Civil Defence Emergency Management Group Joint Committee

NOTICE IS GIVEN

that the next meeting of the **Civil Defence Emergency Management Group Joint Committee** will be held in **Council Chambers, Whakatāne District Council, Civic Centre, 14 Commerce Street, Whakatāne** on:

Friday, 7 December 2018 commencing at 10.00 am.

Fiona McTavish
Chief Executive
Bay of Plenty Regional Council Toi Moana
Administering Authority

28 November 2018

Civil Defence Emergency Management Group
Terms of Reference

Delegated Function

This Joint Committee, required under section 12(1) of the Civil Defence Emergency Management Act 2002, is governed by the Group's Constitution (dated July 2013).

Membership

Seven councils in the Bay of Plenty make up the Bay of Plenty Civil Defence Emergency Management Group:

- Bay of Plenty Regional Council;
- Kawerau District Council;
- Opotiki District Council;
- Rotorua District Council;
- Tauranga City Council;
- Western Bay of Plenty District Council;
- Whakatāne District Council;

Quorum

In accordance with Council standing order 10.2, the quorum at a meeting of the committee is four members, consisting of the majority of the number of members.

Term of the Committee

Pursuant to section 12(2) of the Civil Defence Emergency Management Act 2002 this committee is a permanent committee and is not disestablished as a consequence of a local government election.

Specific Responsibilities and Delegated Authority

The Civil Defence Emergency Management Group has a constitution and this specifies the functions and powers of the group.

Note:

- The Civil Defence Emergency Management Group reports directly to the Regional Council.

Public Forum

1. A period of up to 15 minutes may be set aside near the beginning of the meeting to enable members of the public to make statements about any matter on the agenda of that meeting which is open to the public, but excluding any matter on which comment could prejudice any specified statutory process the council is required to follow.

2. The time allowed for each speaker will normally be up to 5 minutes but will be up to the discretion of the chair. A maximum of 3 public participants will be allowed per meeting.

3. No statements by public participants to the Council shall be allowed unless a written, electronic or oral application has been received by the Chief Executive (Governance Team) by 12.00 noon of the working day prior to the meeting and the Chair's approval has subsequently been obtained. The application shall include the following:

    - name of participant;
    - organisation represented (if any);
    - meeting at which they wish to participate; and matter on the agenda to be addressed.

4. Members of the meeting may put questions to any public participants, relevant to the matter being raised through the chair. Any questions must be asked and answered within the time period given to a public participant. The chair shall determine the number of questions.

Membership

Chairperson:	Mayor G Brownless (Tauranga City Council)
Deputy Chairperson:	Councillor D Love (Bay of Plenty Regional Council)
Appointees:	Mayor A Bonne (Whakatane District Council), Councillor S Browne (Alternate, Opotiki District Council), Mayor M Campbell (Kawerau District Council), Mayor S Chadwick (Rotorua Lakes Council), Deputy Mayor K Clout (Alternate, Tauranga City Council), Deputy Mayor D Donaldson (Alternate, Rotorua Lakes Council), Mayor J Forbes (Opotiki District Council), Chairman D Leeder (Alternate, Bay of Plenty Regional Council), Deputy Mayor F Tunui (Alternate, Kawerau District Council), Deputy Mayor J Turner (Alternate, Whakatane District Council), Mayor G Webber (Western Bay of Plenty District Council), Deputy Mayor M Williams (Alternate, Western Bay of Plenty District Council)
Committee Advisor:	J Durham

Recommendations in reports are not to be construed as policy until adopted.

Agenda

Previous Minutes

Minutes of the Civil Defence Emergency Management Group Joint Committee Meeting held in Mauao Rooms, Bay of Plenty Regional Council Building, 87 First Avenue, Tauranga on Friday, 28 September 2018 commencing at 10.00 a.m.

Present:

Chairman: Mayor G Brownless - Tauranga City Council (TCC)

Deputy Chairman: Councillor D Love - Bay of Plenty Regional Council (BOPRC)

Appointees: Mayor M Campbell - Kawerau District Council (KDC); Mayor A Bonne - Whakatāne District Council (WDC); Deputy Mayor J Turner - Alternate, WDC; Mayor S Chadwick - Rotorua Lakes Council (RLC); Councillor S Browne - Alternate, Ōpōtiki District Council (ODC); Mayor G Webber - Western Bay of Plenty District Council (WBOPDC)

In Attendance: Clinton Naude - Director, Emergency Management Bay of Plenty (EMBOP); Russell George - Chair of Coordinating Executive Group & Chief Executive Officer, KDC; John Titmus - Regional Coordinator, Ministry of Civil Defence Emergency Management; Geoff Williams - Chief Executive, RLC; Miriam Taris - Chief Executive, WBOPDC; Lee Barton - Local Controller, KDC; Barbara Dempsey - Local Controller, WDC; Bruce Horne - Local Controller, RLC; Dr Sharon Kletchko – Coordinating Executive Group (CEG) Member, Lakes District Health Board, Matt Harrex - Manager, Planning and Development, EMBOP; Angela Reade - CEG Member, Group Welfare Manager; Sarah Omundsen - CEG Operations Sub Committee, BOPRC; Gerard McCormack - Local Controller, ODC; Donna Llewell - In-house Legal Counsel, BOPRC; Andrea Thompson - Personal Assistant to Director EMBOP; Merinda Pansegrouw - Committee Advisor, BOPRC

Apologies: Mayor J Forbes - ODC; Chairman D Leeder - Alternate, BOPRC; Deputy Mayor M Williams - Alternate, WBOPDC; Deputy Mayor D Donaldson - Alternate, RLC; Deputy Mayor F Tunui - Alternate, KDC and Bridget Vercoe - Ministry of Civil Defence & Emergency Management

1 Apologies

Resolved

That the Civil Defence Emergency Management Group Joint Committee:

1 Accepts the apologies from Mayor J Forbes, Chairman D Leeder, Deputy Mayor D Donaldson, Deputy Mayor M Williams, Deputy Mayor F Tunui and Bridget Vercoe tendered at the meeting.

Brownless/Love
CARRIED

2 Public Forum

Nil

3 Acceptance of Late Items

Nil

4 General Business

Nil

5 Confidential Business to be Transferred into the Open

Nil

6 Declaration of Conflicts of Interest

Nil

7 Previous Minutes

7.1 Civil Defence Emergency Management Group Joint Committee minutes - 04 December 2017

Resolved

That the Civil Defence Emergency Management Group Joint Committee:

1 Confirms the Civil Defence Emergency Management Group Joint Committee minutes of 04 December 2017 as a true and correct record.

Love/Webber
CARRIED

7.2 Civil Defence Emergency Management Group Joint Committee minutes - 22 June 2018

Resolved

That the Civil Defence Emergency Management Group Joint Committee:

1 Confirms the Civil Defence Emergency Management Group Joint Committee minutes of 22 June 2018 as a true and correct record.

Love/Chadwick
CARRIED

8 Reports

8.1 Bay of Plenty CDEM Group Annual Report 2017/18

Director, Emergency Management Bay of Plenty Clinton Naude presented the report and outlined the following as some of the key accomplishments forming part of a successful year for the Bay of Plenty Civil Defence Emergency Management (CDEM) Group and Emergency Management Bay of Plenty:

Key Points

- Publication of the Bay of Plenty CDEMG Plan 2018 – 2023, setting the direction for the next five years
- Outcome of the Technical Advisory Group's recommendations: improving how New Zealand responded to natural disasters and other emergencies
- The Bay of Plenty CDEMG new website launched in March 2018
- Good progress made in lifting the percentages of staff trained to work in the Emergency Operations Centres: more than 370 council staff members had participated in CDEM Training
- The Taiohi-Taiao Youth Jam 2018 project received an award for Excellence in Communication: Readiness and Resilience at the annual Emergency Management and Public Affairs (EMPA) Awards
- A number of emergency events that Bay of Plenty CDEM Group and Emergency Management Bay of Plenty had prepared for, supported and responded to over the year.

Committee members congratulated Emergency Management Bay of Plenty on a very successful year and thanked staff for their hard work and dedication.

Resolved

That the Civil Defence Emergency Management Group Joint Committee:

1 Receives the report, Bay of Plenty CDEM Group Annual Report 2017/18;

2 Approves the Bay of Plenty CDEM Group Annual Report 2017/18.

Love/Webber
CARRIED

8.2 Public Excluded Section

Resolved

Resolution to exclude the public

THAT the public be excluded from the following parts of the proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

General Subject of Matter to be Considered	Reason for passing this resolution in relation to this matter	Grounds under Section 48(1) LGOIMA 1987 for passing this resolution
9.1 Public Excluded Civil Defence Emergency Management Group Joint Committee minutes - 04 December 2017	**Refer to the relevant section in the open minutes**	**Good reason for withholding exists under Section 48(1)(a)**

Brownless/Browne
CARRIED

8.3 Confidential Business to be Transferred into the Open

Nil

The meeting closed at 10:10 am.

Confirmed

_____
Chairperson CDEMG, Mayor Greg Brownless

_____
Date

Reports

Report To: Civil Defence Emergency Management Group Joint Committee

Meeting Date: 07 December 2018

Report From: Clinton Naude, Director, Emergency Management Bay of Plenty

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Bay of Plenty Civil Defence Emergency Management Group Controller Amendments

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Executive Summary

Due to personnel changes in some Bay of Plenty Local Authorities, the Civil Defence Emergency Management Group Joint Committee is requested to rescind the authority of one Local Controller and two Group Controllers

Recommendations

That the Civil Defence Emergency Management Group Joint Committee:

1. **Receives the report, Bay of Plenty Civil Defence Emergency Management Group Controller Amendments;**

2. **Rescinds the authority Louise Miller as Local Controller for the Bay of Plenty Civil Defence Emergency Management Group, Tauranga City Council, as defined under s27 of the Civil Defence Emergency Management Act 2002.**

3. **Rescinds the authority of Eddie Grogan and Ken Tarboton as Group Controllers for the Bay of Plenty Civil Defence Emergency Management Group as defined under s26 of the Civil Defence Emergency Management Act 2002.**

4. **Approves the amendments to Schedule 1 – Appointment of Group and Local Controllers for the Bay of Plenty Civil Defence Emergency Management Group (Appendix 1).**

1 Background

Section 26 and section 27 of the Civil Defence Emergency Management Act 2002 provides for a Civil Defence Emergency Management Group to appoint and rescind the appointment of persons to be Local and Group Controllers. Authority of Group

and Local Controllers are required to be rescinded by the Bay of Plenty Civil Defence Emergency Management Group Joint Committee.

2 Amendments to CDEM Controller Arrangements

2.1 Rescind Appointment of Local Controller

Marty Grenfell, Chief Executive of Tauranga City Council, has advised that Louise Miller has resigned from Council and as a result will not be continuing in her role as Local Controller for the Bay of Plenty CDEM Group.

2.2 Rescind Appointment of Group Controllers

Fiona McTavish, Chief Executive of Bay of Plenty Regional Council, has advised that Eddie Grogan has resigned from the position of Group Controller for the Bay of Plenty CDEM Group. Ken Tarboton has tendered his resignation as a Group Controller for the Bay of Plenty CDEM Group.

3 Implications for Māori

There are no implications for Māori resulting from this paper.

4 Health and Safety Implications

There are no health and safety implications resulting from this paper.

5 Financial Implications

5.1 Current Budget

There are no budget implications resulting from this paper.

5.2 Future Budget

There are no future budget implications resulting from this paper.

Andrea Thompson
PA to Director Emergency Management BOP

for Director, Emergency Management Bay of Plenty

27 November 2018

APPENDIX 1

Schedule 1 - Bay of Plenty Civil Defence Emergency Management Group Appointed Controllers 7 December 2018

Schedule 1 – Bay of Plenty Civil Defence Emergency Management Group Appointed Controllers

The following are controllers appointed to the Bay of Plenty CDEM Group under the requirements of the CDEM Act 2002, and are ratified under this policy by the Bay of Plenty CDEM Group Joint Committee on 7 December 2018.

Signature	Mayor Greg Brownless Chair of the Bay of Plenty CDEM Group Dated: 7 December 2018

Group Controller **Section 26 of the CDEM Act 2002**	***Director Emergency Management Bay of Plenty*** **Clinton Naude**	**Alternate Group Controllers**	**1. Chris Ingle** **2. Matthew Harrex** **3. Jono Meldrum** **4. Craig Morris** **5. Angela Reade** **6. Warwick Murray**

Rotorua Local Controller **Section 27 of the CDEM Act 2002**	**Stavros Michael**	**Alternate Local Controllers**	**1. Bruce Horne** **2. Suzanne Craig** **3. Regan Fraser** **4. Richard Horne**

Tauranga / Western Bay Local Controller **Section 27 of the CDEM Act 2002**	**Eric Newman**	**Alternate Local Controllers**	**1. Gary Allis** **2. Philip Martelli** **3. Paul Davidson** **4. Peter Watson**

Whakatane Local Controller **Section 27 of the CDEM Act 2002**	**Barbara Dempsey**	**Alternate Local Controllers**	**1. Mike Naude** **2. Nicholas Woodley**

Opotiki Local Controller **Section 27 of the CDEM Act 2002**	**Gerard McCormack**	**Alternate Local Controllers**	**1. Aileen Lawrie**

Kawerau Local Controller **Section 27 of the CDEM Act 2002**	**Lee Barton**	**Alternate Local Controllers**	**1. Dayle Johnston**

Report To: Civil Defence Emergency Management Group Joint Committee

Meeting Date: 07 December 2018

Report From: Clinton Naude, Director, Emergency Management Bay of Plenty

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Recovery Manager Capacity in Bay of Plenty CDEM Group

Executive Summary

This report seeks to endorse the requests to rescind the appointment of Emlyn Hatch as Local Recovery Manager for the Bay of Plenty Civil Defence Emergency Management Group, Tauranga City Council, and of Jeff Farrell as Local Recovery Manager for the Bay of Plenty Civil Defence Emergency Management Group, Whakatāne District Council, as defined under s30 of the Civil Defence Emergency Management Act 2002.

This report further confirms that the annual review of Recovery Manager capacity in the Bay of Plenty CDEM Group has been completed as required under the Policy for the Appointment and Development of Recovery Managers.

Recommendations

That the Civil Defence Emergency Management Group Joint Committee:

1 Receives the report, Recovery Manager Capacity in Bay of Plenty CDEM Group;

2 Rescinds the appointment of Emlyn Hatch as Local Recovery Manager for the Bay of Plenty Civil Defence Emergency Management Group, Tauranga City Council;

3 Rescinds the appointment of Jeff Farrell as Local Recovery Manager for the Bay of Plenty Civil Defence Emergency Management Group, Whakatāne District Council; and

4 Approves the amended Schedule for the Appointment of Group and Local Recovery Managers in the Bay of Plenty CDEM Group.

1 Background

Section 30 of the Civil Defence Emergency Management Act 2002 provides for a Civil Defence Emergency Management Group to appoint and rescind persons to be a Local Recovery Manager. Appointments and rescindments of Local Recovery Managers are required to be endorsed by the Bay of Plenty CDEM Coordinating Executive

Group, and approved by the Bay of Plenty Civil Defence Emergency Management Group Joint Committee.

2 Amendment to Local Recovery Manager Appointments

2.1 Garry Poole, former Chief Executive of Tauranga City Council, has advised that Emlyn Hatch does not wish to continue in the role of a Local Recovery Manager for Tauranga City Council. Tauranga City Council seeks to rescind the authority for Emlyn Hatch to act as a Local Recovery Manager.

2.2 David Bewley, then-Acting Chief Executive of Whakatāne District Council, has advised that Jeff Farrell does not wish to continue in the role of a Local Recovery Manager for Whakatāne District Council. Whakatāne District Council seeks to rescind the authority for Jeff Farrell to act as a Local Recovery Manager

3 Review of Recovery Manager Capacity

3.1 The Policy for the Appointment and Development of Recovery Managers requires that a review of Recovery Managers and Alternate Recovery Managers in the Bay of Plenty CDEM Group occur at a minimum annually, after any emergency event, or as directed by the Group Recovery Manager. The review for the period 01 July 2017 to 30 June 2018 has been satisfactorily completed.

3.2 Local Recovery Managers

- Bay of Plenty CDEM Group – Craig Morris
- Tauranga City Council – Philip King
- Western Bay of Plenty District Council - Blaise Williams
- Whakatāne District Council – Barbara Dempsey
- Kawerau District Council – Glenn Sutton
- Rotorua Lakes Council – Andy Bell

3.3 Alternate Recovery Managers

- Bay of Plenty CDEM Group – Garry Maloney
- Bay of Plenty CDEM Group – Stephen Mellor
- Western Bay of Plenty District Council – Don Shewan
- Whakatāne District Council – Julie Gardyne
- Rotorua Lakes Council – Paula Meredith

3.4 Recovery Managers to be appointed

- Ōpōtiki District Council – Recovery Manager
- Kawerau District Council – Alternate Recovery Manager
- Tauranga City Council – Alternate Recovery Manager

4 Implications for Māori

There are no specific implications for Māori as a result of this paper.

5 Health and Safety Implications

There are no health and safety implications as a result of this paper.

6 Financial Implications

There are no current or future financial implications as a result of this paper.

Craig Morris
Manager, Recovery and Projects

for Director, Emergency Management Bay of Plenty

27 November 2018

APPENDIX 1

Schedule 1 of the Policy for the appointment and development of Recovery Managers - 2018-12-07

Schedule 1 – Bay of Plenty Civil Defence Emergency Management Group Appointed Recovery Managers

The following are Recovery Managers appointed to the Bay of Plenty CDEM Group under the requirements of the CDEM Act 2002 as amended by the CDEM Amendment Act 2016, and are ratified under this policy by the Bay of Plenty CDEM Group Joint Committee on 23 March 2018.

Signature:	Mayor Greg Brownless Chair, Bay of Plenty CDEM Joint Committee Dated: 07 December 2018

Group Recovery Manager **Section 29 of the CDEM Act 2002**	**Craig Morris**	**Alternate Group Recovery Managers**	**Garry Maloney** **Stephen Mellor**
Western Bay of Plenty District Council Local Recovery Manager **Section 30 of the CDEM Act 2002**	**Blaise Williams**	**Alternate Local Recovery Manager**	**Don Shewan**
Rotorua Local Recovery Manager **Section 30 of the CDEM Act 2002**	**Andy Bell**	**Alternate Local Recovery Managers**	**Paula Meredith**
Tauranga Local Recovery Manager **Section 30 of the CDEM Act 2002**	**Philip King**	**Alternate Local Recovery Managers**	
Whakatāne Local Recovery Manager **Section 30 of the CDEM Act 2002**	**Barbara Dempsey**	**Alternate Local Recovery Managers**	**Julie Gardyne**
Ōpōtiki Local Recovery Manager **Section 30 of the CDEM Act 2002**		**Alternate Local Recovery Managers**	
Kawerau Local Recovery Manager **Section 30 of the CDEM Act 2002**	**Glenn Sutton**	**Alternate Local Recovery Managers**	

ID:3059973

Report To: Civil Defence Emergency Management Group Joint Committee

Meeting Date: 07 December 2018

Report From: Clinton Naude, Director, Emergency Management Bay of Plenty

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Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018

Executive Summary

The Bay of Plenty Civil Defence Emergency Management Coordinating Executive Group had commissioned an independent review into the delivery of Civil Defence Emergency Management services in the Bay of Plenty Civil Defence Emergency Management Group. The review was carried out by independent consultants Malinda Meads and Sue Duignan. This report presents the findings of the Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018 as well as the 34 recommendations.

Recommendations

That the Civil Defence Emergency Management Group Joint Committee:

Receives the report, Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018.

1 Introduction

In April 2017 the Bay of Plenty region was subjected to two significant weather events resulting in two States of Local Emergency being declared. Following these events Kestrel Group Ltd were engaged to conduct independent reviews related to these events. An outcome from the Kestrel Group Ltd reviews was that there was a lack of understanding of roles and responsibilities for the Bay of Plenty Civil Defence Emergency Management Group, including the roles and functions of Emergency Management Bay of Plenty. As a result the Bay of Plenty Civil Defence Emergency Management Coordinating Executive Group commissioned a review into the delivery of Civil Defence Emergency Management services by the Bay of Plenty Civil Defence Emergency Management Group.

2 Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018

Independent consultants Malinda Meads and Sue Duignan were engaged to undertake the Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018. The review has been completed and this report presents the findings of the Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018 as well as the 34 recommendations.

The Bay of Plenty Civil Defence Emergency Management Review Report 8 November 2018 is attached as a supporting document.

3 Next steps

The Bay of Plenty Civil Defence Emergency Management Coordinating Executive Group received the report at the meeting of 23 November 2018 and has directed that;

- the Bay of Plenty Civil Defence Emergency Management Coordinating Executive Group Operations Sub-committee develop an implementation plan for the review and to report back to the 24 May 2019 meeting of the Bay of Plenty Civil Defence Emergency Management Coordinating Executive Group, and

- the Bay of Plenty Civil Defence Emergency Management Coordinating Executive Group Operations Sub-committee prioritises the review of the Agreement on Joint Civil Defence and Emergency Management Services 2015 and to report back to the 24 May 2019 meeting of the Bay of Plenty Civil Defence Emergency Management Coordinating Executive Group, and

- the Director Emergency Management Bay of Plenty undertakes a review of the Emergency Management Bay of Plenty function and structure to align with the decisions from the recommendations of the Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018

4 Implications for Māori

There are no implications for Māori resulting from this paper.

5 Health and Safety Implications

There are no health and safety implications resulting from this paper

6 Financial Implications

6.1 Current Budget

There are no known current budget implications resulting from this paper.

6.2 **Future Budget**

Further work is required to understand the future financial implications arising from the recommendations of the Bay of Plenty Civil Defence Emergency Management Group Service Delivery Review 2018.

Clinton Naude
Director, Emergency Management Bay of Plenty

27 November 2018

SUPPORTING DOCUMENT - Final Bay of Plenty CDEM Review Report 8 November 2018

Report To: Civil Defence Emergency Management Group Joint Committee

Meeting Date: 07 December 2018

Report From: Clinton Naude, Director, Emergency Management Bay of Plenty

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Development of the Bay of Plenty Civil Defence Emergency Management Group Annual Plan 2019-2020

Executive Summary

The Bay of Plenty Civil Defence Emergency Management (CDEM) Group Annual Plan for financial year 2019-2020 is under development and was due to be completed by the end of November 2018. There have been a number of recent reviews of CDEM, from the national through to local level that have recommendations for the Bay of Plenty CDEM Group to consider.

The Coordinating Executive Group resolved to extend the timeframe for the development of the Bay of Plenty CDEM Group Annual Plan 2019-2020 to allow for consideration of the recommendations and any associated actions to be incorporated into the Annual Plan.

It is also proposed to evolve the format of the Bay of Plenty CDEM Group Annual Plan 2019-2020 to be more consistent with Council Long Term Plans, including development of an integrated, multi-year work plan that operationalises the Bay of Plenty CDEM Group Plan.

The final draft of the Bay of Plenty Civil Defence Emergency Management Annual Plan 2019-2020 will be ready for the Bay of Plenty CDEM Group Joint Committee to consider at its first meeting in 2019, and a draft Bay of Plenty CDEM Group multi-year work-plan subsequently available before the closure of financial year 2018-2019.

Recommendations

That the Civil Defence Emergency Management Group Joint Committee:

1 **Receives the report, Development of the Bay of Plenty Civil Defence Emergency Management Group Annual Plan 2019-2020;**

2 **Approves the 2019-2020 budget as set out in this report based retention of the current funding envelope for civil defence emergency management.**

1 Annual Plan Development

The Bay of Plenty CDEM Group Annual Plan 2019-2020 final draft has a target date of the end of November 2018. There have been a number of reviews undertaken recently that have had direct implications to the development of the Annual Plan, namely:

1). Ministerial Review: Better Responses to Natural Disasters and Other Emergencies in New Zealand (TAG report), 17 November 2017

2). DPMC Proactive Release of Government Response to the Ministerial Review: Better Responses to Natural Disasters and Other Emergencies in New Zealand, 30 August 2018

3). Bay of Plenty Civil Defence Emergency Management Review Report – Final - 08 November 2018 by M. Meads & S. Duignan.

The Ministry of Civil Defence & Emergency Management (MCDEM) Business Plan for 2018-2022 has also just been released, and is inclusive of a series of initiatives that are highly likely to need provision for within the Bay of Plenty CDEM Group Annual Plan 2019-2020. The degree of inclusion is still to be fully understood as the policy changes and implementation pathways are yet to be finalised.

Combined with the reviews, it is anticipated that there will be implications on the Bay of Plenty CDEM Group work programme for financial year 2019-2020 and beyond. More time is required to fully understand any changes in work priorities and levels of service that need to be outlined in the Bay of Plenty CDEM Group Annual Plan 2019-2020.

On this basis the Bay of Plenty CDEM Group Joint Committee approved that the preparation of the Bay of Plenty CDEM Group Annual Plan 2019-2020 is undertaken over November - December 2018 and January 2019 to incorporate the recommendations and findings of the reviews and work from the national level. This also provides opportunity to evolve the Bay of Plenty CDEM Group Annual Plan to a more aligned format as that of Council Long Term Plans, inclusive of an integrated, multi-year work plan that presages the work programme for the years ahead.

Current Annual Plans provide an action-orientated, single financial-year snapshot of CDEM initiatives / intentions. This methodology, whilst bureaucracy light, does not enable a roadmap between the strategic goals of the CDEM Group plan (our aspirations over a five year period) and the Annual Plan activity forecast (our intentions for each financial year) to be visualised. It also does not accurately reflect the often multi-year structures of emergency management activities – i.e. the ECLIPSE project is a 5 year commitment / contribution. It also reduces the ability to measure progress through focusing more on in-year performance of outputs rather than outcomes/benefits.

Developing a multi-year work plan will provide the Bay of Plenty CDEM Group with a picture that highlights the how, where and when CDEM Group outcomes will be delivered in outline programme manner, with sequential Annual Plans able to allocate in detail the key objectives, projects, targets and associated budgets for each respective financial year.

To ensure integration across the Bay of Plenty CDEM Group the development and refinement of the Bay of Plenty CDEM Group Annual Plan 2019-2020 will be conducted through the members of the Coordinating Executive Group - Operations Sub Committee.

A final draft of the Bay of Plenty CDEM Annual Plan 2019-2020 will be available for consideration by the Bay of Plenty CDEM Group Joint Committee at their first meeting in 2019. A draft multi-year work-plan would be subsequently available before the

closure of financial year 2018-2019 for consideration by the Bay of Plenty CDEM Coordinating Executive Group.

2 Council's Accountability Framework

2.1 Long Term Plan Alignment

This work is planned under the Emergency Management Activities in member councils Long Term Plans 2018-2028.

Current Budget Implications

This work is being undertaken within the current budget for the Emergency Management Activity in the Annual Plan 2018/19.

Future Budget Implications

Future work on the Civil Defence Emergency Management Activity is provided for in Member Council's Long Term Plans 2018-2028. The budget for the implementation of the Bay of Plenty CDEM Group Annual Plan 2019-2020 will be based on the current funding envelope plus inflation as set out in the table below. Any changes to current levels of service may require additional funding. Additional funding options include drawing down from the current Bay of Plenty CDEM Group reserves, or changes to member contributions through the Annual or Long Term Planning processes.

	Local Authority	**2019/20 Budget**
Region Wide CDEM Services *Collected through the Regional CDEM Rate.*	Bay of Plenty Regional Council*	$2,386,210
	Local Authority	**2019/20 Budget**
Territorial Authority Contributions to Emergency Management Bay of Plenty. *Collected by invoices to member councils from Bay of Plenty Regional Council*	Kawerau District Council	$40,500
	Ōpōtiki District Council	$58,080
	Rotorua Lakes District Council	Nil
	Tauranga City Council	$598,860
	Western Bay of Plenty District Council	$222,220
	Whakatāne District Council	$192,540
	Total	**$1,112,200**
Total Bay of Plenty CDEM Budget		**$3,498,410**

* The Bay of Plenty Regional CDEM Rate is collected by Bay of Plenty Regional Council on behalf of the Bay of Plenty CDEM Group. It consists of the Bay of Plenty CDEM Group Budget and the Bay of Plenty Regional Council contributions to Emergency Management Bay of Plenty.

Matthew Harrex
Manager, Planning & Development

for Director, Emergency Management Bay of Plenty

27 November 2018

Report To: Civil Defence Emergency Management Group Joint Committee

Meeting Date: 07 December 2018

Report From: Clinton Naude, Director, Emergency Management Bay of Plenty

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Science Update on Tsunami Threat to the Bay of Plenty

Executive Summary

A recently released report from GNS Science (attached) has identified that the ground between the Bay of Plenty coastline and the Kermadec trench is soft and this means that any earthquake generated in this area may not be felt strongly on land, west of Whakatāne. This does not change the likely size of the tsunami.

Recommendations

That the Civil Defence Emergency Management Group Joint Committee:

1 Receives the report, Science update on tsunami threat to the Bay of Plenty;

2 Approves the Chair of the Joint Committee write to the Minister of Civil Defence advocating for an enhanced tsunami monitoring and warning system for New Zealand

1 Science update on tsunami threat to the Bay of Plenty

1.1 Background

A recently released report from GNS Science Ground Motions in New Zealand from Kermadec megathrust earthquakes (Circulated to Coordinating Executive Group Members on 9 October 2018) has identified that the ground between the Bay of Plenty coastline and the Kermadec trench is soft and this means that any earthquake generated in this area may not be felt strongly on land, west of Whakatāne. This does not change the likely size of the tsunami.

This new research has only just been made available to Civil Defence Emergency Management (CDEM) Groups across the country (5 October 2018). Emergency Management staff are working to understand the full implications for the Bay of Plenty. It does emphasise that for Bay of Plenty, west of Whakatāne, the message 'Long, strong, get gone' cannot be relied on as the only warning of tsunami. The other natural warnings are observing strange sea behaviour such as the sea level rising and falling

unusually, or hearing the sea making loud and unusual noises or roaring like a jet engine.

As a result of this research the Ministry of Civil Defence & Emergency Management (the primary agency for alerting and warning of tsunami in New Zealand) has made changes to the National Tsunami Advisory and Warning Plan an automatic National Warning will be triggered when a certain magnitude and depth earthquake is confirmed.

1.2 What are we doing about it

A desktop exercise was recently held at the Controllers Forum on 8 November 2018 to test our response to a national warning in line with the changes to the National Tsunami Warning and Advisory Plan. This identified areas for improvement and role clarification. It was also useful to reinforce the responsibilities and expectations of Controllers.

Emergency Management Bay of Plenty, Bay of Plenty Regional Council and Tauranga City Council are currently working together on a public messaging and education campaign for the community. We are revisiting our messaging and public education to refocus the emphasis from LONG, OR STRONG, GET GONE to highlight that range of ways people can be alerted and do not rely on one source of warning. While technology is beneficial, no matter how good the technology there is no guarantee that the public will get official or natural prior warnings and this was recently highlighted in Indonesia. For now, the message hasn't changed. If people feel unsafe, or are told to evacuate, do so immediately.

Emergency Management Bay of Plenty are also working with the Ministry of Civil Defence & Emergency Management and GNS Science to get a better understanding of the science and what this may means for the Bay of Plenty.

The GNS Science report states that the finding suggests that reliance on self-evacuation alone must be supplemented with scientific monitoring and alerting mechanisms to protect vulnerable populations. The Bay of Plenty CDEM Group will continue to advocate for a better tsunami monitoring and warning network across the country. The Bay of Plenty CDEM Coordinating Executive Group recommends the Chair of the Bay of Plenty CDEM Group Joint Committee writes to the Minister of Civil Defence advocating for an enhanced tsunami monitoring and warning system(s) for New Zealand.

2 Implications for Māori

There are no specific implications for Māori arising from the recommendations in this paper.

3 Health and Safety Implications

There are no specific health and safety implications arising from the recommendations in this paper

4 Financial Implications

There are no specific financial implications arising from the recommendations in this paper.

Matthew Harrex
Manager, Planning & Development

for Director, Emergency Management Bay of Plenty

27 November 2018

APPENDIX 1

Ground motions in New Zealand from Kermadec megathrust earthquakes GNS Science Report 2018

Ground motions in New Zealand from Kermadec megathrust earthquakes

B Fry
K Gledhill
R Benites

GNS Science Report 2018/33
October 2018

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BIBLIOGRAPHIC REFERENCE

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B Fry, GNS Science, PO Box 30 368, Lower Hutt 5040, New Zealand
K Gledhill, GNS Science, PO Box 30 368, Lower Hutt 5040, New Zealand
R Benites, GNS Science, PO Box 30 368, Lower Hutt 5040, New Zealand

www.gns.cri.nz

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ABSTRACT

We use numerical simulations of earthquake ground shaking to test the ability of natural warning to trigger self-evacuation in communities in the north-western North Island that are at risk of tsunami generated along the Kermadec Subduction Zone in the southwest Pacific. In this region, self-evacuation defined as “Long or Strong, Get Gone” is the dominant mechanism for risk mitigation. However, we conclude that many possible earthquakes will not be felt strongly in these regions, including densely populated metropolitan areas on the coast from the Bay of Plenty to Northland, such as the cities of Tauranga, Auckland and Whangarei. These earthquakes could then cause tsunami waves with maximum wave amplitudes in excess of 5m within the first hour after the earthquake. This finding suggests that reliance on self-evacuation alone must be supplemented with scientific monitoring and alerting mechanisms to protect vulnerable populations.

KEYWORDS

Kermadec Subduction zone, megathrust earthquake, tsunami, subduction ground motions

1.0 INTRODUCTION

The 2004 Sumatran earthquake and subsequent tsunami triggered global efforts to implement effective tsunami early warning in the world's major tsunami-prone ocean basins. Tsunami early warning for earthquake generated tsunami typically involves using seismic observations of the causal earthquake to estimate the size of the tsunami that was generated and then forecasting the resulting impacts in coastal regions. This forecasting process is iteratively refined as further data is available from ocean observations. This effort is still ongoing and rapid advances are still continuing. Numerous promising techniques based on ocean elevation, atmospheric disturbance, and ground deformation are currently being validated and will likely find use in the coming decades. These methods are dominantly useful for regional or distant earthquakes in which tsunami travel times are greater than a few hours, and in some cases, local earthquakes that occur near to terrestrial observational networks. However, even with accurate rapid forecasts of approaching waves, short tsunami travel times from local earthquakes make warnings difficult to communicate to affected communities. In these situations, self-evacuation triggered by natural warning remains the best option for risk reduction. Natural warning is typically the perception, or "felt intensity" of strong ground motion at affected coastlines.

Unfortunately, there exists a class of regional earthquakes that falls through the New Zealand early warning net. These are events that occur close enough to affected coasts to yield travel times of less than an hour yet are far enough away that terrestrial observation networks are inadequate to forecast tsunami impacts accurately. An outstanding question is whether these events will be felt strongly enough to trigger natural warning based self-evacuation. To answer this question, we simulate ground motions from subduction earthquake scenarios along the Kermadec subduction zone. We show that plausible large Kermadec subduction zone earthquakes are capable of generating damaging tsunamis that can reach New Zealand coastlines within an hour of the earthquake, yet will likely not be strongly felt in many potentially affected communities.

1.1 Ground Motions from Kermadec Earthquakes

In this report, we focus on understanding ground motions from M8.5 earthquake scenarios occurring along the Kermadec subduction zone megathrust fault from north of East Cape to the Louisville Ridges. We calculate hard-rock ground motions in Tauranga as a proxy for felt intensity for the north coast of the North Island from the Bay of Plenty through to the coastal northwestern North Island. We use sophisticated numerical modeling to examine the impact of 3 distinct effects on the nature of ground motion intensities. These are 1) directional radiation of energy from the earthquake source, 2) geometrical spreading of the earthquake waves as they travel away from the earthquake, and 3) anelastic attenuation of seismic waves as they pass through the highly attenuating Havre Trough and Taupo Volcanic Zone.

1.1.1 Azimuthally dependent source radiation

When an earthquake occurs, seismic energy does not radiate outward in a homogenous fashion. Rather, the amount of energy released is dependent on orientation of the fault plane and mechanics of the earthquake. Directional radiation of ground shaking from thrust faults tends to concentrate most of the energy perpendicular to the strike of the fault (Figure 1.1).

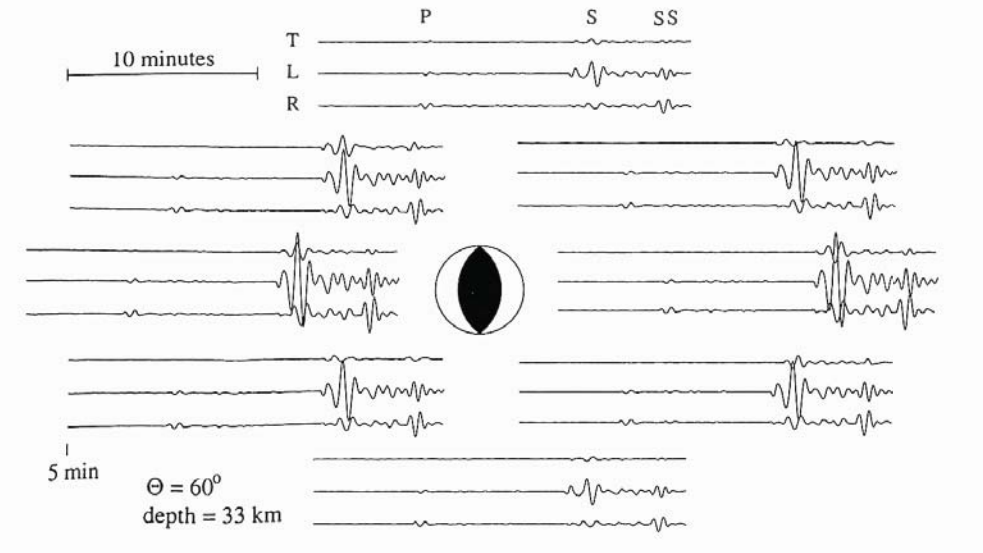

Figure 1.1 Example seismograms showing dominant energy radiation in the direction perpendicular to a thrust fault. The 'beach ball' represents a thrust fault oriented north-south. The surrounding seismograms (oriented in map view) clearly show most energy (largest waves) travelling east-west. Figure from Aki and Richards, 2002.

Megathrust earthquakes along the Kermadec Subduction zone tend to focus much of their energy, and consequently strongest ground shaking, in a northwest-southeast direction (Figure 1.2). Most of their energy will be directed away from New Zealand.

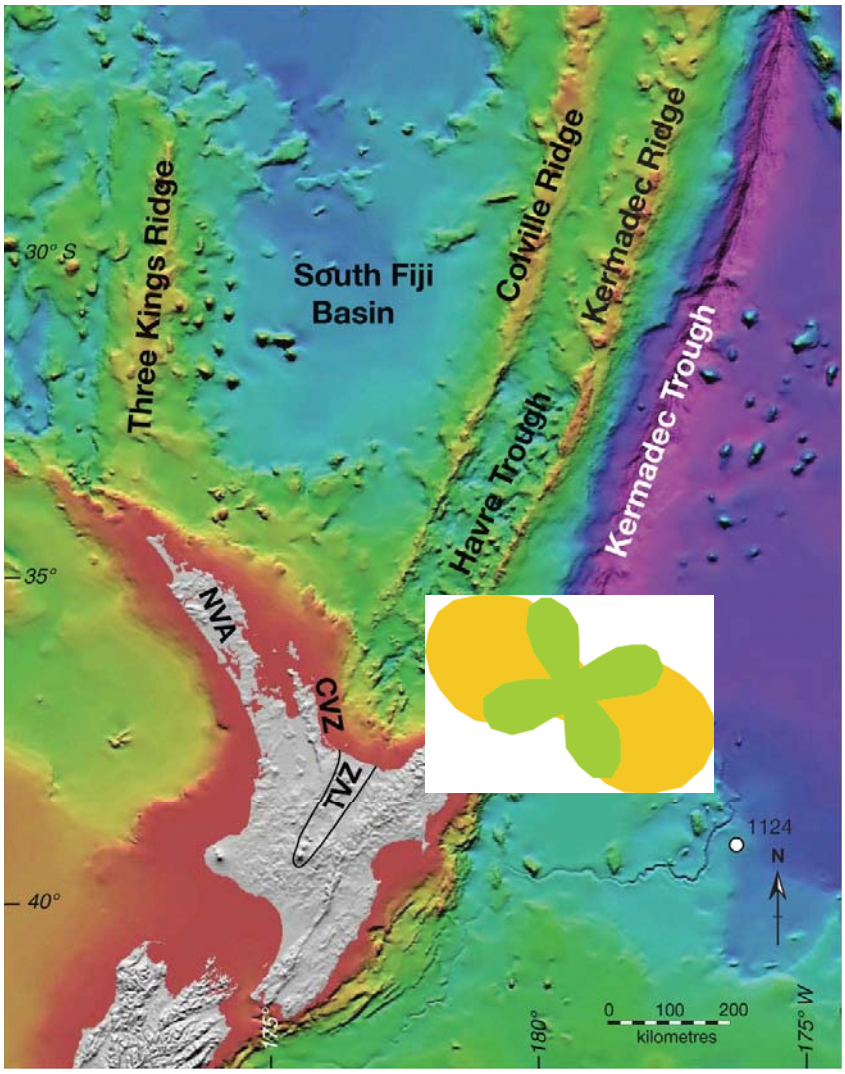

Figure 1.2 White inset is a representation of an example of the radiation pattern of two modes of seismic waves radiating out from a scenario earthquake originating on the southern Kermadec Subduction zone. Other modes are also oriented in a similar way. Yellow and green lobes show the primary patterns of maximum energy of seismic surface waves travelling away from the earthquake. Note that most energy coming from Kermadec sources is dominantly sent in northwest-southeast directions, away from New Zealand. "TVZ" represents the Taupo Volcanic Zone. Havre Trough is the extension of the TVZ offshore. Both of these features influence ground motions and will be discussed in Section 1.1.3.

1.1.2 Geometric spreading

After energy has been released from the earthquake, it travels away from the source. Depending on the type of wave, its energy decreases rapidly with increasing to epicentral distance. This means that ground shaking decays rapidly with increasing distance from the earthquake rupture (Figure 1.3). A conventional tsunami-causing earthquake can therefore often simply occur too far away to be felt strongly. Tsunami waves, however, are able to be transmitted long distances with very little loss of energy, making them dangerous to coastlines even far from the source, including the sources from much of the Kermadec subduction zone, and the Tonga and New Hebrides subduction zones.

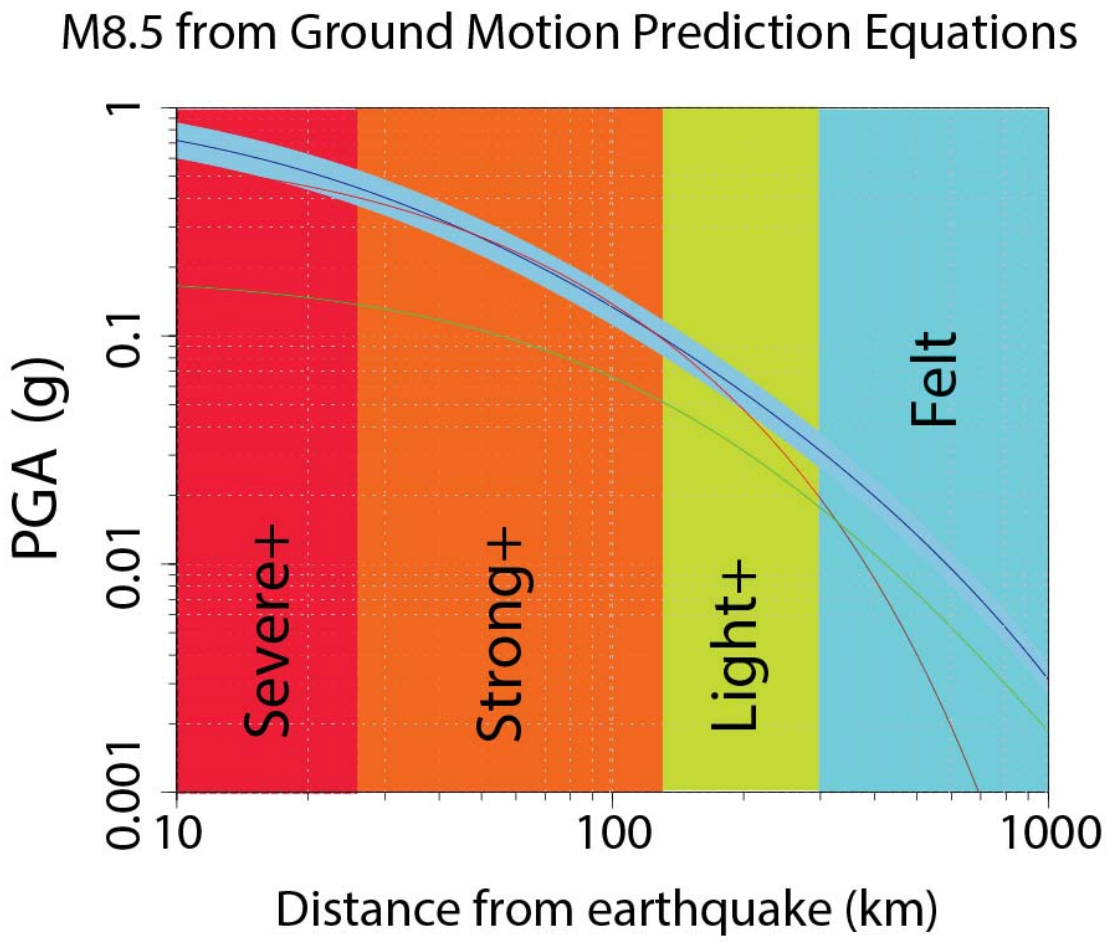

Figure 1.3 Ground motions for an M8.5 subduction zone earthquake as calculated from empirical ground motion prediction equations derived from fitting global observations. Models are blue (Abrahamson et al., 2016), green (Atkinson and Boore, 2003; 2006), and Zhao et al, 2006 (red). Distances have been colour coded according to felt intensities from Worden et al., (2012). Note, observational evidence suggests that, on average, global subduction zone earthquakes of this magnitude are not strongly felt after about 150km from the source. These simple calculations do not account for radiation patterns or New Zealand specific attenuation as presented in section 2 of this report.

1.1.3 Anelastic attenuation

Due to volcanic processes driven by subduction of the Pacific Plate at the Hikurangi and Kermadec margins, the Taupo Volcanic Zone and Havre Trough (see Figure 1.2 for location) are highly attenuating, or inefficient at transmitting seismic wave energy. As seismic waves pass through these regions, they lose amplitude at a faster rate than usual. This compounds the effect of geometric spreading as described above, making most tsunamigenic earthquakes along the Kermadec Subduction zone unlikely to be strongly felt in many tsunami-prone coastal areas of the northwestern North Island of New Zealand. Recent work has improved our understanding of this attenuation pattern (Figure 1.4, Eberhart-Phillips and Fry, 2018) in New Zealand, which we can assume extends farther to the north along the Havre Trough.

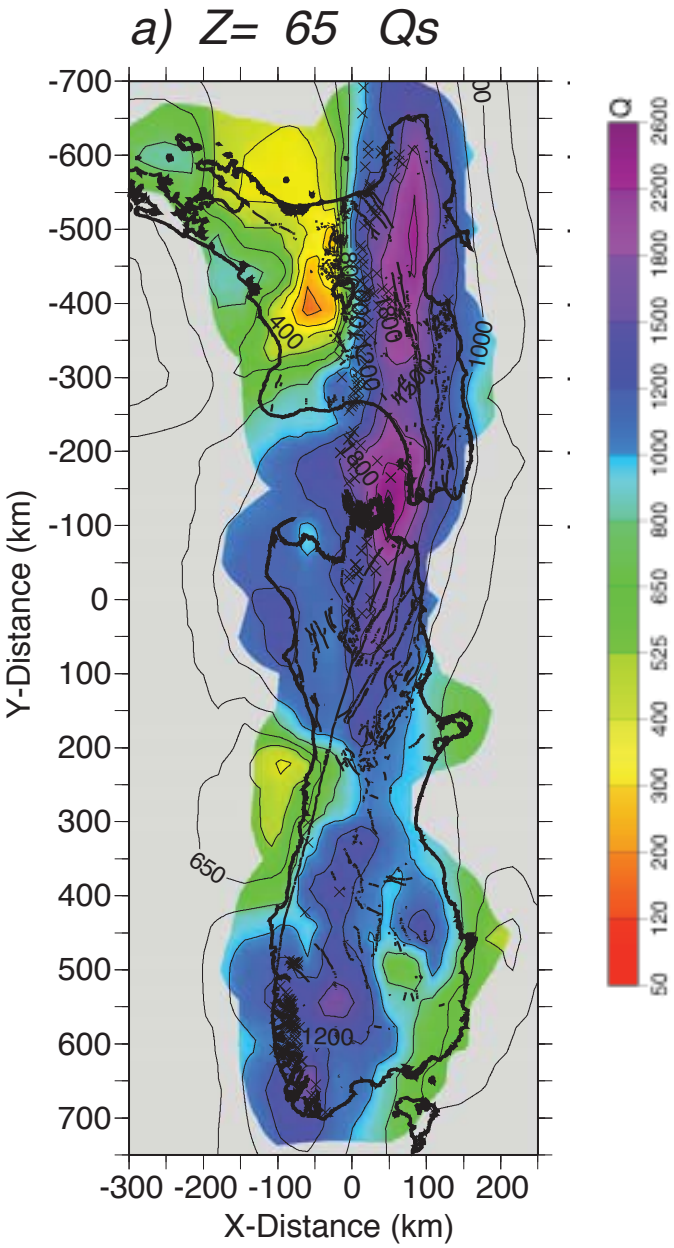

Figure 1.4 Map showing quality (Q), which is the inverse of attenuation for New Zealand from Eberhart-Phillips and Fry, (2018). Regions in cool colours mark efficient propagation of seismic waves, with relatively little loss of energy with distance travelled. Areas in warm colours mark inefficient propagation of seismic waves, with relatively high loss of energy with distance travelled. Yellows and greens corresponding to the TVZ and Havre Trough reduce much of the seismic energy from earthquakes occurring on the Kermadec Subduction zone prior to arrival in the western North Island.

Recently, an M6.9 earthquake on 10 September 2018, with an epicentre approximately 600km north of the North Island along the Kermadec Subduction zone provided a ground-truth validation of this attenuation model. GeoNet recorded over 2000 felt reports in New Zealand (Figure 1.4). However, even with the large population of the greater Auckland/Whangarei/Tauranga region, only one felt report was received from the north-western North Island. The location and density of felt reports and the low attenuation areas from the map presented in Figure 1.4 are notably correlated (Figure 1.5). This is strong validation of our numerical results presented in Section 2.

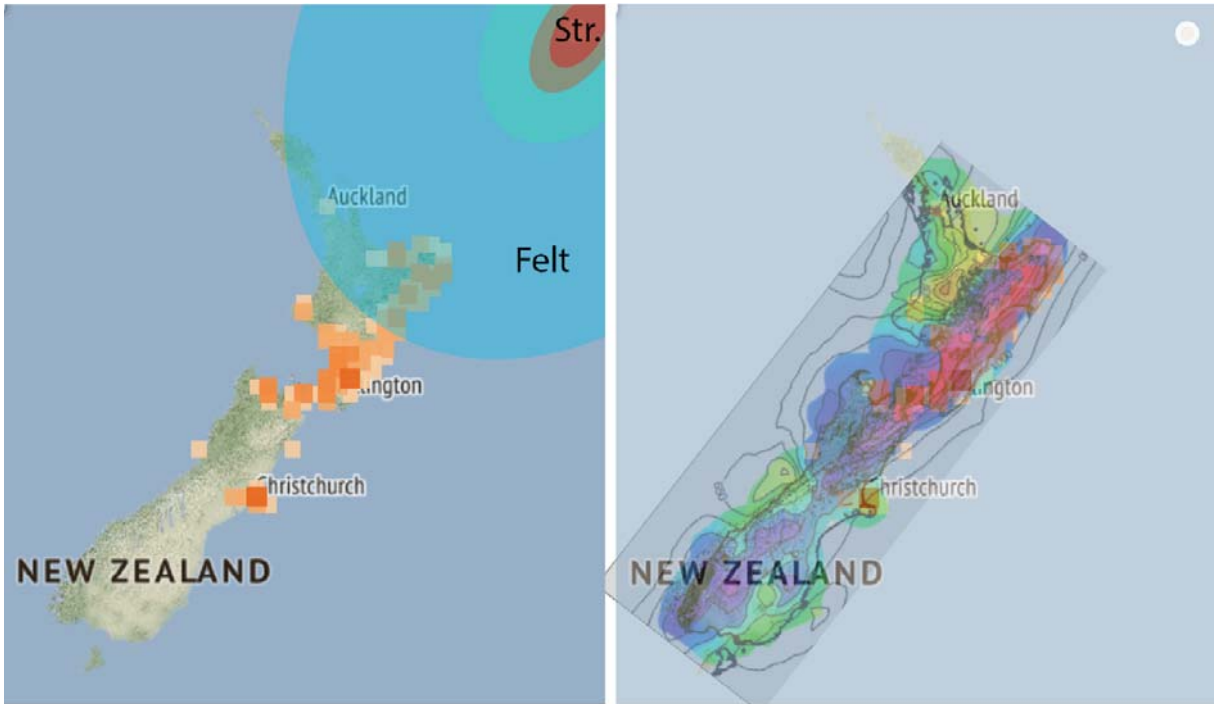

Figure 1.5 Left panel: Felt reports overlain by predicted regions of felt intensity from the September 2018 M6.9 Kermadec earthquake. Warmer colours show more intense shaking, cooler colours show less intense shaking. Note the lack of felt reports in the Auckland area and abundance of felt reports on the east coast of the North Island. Right panel has an overlay of the attenuation model of Eberhart-Phillips and Fry (2018). Note the strong correlation between regions of many felt reports and low attenuation (purple and red areas).

2.0 GROUND MOTION SIMULATIONS

To understand the effects presented in 1.1-1.3 as they relate to the utility of natural warning triggering, we systematically use a spectral element modelling scheme (AxiSEM, Nissen-Meyer et al., 2014) to simulate ground shaking in the North Island of New Zealand from scenario tsunamigenic earthquakes along the Kermadec subduction zone (Appendix 1). We present simulation results for M8.5 earthquakes at 2o intervals (approximately 220km) along the subduction zone and calculate resulting ground motions in Tauranga (Figure 2.1). We use Tauranga as an average proxy for the northern coast of the North Island, from the Bay of Plenty through the Auckland region. We calculate ground velocities to frequencies as high as 500 mHz.

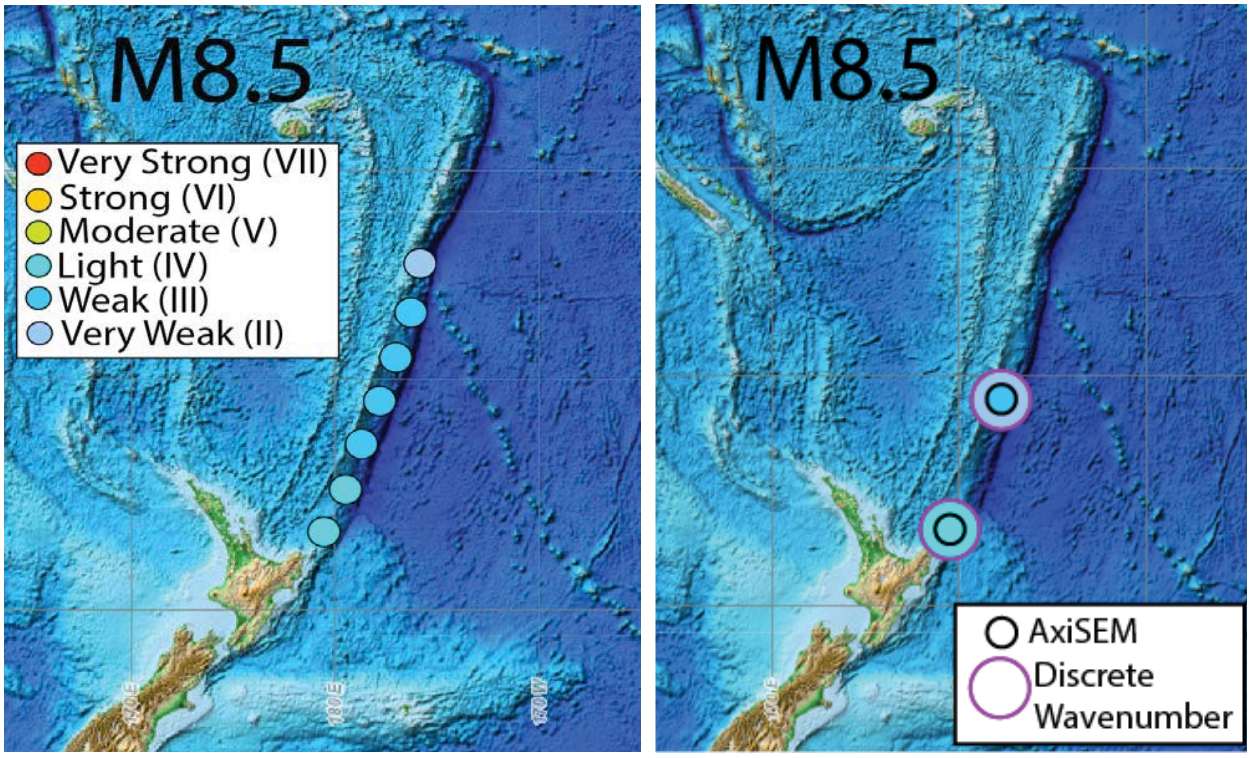

Figure 2.1 Left panel: Results from AxiSEM simulations of M8.5 earthquakes along the Kermadec Subduction zone. Earthquakes are located at each of the dots. The dots are colour-shaded according to their modelled felt intensities in Tauranga. Right panel: Comparison of AxiSEM results and two simulations with a discrete wavenumber numerical scheme.

We further test these ground motions against those calculated using a discrete wavenumber integration scheme (Bouchon and Aki, 1977) (Appendix 2). We use the same velocity and attenuation a-priori model as that implemented in the AxiSEM modeling. We model the most proximal event and a second event at ~1000 km. In both cases, the discrete wavenumber calculated ground velocities, although slightly smaller, are in general agreement with those calculated with the AxiSEM scheme (Figure 2.1).

We then compare the modelled ground motions with those predicted by recent ground motion prediction equations (Atkinson and Boore, 2003; Abrahamson et al, 2016; Zhao et al, 2006) (Figure 2.2). In each of these validation exercises, our synthetic calculations with AxiSEM lie within uncertainties or similar intensity classes as the compared data.

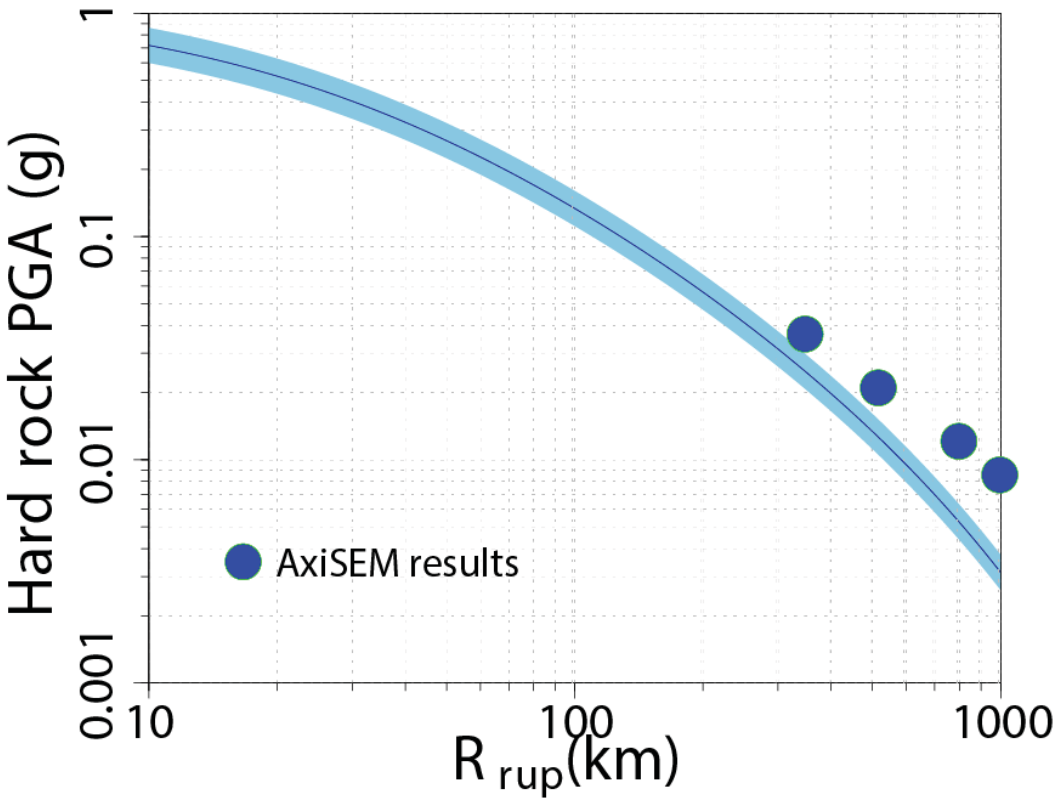

Figure 2.2 Comparison of our AxiSEM results with the recent ground motion prediction equation of Abrahamson et al., 2016. Results are within uncertainties of our numerical modelling given a simplified source model. Estimations of shaking for both of these techniques are compatible with the conclusion that these M8.5 events will not generate systematically strong shaking over most much of the north-western North Island. We note that recorded PGA has a wider bandwidth than simulated PGA, however, the relatively larger modelled ground motions suggest that we are capturing most important dominant frequencies at larger distances.

3.0 CONCLUSIONS

We use numerical simulations of ground motions from scenario earthquakes along the Kermadec subduction zone to test the limitations of the “Long or strong, get gone” self-evacuation through natural warning. These events are credible tsunami sources (> 5m at some coastal areas) yet their ground motions in the north-western North Island fall below the “strong” threshold resulting from felt intensity studies (Worden et al., 2012). While our synthetic models have significant uncertainty due to the unpredictable nature of the earthquake rupture process and subsequent wave propagation, they provide strong evidence for the inadequacy of natural warning alone to trigger evacuations in the northwestern North Island for significant tsunamigenic events as close as a few hundred kilometers from the New Zealand coast.

4.0 ACKNOWLEDGMENTS

We thank Chris Van Houtte for help with ground motion prediction equations and David Burbidge for insightful discussion.

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APPENDICES

A1.0 NUMERICAL SIMULATIONS

A1.1 AxiSEM modelling

We use the parallel spectral element method "AxiSEM" (Nissen-Meyer et al., 2013) to generate the 3D wavefield of earthquakes along the Kermadec Subduction zone. This method solves the basic equation of motion in which the summation of mass and stiffnes terms are equivalent to the source term:

$$\overbrace{\int_{\oplus} \rho \boldsymbol{w} \cdot \partial_t^2 \boldsymbol{u}\, d^3\boldsymbol{x}}^{\text{mass term: } \mathbf{M}(\boldsymbol{u})} + \overbrace{\int_{\oplus} \nabla \boldsymbol{w} : \mathbf{C} : \nabla \boldsymbol{u}\, d^3\boldsymbol{x}}^{\text{stiffness term: } \mathbf{K}(\boldsymbol{u})} = \overbrace{\int_{\oplus} \boldsymbol{w} \cdot \mathbf{f}\, d^3\boldsymbol{x}}^{\text{source term: } \mathbf{F}(\boldsymbol{u})}$$

Where u is the displacement vector, w is a test vector, f is the source term, rho is the mass density and C is the elasticity tensor.

This approach expands the moment tensor response to mono-, di-, and quadropoles as displacement terms (u) relative to azimuth (ϕ):

u = u(s, z) , u = u(s, z) · f (sin φ, cos φ) , and u = u(s, z) · f (sin(2φ), cos(2φ)) , respectively, and convolves these with azimuthal radiation equations:

$$\boldsymbol{u}_m(\boldsymbol{x}) = \begin{pmatrix} u_s(\tilde{\boldsymbol{x}}) \cos m\phi \\ u_\phi(\tilde{\boldsymbol{x}}) \sin m\phi \\ u_z(\tilde{\boldsymbol{x}}) \cos m\phi \end{pmatrix}$$

Which provides the displacement wavefield at a point relative to the double-couple source. We solve the wave propagation within a velocity and attenuation model taken from Eberhart-Phillips and Fry, 2018 (Figure A1.1). We further take the time derivative of the displacement wavefield to generate 3D velocity wavefields from which we calculate the maximum velocity (Figure A1.2).

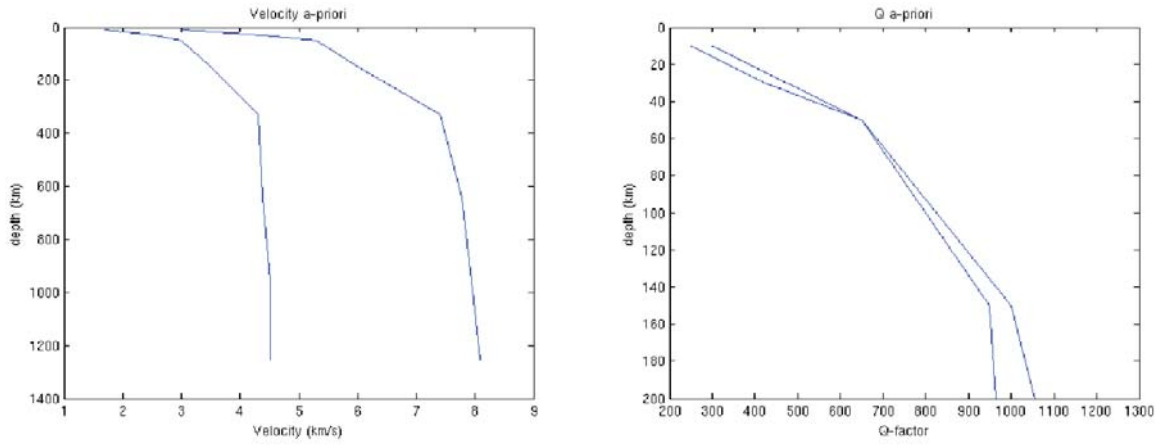

Figure A1.1 P and S velocity profiles (left panel) and Qp and Qs attenuation models (right panel) used in AxiSEM and discrete wavenumber numerical simulation.

We convert the maximum simulated ground velocity from these simulations within the USGS adopted “instrumental intensity” framework (Figure A1.3) to “Perceived Shaking”. Within this framework, we consider groundmotions > 9.6 cm/s strong and capable of triggering ‘long or strong, get gone’.

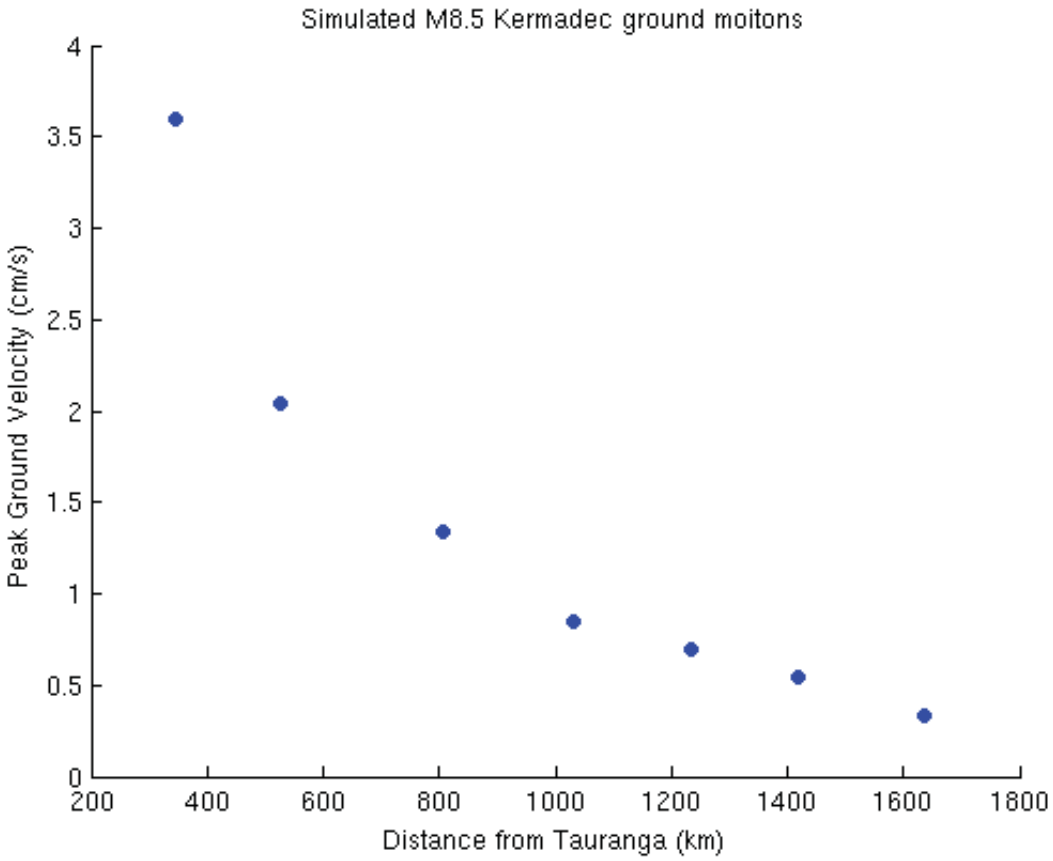

Figure A1.2 Peak ground velocity from our simulations as a function of distance from Tauranga.

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	*<0.02*	*0.1*	*1.4*	*4.7*	*9.6*	*20*	*41*	*86*	*>178*
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Worden et al. (2012)

Figure A1.3 Intensity table showing classification scheme used to assess perceived shaking against peak ground motions.

A1.2 Discrete Wavenumbermodelling

To test the results from the AxiSEM numerical simulations, we solve the analytical approach of Bouchon and Aki (1977). In this method, the 3-dimensional displacement vector (u) is the summation of displacement potentials (phi and psi) which are solutions to the wave equation in terms of P and S wave velocities alpha and beta, respectively:

$$\nabla^2\phi = \frac{1}{\alpha^2}\frac{\partial^2\phi}{\partial t^2} \qquad \nabla^2\psi = \frac{1}{\beta^2}\frac{\partial^2\psi}{\partial t^2}$$

By using body force equivalents to seismic dislocations, the displacement potentials of a double-couple source can be related to seismic moment through the integral relations

$$\phi = \frac{\mu D}{F}\int_0^L\int_0^W \left(\frac{\partial\phi^z}{\partial x_0} + \frac{\partial\phi^x}{\partial z_0}\right)\exp\left(-i\frac{\omega}{c}x_0\right)dx_0\,dy_0$$

$$\psi = \frac{\mu D}{F}\int_0^L\int_0^W \left(\frac{\partial\psi^z}{\partial x_0} + \frac{\partial\psi^x}{\partial z_0}\right)\exp\left(-i\frac{\omega}{c}x_0\right)dx_0\,dy_0$$

where uD, dxo, and dyo represent the seismic moment. By integrating these expressions, three components of displacement can be determined:

$$\phi = \frac{\mu D}{F}\int_0^L\int_0^W \left(\frac{\partial\phi^z}{\partial x_0} + \frac{\partial\phi^x}{\partial z_0}\right)\exp\left(-i\frac{\omega}{c}x_0\right)dx_0\,dy_0$$

$$\psi = \frac{\mu D}{F}\int_0^L\int_0^W \left(\frac{\partial\psi^z}{\partial x_0} + \frac{\partial\psi^x}{\partial z_0}\right)\exp\left(-i\frac{\omega}{c}x_0\right)dx_0\,dy_0$$

$$w = \frac{-D}{2L_xL_yk_\beta^2}\sum_{n_x}\sum_{n_y}k_x\left(-2\nu e^{-i\nu|z|} + \frac{\gamma^2 - k_x^2 - k_y^2}{\gamma}e^{-i\gamma|z|}\right)$$

$$\cdot\frac{\exp(ik_xL - i\omega/cL) - 1}{\omega/c - k_x}\,\frac{\exp(ik_yW) - 1}{k_y}\exp(-ik_xx - ik_yy)$$

These are of course frequency domain solutions. They can be turned into time-domain displacement seismograms. For our Kermadec megathrust case, the full reflected and transmitted wavefields can be found by discrete equations for P, SV, and SH as:

$$\phi(k_x, k_y) = \frac{iD}{L_x L_y k_\beta^2}\left[\sin\theta\cos\theta\left(\frac{k_y^2}{\nu} - \nu\right)\right.$$

$$\left. + (\sin^2\theta - \cos^2\theta)k_y\right]\left[\frac{\exp(ik_x W) - 1}{k_x}\right.$$

$$\left. \cdot \frac{\exp(ik_y L\cos\theta - i\omega/cL - i\nu z_1) - \exp(-i\nu z_0)}{\omega/c - k_y\cos\theta - \nu\sin\theta}\right]$$

$$\cdot \exp(-ik_x x - ik_y y + i\nu z) \qquad (25)$$

$$\psi^{SV}(k_x, k_y) = \frac{iD}{2L_x L_y k_\beta^2}\frac{1}{k}\left[2\sin\theta\cos\theta(k_x^2 + 2k_y^2)\right.$$

$$\left. + (\sin^2\theta - \cos^2\theta)\frac{k_y}{\gamma}(\gamma^2 - k_x^2 - k_y^2)\right]\left[\frac{\exp(ik_x W) - 1}{k_x}\right.$$

$$\left. \cdot \frac{\exp(ik_y L\cos\theta - i\omega/cL - i\gamma z_1) - \exp(-i\gamma z_0)}{\omega/c - k_y\cos\theta - \gamma\sin\theta}\right]$$

$$\cdot \exp(-ik_x x - ik_y y + i\gamma z)$$

$$V^{SH}(k_x, k_y) = \frac{D}{2L_x L_y k_\beta^2}\frac{k_x k_\beta^2}{k}\left[2\sin\theta\cos\theta\frac{k_y}{\gamma}\right.$$

$$\left. + [\sin^2\theta - \cos^2\theta)]\left[\frac{\exp(ik_x W) - 1}{k_x}\right.\right.$$

$$\left.\left. \cdot \frac{\exp(ik_y L\cos\theta - i\omega/cL - i\gamma z_1) - \exp(-i\gamma z_0)}{\omega/c - k_y\cos\theta - \gamma\sin\theta}\right]\right.$$

$$\cdot \exp(-ik_x x - ik_y y + i\gamma z)$$

where y and z are location terms and l and theta are geometric terms of the source fault.

Lastly, we apply the attenuation to generate 3-component displacement waveforms for select scenarios.

Figure A2.1 presents the 3-component velocity wavefield for an M8.5 with identical source parameters to the southernmost scenario considered with AxiSEM.

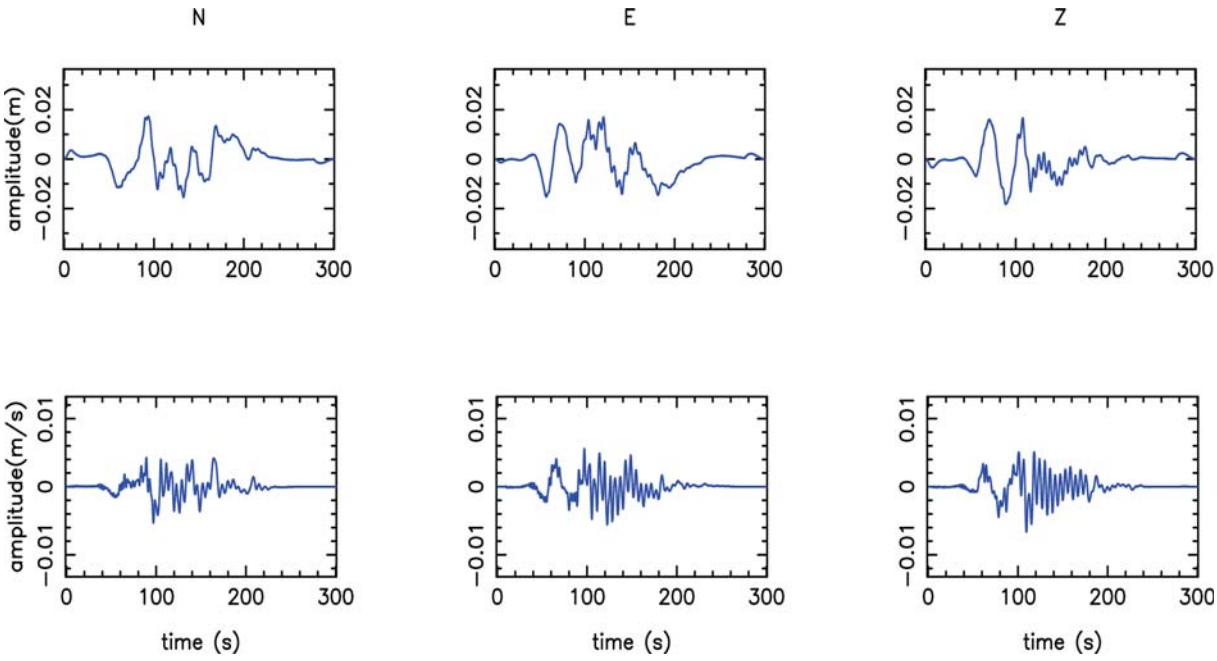

Figure A1.4 Results of the southernmost M8.5 simulation shown in Figure 2.1. Top row is the 3-component displacement wavefield. Bottom row is the velocity wavefield used for comparison with AxiSEM results.

Report To: Civil Defence Emergency Management Group Joint Committee

Meeting Date: 07 December 2018

Report From: Clinton Naude, Director, Emergency Management Bay of Plenty

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Bay of Plenty CDEM Group Recovery Management Annual Report

Executive Summary

This report is to provide an overview of the Recovery activities across the Bay of Plenty Group for the past year.

Recommendations

That the Civil Defence Emergency Management Group Joint Committee:

1 Receives the report, Bay of Plenty CDEM Group Recovery Management Annual Report;

1 Background

As impetus is gained in the Recovery Management sector various initiatives are being promoted. Along with the Group and Local activities there are Regional and wider initiatives such as the Combined Central and Upper North Island Recovery Workshops which we hosted this month in Tauranga. With the sector in its infancy these are very valuable networking, training and exposure forums.

Having experienced two significant events in the last two years, it is apparent that there is some way to go before the sector matches that of the Response phase in such aspects as staffing availability, training and particularly community involvement and support.

The latter is extremely important for the successful formation and operation of the various Task Groups. While the Response Phase can be steered using the Emergency Services, contractors and volunteer effort, the Recovery Phase is far more intertwined with long standing relationships within the communities involved.

All events are different and their impacts on communities and people are different. It is not possible to construct a one stop set of guidelines that meets all events. It is also not constructive to present unwieldly detailed and onerous guidelines or reporting requirements that detract from the front line effort. There will be a succinct and helpful solution to these issues given the resources and energy to review them.

Further, the staffing of Recovery Offices is an issue that also needs attention. Unlike the staffing of Response teams which has been planned and acted upon for many years and which covers a short period of time, the staffing of a Recovery Office and Task Groups for many months is a significant challenge. Due to wideskills shortages it is not easy to backfill seconded staff roles and there needs to be a planned rotation of staffing to allow seconded and allocated staff to return to their day jobs on a rostered basis. This in turn means extensive organised staff coverage for the Recovery Phase.

Experience has shown that it has been difficult for Local Authorities to involve anyone outside of Council to act as Task Group Leads. This is not ideal and much greater effort needs to be given to obtain the level of involvement that is required from the various sectors of the community. While the community rallies when events happen it is also necessary to have that input in order to plan and prepare prior to an event.

Other models for resourcing Recovery will be considered following the release of the Recovery Review initiated by the Ministry of Civil Defence and Emergency Management and the Service Level Review initiated by the Bay of Plenty CDEM Coordinating Executive Group.

2 Events

2.1 Whakatāne District Flood Event 2017

On 6 April 2017, the Whakatāne District experienced widespread damage to homes, property, businesses, farms, the natural environment and infrastructure as a result of the events generated by ex-Tropical Cyclone Debbie and ex-Tropical Cyclone Cook. During this event, 1,600 people were evacuated from Edgecumbe town and the surrounding area after the Rangitāiki River stopbank breached on College Road, causing extensive flooding. A number of residents in Poroporo, Rūātoki, Thornton and Tāneatua also had to leave their homes and some rural communities were isolated for more than a week. A local state of emergency for the Whakatāne District was declared on 6 April 2017.

The Housing Recovery Summary as at 07 November 2018 stands at 291 (95%) have returned home (including resolved … e.g., For Sale, demolition, etc.)

Exit Strategy

The following outlines some key Recovery considerations that have been undertaken to ensure that any remaining Recovery requirements have transitioned to completion or have taken on a “business as usual (BAU) approach” by the associated agency as required.

1. Assistance required in the long term

The Recovery requirements are dominantly focusing on monitoring of outstanding rebuilds or homeowner final resolution and decisions to their property. Navigator support is now complete, however Council Civil Defence business as usual staff remain available to support affected property owners should their situations change.

2. Transition to business as usual so as to manage long-term recovery.

Actions as identified in the Recovery Action Programme have either been completed or referred to agency BAU.

3. Planning and reporting in the long term

WDC BAU will undertake monitoring and reporting. Any outstanding Recovery matters will be building regulatory in nature and will be picked up accordingly. No further recovery planning or strategic programmes are anticipated.

4. Management of public information and communication

WDC has taken over all public information requirements.

5. Opportunities for communities to discuss unresolved issues and to continue to participate in their recovery.

The Community have engaged in a Community Planning process, which has led to the development of a Community plan. Council has supported by engaging a coordinator who will support the community's aspiration for development.

BOPRC have completed the new stop bank in Edgecumbe and are working through the other stop bank repairs in the district.

6. Change to Whakatāne District Council organisational arrangements, including the need for Recovery task groups.

Any outstanding recovery monitoring is now part of the WDC BAU. Recovery task groups are no longer envisaged as necessary.

2.2 Rotorua District Flood Event 2018

Severe flooding in the Ngongotahā, central urban and several rural areas of Rotorua District caused the evacuation of many houses and the speed with which flood waters rose caused concerns over peoples safety. A Civil Defence State of Emergency was declared on 29 April 2018.

Some residents and their families in Oakland Place had to evacuate over their fences to higher ground to escape the rapidly rising flood waters.

In all, 946 contacts were made with residents of Rotorua and this eventuated in an active community well-being case load and 94 Insanitary Buildings Notices which meant that those 94 buildings were uninhabitable until refurbished. As of 18 October this has been reduced to an active case load of 57 including 38 remaining Insanitary Notices. This is expected to reduce further to approximately 20+ by end of November. Rotorua Lakes Council Recovery Office immediately opened a temporary Community Hub in a containerised office at the Oakland Place subdivision in Ngongotahā and appointed 4 Navigators to assist the Recovery Office team working with the affected communities throughout the District and the various organisations involved in the Recovery effort. These initiatives were both very positive in assisting the Recovery effort.

Daily Recovery Office staff meetings, weekly Partner Agency group meetings, weekly Navigator case load meetings with partner agencies and regular media and networking comms. were all successful in informing the parties involved.

The recovery effort is now being wound down and the Recovery Manager is currently drafting the Exit Strategy.

3 Navigators

The Navigator role was introduced as part of the recovery after the Canterbury earthquakes of 2010/2011 but as those learnings have been largely lost, we are considering a project to develop a Recovery Manager Guide for Navigators which would focus on experiences and learnings from the Kaikōura earthquake of 2016, the 2017 Whakatāne District and Thames-Coromandel floods and the 2018 Rotorua District flooding events. The research would include interviewing as many previous Navigators as possible, Recovery Managers, Welfare Managers and partner agencies.

The Navigator role for the recent Rotorua flood recovery was established to:

- provide support, advice and advocacy to those affected by event related issues, offering assistance with matters such as: follow up welfare checks, information around support and funding avenues, temporary housing and insurance support;

- Provide confidence to the impacted community that the recovery is being well managed and the Council and partner agencies are actively involved and supporting the recovery; and

- Provide a means of gathering information to aid and guide the recovery.

The Navigators have been very successful and have now been used in several recent events. The role of Navigator is becoming an essential part of the Recovery Office make up and the interrelationship between those affected and the Partner Agencies has proven to support a timely and efficient recovery. The people appointed to these temporary roles in both the Whakatāne and Rotorua events and other recoveries across the country have now gained an essential level of skill and knowledge which we are potentially losing.

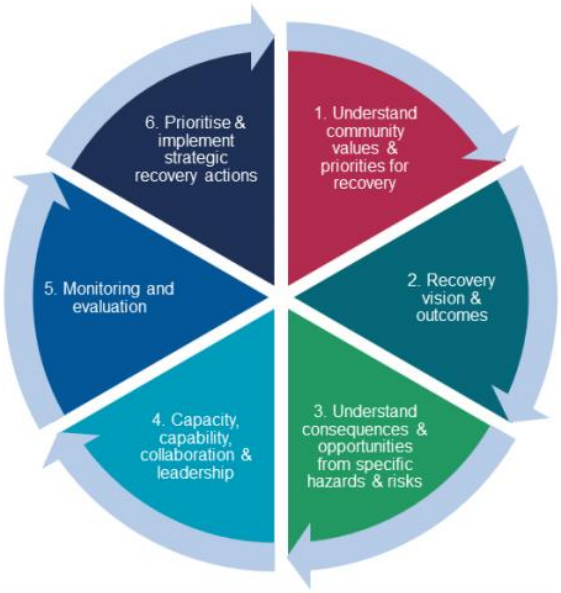
To address this, the Group Recovery Office is considering engaging a consultant to develop a Recovery Manager Guide for Navigators. The guide would be a comprehensive document for Recovery Managers on all aspects of a Navigator role, and provide a consistent approach that can be initiated as efficiently as possible after an emergency event occurs. The guide would cover the steps starting at the decision point of whether Navigators will be required, which should take place during Response, and include guidance and templates on job descriptions, recruitment processes, inductions, funding options, and capturing learnings at the conclusion of Navigator appointments. The Group Recovery Office would also create a pool of experienced Navigators who could be contacted by any Region to assist with the set-up of Navigator roles in Recovery.

4 Strategic Recovery Planning

The Civil Defence Emergency Management Act 2002 (CDEM Act 2002) was amended in 2016 to place significantly greater emphasis on planning for and supporting communities to recover from emergencies. In December 2017 the Ministry of Civil Defence and Emergency Management issued Director's Guideline (DGL) 20/17 titled Strategic Recovery Planning which contains distinct responsibilities of Local Authority Chief Executives, CDEM Group Joint Committees and the support required from Coordinating Executive Groups.

It is emphasised in the DGL that local authorities take a 'whole of local authority' approach to strategic planning for recovery because many roles within a local authority can influence the effectiveness of recovery (such as planners, engineers, and community engagement). Related to this, strategic planning for recovery should align with, not duplicate, existing local government processes, such as community engagement and development of long-term and annual plans. Council business-as-usual policies, procedures and plans should be leveraged to assist in achieving the outcomes of strategic planning for recovery, as should existing roles, functions and resources.

Recognising that a focus on strategic recovery planning is recent, and will take time to evolve, progress across the region has been gradual and would benefit from executive support to achieve the objectives. The DGL recommends the following phased approach:



5 Recovery Plan Updates

The current Bay of Plenty CDEM Group Recovery Plan 2015 is in the process of being updated to reflect the numerous legislative changes so it will align with the Bay of Plenty Group Plan 2018 – 2023. When completed, it will be provided to Territorial Authority Recovery Managers to use as a template for updating their Local Recovery Plan.

6 Local Initiatives

6.1 Tauranga City Council

- Development and launch of TCC Business Continuity and Crisis Management systems;
- CIMS training and participation in regional and upper North Island discussions;
- Work to review the Tauranga and Western Bay Recovery Plans into a single document, and alignment of this to the recent Director's Strategic Guideline and Government's response to the Technical Advisory Group's recommendations.

6.2 Western Bay of Plenty District Council

- Completion and launch of joint local recovery plan in conjunction with TCC. Presenting to Council and then submitting to Joint Committee for information;
- CIMS training undertaken;
- Issue of lack of comprehensive BCP raised with CEO. Draft BCP being prepared;
- Attendance at meetings related to Recovery Training.

6.3 Whakatāne District Council

- Continuing to implement the exit strategy into Council BAU;
- Review/update Eastern BOP Recovery Management Plan (2015) together with Kawerau & Ōpōtiki District Councils for eventual use by all three Councils as a generic recovery plan;
- Edgecumbe Collective newsletters are an excellent community engagement tool which carries on the recovery efforts by Whakatāne District Council.

6.4 Ōpōtiki District Council

- Recruitment underway for a Project Manager who will assume the role of Local Recovery Manager.

6.5 Kawerau District Council

- Complete update of KDC Business Continuity Plan;
- Review/update Eastern BOP Recovery Management Plan (2015) together with Whakatāne & Ōpōtiki District Councils for eventual use by all three Councils as a generic recovery plan;
- Develop formal relationship with Industrial Symbiosis Kawerau as a key organisation to be part of Kawarau's Economic Environment Task Group and Recovery Management Group.

6.6 Rotorua Lakes Council

- Arrange Recovery Office staffing on a 2 week about basis
- Arrange Recover Manager staffing on a month about basis
- Investigate retention of Navigator skills and experience
- Future allocation of funding from key agencies to support the navigators role
- Review the community involvement in the Task Groups
- Increased understanding of welfare / wellbeing Task Group lead and support agency roles in the ongoing offer of support to those affected

7 Collaboration

Bay of Plenty Group Recovery Manager and Local Recovery Managers have been working closely with Waikato CDEM Group to share information and maximise effort on activities of mutual benefit.

The Bay of Plenty CDEM Group hosted the Combined Central and Upper North Island Recovery Manager Workshop on 15 November. Attendance from Auckland and Waikato CDEM Groups as well as invited guests from the Ministry of Business Innovation and Employment attended; Northland Group sent their apologies.

8 Implications for Maori

There are no implications for Māori as a result of this report.

9 Health and Safety Implications

There are no Health and Safety implications as a result of this report.

10 Financial Implications

There are no current or future budget implications as a result of this report

Craig Morris
Manager, Recovery and Projects

for Director, Emergency Management Bay of Plenty

27 November 2018