any Tsunami event has the potential to cause a bore (a wave up the rivers) and cause considerable damage. None of the previous 'observed' events have caused the rivers to overtop.

As a worse case scenario, if a wave was big enough to come ashore into the City, either from a distant or local event, then it could damage the port, apartment development on old Heinz Wattie site, railway station, Waikanae Camping Ground, Council's Sewerage Plant and private houses along Salisbury Road.

If it created a bore large enough to overtop the river banks then there could be damage to the central business district, the District Council buildings, St John Ambulance and the Fire Station.

Considerable work has been done and will continue to be done to convince coastal schools of the need to evacuate inland after a significant or long duration earthquake; there is also a continued need to educate the public.

One of the worst case scenarios for a locally generated Tsunami will be to the camping population along the coast from December through January/February. The potential for a significant number of casualties is real. This is likely when it is remembered that many on the coast never felt the earthquake in 1947. The largest percentage of those injured will have trauma injuries, which will severely test the health system. Outside assistance will be required.

TSUNAMI ACTION PLAN/CHECKLIST

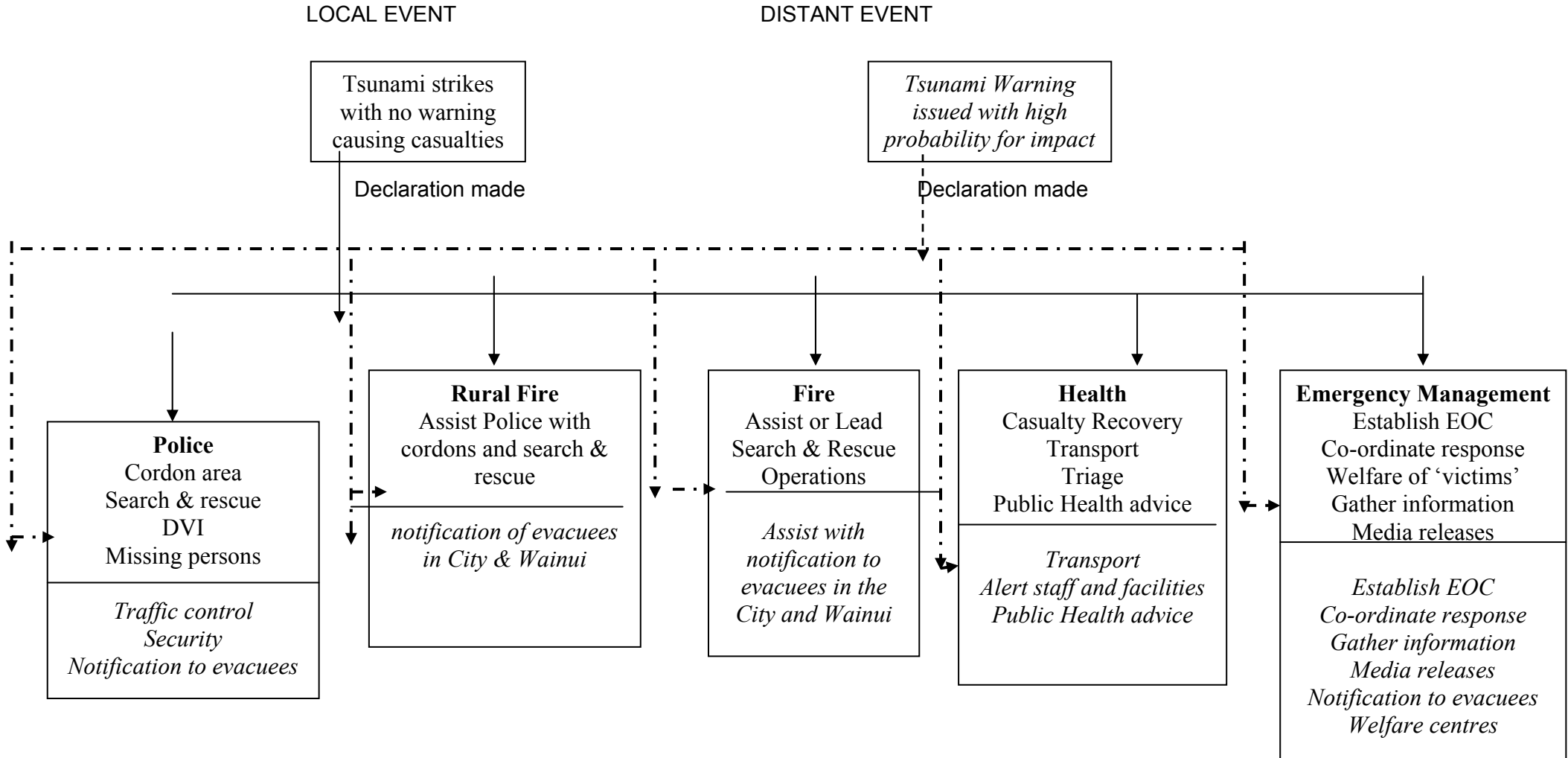
- On receipt of warning arrange meeting in EOC (within 1 hr of receipt)
 - Meeting agenda
 - CDEMO Conduct Briefing
 - If wave confirmed consider declaration (may wait for MCDEM's height assessment)
 - If anticipated wave 2m or less consider declaration for crowd control
 - If anticipated wave over 2m declare and carry out evacuation plan
 - Review responsibilities
 - Locate road barriers needed for road closures
- Establish media links (within 1 hr)
- Establish EOC (within 2 hrs of receipt)
- Produce SITREP every 2 hrs
- Put road blocks in place (as soon as practical) may keep SH 35 open for restricted traffic until 2 hours before impact time
- If impact time is during school hours see list on page 12
- Evacuation of City areas, including Wainui (TBC 3 hr before impact)
- Confirmation from rural coastal communities (TBC 2 hr before impact)

WELFARE CENTRES

The following are the centres that evacuees should initially report to: (these are reporting centres where evacuees can be registered, receive assistance and advice on what will happen next.) Evacuees will be encouraged to 'stay' with family and friends.

COMMUNITY	CENTRE
Muriwai	Muriwai School
Awapuni	Mangapapa Parish Church
Wainui	Wainui School then Te Poho Rawiri Marae
Makarori	Wainui School then Te Poho Rawiri Marae
Whangara	B5 Incorporation Woolshed
Tolaga Bay	Hauiti Marae
Anaura Bay	Anaura Marae
Tokomaru Bay	Tuatini or Waiparapara Marae
Waipiro Bay	Waipiro School
Rangitukia	Tikitiki School
Te Araroa	Hinerupe Marae (after event if available)
Hicks Bay	Hinemaurea Marae

EVACUATION SUMMARY OF ACTIONS



TSUNAMI INFORMATION DETAIL FORM

Date and time of call

Caller's name, title and contact information

Expected time of wave arrival

Expected height (if known at the time)

Direction wave coming from, location of earthquake that caused it, time of earthquake in GMT, size of earthquake or other source

Confirmation of Information (can be filled in later)

Note: GMT, Zulu time and UTC are all the same time and are normally 12 hours behind NZ or 13 hours for daylight saving.



Handout for those being evacuated during a distant Tsunami event (**Awapuni Township**)

A Tsunami warning has been received generated from an earthquake off the coast
of..... Its expected arrival time in NZ is.....

You are expected to evacuate to the hill side of Childers Rd by.....
and go to either family or friends or to the Mangapapa Union Parish Church on the
corner of Ormond Rd and Atkinson St.

It is likely that you will be out of your home for 24 hours so you should have a look at
the back of the phone book for evacuation hints – BUT DO NOT turn off power, water
and gas.

If there appears to be a problem with traffic then you should proceed along Awapuni Rd
to the Jolly Stockman and come back into town through Makaraka.

To keep a track of the events progress you can listen to any of the following radio
stations.

Classic Hits 90.9FM, Newstalk ZB 945AM,
MORE FM 89.3, Radio Live 94.8,

The ALL CLEAR will be announced over the radio and at the evacuation centres,
please do not try to get back through the road blocks until this is given.



Handout for those being evacuated during a distant Tsunami event (**Wainui**)

A Tsunami warning has been received generated from an earthquake off the coast of..... Its expected arrival time in NZ is.....

You are expected to evacuate to at least west of Wairere Rd by..... and initially go to the Wainui School to register and then go to either family or friends or to the Poho Rawiri Marae.

It is possible that you will be out of your home for 24 hours so you should have a look at the back of the phone book for evacuation hints – BUT DO NOT turn off power and water.

Okitu is safe from inundation from a distant Tsunami event.

To keep a track of the events progress you can listen to any of the following radio stations.

Classic Hits 90.9FM, Newstalk ZB 945AM,
MORE FM 89.3, Radio Live 94.8,

The ALL CLEAR will be announced over the radio and at the evacuation centres, please do not try to get back through the road blocks until this is given.