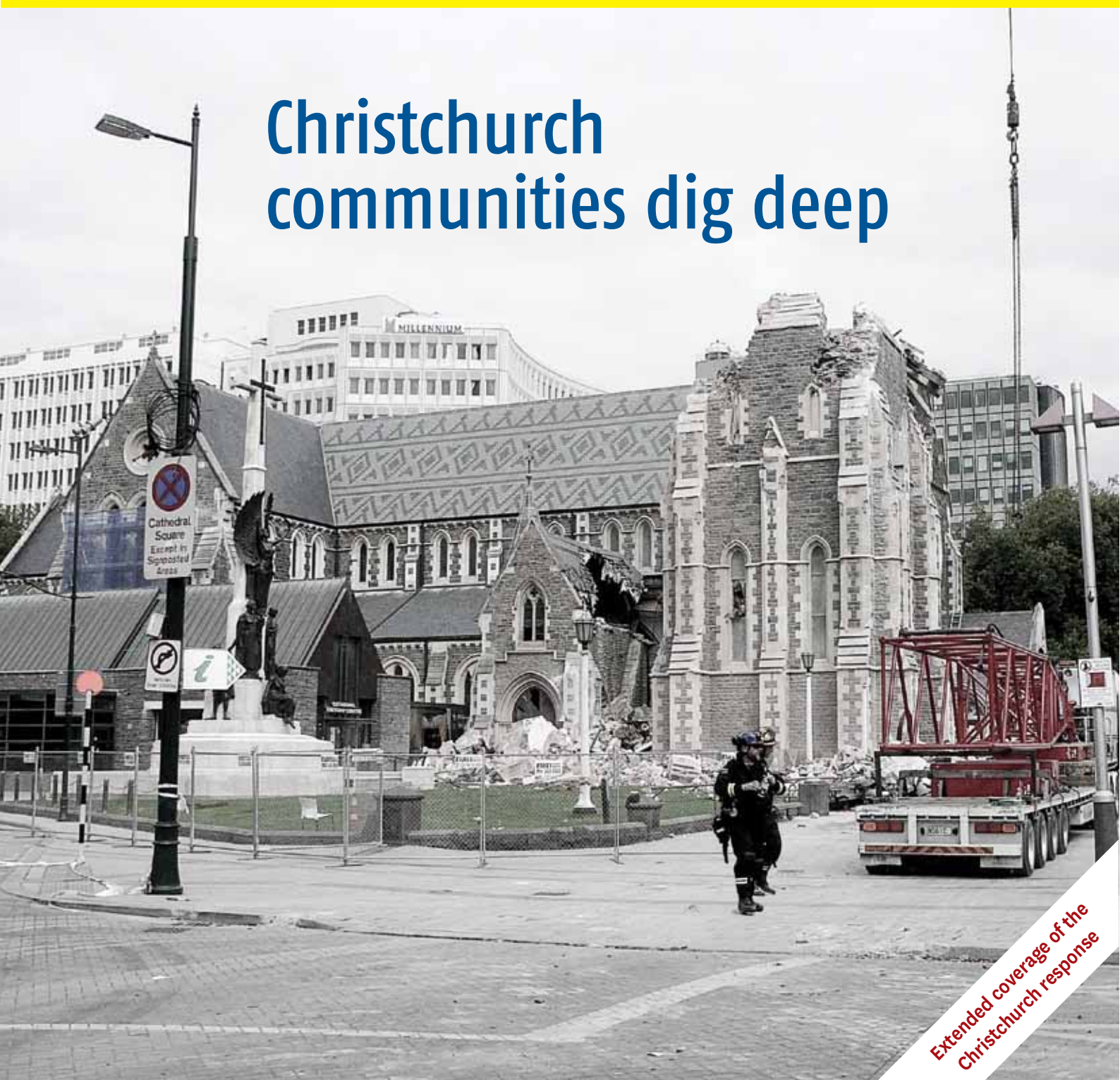




impact

Volume 41
June 2011

Christchurch communities dig deep



Extended coverage of the
Christchurch response

Cover image: While the damaged cathedral represents much that has been lost in Christchurch, the community response to the disaster shows there is much more to a city than its buildings.

In this issue: Hawke's Bay Easter storms | Pike River: a CDEM perspective | Christchurch community response
Coping with emotional stress | Science & Research liaison | How Orion coped | Unwrapping EMIS | Disasters in 2010

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Common acronyms

MCDEM Ministry of Civil Defence & Emergency Management
CDEM Civil defence emergency management
NCMC National Crisis Management Centre
ECC Emergency Coordination Centre
EOC Emergency Operations Centre
EMO Emergency Management Officer

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EDITORIAL

John Carter, Minister of Civil Defence



Final reflections

I am writing to you as one of my last official acts as Minister of Civil Defence, a role I have held since November 2008.

When I became the Minister of Civil Defence, John Hamilton told me not to worry too much, nothing major ever happened in this portfolio. As we all now know, those were famous last words indeed! That was five tsunami warnings (of a level requiring activation of the National Crisis Management Centre), numerous flooding events throughout the country, other natural hazard emergencies from snow to landslides, and two major earthquakes ago... and let's not forget the deadly tornado that took a life in Auckland in May.

Firstly I want to thank everyone who has been involved in CDEM. It has been amazing to see the goodwill and willingness of local authorities, CDEM staff and volunteers alike, to assist not only in their local events but particularly in the response to the September 2010 earthquake in Canterbury and the devastating February aftershock.

These testing times have been a perfect example of how CDEM Groups from around the country can support each other in getting through. I have also been impressed by the commitment to CDEM shown by this sector even when there is no emergency underway, in your efforts to achieve the National CDEM Strategy vision of "a resilient New Zealand – communities understanding and managing their hazards".

I have set several clear priorities for the Ministry of Civil Defence & Emergency Management and for you as a sector, and I am proud that many of these have either been achieved or have had significant progress made toward them. These priorities have ranged from undertaking a nationwide assessment of CDEM Group capabilities to rolling out the new Emergency Management Information System (EMIS).

The majority of the assessments have been completed, and we have learned that while readiness for emergencies is an area of strength for many CDEM Groups, leadership, organisational culture, and business continuity and recovery planning are all areas that deserve attention – attention I expect you all to bring, as we can always improve. While the roll-out of EMIS has

been delayed by the response to the Canterbury earthquakes, I am confident that once it has been fully deployed, it will add significant value to the management of emergencies at all levels.

We can never stop learning about the hazards we face in our specific communities

My time in this role has involved a significant amount of learning. I have learned that New Zealand has a world-class CDEM system of which we can all be proud. I have learned that we as New Zealanders are resilient in how we intuitively seek to get our lives back to normal after disaster strikes. This has been evidenced by the response and recovery efforts of the people of Christchurch, which is all the more remarkable when you reflect on the fact that many of these people have lost loved ones, had their homes damaged or even destroyed and may not have ready access to amenities such as flushing toilets. The events in Christchurch have also shown, however, that there is more work to do to make our CDEM system even better.

And finally I have learned that learning itself is the key. If there is one message that I can leave you with, it is that we can never stop learning about the hazards we face in our specific communities, and how to be prepared to respond to, and recover from, emergency events. As individuals, we are all responsible for being able to look after ourselves and our loved ones for at least three days, possibly more, until help can arrive. The Canterbury earthquakes have brought home to us all the need to make sure we know what to do when a natural disaster occurs. Knowing what to do, and acting quickly, can prevent injury and save lives.

I wish you well as you continue your work to build a more resilient New Zealand. ■

Children and staff from the Henderson Edukids early childcare centre, who participated in the filming of the new DVD, pose with Stan, from *What's the Plan Stan?*, at the launch of the DVD in Auckland.

New earthquake safety resource for preschoolers

Civil Defence Minister, John Carter, launched a new earthquake safety resource for preschool children on Friday 27 May.

Turtle Safe is a DVD resource which illustrates the right actions to take to keep safe when an earthquake happens.

Messages are aimed at providing children with clear, easy to remember instructions on what they should do to keep safe during an earthquake.

"It's really important that children know instinctively what to do" said Mr Carter. "I encourage teachers and caregivers to watch the DVD and hold practice drills with the children in their care so they are

familiar with what they should do when an earthquake occurs."

Talking to children about earthquakes also helps reduce fear and anxiety, and parents and caregivers are encouraged to provide opportunities for children to ask questions and express their feelings.

Turtle Safe was first produced in the 1980's by the Auckland City Council as a video resource and has proven to be very popular with young children and early childcare centres. The Ministry of Civil Defence & Emergency Management and Auckland Council have worked together to update the resource and provide it in a DVD format

to more than 6,000 early childcare centres and playgroups throughout the country. The resource will also be available online at www.getthru.govt.nz and copies will be distributed to public libraries so parents can borrow the DVD for their children.

"Civil defence is about educating people of all ages about what to do in an emergency, right down to pre-schoolers", says Clive Manley, Manager, CDEM, for Auckland Council. "Kids are a great way to get the message to parents and the DVD is in a format that the little ones will understand and hopefully remember." ■



TEST RUN FOR EMERGENCY ALL GOOD FUN

They may have been facing flash floods and landslides but the pupils of Awahou School were all smiles as emergency services invaded their school in the isolated Pohangina Valley. Emergency services and civil defence staff and staff from the Horizons and Manawatu councils helped evacuate 58 pupils, three teachers and one principal during a recent emergency training exercise.

The floods and landslides were obviously hypothetical but the message behind them was all too serious – the Pohangina Valley was ravaged by floods in 2004, cutting off the isolated community. The scenario that played out involved floodwaters submerging the Raumai Bridge, making access nearly impossible by land. Many of the families that experienced the 2004 floods are still living there.

The alarm sounded about 9.15am and all the children streamed out of class for a roll call. The confusion had some of younger children close to tears but they soon got caught up in their classmates' excitement. Most were taken to the evacuation centre at the Highland Home by army trucks, but three lucky students were flown there by the Palmerston North rescue helicopter, which landed on the soccer field.

Horizons Emergency Management Officer, Ross Brannigan, said the training was also helpful for the emergency staff.

"It tests the local arrangements we have to see if they work, especially communications because communication is always a problem in these situations."

Mr Brannigan was confident any future emergencies in the area would be well-

Story: Jonathon Howe, Manawatu Standard



Practicing a stretcher evacuation with emergency services staff

handled. "It may be in a larger scenario than one like this but certainly the proactive emergency management people in Ashhurst are really going to prove their worth if and when the balloon goes up." ■

Can you survive it?

Tauranga City Council recently launched Can you survive it? an online interactive game created to raise awareness among young people about how they can be prepared in case of a civil defence emergency. When playing the game items required for a personal survival kit flash past the screen and people must type down all of the items they can remember. Completed games can be entered in to a draw for a Polaroid camera or an apple iPod touch.

“Many young people expect and respond well to communication that is online, interactive and fun. So rather than just words on a page, we wanted to make sure that our messages were portrayed in a way that encourages participation and engagement” says Tauranga City Council Communications Manager, Elizabeth Hughes. “And of course, there is an incentive to take part. Young people love free stuff!”

The game is hosted on Tauranga City Council’s youth website www.citystuff.co.nz and is also heavily advertising on the council’s Facebook page. The game was officially launched as part of Youth Week (21-29 May) and the council has already received numerous entries and a lot of positive feedback. ■



Hutt City gets emergency provisions water-tight

The recent devastation in the Canterbury region highlighted how easy it is to take for granted the luxury of clean drinking water. Although water was restored to many homes within 48 hours, many people were still left struggling to get drinkable water for days, and weeks, after the event.

Peter Walker from Hutt Valley Emergency Management Office has been working on a project over the last year to manage this issue. “It’s no secret that Wellington sits on an active fault. We feel it is prudent to do all we can now to have access to a reliable water supply in a significant earthquake event”

During 2010 Peter managed a project to install 5,500 litre water tanks into 26 Civil Defence Centres in schools throughout the Hutt Valley. The tanks are isolated from everyday use and labeled ‘Civil Defence Emergency Water’. Tanks are filled by the local Bush Fire Force and refilled annually to ensure the water is in good condition and ready for use at any time.

Using trucks with water tanks to move water around to areas of need means tankers are held up on-site until the need has been met or until the water has been exhausted. By having tanks located at schools throughout a district, trucks can be put to use refilling



and are not held up on-site for longer than necessary. One truck can service numerous tanks. Another bonus is that should an emergency cut off road access to certain areas, there is a supply readily available.

One of the successes of the project has been the commitment and support shown by the local contractor and the tank supplier.

“When dealing with 26 schools and having tanks arriving onsite and trying to keep

Staff and pupils of Rata Street School, Naenae, Lower Hutt, pose in front of the newly installed emergency water container.

everything on track, there needs to be a commitment from everyone involved.”

The model used by the Hutt Valley team can be applied to other areas of the country.

For details of the plan for this project please contact peter.walker@huttcity.govt.nz ■

Strong interest in Whitianga tsunami strategy

More than 400 people attended two open days in Whitianga over Queen's birthday weekend to discuss plans for a new Eastern Coromandel Tsunami Strategy, developed by Thames-Coromandel District Council (TCDC) and Waikato Regional Council.

"I'd like to thank Whitianga people for the fantastic turnout at our two open days on Friday and Saturday," said TCDC's Strategic Relationships Manager, Peter Wishart. "People came well informed about the issues and eager to share their ideas for improving the town's preparedness for and response to tsunami."

The open days are part of a project which is looking at how the east coast of the Coromandel Peninsula might better handle tsunami-related risks. The strategy is being developed following new data indicating the tsunami risk for the east coast of the Coromandel is higher than previously understood.

Particular attention is being paid to the possibility of a major quake in the Tonga-Kermadec undersea trench to the north-east of New Zealand causing a tsunami that would take only a short time to arrive.

"The recent Canterbury earthquakes, and the massive earthquake which led to a

devastating tsunami in Japan in March this year, highlight the risks New Zealand faces from quakes and their tsunami-generating potential," said Peter.

Work on the strategy is being rolled out in Whitianga first as it is considered the location most at risk from the impacts of tsunami. Whitianga has a range of tsunami warning and evacuation arrangements in place already. Key issues raised by people attending the open days included:

- the need to get warnings out quickly and to make sure they can be heard and understood;
- the potential for traffic congestion as people evacuate the town;
- the welfare of people during and after evacuation;
- the need to take a sensible approach to future development in the town to make evacuations easier or at least to not make things worse.

"There were many innovative and practical suggestions on these issues," said Peter. "We now need to sort through these responses in detail and compile all the feedback. We will then report back to the local community board on the feedback



Peter Wishart, Strategic Relationships Manager for Thames-Coromandel District Council, explaining the tsunami strategy to a member of the public.

and on the next steps for developing a new tsunami management proposal for Whitianga."

It is expected formal consultation on a tsunami management proposal for the town will be held around September-October this year. The strategy team is planning to address tsunami planning in other Coromandel communities.

People with any queries about the tsunami project can contact either Peter Wishart on 07 868 0200 or Waikato Regional Council Emergency Management Officer Adam Munro, on 0800 800 401. ■

US-based USAR team honoured

California Task Force 2 (CA-TF2) is one of several international urban search and rescue (USAR) teams that travelled to Christchurch to assist with the search and rescue efforts following the February earthquake.

During CA-TF2's deployment, the team spent time working with New Zealand Response Team 14 (NZRT14). NZRT14 team member, Victor Pikari, presented CA-TF2 with a "patu," a Maori weapon that he personally hand carved, as a token of appreciation. Victor explains the rich history and significance of the patu:

"Warriors using these Maori weapons in battle relied heavily on quick footwork and agility. This piece was my first carving completed many years ago. It's had some wear and tear, but I wanted to give something to the team as a way of saying thanks.

"The essence and the meaning of the gift is that you too are warriors, committed to supporting any country in the world when required. The way you go about your tasks is professional and as a unit, your service was outstanding. I believe this gift incorporates all what Urban Search and Rescue is about. I was humbled and honored to have met and work alongside CA-TF2."

Fire Captain Jeff Britton, Fire Fighter Specialist Tony Haberman and Fire Fighter Paramedic Mike Jarratt accepted the patu on behalf of CA-TF2.

"The craftsmanship is exquisite," says



(L to R) Fire Fighter Specialist Tony Haberman, Fire Captain Jeff Britton and Fire Fighter Paramedic Mike Jarratt holding the patu, a Maori weapon, gifted to California Task Force 2 as thanks for their support in Christchurch.

Britton. Arrangements are currently underway to have the gift on permanent display at Technical Operations Division's headquarters office. ■

Auckland Preparedness Day

'Auckland Preparedness Day' was an initiative set by the Auckland Council Mayor, Len Brown, to look at lessons learned from recent emergencies and how ready some individual communities are to cope with disaster.

"Traditionally Aucklanders have been the least prepared in New Zealand," says Len Brown. "Events in Christchurch have reminded us that we live in a geologically active part of the world, while the tornado showed us that devastating events can happen anywhere, anytime."

"As individuals, families, businesses and communities, we need to make sure we are prepared. After Christchurch, my family put together an emergency kit – has yours?"

A number of events were held on Friday 27 May as part of 'Auckland Preparedness Day' beginning with the Waiheke Emergency Response Group exercising their Neighbourhood Response Plan for the first time. Developed in consultation with the community, the plan provides a list of actions to be taken should the community ever face an emergency or need to take action in advance of one to prevent potentially devastating effects. When an emergency occurs, the response plan will be activated. The group successfully tested communications and knowledge of the CIMS structure, and has already identified areas for future improvement.

"Waiheke is one of eight local communities across the region which is kicking off Neighbourhood Response Plans. Three public meetings have been held on Waiheke and, although the numbers were small (except for Rocky Bay), discussions have been excellent," says Waiheke Local Board Chair Faye Storer.

"The recent Christchurch earthquakes have focussed people's minds on the tragic possibilities, but also on the tenacity and resilience of communities under pressure. Residents of Waiheke need to take time to consider civil defence scenarios and weigh up the strengths and weaknesses of our own community," she says.

There was enthusiastic representation by Coastguard, NZ Fire Service, the Waiheke local board, Waiheke Health Trust, IBM & Morra Hall Committee with a number of them giving their own time for the day.

Later in the day Auckland Mayor, Len Brown opened the Auckland Civil Defence Forum to a diverse audience comprised of elected members, emergency services, representatives from lifeline utilities, central governments agencies and Auckland Council staff. A highlight of the forum was the official signing of two Neighbourhood Response Plans. Members of the Emergency Response Group from Kawakawa Bay and Mahurangi East have worked tirelessly to bring their communities together which



Minister of Civil Defence, John Carter and Auckland Mayor, Len Brown, congratulate each other on the signing of Community Response Plans.

has resulted in a strong connection and relationship with civil defence and robust Neighbourhood Response Plans.

A number of Auckland Council staff who were part of the Christchurch earthquake response provided their own personal recollections of their time in Christchurch, with both humour and humility. The forum will be regular event for civil defence here in Auckland, says Clive Manley, Manager Civil Defence.

"This forum was the first of an exciting series of opportunities for the whole civil defence community to come together to build networks, develop relationships and better understand the hazards that threaten Auckland. Auckland Council is treading new ground. We have come a long way over the last nine months and are redefining a new model of civil defence that brings council and other civil defence stakeholders together," says Mr Manley. ■

ALBANY TORNADO RESPONSE

On 3 May, 2011, Auckland Civil Defence activated its emergency co-ordination centre in response to a serious tornado. The primary focus was gathering intelligence, coordinating council's response and supporting affected residents and businesses. When the extent of the damage became known decisions had to be made quickly. The afternoon rush hour was approaching, and night was falling when the Auckland Civil Defence Controller decided to open a welfare centre at the North Harbour Events Centre. The welfare centre was supported by events centre staff, civil defence volunteers, the North Shore Initial Response Team, Work and Income staff, Victim Support, and the Salvation Army.

The following day Auckland Civil Defence field staff worked with emergency services and visited more than 90 properties giving residents information about the type of support available. They also linked welfare agencies with individuals, families and businesses affected by the event. Field staff were supported by Auckland Council's call centre which activated an 0800 number to further support those impacted.

As response transitioned to recovery a letter drop in the affected area gave information and directed people to the call centre number for assistance. Recovery activities included council officers assessing damage and organising support for the cleanup. ■



Work continues to enhance warning system

The Pacific Tsunami Warning System (PTWS) is part of a global network of tsunami warning systems which includes the Caribbean, Indian Ocean, North Atlantic and Mediterranean. The network functions under the auspices of the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

The PTWS is overseen by an Intergovernmental Coordination Group (ICG) which meets every second year to discuss the warning system, its delivery and possible enhancements. All 31 member states of the PTWS are represented in this group. The 24th session was held at the end of May 2011 in Beijing, China.

The meeting was held against the background of three catastrophic tsunami events in the Pacific (Samoa/Tonga in 2009, Chile in 2010 and Japan in 2011) which occurred since the last meeting. While acknowledging the thousands of lives saved due to effective systems and awareness already in place, the meeting noted that these disasters re-emphasised the need for effective warning systems, response procedures and public awareness, especially in relation to local source tsunami. It subsequently recognised that further improvement on all three fronts must be made with a view to enhanced decision making for the 'last mile' of the warning system.

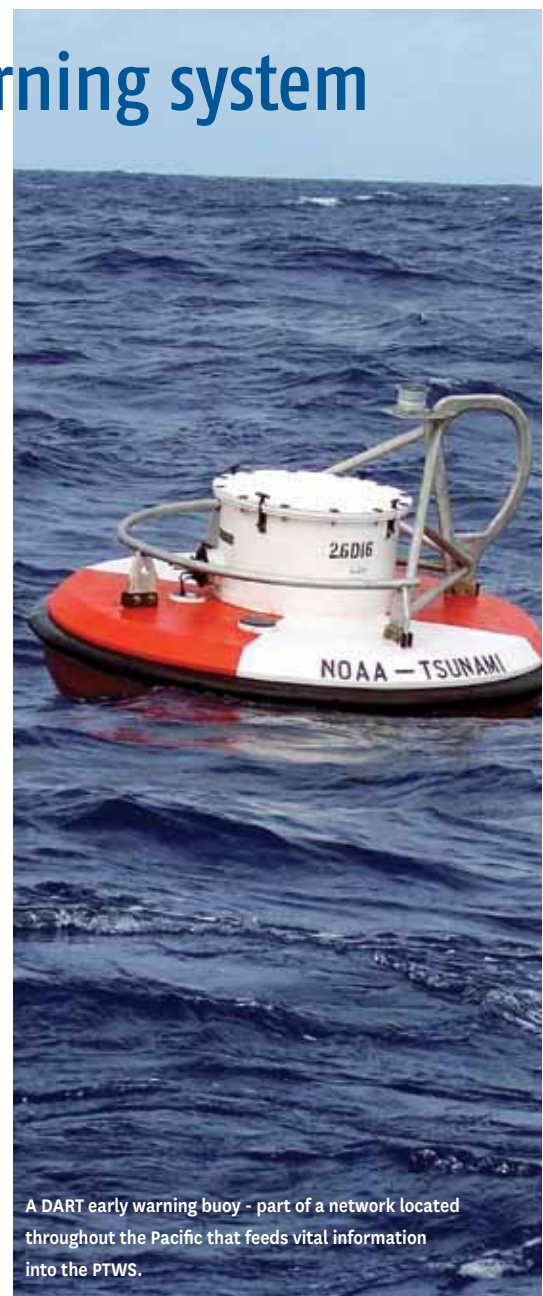
An important aspect discussed was enhancing international tsunami warning products with consideration of improved

assessment, accuracy, terminology, resolution and speed and as well as the diversity of the tsunami warning requirements of member states. A first new experimental format will be trialled for comment by member states during Exercise Pacific Wave in November this year.

Other related discussions and recommendations included: enhancing the partnership between detection/science and disaster management in the PTWS; data sharing between countries; risk assessment, training and sharing of best practice; and exercises and co-operation with the other international warning systems.

The PTWS Medium Term Strategy was re-confirmed and the PTWS Implementation Plan was updated to reflect the discussions and recommendations. New Zealand and our region will again be well represented in the governance structures of the PTWS over next period. Dr Ken Gledhill (GeoNet Project Director) was elected as the new Chair of the ICG-PTWS, Filomena Nelson (NDMO, Samoa) as the new Chair of the South-West Pacific Working Group and David Coetzee (Operations Manager, MCDEM) was re-elected as the Chair of the Awareness and Response Working Group.

An annotated agenda and the meeting documents can be found on the meeting website, www.ioc-tsunami.org. Some final documents including the recommendations will be added to the website by the Secretariat over the next weeks. ■



A DART early warning buoy - part of a network located throughout the Pacific that feeds vital information into the PTWS.

AUCKLAND COUNCIL APPOINTS HAZARDS MANAGER

In March Auckland Council appointed **Dr Marion Irwin** as Civil Defence Hazards Manager. Marion has a PhD in Structural Geology and has worked for the University of Auckland. She also spent time with Tonkin and Taylor as an Engineering Geologist, working mostly on land stability, hazard mapping and EQC claims resulting from landslide, flood and coastal erosion.

No sooner than she was appointed to the role of Hazards Manager, she was deployed to Christchurch for six weeks to assist with the earthquake response.

"Bringing hazards into the civil defence team is quite a significant change in how things work here in Auckland, and I am seeing big opportunities for improving communication and relationships within the council and with other stakeholders" says Marion.

"It's all about relationships and communication. To have a hazards champion within the civil defence team to communicate the concerns and interests, and to build peace-time relationships, should help us be better prepared when an emergency occurs." ■



Hawke's Bay battered by Easter storm

The intensive rainfall during the Easter storm from 26–28 April, 2011 saturated 14 coastal communities in Hawke's Bay and has been described as one of the worst storms to hit the region in decades.

At the end of the three-day storm several communities remained cut off by slips and floods while more than a hundred people still could not return to their homes due to flooding and threat of landslides. While thankfully no one was badly injured in the event and evacuations were managed admirably, the storm has left a huge clean-up legacy.

Many areas in a narrow band inland from coastal Hawke's Bay experienced substantial flooding damage including Mahia in Wairoa District in the north, Napier, Hastings and Central Hawke's Bay, with one site east of Waipawa recording 655mm of rain over three days. Napier experienced several landslides affecting residential properties, particularly in the Bluff/Hospital Hill area.

By early Wednesday morning, 27 April, it became evident that the severity of the emergency would require the activation of the Hastings Emergency Operations Centre. Hastings District Council Civil Defence Controller, Mike Maguire, assembled a team and the rescue operation was in full swing by 6am.

Initial assessment showed around 70 people had either been helped to move from their homes by civil defence volunteers or had self evacuated from caravan parks and homes overnight Tuesday. These people were being cared for at evacuation centre's which had been setup in the Haumoana School and the Waimarama Fire Station.

The coastal settlements of Waimarama and Ocean Beach were totally isolated due to slips, flooding and a washout which had closed a bridge on the main road into Waimarama. Personnel from the Council's Rural Fire Service along with civil defence volunteers were tasked with checking the safety of residents.

The bridge into the Waimarama Township showed signs of failure so a fire appliance was positioned on the township side of the bridge should it be required. The Army was called in to assist and



carried out everything from checking the safety of rural residents to transporting portaloos into areas where septic tanks had overflowed and were unusable.

The only communications link with Waimarama was the New Zealand Fire Service radio network, as all power, water, phone and cellphone services had been cut by the flooding. These services took some time to restore due to the washout on the approach to the Waimarama Bridge. Vehicle access to the township was not restored until Thursday afternoon when a temporary bridge was placed over the washout.

Council building inspectors were at full stretch in the week following the storm. Many homes were inspected in the coastal areas, with 66 buildings in

The Hawke's Bay community rallied in support of Waimarama residents. Around 150 people volunteered their services... they eagerly took to the streets with spades, shovels and wheelbarrows

The storm affected both rural communities (below) causing significant damage to land and infrastructure, as well as urban areas (right) with severe landslides in Napier.



Waimarama red stickered. In Te Awanga 37 buildings were red stickered, 23 for septic tanks which required cleaning and 14 for floodwater damage. Six of those homes have subsequently been deemed unsafe due to land slips, with repair work to be a longer term project.

Residents at camping grounds at Clifton and Te Awanga were evacuated to the emergency centre at Haumoana School as cabins and caravans were flooded.

Around 30 civil defence volunteers were involved in the rescue effort and worked tirelessly staffing radios, checking on the safety of residents and looking after the welfare of those who had been evacuated. In the days following the deluge, civil defence and council staff continued to operate



the welfare centre with 207 people registering as requiring emergency assistance.

The Hawke's Bay community rallied in support of Waimarama residents. Around 150 people volunteered their services and were transported to the township where they eagerly took to the streets with spades, shovels and wheelbarrows to help clean homes and property of the silt and rubbish left by the floodwaters.

This event also showed the value of having well prepared civil defence personnel. In the Haumoana, Clifton and Te Awanga coastal communities, the benefits of the ongoing community response planning programme was fully evident.

This flooding event was confirmed as a medium size rural emergency by the Minister of Agriculture. Councils are working collaboratively with the Rural Support Trust, Federated Farmers, the various ministries and related organisations together with affected communities on an extensive clean-up, restoration and recovery operation which will go on for some time. ■

KEY FACTS

To date there have been:

- 293 Earthquake Commission claims
- \$10M damage to local roading networks
- \$2.5M damage to State Highways
- \$60K benefits and allowances paid
- \$500K labour assistance to farms approved by the Minister of Social Development



PIKE RIVER

from a CDEM perspective

Allan Wilson, Emergency Management Officer for Grey District Council, was intimately involved in both the initial and ongoing response to Pike River mining tragedy. He provides a CDEM perspective on this disaster.

The Pike River tragedy is unique in New Zealand's civil defence emergency management history. This is the first time, that I am aware, of an industrial accident involving a private company invoking a CDEM response – in this case, for welfare. The rescue and recovery were the sole responsibility of the New Zealand Police.

I would like to discuss three main areas: Firstly the relationship with CDEM and a private company. Secondly working under the CDEM structure but having the Police as the lead agency and finally how the welfare advisory group (WAG) functioned. But first it is important to understand how the disaster unfolded over the first few days.

At about 4.00 pm on Friday, 19 November, I received a call from my manager, saying that there had been an accident at the Pike River coal mine and could I find more information. I rang

the mine site and was told that there had been an accident and no detail was available but the mine management asked if Grey District Civil Defence Emergency Management could be placed on stand-by. I immediately rang all the CDEM managers, including my manager who is also the alternative CDEM Controller.

At about 6.00 pm we paid a visit to the mine site to assess what their requirements might be. The road was closed about a kilometre from the main gate, and were advised by the Police to go to the Red Cross building in Greymouth as this is where the families were gathering. Red Cross and Pike River Coal Company (PRCC) share the same building in Greymouth.

The local Red Cross Emergency Relief Team was already comforting the relatives of the miners. This is a new team, experiencing its baptism of fire



Man of the moment. Peter Whittall, CEO Pike River Coal Company, conducting one of many media interviews during the crisis. Communication was a key component of the response.

during the 2010 Canterbury earthquake and I had worked with them when I was relief Emergency Operation Centre (EOC) manager for Christchurch City. In Greymouth no one was quite sure of the scale of the disaster, but being a fairly small town, rumours were abounding.

Eventually, later that night, Peter Whittall, CEO PRCC and Police Inspector Gary Knowles arrived and gave the families and all gathered in the small training room the news that there had been an explosion and many men were unaccounted for. At the first briefing the number of missing men was 27. It became obvious that a significant welfare response was going to be required. At this time the names of the missing miners had not been released and some people were saying that their husband or son had not returned home and they were worried. Both the police and PRCC, understandably, refused to give out the names as they were still gathering information.

Grey District CDEM assisted by staffing the phones through the first night and comforting the families of the missing men. Red Cross were registering families as they arrived. By the following morning Work and Income, ACC and various social services had set up in and around the PRCC office. The local polytechnic had opened its kitchen and was serving breakfast and other meals at no charge. The Chair of the WAG arrived at the welfare centre and we decided to call a meeting of the WAG for Sunday, November 21, to coordinate the welfare response. This meeting was attended by several members of the WAG but it became obvious that we needed more agencies in attendance, particularly representatives from the Police and PRCC. It was also obvious that there would be a significant counselling requirement for members of the community and affected families.

We distributed a flyer with the contact details of all social agencies to the families and arranged for counselling if required. We agreed to meet later that day with PRCC and members of the police, many of whom were from outside the district and unknown to us. At 4.00pm we reconvened.

By this time an Air New Zealand support team had arrived. This is a team comprised of Air New Zealand staff volunteers who act as liaison officers between the airline and families in the event of an

air disaster. In a disaster like this, family liaison is a task the Police would normally undertake, assigning one Police liaison officer to each family. However it was clear, given the size of the tragedy, that Police were understaffed and so family liaison was assigned to the Air New Zealand team.

Given the nature of the disaster, it was expected that Police would be the lead agency. This was confirmed during the second WAG meeting which was also attended by PRCC. All other agencies, including the WAG, would therefore be acting to support the Police response.

A representative from the Ministry of Social Development produced a draft communication plan. This was an excellent document which meant that we had a system to ensure we all knew what each other was doing. A secure page was created on the iGovt website where documents were posted and available to all. This was a great help and worked extremely well. It was becoming very apparent that the WAG was no longer a strategic unit, acting instead as an operational unit.

By the weekend the welfare centre was running well and had become the meeting place for the families of the trapped miners. Many people had arrived in town, either relatives or friends of the miners. The media had arrived en masse and had booked all the available accommodation. This presented the WAG with another problem as distressed relatives were arriving with nowhere to stay. The WAG worked with Housing New Zealand to find alternative accommodation and with members of the community who opened their homes.

One of the major challenges we had to overcome was getting accurate information to give to the families. At the very first briefing on Friday night, Peter Whittall and Police Inspector Gary Knowles said the aim was to provide hourly updates to give to the welfare centre for the families. Unfortunately this did not happen and the families were understandably very distressed. The Police



The problem was that CDEM did not understand how large companies operate and large companies did not understand how CDEM works and we never took the time to explain this to each other.

appointed a liaison officer for the welfare centre to help overcome this however, communication problems persisted.

As I knew the senior sergeant, who was from Grey District and was chairing the regular briefings at the mine, I was invited to a briefing and asked for a welfare perspective. I explained what was happening with the families and offered several solutions. It was agreed that at the end of each briefing a copy of the minutes would be sent to the Police station in Greymouth and from there to the welfare centre. Establishing effective communication with the affected families proved to be a significant issue and was an important lesson learned from this event.

Over the next few days the relationship between the Police and the WAG strengthened as did Police confidence in the ability of the WAG to get on with what it was doing. The Police inspector in charge of welfare was very good to deal with and she realised that we were doing everything that could be done.

Working with the Police was interesting. Every Police officer I had to deal with acted in a professional and caring fashion. I have huge admiration for the officers who were working in difficult situations and dealing with very distressed people. In one instance I know of a Police officer who had lost a husband in a previous mining accident. It must have been particularly difficult for her.

However, Police, like any organisation, has its own culture and it is difficult to assimilate this culture quickly, especially when there are operational differences. I believe a key difference relates to public information management. The Police are used to dealing with criminals and correspondingly they do not give out information freely. I observed this in Gary Knowles's briefings. He was very guarded in what he said. This unfortunately led to a general distrust of the Police by many in the community. In contrast, Tony Kokshoorn, the Mayor of Grey District, did a fantastic job in reassuring the community and he earned considerable respect because of this.

PRCC obviously has its own culture as well, and I still do not feel that I have got to grips with it. I had the feeling that they wanted to handle the welfare effort on their own which was understandable given

the close relationships within the company. They were not forthcoming with information and although they never subverted any of the welfare effort, they ran a parallel system which caused some confusion. For example those providing counselling services set up a helpline which was called "Pike River Help Line." PRCC set up its own helpline called "Pike River helpline" which was staffed by workplace support. Later, when the Pike River Miners Relief Trust was opened by the District Council, PRCC opened a similar trust.

To be fair PRCC often felt that they were not being kept 'in the loop' and claimed that they had a 'duty of care' to the families of the trapped miners. This has some truth in it and it has to be remembered that the company knew all the trapped miners so it was very personal for them. Peter Whittall was perceived as open and honest and is obviously an excellent communicator.

In the family briefing on 24 November, Peter Whittall began his report by talking about the improvement in the mine's atmosphere and the possibility of entering the mine. Everybody's hopes were raised but then he added that there had been a second explosion and that there was no hope of survivors. Many people cried out – it was just so unexpected. The families lost hope for their loved ones and the mood of the community changed. The job of welfare became more difficult and counselling services were working very hard along with various government agencies and NGOs. This was hard on everyone including the welfare workers. All the locals knew some of the miners and even those from outside the area that had come to assist had built up relationships with the families.

During this trying time the WAG worked extremely well and this, I believe, is due to the fact that we met regularly and had got to know one another. We communicated well, in no small part due to the MSD communication plan. Everyone worked to achieve the goals set out in the meetings. Priorities were agreed and acted upon. When we were short of staff or premises, government agencies offered staff and buildings, and they just made do for the mean time. I cannot speak highly enough of the members of the WAG. Their dedication, long hours and willingness to do more was humbling.

In one instance I know of a Police officer who had lost a husband in a previous mining accident. It must have been particularly difficult for her.

On the 16 December, nearly one month after the first explosion, the WAG held a debriefing meeting which was attended by all the members of the WAG. It was a very open and frank discussion of what went well and what could be improved upon. In hindsight, Police believed they should have been the family liaison from the start. However, they were grateful for Air New Zealand stepping in.

Police were also aware of the lack of communication in the early stages. They were still not sure why that had happened but promised to work on it. PRCC again congratulated the WAG for the way we all worked together. They agreed that having two 0800 Helpline services was confusing and admitted to some confusion about how the WAG worked.

The problem was that CDEM did not understand how large companies operate and large companies did not understand how CDEM works and we never took the time to explain this to each other.

All the PRCC people were fantastic to work with. They were all dedicated and totally focused on getting the men out, and later in giving as much assistance to the families as possible.

The lessons learned from this are the importance

of meeting regularly with the main players in your area who are likely to be involved in an event so they understand the support CDEM can provide. Through these relationships we can develop the roles, responsibilities and process which will coordinate our activities for maximum effectiveness.

Although we knew the local Police well because we have regular meetings, they were overstretched and drafted in new staff from other areas. This meant that we were working with people that we did not have a previous relationship with. This was also true for PRCC as we did not know any of them and had very little understanding of their culture. It is always more difficult to work with people that you do not know. This is not a criticism of these individuals as everyone worked as well as they could to do the best for the miners' families.

It was, and still is, a very trying time but I have been so impressed by the resilience of the families of the deceased miners and the dedication of all those working to relieve the families distress in any small way possible. I have also been overwhelmed by the generosity of New Zealanders and people from overseas in donating services, goods and money. It is the worst of occasions that often brings out the best in us. ■



A poignant reminder of the extent of the tragedy: a piece of West Coast greenstone engraved with crosses representing the lives lost.



UNPRECEDENTED TIMES

At 1251 hours on Tuesday 22 February, 2011, a magnitude 6.3 earthquake occurred approximately 10 km southeast of Christchurch. The earthquake caused extensive damage to buildings and infrastructure as well as major disruption to the Canterbury region.

181 people lost their lives.

A state of national emergency was declared.

We begin this extended coverage by exploring how several communities discovered their own built-in resilience.



Lyttelton discovers its big heart

*Freelance writer and Lyttelton resident, **Margaret Jefferies**, shares how an isolated community dug deep and discovered hearts.*

Lyttelton is a quirky little town of 3000. It is the port of Christchurch, linked to the city by road and rail tunnels and two hill passes. As a port it has long welcomed new arrivals. It is a safe haven. In essence the townspeople are creative, edgy, arty. Lytteltonians are not short on ideas and they voice them. Basically it is an alive town.

In this mix a community group, Project Lyttelton, has brought much innovation – street festivals, weekly farmers market, Time Banking, a newspaper and community gardens. To bring these about Project Lyttelton focuses on what is going well, on



Above: Hand sewn hearts became a Lyttelton symbol

growing possibilities. As a result there is a growing culture of possibility within the town, a playfulness and recognition that everyone makes a difference. There is a shift from 'I' to 'we' thinking.

On September 4, 2010, the whole of Canterbury shook. This was not what was expected. We all thought Wellington would be the place for an earthquake. In hindsight this earthquake acted as a training ground for what was to come. As a result of this earthquake Christchurch City Council CDEM invited the Lyttelton community to create its own emergency plan so people had been thinking about that when the second, more devastating earthquake struck.

Dust billowed into the air as buildings and rocks fell. It is difficult to trust what you saw – large boulders moving back and forth. When the shaking stopped, people were out on the street checking up on everyone and everything. Many people working in the city walked back over the hill tracks

that evening. Our lives were changed for ever.

Within hours a wonderfully seamless uniting of the various agencies emerged: The Emergency Team. This included representatives of the Navy and Army (we were fortunate they were in town), fire brigade, Police, ambulance, civil defence and "Time Bank", a system whereby a community sets up a database of people and their skills. People trade amongst themselves using time as the measurement tool. Everyone's time is equal. Both individuals and groups such as schools or medical centres can be members. Time Banks build community wellbeing and people get to know one another. Support, care and trust are built.

The strength that Time Banking brought was its connection to the community – its networks, its ability to send four or five broadcasts out each day stating the needs. It was able to source the right people for a particular job. Time Bankers were used to the system so it kicked in fast. Have you ever seen an entire household move from one house to another within 45 minutes? This is possible when you can pull work groups together quickly.

The Lyttelton Recreation Centre was the official place for the emergency work. It was a hive of industry. It was from here that the Navy and people from the local marae (who were used to catering for big groups) fed the town in the first weeks. A bouncy castle was set up on the stage for the children and across the road were the water tanks.

But in a time of emergency, not all work is critical life saving stuff. People want to connect, share stories, not be stuck in their houses alone. They want to try to establish a sense of normality. They need a place to meet, not in a place that is buzzing with emergency activities. The local coffee company provided this really quickly. They set up a coffee machine in the doorway of the closed library and put out tables and chairs in the open.

We gained many insights into human needs in the wake of the disaster. Despite individual trauma



The Lyttelton Recreation Centre: a community focus point and a hive of activity.



CHRISTCHURCH RESPONSE

We learned that community resilience planning needs to start before an emergency occurs and that people at the grass roots provide the speediest action

many people wanted to be of help to others; a desire that needs harnessing as its part of the healing process. People knowing they are making a difference for others.

A small group of women started sewing hearts – brooches for people and banners for damaged buildings that were attached to the safety barriers. They set up by the coffee machine so they could be amongst others. People donated threads, buttons and material. They made hearts for themselves and for all who passed by, thousands of hearts. It challenged some that these were free. Making these hearts was feeding our compassion for one another.

Adults and children came by, stopped for a few minutes or for the whole day. They chatted, found out the latest information, hugged, helped one another or sat silently and listened. There are many ways people react to the same shared experience and these are all OK. Hearts became a Lyttelton symbol. The earthquake had cracked open our hearts, we were now relating to each other heart to heart. As a community we were talking about love.

During the earthquake Lyttelton was virtually cut off. The road tunnel and Evans Pass were closed. Now we are starting to look closely at how we

become even more resilient. We realise that earthquakes are only one type of disaster. We have discovered that working together shifts a dire situation into something sustaining, even uplifting. It unlocks us and we become a rich community drawing others in. Being together is what is built into our DNA – we are social beings and we are at our best when we work together sharing our skills.

So what have we experienced as a community that could be of help to other places in New Zealand? We have learned that we are our own best resource. As Time Bank originator, Edgar Cahn put it, “We have what we need if we use what we have”.

We learned that community resilience planning needs to start before an emergency occurs and that people at the grass roots provide the speediest action. We don’t need to rely solely on professionals in particular fields to come up with solutions. Communities too have expertise, knowledge and wisdom. We therefore believe that official bodies should consider supporting the establishment and operation of Time Banks in their areas.

Finally we learned, we have accepted, that other disasters will occur. ■

Addington Action



The day after the February earthquake Addington Action was formed by local residents who realised they were on their own. Existing community groups were not responding, possibly because of a lack of leadership or focus. It was also believed that if Addington looked after itself, more aid would go to the eastern suburbs where the need was desperate.

The prime objective of the action group was therefore to organise the initial emergency effort in the 64 residential streets of Addington. This involved tasks such as pulling down badly damaged chimneys and working together to make a single tidy rubble pile in each street for the council to take away.

There was specific focus on checking the vulnerable and elderly, delivering food and water and helping find lost pets. Other practical tasks included

building long drops in public parks and organising security, not to mention providing lots of hugs!

Initially handwritten posters were stuck up on power poles to find out what the needs were in each street and to inform of specific community initiatives. Residents were then hailed by a megaphone to assist with tasks like street clean up as teams of volunteers moved from street to street. During the first 18 days, 150 local volunteers helped. The quake brought out the very best in most people and the worst in a tiny minority. On occasions, whole streets turned out to clean up the mess.

Since then Addington Action has evolved into a working committee made up of a resident from each street, workplace union delegates, church leaders and school principals. It meets monthly to co-



“The quake brought out the very best in most people and the worst in a tiny minority”

ordinate activity and is evolving rapidly. Volunteers are co-ordinated by cell phone text messages. There is ongoing work in 100 streets in Addington and Spreydon including organising weekly food parcels, repairs to uninsured homes of the elderly and working with EQC to make sure every home gets emergency repairs.

Work in progress includes developing GIS maps to help organisers, developing an easily-updated ring binder resource folder for each committee member and finding a place to work out of. When asked what the action group would do differently, spokesperson Mike Peters response was “Nothing!” Visit www.addingtonaction.org.nz for more information. ■



A little bit of duct tape...

The Redcliffs community responded to information needs of the post-earthquake environment with a whiteboard, a roll of duct tape, and a lot of chutzpah as local resident Vicki Hyde reports.

Three nights after the earthquake, my mother was evacuated out of her house just down the road from us and no-one could tell us where she had been taken – not the Police, not the Red Cross, not the welfare centres. With cellphones running flat, no way to access the websites cited on the radio, and 20-minute holds on the helpline, we figured information was as scarce as electricity and clean water, and just as vital.

My husband Peter and I lugged our home office whiteboard down to the Main Road corner, duct-taped it to the security fence surrounding our shattered supermarket, and started asking people what they knew so we could tape notes and messages to the board. The cellsite backup generator alongside gave us the chance to (illicitly) power up mobiles and hook up a laptop, and the Redcliffs InfoPoint was born.

A day or so later and we started printing a semi-daily double-sided news-sheet to let locals know about electricity prospects (gleaned from the Orion guys parked next to us), what services were operating, where the ever-shifting water tanker had been spotted that day, and even what pets had been lost and found. People started congregating on the corner to read the board, pick up the sheet, drop off or grab dearly-needed supplies and - most importantly - tell us what they knew.

We used the backs of business cards to build a



database of who was still here and how to contact them (and later sent it to the police missing persons group). We organised out-of-town friends and relatives to deliver batteries and gas canisters, bottled water and face masks. When we figured that the suburbs further north of us were even worse off than ours, we shifted those supply efforts there; and fielded related responses to Peter's online call-to-action plea, which had attracted attention locally and internationally.

When the power was restored to our house, we put the news-sheet online so that people who had left could learn what was happening here on a street-by-street basis - vital detailed information not available anywhere else. As a “drive-through” suburb with no community facilities to speak of, and with no designated information source on the

Braving a howling wind to keep information boards up to date.



CHRISTCHURCH RESPONSE

We all have high hopes for retaining the community ties that were hard-won in adversity

helpline or at the Council, we figured we were on our own. We didn't see our first informative official until day 11 after the quake (and that only because of a personal plea). So we made do with what we had with a little bit of help from everyone around us.

Three months on from the quake, the Redcliffs InfoPoint has taken over an abandoned office across

the road. It's staffed by a set of volunteers, notably stalwart Fletcher Stanton, who'd joined us on the street corner almost from day one. We all have high hopes for retaining the community ties that were hard-won in adversity, but it's going to take a lot of work, and a lot more than a whiteboard and a roll of duct-tape! ■

The Sumner Hub



Marnie Kent and coworker, Stephan Dujakovic at work in hub headquarters – an old school hall.

"If I'm OK, my family are OK and my home's OK, then what can I do to help?" This is how Sumner resident **Marnie Kent** describes her reason for establishing the Sumner Hub, a community initiative that arose following the February earthquake.

Unlike the Lyttelton community that was galvanised into action following the September earthquake, the community in Sumner continued much the same as it had previously. Most people were still unaware of civil defence arrangements or the locations of civil defence community posts. It was not until the devastation of the February earthquake that the community finally tapped into its own resources.

Once she was satisfied that her own home and family were OK, Marnie visited the local fire station to find out how she could help. She was put in contact with Stephan Dujakovic, a Telecom worker who like herself, wanted to make a difference. They were given access to an old school hall which they used as the base for the hub. Establishing the hub provided the fire station with a place to direct general public enquires as many people were coming into the station for assistance.

"They were really appreciative that we just stepped in as a community and said 'come to us, we're here to help you'. The fire brigade was trying to deal with its own issues, they just didn't have the time or resources to deal with everything."

The hub was used by the community primarily as a source of information. "People wanted to know what was happening. They wanted information about rockfalls, homes that were red-stickered, when power and sewerage was going to be restored."

As there was no power in the area for three weeks or more, the hub obtained its information via the telephone, keying into Stephan's telecommunications contacts. Regular meetings were held with the fire service, Police, USAR and council representatives.

The hub also established a temporary school. Working with local teachers, classes were held three days a week for four hours a day over a period of two weeks or so. This gave parents time to sort out their own recovery without children around while helping to restore some normality for the children.

As the community recovered, the hub network began to disband. However, for Marnie the reality began to set in that half of the Sumner retail area and community infrastructure had been lost. She initiated a public meeting to discuss this along with developing community resilience and effective communication during a disaster, keen to continue the community momentum generated during the earthquake.

"It had been so amazing how everyone was getting to know each other and putting their hand up instead of their hand out. This is what we can start doing, not just for now, but for the future."

When asked for the most important lesson from this experience, Marnie's response was immediate: "Come together as a community and be prepared. Get Ready, Get Thru, I really like that slogan!"

Visit www.sumnercommunity.org.nz for more information. ■

"It had been so amazing how everyone was getting to know each other and putting their hand up instead of their hand out."



Communicating face-to-face

Following two major recent earthquakes in Canterbury (September 2010 and February 2011), damage and disruption meant that traditional communication methods including newspapers, email, post and websites were not always available or lost currency quickly. It was very difficult for people in the community to know where to find accurate, up to date information, adding to an already stressful and emotional situation.

Civil defence staff organised face-to-face, localised community meetings as an additional communication channel. The format included a briefing from key agency representatives, then a session to address questions and concerns via small, facilitated discussion groups or one-to-one time with agency staff.

These meetings offered many benefits for communities and agencies. Residents could get up-to-date information and answers on the spot. People also connected in person with others from their neighbourhood, chatting for over an hour after the meeting time regardless of the weather.

Agency and civil defence staff found that relating directly with people in communities added huge value to their planning. Similarly, people in the community observed agencies working together and learned more about the various roles of agencies within civil defence. The effort of agency staff to show up in person meant a lot to people, and the discussion and one-to-one sessions were consistently the most popular part of the format.

Gaining access to accurate, consistent and locally-specific information in such a dynamic environment was one of the most challenging tasks. Communities indicated that this was one of the most important things, so systems were developed for understanding local issues and concerns, then finding updated information to present. Involving local community leaders such as elected politicians, and community and neighbourhood groups in this process was very important. In one instance a specialist geology speaker was arranged for suburbs affected by rock fall.

During community briefings in September, local and central government agencies were working alongside each other in a way they had not



previously, and at first it was not clear who was leading the process. This made communicating with the public challenging. In February, however, the organisational structure was clearly defined and the National Controller's prompt and solid support for the project was invaluable. This clearly demonstrated the importance of good relationships with other organisations. After a disaster, good pre-existing and new relationships with staff in different organisations – including cross-sector – really came into its own for sharing ideas, networks, systems and resources at the drop of a hat.

Another lesson learned was the importance of framing, designing and facilitating public meetings. To avoid moments where emotions and different expectations aired publicly might negatively affect other attendees, we designed a format that avoided 'open microphone' situations and was managed by an excellent facilitator who had compassion and experience. We also called the meetings Community Briefings or Information Sessions to help clarify the purpose of the meetings in promotional material.

Reaching a large number of residents to inform them of upcoming meetings was challenging and there was often pressure to cut back more intensive and expensive methods such as letter drops. However, the feedback we received indicated that people needed a combination of communication channels as each area was different. Ultimately, a variety of communications channels such as mail drops, email networks, newspapers, flyers and posters in public spaces/facilities/health centres was the most effective strategy. ■

Mayor Bob Parker (with sign language interpreter) addresses Christchurch Earthquake Community Briefing attendees at St Albans Park, March 2011



NO EXCEPTIONS

Simon Chambers

*Regional Emergency Management Advisor,
MCDEM*

Tuesday, 22 February 2011. I was supposed to be in Wellington for an emergency management conference with my colleagues John Lovell and Peter Cameron but a hastily arranged meeting had changed my plans. I spent most of the morning dealing with the West Coast and at 10.40am I went for a stroll to the Trocadero bakery in Cashel Mall. On the way I posted personal mail into the post-box on the corner of Cashel Mall and The Strip. These innocuous activities were to mean a lot to me over the following weeks.

At 12.40pm I left the building to deliver my vehicle for servicing. At the top-end of Manchester Street, by Edgware, the earthquake struck. The vehicle veered across the road. Trees and street lights swayed back and forth. I managed to stop and get out of the vehicle. I instantly thought of my wife who was working in the Heritage Hotel in the Square. I tried to ring her but couldn't get through. People were running everywhere and the road was slowly filling up with liquefaction silt. I turned around and drove back down Manchester Street until I could go no further by the bridge on Cambridge Terrace. I parked by the river and the first thing I noticed was the PGC building had collapsed.

I felt stunned looking down Manchester Street. The scene was surreal. People walked down the middle of the road covered with blood and grime, and dust shrouded the landscape from brick buildings having collapsed into the street. My first thought was how to get into The Square.

I walked down the middle of Manchester Street against the throng of people walking out. Some were helping to rescue three motorists whose vehicles had been hit by the falling masonry. I assisted and we managed to get the male driver out. A woman started performing CPR as we

tried to open the passenger's door to get the other occupant out. He didn't make it. There was quite a large aftershock and masonry was again falling.

There was a strong smell of gas and I remember thinking all we need now is an explosion. Stressed people were lighting cigarettes and somebody yelled out to put them out. I walked in a sort of daze to the corner of Gloucester Street and headed down towards Colombo. There were bricks everywhere and when I got to the corner of Colombo and Gloucester I could see that the Cathedral spire had come down.

I walked around the back of The Square and saw people lying on the ground being treated by others near The Press building. I was dreading seeing the Heritage Hotel. It was cloaked in darkness and there was nobody out the front. A person in a hotel uniform passed me and I asked where the staff were assembled. She said by the Chalice in the Square and I ran and found my wife, Liz. She was terrified as were other hotel staff and guests. Suddenly there was another big aftershock and glass started falling from the windows of some of the taller buildings and more damage was done to the Cathedral.

A police car arrived and the officer asked everyone to evacuate the Square and head to Hagley Park. We walked as a group along Gloucester towards Cranmer Square where we stayed for about an hour deciding on the best course of action. I was tempted to try and walk back to Cambridge Terrace and get the vehicle but the traffic was horrendous.

We made the decision to walk to Hagley Park and from there try to get to my mother's place in Bishopdale. Hagley Park was like a big sandpit with the effects of liquefaction visible everywhere. Huge trees had come down and we were constantly reminded of the dangers with aftershocks. As we got further out of the city it started to feel normal with not as much damage. We were relieved to get to my mother's place about two hours



A team of army medics outside the collapsed PGC building.

later to find her okay with little damage to her property. I checked on my son, Adam, and his partner to ensure they were alright. Adam is a policeman and he spent the next couple of days at the CTV site.

We gathered up my mother and my mother-in-law and drove out of the city to our place in West Eyreton. I dreaded the thought of the likely damage to the house as it had sustained some damage following the September 2010 quake. To my relief we came through it relatively unscathed with all services working and only some further minor cracking.

In the hours that followed we found out that my brother's wife, Helen, was trapped in the PGC building. She did not make it. The home of my other brother and his family was severely damaged. My mother-in-law was extremely frightened and so over the course of the next week we had a household of relatives. As news of Helen spread and her death was confirmed, relatives arrived from overseas.



Natural forces are no respecters of persons. During disasters all people are affected including emergency services and civil defence workers. And yet these people are still called upon to respond, often while trying to deal with personal loss. Four people involved in the response share their experiences and how they have coped.

The next 10 weeks really were a blur of activity, not only personally but professionally. We had to adapt to working in the Art Gallery as well as under a state of national emergency. It had been many years since I had worked a 12-hour night shift. Trying to sleep with so many people at home was virtually impossible as family members were dealing with grief. To say that this event has changed our life is an understatement. I lost a very close family member whom I had known since primary school days and my wife lost her job at the Heritage Hotel. We are still getting aftershocks that cause stress and anxiety levels to rise.

John Lovell

Regional Emergency Management Advisor, MCDEM

Tuesday 22 February began with an early flight to Wellington for a two-day emergency management conference. Halfway through the lunch break someone yelled out that there had been a large earthquake in Christchurch. Over the next 30 minutes I tried to ring and text my wife with no success. Peter Cameron and I made the decision to collect our bags and head to Wellington airport in an attempt to return to Christchurch.

We arrived at the airport at 2.30pm along with around 30 conference attendees. We crowded into a small room and organised ourselves into a priority list for getting back. All flights were grounded as Christchurch airport was being inspected. While waiting I was able to talk to my wife, Sandra, and confirm that she, our son, daughter-in-law and grandson were OK. She was unable to contact her mother who lives in the city.

Peter Cameron departed on the Prime Minister's flight and left me to organise those remaining. I received a phone call from Vincent Air who offered five seats on an air ambulance flight going to Christchurch.

As we approached Christchurch and descended beneath the cloud cover I saw the smoke plume rising from the CTV site.

I got home at 7pm to a very worried and distressed wife who had still not heard from her mother. At 8.30pm we received a call that her mother was at the Linwood Medical Centre with a suspected broken arm and that a close family member was trapped in one of the central city buildings.

Wednesday morning I picked up Simon Chambers drove him into the city to retrieve his work vehicle. As we drove into the city down Manchester Street I was shocked by the extent of the damage. Simon had told me that his sister-in-law was missing in the PGC building. As his work vehicle was parked just 100 metres from the site we were able to see the rescue teams working along with the heavy lifting equipment. Simon retrieved his vehicle and we both drove to the City Art Gallery where we would be based for the next eight weeks.

During this time, many tears were shed. While there were periods of despondency, there were also many periods of satisfaction. We were making a difference and people's needs were being met.

While we were busy in the EOC, it was hard not to reflect on our own personal concerns: My 79 year-old mother in law; a close family member who sustained critical injuries; other family members who had their homes severely damaged by liquefaction and are likely to be demolished and other family members who are emotionally affected and not coping well with the continual aftershocks.

Sandra's brother and his family came to stay with us for a few days. This was an emotional reunion as the enormity of their problems began to sink in: The uncertainty surrounding their family home and whether their business in the central city could be relocated. In the weeks following the earthquake we tried to look after family members first and establish a new normal.

Sleep at times was difficult and tiredness continual.

After working in CDEM for over 25 years with much planning and talk about preparing for an alpine fault earthquake, we least expected to use our skills in our home town. My experience rewriting the International Search and Rescue Advisory Group Response Guidelines became highly relevant as international USAR teams started to arrive.

Other highlights included: Speaking at public meetings on behalf of the National Controller; working with Mayor Parker; working with and supporting the US Army Corp of Engineers team to provide guidance on demolition of high rise structures; along with the resilience and stoic attitude of so many people.

Life is still not easy with powerful aftershocks a reminder that nature will carry on doing what she wants. And it's the uncertainty of aftershocks, how bad will the shaking get, the roar that precedes many of them, the uncanny way we seem to wake up moments before they occur, which add up to make life difficult, stressful and uncertain.

Peter Cameron

Southern Regional Coordinator, MCDEM

At the emergency management conference I received a frantic call from my wife, Jude. "There's been another earthquake. It's bigger than the last one. We've got liquefaction throughout the nursery, I don't know how I'll get home, please come back straight away!" After a quick team talk with the MCDEM staff around us, we all dispersed to our various duties, those from Wellington headed for the National Crisis Management Centre (NCMC), whilst we gathered all the Christchurch CDEM people and headed for the airport.

During this time I attempted to ring my



“Normal” work for me, and many others, will be totally different to prior to the earthquake.

daughter, who has two small boys, both under three. They were all OK, but they had a three-hour drive home over a distance that normally takes 20 minutes. Attending the Wellington conference were key Canterbury CDEM staff including Group Controller, Bob Upton, and Christchurch City Controller, Michael Aitken. With help from the NCMC we managed to secure seats on an Air Force flight which departed at 5pm.

While waiting, the full extent of the situation unveiled on the television. We saw images of buildings collapsing, and people fleeing, which even after experiencing the September earthquake, were incomprehensible.

In Christchurch, after reconnecting with our respective families, we went straight to the Group ECC in Kilmore St. A small team under the direction of an EMO staff member had started to gather intelligence and connect with Christchurch City Council. However within the hour we were informed the ECC had to be evacuated due to the potential collapse of the nearby Copthorne Durham Hotel, a problem building after the first earthquake. After some quick thinking, and with the generous assistance University staff, we ended up in the new Engineering facility at Canterbury University. By dawn we had re-established the Group ECC. We were very much in the emergency services response phase and over the next 24 hours additional resources were quickly mobilised to assist with search and rescue.

The events of the next few weeks have literally blurred into a surreal experience. Every day has advanced at pace. Working in a state of national emergency; the establishment of the National Controllers office; assigning staff to new and unfamiliar tasks; establishing a new structure; the visit of Prince William; endless meetings and briefings; the multitude of ever-present media and long days.

Home was a bed for eight hours and the

loving support of a partner who kept the household and her job going. There were many conversations to reassure a stressed daughter who eventually took her family to Nelson for time out. The tension within the community was palpable, felt through the reactions of our immediate family and friends. In addition, there was the desire to reach out to the families of Simon and John in their time of trauma and loss. We engaged in numerous “debriefs” with the neighbours - wine and laughter easing the day-to-day stress of not knowing when, and how big the next shake would be.

Bruce Henderson

*Team Leader, Asset Management,
Christchurch City Council.*

On the day of the quake I was discussing infrastructure recovery following the September event. The building rocked violently and the three of us ended up on the floor. After being evacuated from the building and checking that all my team were OK, I walked four blocks to Cambridge Terrace to see that my wife was OK. Despite walking through liquefaction and ground damage it wasn't until I reached her building, which was next to the PGC building, that I realised this was a very serious quake. I returned to the Art Gallery and it was decided that I would head home and wait for a call to be rostered on in the Emergency Operations Team stationed there.

I finally arrived home after five hours to discover our house had suffered moderately severe damage; bricks fallen off six walls, extensive internal cracking, and the hot water cylinder ruptured, flooding the ground floor as the water supply was still operating. I then received a call asking that I commence work in the EOC that night. I was not in the right head space to work that night so I commenced work the next day as one of the Operations Managers, prioritising and co-ordinating efforts to restore basics services in the city.

My life for the next 10 days was sleeping at my parent's undamaged house, working my roster at the EOC and in between, trying to make temporary repairs to our house.

Being an engineer, my coping mechanism was to get stuck in and do things. My wife's mechanism, being an empathic people person, was to talk, talk and talk - to me, neighbours, friends, strangers, anyone. These opposing mechanisms resulted in some initial friction between us, but fortunately we recognised this early on, and we made adjustments that worked for both.

Strangely, I found that I coped well when at work, however, when rostered off for a couple of days, I dreaded the thought of returning to the EOC. Once back, it was fine. Time off made me realise the pressure I and everyone else was working under. The cramped temporary working conditions were not an issue. Everyone was focused on their tasks and working in with other agencies for the best results. I knew many people working in the EOC, but everyone's determination to do the right thing meant that even working with previous strangers, relationships were quickly established.

I continued to work in the EOC until the end of March and over this period the operation gradually scaled down. I had a weeks leave and returned to my normal work in April. “Normal” is working in temporary accommodation in a converted suburban library with many others until the civic offices are ready for reoccupation in July.

The initial two to three weeks were difficult. Most staff had been working undertaking infrastructure assessments and repairs. I knew there was plenty of work that needed to be done but I struggled for a week or two to find a way of getting involved without interrupting or interfering with existing work patterns. Needless to say this has now happened and I am now more than fully occupied. “Normal” work for me, and many others, will be totally different to prior to the earthquake. ■



Coping with emotional stress

Wellington-based counsellor, Jayne Webley, travelled to Christchurch for the September and February events to help those traumatised by the earthquakes and aftershocks. She shares some of her encounters and helps to make sense of the many emotional reactions experienced.

I saw several common emotional reactions that began to emerge in September but were manifest to a greater extent after the February earthquake. These reactions are common expressions of stress and fatigue. While common they are nevertheless debilitating and frequently misunderstood by those affected by them.

Many people experience fears or phobias not previously encountered. One man told me he was sitting waiting for his wife in the supermarket car park because he was reluctant to go inside. He was feeling really bad about this until he looked around and noticed five other men waiting in their cars.

Another common emotional reaction was memory loss or unusual behaviour. When under stress, people are not aware of their actions and often experience confusion. I was talking to a bank teller who said she was serving a customer when her mind went completely blank as she was handing him \$300 dollars. In panic, she looked back at her screen to see what had just transpired and discovered the man had come in to bank the money. She had entered it into his account and then was going to give it back to him. These are normal reactions when we are stressed, but if we've never experienced them, it can be very unnerving and distressing.

Another observation, particularly after the February earthquake, is that personality traits become more exaggerated. A person who is neat and tidy ordinarily, will become even more so; someone who is prone to impatience could become intolerable. In team environments there can be strong reactions to each other because certain traits have been heightened. One person described how furious she felt when a man was complaining that his newspaper

delivery had been late. It's very likely he was displaying an exaggerated form of his normal personality. Being aware of exaggerated personality traits helps people to deal with seemingly irrational or exaggerated behaviour.

It's not only our personality traits that can become heightened. Senses of sight, touch, sound and smell can also become enhanced. People in Christchurch will be very familiar the automatic pause in activity that accompanies a bus rumbling past outside. "Was that another one? No, it's just a bus." Such heightened senses can interrupt sleep adding to stress and irritability.

As with the September earthquake, I became aware that earlier traumatic experiences can resurface. One middle-aged woman described reliving her childhood fear of the dark. She felt silly and thought she was "losing the plot". As we talked, I discovered that as a child she had experienced the Inangahua earthquake and had been terrified. It was these feelings that were now resurfacing. She was not "losing it" as she feared, and once she understood what was happening, she felt more in control.

I noticed that in general people weren't very tolerant of their own stress levels. They were inclined to use derogatory or self-deprecating words to describe themselves and this only exacerbated the problem. My advice is that being aware of the ways in which we react when under stress helps us to be kinder and more charitable to ourselves. This in turn helps us to return to a greater sense of normality.

And speaking of normality, the absence of normal services like electricity and water take their toll on people's resilience. Stress levels were much higher when people

were coping with multiple issues: a home "munted", workplace red-stickered, school not open and elderly parents distressed.

I was also mindful of the people in the helping professions such as nurses, doctors, social workers, emergency services and civil defence workers, who had their own stories and experiences that stressed and taxed them. These people are living the very experience they are trying to assist others to cope with. They don't get to go home after work and put their feet up. They too are victims. This is what makes the Christchurch earthquakes and the devastation so different. Everyone knows someone who was killed. Everyone knows someone that has lost their home.

It has been a privilege to help. There have been very harrowing circumstances for many I have seen, but I have also met great resilience, care, determination, compassion, even humour and a very strong sense of community. I want to close with two stories that stood out for me as examples of the deep humanity that I was fortunate to witness.

One is of a woman whose cat went missing, as many pets did. Day nine after the quake, the cat turned up. The pads on her feet were cut and one paw had been bandaged up by an anonymous person who took the time to help a distressed and hurt cat.

The other is of a fourteen-year-old girl who was in Cashel Street mall when the earthquake struck. As she was running to an exit with her friend, she detoured past a rubbish bin so that she could put the drink she was carrying into the bin. She was worried that if she just dropped it anyone running behind her might slip and not make it out in time. In amongst the terror she felt, she thought of others. ■



CHRISTCHURCH RESPONSE



At the CDEM coal face

Staff that worked on several emergency operations centre desks during the Christchurch earthquake response share some of their experiences and lessons learned.

Welfare perspectives

The ability to draw upon staff from other agencies was a huge strength. However, the corresponding challenge was that these staff lacked civil defence training especially within the EOC and at Welfare Centres. Working relationships between council staff were quickly established due to sharing a common culture and this contributed to effectiveness of the welfare function. The interface between council and welfare volunteers at welfare centres worked well once the management structure was sorted. A key lesson learned was that all council staff at team leader level and above must complete mandatory basic CDEM training. Feedback from Welfare Centres indicates that a formal triage system needs to be in place at centres and other facilities that kicks in early on.

Initially Christchurch City Council had access to experienced welfare teams from within the region. However, with the declaration of a national state of emergency the routing of welfare resources from around the country slowed due to a more stringent sign off process. Local welfare teams therefore became overstretched and tired waiting for backup from other regions. Teams from Waikato and Wellington were very well trained

and provided a superb boost. Developing rosters was a challenge and the lesson learned was that this should have been the responsibility of a single point of contact, including handover and continuity.

Experience with the September event meant that systems operated more efficiently, such as opening welfare centres. Staff turned up without being asked as they understood what was required. Volunteers from other organisations worked in well in the main with responding to the needs of the community, putting into practice the lessons learnt in September. Also welfare training undertaken over a number of years certainly paid off with a lot of comments from staff and volunteers about how good it was to have this training. A key observation was the fact that good networks had been established prior to these events which certainly helped in the response.

Logistics

Logistics functions to respond to civil defence requests, to have things in the right place, at the right time; essentially to go unnoticed. For this to occur staff must understand their roles and processes and systems as well as foster



key relationships with agencies, suppliers and distributors.

During the February response logistics was staffed by several teams. Throughout the early and middle stages of the response logistics was undertaken nationally through the National Crisis Management Centre (negotiating and coordinating the procurement of large and complex orders), as well as locally.

Strengths observed during the February response included well trained staff and rosters that dedicated specific people to specific roles; and having key supplier arrangements in place as well as storage and distribution arrangements.

One opportunity for improvement includes considering more careful shift handovers. Although 30 minutes was scheduled for each hand-over, the volume of work often meant that the incoming team was only afforded a few minutes to understand what was needed for each task for the next shift and beyond. While the manager maintained a hand-over book this only provided a brief outline of what was on the go.

For future events it is recommended to stagger shift changes to one or two staff at a time and provide time and space to move away from the front-office to complete the hand-over.

The Art Gallery location for logistics meant that all staff were always visible and therefore 'accessible' to all visitors. This meant that staff would receive incoming requests one after the other, and not have the opportunity to work-on or complete the tasks received. For future events it is recommended that logistics be provided space away from the 'front desk' to undertake and complete work without continual disruption.

From the first moment of the response, offers of assistance flooded in. Some were free and some were 'pay for' offers. While attempts were made to record track offers, it would be fair to say that this was not done to best effect. The main reason for this was the sheer volume received.

For future events it is recommended that this function be set up with the logistics team from the beginning, with adequate staffing and database

systems. Together with the recommendation that some back-office space be provided, this would allow time and space to marry offers and requests.

Public Information Management

When the earthquake hit at 12.51pm on 22 April 2011, the public information management team was one of the first to arrive at the emergency operations centre based in the Christchurch Art Gallery. The team worked through to the very end of the emergency on 30 April. At its height more than 30 people working on any one shift.

Initially the public information function was staffed almost entirely by Christchurch City Council – along with a few local willing helpers. The priority was to get an understanding of the scale of the disaster and to put out as many vital health and safety messages as possible.

The media (most displaced from their inner city work places) soon arrived at the door step of the Emergency Operations Centre. Even before email and phone was available, hard copy media updates were physically given to the media waiting outside, and the media briefings in the EOC became the main way to get information out to the public.

It soon became a constant assessment of what information should be provided and how to communicate with residents and businesses that may not have access to their property, or to power for television, radio or Internet. This required quick and innovative thinking from the whole public information team. Several tools were trialled – from text message and emails to direct mail drop using the student army to homes, retail centres, doctors, vets, recovery assistance centres and other locations. In the

The PIM team work together to brief Mayor, Bob Parker, prior to a media conference.





CHRISTCHURCH RESPONSE

Agreeing a media policy and media accreditation process quickly provided some guidance in managing media

earliest stages, when the messaging was more generic, the aim was to reach as many Christchurch residents as possible using every communication tool available.

Agreeing a media policy and media accreditation process quickly provided some guidance in managing media, and having people allocated to local and international media liaison working closely with the media outside the building helped manage issues as they arose.

A key focus for the Public Information Manager was assessing the staffing requirements that would be needed 24/7 to help manage the needs of more than 1,000 accredited media (many from overseas); more than 100,000 visitors to the website; social media responses; and non-stop media enquiries from across the world and interested politicians.

Having a team set up and running what were the quickest community briefings ever held after an emergency of this scale, meant vital messaging on core services was given straight to the almost

10,000 people that attended the three rounds of meetings.

Keeping the media informed proactively meant that at the beginning of the emergency media briefings were held multiple times a day, then daily, then three times a week and finally weekly; as well as sending out daily media advisories.

As the emergency progressed and messaging became more targeted in both subject and audience, it became obvious that there were projects that required specialist communication and individual communications strategies were implemented. This ranged from targeted information about portable toilets and chemical toilets in the earliest days, to red zone access for businesses and residents through to geotechnical issues on the Port Hills.

For the 100 or so communications professionals from across the country that supported the public information team, it was a fast paced, ever changing, reactive and dynamic environment to work in. ■

International mayhem

*Queenstown Lakes District Council Communications Manager, **Meaghan Miller**, was deployed to Christchurch to assist with international media management. She shares some of the challenges she and others faced.*

A few days after the quake, particularly with the number of missing international persons, the media presence began to grow. By day five, there were more than 1,000 accredited media personnel, with strong representation from Japan, Australia, the US and the UK.

I worked closely with Wellington-based communications manager David Schnellenberg, and we spent six days solid working long shifts liaising with media representatives who had multiple needs. To meet these needs meant working closely with USAR teams, police, welfare staff, the office of the Mayor and the National Controller. These ensured key messages were being consistently and accurately relayed and understood.

An important liaison task was working on behalf

of the media to broker video opportunities and negotiate the pooling of video footage – itself a complex business.

These opportunities included access into the cordon area, which was limited to one photographer and one television camera operator. This enabled pool footage to be obtained from each of the USAR teams during the rescue phase, air force helicopter flights, press conferences, escorted police access into the key rescue sites by bus and a multitude of stand ups.

There were a number of lessons learned over this period, and David and I have fed these into debriefs but in general some of the bigger issues were around accreditation and media management, specifically:

- developing a clear and final accreditation process specific to media and visibly differentiated from EOC staff accreditation;
- ensuring accredited media are developed into



CHRISTCHURCH RESPONSE



Using social media

Jason Dawson is Regional Public Information Manager for Northland Civil Defence and Emergency Management Group. He was deployed to help manage the PIM team as Assistant Public Information Manager.

The PIM team was mainly a mix of Christchurch-based staff from Christchurch City Council and Environment Canterbury, along with a range of private and public sector communications staff from around Canterbury and the country. Team numbers fluctuated from 20 to 40 staff, not including the amazing call centre staff based outside the Emergency Operations Centre.

My main role was to assist the Public Information Manager – a role specifically developed within the emergency structure to support the Public Information Manager who attended briefings and meetings on an hourly basis.

Social media played a big role during the crisis, with

Christchurch City Council quickly establishing a Twitter account to ensure there was one official source of information, as well as monitoring the hash tags #eqnz and #chch. A number of other hash tags were used including #eqnzContact for people trying to locate missing people and #redandblack for the Twitter community to show its support. Not only was Twitter used to push out key messages, actions and news, it also was used to respond to a number of queries outside of the call centre. Facebook was also used to get key messages and respond to queries and video footage from inside the red zone and community briefings was published on YouTube.

During the first couple of weeks the web team did an extraordinary job of trying to keep on top of updating the website, Twitter and Facebook, as well as monitoring the thousands of conversations and comments posted – from online newspaper comments through to TradeMe community forums.

Social media monitoring became just as important as traditional media monitoring, playing a crucial role in keeping the Planning & Intelligence desk informed of escalating issues.

To stand and work alongside our Canterbury colleagues is a humbling experience and I felt privileged to help them out in their time of need. They have lost so much personally and as a city, however, they continued to work in the Emergency Operations Centre and help their community respond and recover. ■

an email database for distribution of media advisories (in this case translated into Japanese would have been of enormous value);

- establishing protocols with emergency services regarding media access and clear agreement on management of cordon breaches;
- accommodating media in press conferences with a two-way exchange for housekeeping and any issues the media wish to raise, and;
- establishing a media zone with electricity, hot water, tea and coffee etc.

I feel humbled and proud to have assisted during this period. Each day the overnight global and national coverage was significant and important for a number of reasons. In particular it enabled the Christchurch community, the nation and the world to have faith in the competence of the response and this was well recognised.

The experience has reinforced the fact that the media are a critical component of any emergency



Meaghan working to satisfy one of numerous requests from international media representatives.

and communication must be immediate, proactive, responsive, regular and clear. The media must be accommodated, respected and above all considered at all times.

Finally I'd like to acknowledge the incredible response of Christchurch City Council and Environment Canterbury staff. They were, and continue to be, the real heroes as they continue to serve in very difficult circumstances. ■



Science and research liaison

Tucked away in an alcove beside the stairs of the Christchurch Art Gallery, the science liaison team was an essential and active contributor to the Christchurch earthquake response.

The science team was coordinated by the Natural Hazards Research Platform and included researchers from Environment Canterbury, GNS Science and the University of Canterbury as well as local experts. The desk was a hive of activity, especially in the first four weeks of the response, with particularly high demand for information and advice on the status of ground deformation across the city and hill suburbs, the nature of the ongoing earthquake activity, and advice on emerging risks.

Interaction and communication was a mix of the formal and informal, with a series of science factsheets produced, and regular updates provided for inclusion in situation reports. Being on the spot, the science liaison team was able to clarify science updates and findings immediately and directly, face to face. The advice provided ranged from informal chats with the curious through to formal meetings with VIPs, and from broad explanations for the uninitiated, to highly sophisticated and detailed technical briefings between scientists and science advisers.

A focus for interactions at the desk was geospatial information including such things as maps of liquefaction, land damage in the Port Hills, the latest aftershock plots, and aerial and LiDAR imagery for measuring ground deformation.

It was apparent that the science liaison desk also facilitated networking directly and functioned as an informal coordination hub within the response centre. On many occasions, different elements of the emergency response would congregate around the latest maps at the science desk, and spontaneously go on to collaborate much more closely on things such as lifeline operations in particular suburbs.

In addition to providing a focal point for interaction between the science and CDEM elements of the response, the science liaison desk and Natural Hazards Research Platform also provided an essential



coordination mechanism for a wide range of science and research activities happening across the region. The presence of a dedicated science liaison desk proved particularly useful for managing the large numbers of researchers that converged on Christchurch, including international researchers that may have lacked an appreciation of existing arrangements and the wider NZ operational context. Briefings organised by the science liaison team in the CRC and clearinghouse meetings arranged by professional societies like the New Zealand Society for Earthquake Engineering, helped put international and local researchers in touch with each other and facilitated data sharing and collaboration.

Within a few days of the earthquake, it was recognised that elements of the research response had the potential to add to the pressures being faced in affected communities and divert limited resources. As a result, the National Controller issued a moratorium on research activity that was not directly contributing to the response effort. This was very well received by local researchers that shared those concerns about shifting into pure 'research mode'

The Science & Geotechnical desk provided a vital link between CDEM and science agencies.

too early. It was also an effective way of clarifying for international researchers the importance of integration with local researchers.

The moratorium was lifted on termination of the state of emergency. However, the strong collaborations between researchers and across agencies established during the response, has enabled informal protocols to be established to support well-coordinated research during earthquake recovery that is mindful of the needs and capacities of the local communities.

Formal debriefs of the science and research response are yet to be undertaken, and the ongoing contribution of science advice and research to the recovery mean that it may be sometime before such reflection and review is possible. The willing, wide-ranging, and well-coordinated response of science to the Christchurch earthquake is a strong base for continued integration of science and CDEM. ■



Lifelines Q&A: Orion

Natural disasters place enormous pressure on key lifelines such as electricity, water and transportation. We asked electricity supplier, Orion, how it coped and what lessons were learned.

How important is it for emergency planning to be integrated into business as usual operations and thinking?

Risk management, including planning for emergencies, is integral to how we manage our electricity distribution network. The key to integrating emergency planning into everyday business operations is to plan for a wide range of events and to develop processes and procedures which can be quickly deployed in the event of an emergency. Orion uses the 'four R's' approach to resilience planning – reduction, readiness, response and recovery.

Risk mitigation is included as part of Orion's asset management process. When risk can't be easily eliminated, we control the level of risk through the use of emergency training, staff competency, safe work practices, planning and network design.

We also find it useful to contribute regularly to emergency readiness programmes such as the Pandora exercises run with civil defence emergency management and other utility organisations. Participating in these exercises enables Orion to test its emergency processes and procedures and take any key lessons learned to make improvements.

Orion's disaster resilience summary document provides the Canterbury Civil Defence Emergency Group with a high-level overview of its services and operations to assist the group with their role in the event of a civil emergency. This document is updated annually.

What are the challenges or barriers to achieving this? For example, infrastructural, social, financial?

We look for the right balance between investing in our network to provide an excellent service and a secure network that will withstand any major events, and keeping costs down.

Extensive consultation tells us that consumers want us to deliver electricity reliably and keep prices down. We face many financial and operational challenges as we constantly strive to achieve this balance.

How have your emergency business continuity plans affected/influenced your organisation's response to the earthquake event?

Disaster planning played a crucial role in our response to the September and February earthquakes. The quakes tested both the resilience of our network and our response plans and we believe both performed well.

Over the years Orion has invested significant time and money to ensure the network is protected against potentially damaging events as earthquakes and storms. In general our infrastructure stood up to the earthquakes and aftershocks well due to our commitment to this forward planning and risk protection work.

Without this risk management and planning in place, it's likely we would have faced a much larger earthquake repair task and bill, and parts of Christchurch may have been without power for weeks or even months longer than they were.

How important were the community briefing meetings in managing Orion's response?

The community briefings enabled Orion to engage in a two-way conversation with those members of the community who were directly affected by its projects to help restore a stable power supply to Christchurch. Affected residents registered to receive regular updates from Orion about these projects, and we then kept them informed about project progress via email and letterbox drop.

In the first few weeks following the February earthquake, these briefings were part of a comprehensive communications programme to inform the public about the status of the network. This included daily media statements and briefings, printed newsletters and flyers via mailbox drop, newspaper and radio adverts, and targeted email updates.

What key lessons were learned – particularly in relation to your response to the community's need for information?





CHRISTCHURCH RESPONSE



Two-way communication is important. Give the public plenty of opportunities to interact with your organisation

- Timely, consistent and frequent communication is key, including targets and updates on progress.
- The community is hungry for information. Even if you don't have all the answers, communicate what you know so far, and what is working – not just the problems.
- It's important to give the public an indication of when you will provide further information.
- Understand the context of the situation as early as possible after the event and include this information as part of your regular communications with the public. This enables the community and your stakeholders to gain the bigger picture of what has happened.
- However, understand that you will not have all the context nor all the answers.
- Two-way communication is important. Give the public plenty of opportunities to interact with your organisation – via phone, email, website (including social media), and face-to-face.

What advice can you offer to other organisations when responding to a major event?

- Immediately after the major event, take the time to determine a clear strategy for your organisation's response. You can then do what's needed to manage all resources based on this strategy.
- Wherever possible, utilise normal operational systems and processes which are familiar for your staff to use and follow. An unnecessary change in process can create confusion and further stress during an already difficult and stressful time.
- Early on, gather all of the relevant external information your organisation needs to carry out its role – for Orion, this included access information such as knowing which roads are open (even partially), and the status of bridges, passes and tunnels.
- Regular updates of this kind of information are essential – it changes priorities and reduces delays. ■



EQC faces greatest

The first earthquake that struck Christchurch in September 2010 was the undoubtedly the greatest challenge the Earthquake Commission (EQC) had faced since its establishment 65 years before. Six months later the challenge got a whole lot bigger.

In a normal year EQC processes an average of 3000 claims but by the end of May 2011 it had received nearly 345,000 for all insurable events from the Canterbury quakes, including 159,670 for the 22 February earthquake.

Before September 4, it was a lean organisation with only 22 permanent staff and 23 trained assessors, paid on retainer to ensure their availability in case of a disaster. By Christmas there were a thousand people on the payroll and after the February 22 quake numbers ballooned again to over 1180.

EQC's Catastrophe Response Programme (CRP), which had been updated then reviewed by a team of independent experts a year earlier, had been well tested. Working with the CRP framework, EQC had already set up field offices to deal with smaller events and had mobilised its contract assessors 18 times since 2004. The organisation knew how to respond to natural disasters but the sheer scale of the Canterbury quakes called for some fresh thinking.

Like other agencies involved in the recovery, EQC was focussed on keeping communities intact. They wanted to help people repair their homes so they could stay in them or get back to them as soon as possible. Within six weeks of the September event, EQC had set up a Christchurch field office in Deans Avenue, established a call centre to help people process their content and



challenge since its inception

property claims, built a team that included 500 assessors and a process by which they could fully assess damage to residential properties. Many team members were Cantabrians but people were also bought in from around New Zealand and Australia.

It was clear that all emergency or long term repairs would need to be of the highest quality to ensure the long term viability of Christchurch's housing stock. In October, after a comprehensive tender process, Fletcher Construction was appointed as EQC's agent to manage repairs and to ensure costs were transparent. A programme to ensure homes had adequate heating by the winter months was instigated, continuing with greater urgency after the February event.

On the day of the February quake, as news came in of ever increasing destruction, Wellington-based Chief Executive, Ian Simpson, knew EQC would have to reassess everything it had done after the September event. There was a five week backlog of claims waiting to be processed. By the end that afternoon Ian had begun talking with Fletcher Construction about updating emergency repair plans.

His first thoughts were, however, for his Christchurch based staff that immediately stopped work for 10 days to join in the emergency response effort wherever they could and to help ease pressure on the city's infrastructure.

Fortunately, EQC's Christchurch office was not badly damaged so its infrastructure was largely intact. Most importantly, its team already had six months working within the Christchurch environment.

"We knew that residents and homeowners needed an initial, meaningful idea of their situation as

quickly as possible so we introduced the rapid assessment programme. This allowed us to identify the worst affected properties and build a district wide map of the damage," Ian Simpson said.

Full assessments require a two person team, an assessor who ensures the claimant understands the process, and an estimator, a qualified builder skilled at assessing damage to the house. Rapid assessments were conducted by one person. They were designed to categorise each property by extent of damage and estimated cost of repairs and provided a timeframe within which claimants could expect a full assessment. "We thought it would take eight weeks to complete the rapid assessments but we actually finished them in five."

While a lot of its work is, by its very nature, part of the recovery process, EQC also has a public education mandate. After September it set up an Engineering Advisory Group to identify how residential structures responded to liquefaction. The group included structural and geotechnical experts from a range of agencies and sought input from international experts on the effects of liquefaction on buildings. It handed the project over the Department of Building and Housing which, acting as regulator of building codes, published the group's findings in Guidance on House Repairs and Reconstruction following the Canterbury Earthquake in December 2010.

EQC plans to mark the 2010/11 Canterbury earthquakes by focusing its 2012 round of research funding on the data and information that the Canterbury earthquakes will yield and, where necessary, ways of further improving how it, and the rest of New Zealand, can respond to any future earthquake of similar size and impact. ■

In a normal year EQC processes an average of 3000 claims but by the end of May 2011, it had received nearly 345,000



Free personal fitness sessions for Christchurch

Being fit and strong is as much a part of our survival kit as having tins of food and water so teams of local REPs (Registered Exercise Professionals) have banded together to lead free group exercise session at four locations around the city. The sessions are for anyone of any fitness level.

“If ever there was a time to embrace regular exercise this is it” says local personal trainer and organizer of the event, Jean

Scott. “We know exercise relieves stress, improves mood and makes people feel more positive.”

Several facilities and gyms have reopened. Emotionally some people may decide not to go back indoors for exerciser sessions so these park sessions will help relieve stress and anxiety, while providing social interaction and fun. Participants are invited to turn up dressed for exercise and with

suitable footwear. Everyone will be catered for regardless of fitness level and experience of exercise. The event will take place rain or shine, and will last about 45 minutes.

Location details and maps can be found at the website www.fitnessnz.co.nz.

The first sessions were held on Saturday 4 June. They will be repeated on 18 June, and 2,16 of July. ■

Coastguard volunteers aid Christchurch relief efforts

Best known for saving lives at sea, Coastguard volunteers put their training, planning and incident management skills to good use on land during the relief efforts of the Canterbury earthquake. Volunteers from Coastguard’s Kaikoura, Sumner and Canterbury units all pitched in to lend a hand to the city of Christchurch and its communities in their time of need.

Coastguard CEO Bruce Reid says he is extremely proud to be part of an organisation where volunteers don’t hesitate to put the needs of others before their own. “The Canterbury earthquake had an effect on all New Zealanders including members of Coastguard but despite this, our generous volunteers are always the first to raise their hands when it comes to helping out our communities and this was a time it was needed most.”

The hours of training that Coastguard’s volunteers invest into up-skilling themselves



in assessing risk and navigating difficult situations, were invaluable in helping civil defence after the quake. Volunteers helped out at the city’s welfare centres, assisted at the Sumner fire station, retrieved vital pieces of property from within restricted areas and ensured residents were able to get into their houses safely for the first time once cordons were lifted.

Coastguard Units around New Zealand recently sent out their own call for help as they appealed to the public for funding support during their inaugural May Day appeal, aimed at raising funds to support its critical volunteer support programme ‘Train One – Save Many’. For more information about Coastguard New Zealand visit www.coastguard.co.nz ■



Unpacking EMIS

This article provides an update of latest developments as well as unpacking details of CDEM's equivalent of a Swiss army knife.

With the roll-out of the new CDEM Emergency Management Information System (EMIS) we find ourselves at the dawn of a new era for information management during CDEM emergencies.

Hosted centrally in the National Crisis Management Centre (NCMC) in Wellington, the system will be available for national, CDEM Group and local authority use. Primary users will be able to control individual access to the EMIS within their locality as well as be able to maintain the content of their own portal.

The system provides comprehensive information management for CDEM including all Coordinated Incident Management System (CIMS) functions as well as welfare and lifelines. It is also possible to manage contacts, resources, tasks and reporting, and there are powerful notification and centralised mapping functions. It will allow the sharing and aggregation of information across the three levels of CDEM: local (EOC), Group (ECC) and national (NCMC); both horizontally and vertically.

The EMIS is supplied by US-based firm NC4 (formally E-Sponder), partnered with Interger in New Zealand. It is a web-based system built upon the

Microsoft SharePoint platform providing simplified access, maintenance and configuration.

Current status and training

The full set of EMIS components was delivered by E-Sponder in January 2011 and deployed onto the NCMC-hosted testing environment. Full system testing began in early February but was interrupted by the Christchurch earthquake. The project team has therefore had to reset the timeline for final testing. Following completion of testing, the system will be installed onto the operational environment.

Training preparation for train-the-trainer and super-user training also started in January. This involved the preparation of lesson plans and training material. Once the system is installed onto the operational environment, the training environment can be populated with a large amount of scenario data to facilitate training for all functions at all levels (EOC, ECC, and NCMC).

The train-the-trainer and super-user training will commence early in August with seven three-day sessions. Attendees will be issued with training

As long as users maintain connectivity to the internet, they should have access to EMIS. MCDEM recommends that all ECCs and EOCs ensure they have redundancy in their ICT connectivity



materials that will cover user and super-user manuals, PowerPoint training presentations and take-home lesson plans.

EMIS 'operationalised'

The system will be operational once train-the-trainer and super-user training starts. When this essential training is completed, MCDEM and CDEM Groups will be in a position to schedule and commence general user-training. MCDEM and the individual CDEM Groups will then have to consider when they anticipate being ready to start using the EMIS in real events.

This will likely depend on the level of staff confidence and the setup by each user agency of its portal and base data. Realistically it is anticipated that this transition phase will take up to six months after which all user agencies can be expected to be on board. We need to be mindful that the system will only demonstrate its full potential if all the members of a CDEM Group are using it.

User agreement

MCDEM is preparing an EMIS User Agreement that all user agencies will be required to sign. The agreement will deal with important issues such as E-Sponder licence terms, the processes for change, helpdesk support, and cost arrangements (for example, using the alerting function). The agreement will be ready by the time of training, although CDEM Groups will be given until February 2012 to obtain appropriate sign-off.

Governance

Terms of reference for an EMIS Governance Group to oversee future changes to the EMIS are also being developed. This Group will be composed of six CDEM Group representatives, one MCDEM representative and be chaired by the Ministry's Operations Manager. A call for the nomination of CDEM Group representatives will be made once the terms of reference has been developed.

EMIS redundancy

There are a number of technologies employed to ensure that EMIS maintains a high availability for users.

Duplicate hardware

Critical hardware, such as servers in the NCMC, has been duplicated so that EMIS will remain available in the case of unexpected hardware failure.

Alternative communication

A reliable communications network is vital for the effectiveness of EMIS. To ensure this, an alternative communications network will be used if the dedicated underground fibre connection out of the NCMC in Wellington is severed.

The solution consists of two microwave links carrying internet access, data and voice traffic from the Beehive in Wellington to the nearest unaffected point(s) outside Wellington.

Provision is also made for an alternate Internet Service Provider.

Disaster recovery (DR) site

While the system is hosted in Wellington, it is also replicated at a secondary DR site in Auckland using a dedicated WAN connection. The DR site will be used in case the primary NCMC site is unavailable for whatever reason. Data from the primary site is constantly replicated to the secondary site to ensure all servers remain up to date. The switch over to the DR site is seamless and users will not notice any difference when the secondary site is used.

Local redundancy

As long as users maintain connectivity to the internet, they should have access to EMIS. MCDEM recommends that all ECCs and EOCs ensure they have redundancy in their ICT connectivity to reduce the chances of local EMIS access failures. Consult with your ICT staff about your local arrangements.



EMIS structure

The EMIS structure has taken account of the CDEM Act 2002 as well as the National CDEM Plan. It is a three-level structure which incorporates the Ministry of Civil Defence & Emergency Management, Regional Groups and local authorities.

Each level within EMIS has its own portal where users, contacts, resources, documents and templates are managed. Each portal has its own URL and all users must have an approved logon to access their portal. At the Group level, an ECC will be able to view, within its portal, the activation status of their constituent EOCs.

When activating an operations centre, an event site is created from the centre's portal. Each event site is a standalone URL accessed via the portal.

This allows the centre to handle multiple events simultaneously while keeping records separated to reduce confusion and allow for post-event analysis.

For example, in the screen shot below, three separate events are displayed, (JDTest11, Putaruru, Chatham Cyclone) each with its own URL.

Functional areas

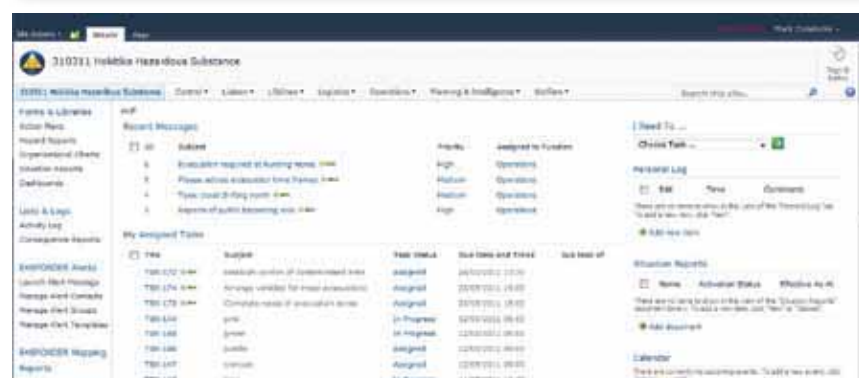
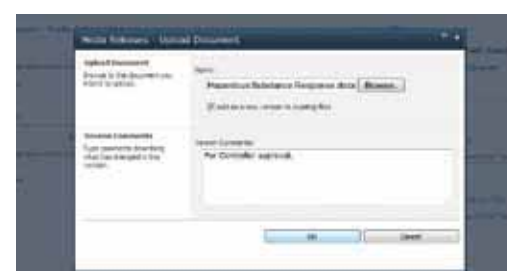
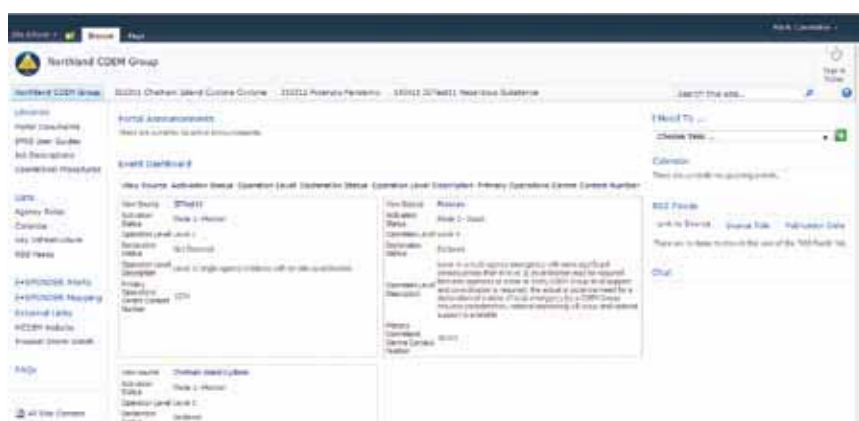
Each event has functional area tabs which are aligned to specific CIMS functions as well as individual welfare and lifelines functions. These functional areas each have a number of roles that are based on the tasks typically performed by the function or that fall under the function. The functional area tabs in EMIS are:

Control – Roles include the Controller, Safety, Public Information Management (PIM) and Recovery. Here the controller can approve media realises, SITREPs and Action Plans.

Operations – This is the central hub of the response with two key areas: Data Analysis (which includes capturing and assessing incoming communications)



Below: EMIS Portal screen, Bottom: The Event Site screen

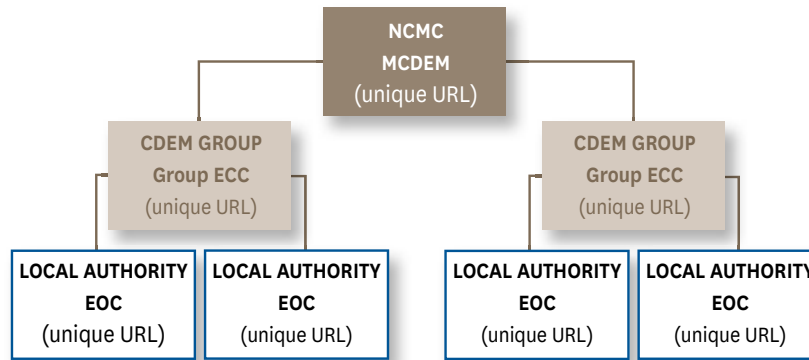


Action Plan Number: Auto generated on creation	Effective Date: Enter the effective date of the report 24/06/2011 08:00:00	Action Plan
Coordination Facility: National State Management Centre (NSMC)	Operational Period From: 24/06/2011 08:00:00	
Emergency Event: 310311 Putaruru Hazardous Substance	Operational Period To: 24/06/2011 08:00:00	
Situation Summary: (Current current and future future situation relevant to the emergency. Summarised high priority issues in a brief, clear and concise manner.) An uncontrolled hazardous substance has become airborne and is currently drifting north through the suburban area of Putaruru. Safety advice has been issued by Police and Fire.		
Goals: (An objective to be achieved by the end of the operational period)		
Limiting Factors: (Any factors that have an effect on achieving action plan goals)		
Objectives: (Action plan or other related objectives that are to be completed in order to achieve the goal)		
Actions: (Detailed list of tasks to be undertaken, including a support agency, location, when critical)		

Top: Example of a media release upload

Bottom: Action Plan screen within the Control functional area

EMIS is a three-level structure which incorporates the Ministry of Civil Defence & Emergency Management, Regional Groups and Local Authorities



and Tasking (creating and monitoring tasks, including the ability to assign resources to tasks).

Planning and Intelligence – Planning and intelligence has forms for SITREPs, Action Plans, Hazard Impact reports and analysis. Science liaisons can be linked into EMIS through this function.

Logistics – The Logistics function focuses on resource management. Resources can be added to the resources database through a virtual ‘T-Card’ classification system. Resources can be tagged ‘critical’ and control of a resource can be transferred from one operations centre to another. Purchase orders can be raised via the EMIS. Those using council purchase order systems can create a simple ledger of spending. Requests for resources can also be created by an EOC or ECC in order to seek procurement support when resources are not available locally.

Liaison – Each of the support agencies will now have a logon and can enter data directly into the

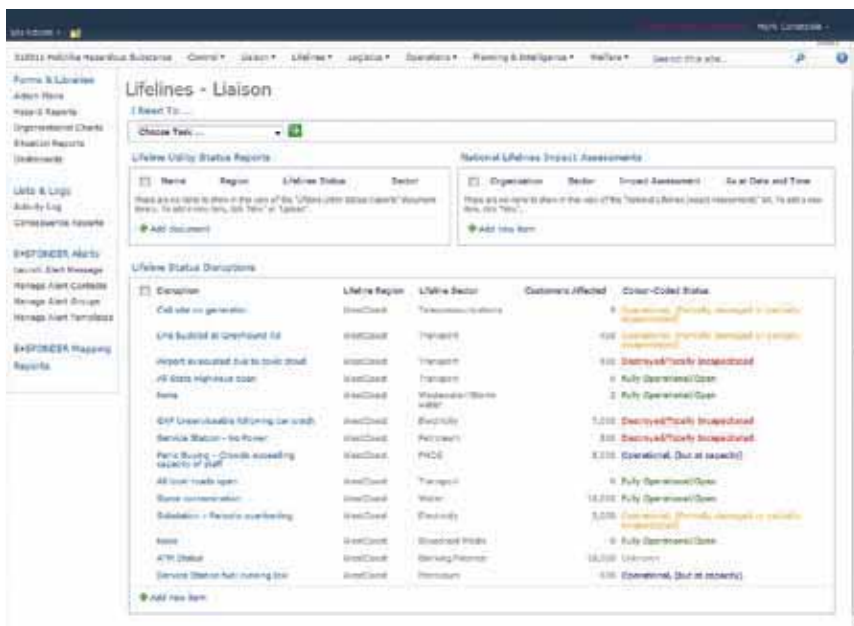
EMIS system and receive tasks from Operations.

Welfare – The Welfare function will allow welfare centre supervisors to complete online status reports allowing for more timely EOC support. Also within the welfare tab is the redeveloped Welfare Registration process (see Welfare Registration below for further details).

Lifelines – This is a standalone function within EMIS. It incorporates lifeline status and site disruption reporting tools. Lifeline utilities will be able to login and complete these themselves allowing for the collation of lifelines data. National lifelines will also be able to supply the NCMC with national impact assessments.

Dashboards

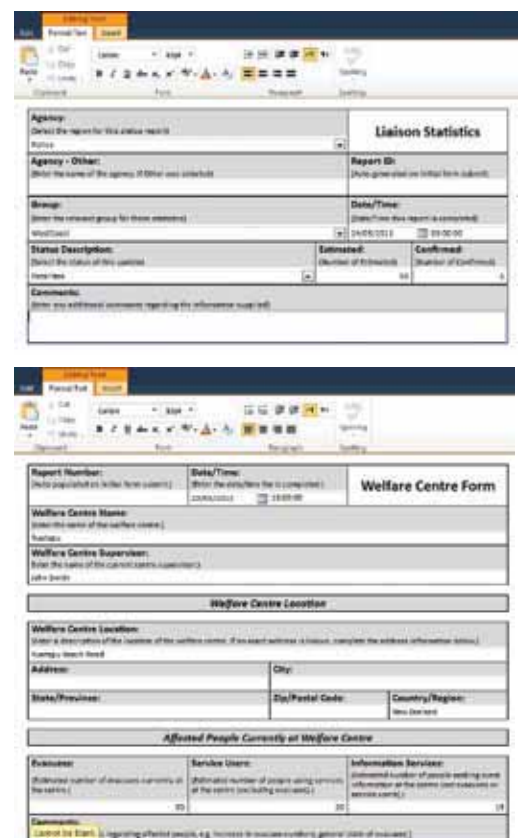
Dashboards are a display of summarised data from various reports and lists within the EMIS functional areas. These are designed to be displayed on projection screens or stand alone monitors in



Above: The lifelines liaison screen. Lifeline utilities will be able to login and complete these themselves.

Right top: The liaison statistics screen.

Right bottom: The welfare centre status reporting function.



Welfare registration data can be entered and stored in a centralised database within EMIS

order to provide a high-level view of critical data contributing to the formation of a common operating picture.

Data from dashboards is effectively “rolled-up” from EOC to ECC to NCMC, aggregating data on each roll-up. The EMIS comes with several predefined dashboards including: Tasking, Lifelines Status, Liasion Statistics, and Resource Management. Further dashboards can be created at each user level.

Welfare Registration

The Welfare Registration process has now been computerised so that registration data can be entered and stored in a centralised database within EMIS. This will allow welfare centre staff to enter evacuee details directly into the system from within a welfare or evacuation centre.

This system also automatically generates the needs assessment for an affected person(s) and links it to their registration data. If internet connectivity is unavailable at the place of registration, then manual forms can be completed and details loaded into the EMIS at a later time

Central databases

Although each centre’s portal and event site(s) is effectively standalone, there are three centralised databases within EMIS which can be accessed from any event site or portal. These databases cover Welfare Registration, Contacts, and Resources. By using central databases, duplicate entries are

minimised and resources are able to be managed across multiple simultaneous events.

Information entered into these databases is able to be maintained from the point of entry. Although information is visible to all users, there are restrictions on the visibility of some data such as evacuee’s details in the Welfare Registration database.

Mapping

EMIS mapping allows users to access a dynamic map of New Zealand in a similar manner to web-based mapping applications by leveraging off MCDEM’s new GIS server. Locations identified in messages, welfare centres and lifeline disruptions will be marked with pins on the map. Additional locations can be displayed as needed through the creation of lists on E-Sponder.

Further planned development will allow web services to push dynamic data as layers into EMIS mapping, such as traffic conditions, flood model data, lifeline or other council GIS information.

Notifications

The Notifications system within EMIS allows for the distribution of messages to operations staff, volunteers and contacts, using email, SMS and voice. It will allow message recipients to respond to the EMIS which will then summarise the responses automatically. This is a user-pays application whereby each EOC or ECC will be invoiced directly by the service provider for messages sent. ■



Left: An example of the mapping function

TOTALS	Assigned	In Progress	Completed	OUTSTANDING TASKS
Grand Total	25	High	High	High
High	10	Medium	Medium	Medium
Medium	8	Low	Low	Low
Low	6			

Right: The Tasks dashboard, with individual tasks assigned in priority

After the relatively moderate year of 2009, natural disaster impact took a turn for the worse in 2010 with more than 297,000 fatalities.

Disasters 2010

Once again, the year 2010 showed the world the devastating impact that natural disasters can have on human lives and livelihoods.

The number of people affected (victims) increased from 198.7 million in 2009 to 217.3 million in 2010 but remained below the annual average number of victims of 227.5 million for the period 2000 to 2009.

Economic damages from natural disasters in 2010 (US\$123.9 billion) increased by 160.4% compared to 2009, and were above the annual average damages for the period 2000-2009 of US\$98.9 billion.

Disaster losses in a changing climate

Several major disasters in 2010 resulted in substantial losses and exceptionally high numbers of fatalities. The numbers of hydro-meteorological disaster, including extreme temperature, continue to provide indicators of a changing climate.

The impacts of catastrophic floods in Pakistan in July 2010 show once again how disaster risk and poverty are closely interlinked. Meanwhile, wildfires and extreme temperatures in the Russian Federation in the summer of 2010 and floods in Australia in December 2010 are stark reminders that developed countries are also very exposed and vulnerable. Both disasters have been attributed to the La Niña phenomenon. In 2010, the La Niña phenomenon was classified as moderate to strong. The phenomenon is a result of El Niño-southern oscillation: A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world.

In the summer of 2010, one-fifth of Pakistan was under water. Over 20 million people were affected by flooding that ran the length of the country along the Indus River. The flooded area was similar in size to Italy and destroyed more than 1.6 million acres of crops, making millions homeless. This calamity has

surpassed the humanitarian aid scope of the 2004 Indian Ocean tsunami.

Later in the year, La Niña's impact was felt again in Australia. Floods in Australia underline the needs for all countries to plan ahead or face increasing economic losses in the face of a 'new normal' marked by unpredictable and extreme weather patterns. Many experts believe that climate change fuelled the weather systems that led to the unprecedented rain and flooding.

Meteorologists have noted that the heavy rains in Pakistan have coincided with unusually high temperatures. A heat wave unseen in 130 years that fuelled disastrous wildfires in Russia killed nearly 56,000 as result of heat and increased air pollution, destroying one third of the country's wheat crop.

"Unfortunately, what is happening now in [Russian] central regions is evidence of this global climate change, because we have never in our history faced such weather conditions in the past," said Russian Federation President Dmitry Medvedev.

However, scientists have cautioned against branding these events as directly caused by climate change as extreme weather events have periodically happened throughout history. At the same time, the Intergovernmental Panel on Climate Change has confirmed that the geographic distribution, frequency and intensity of these hazards are already being altered significantly by climate change.

Nevertheless, the mortality risk associated with major weather-related hazards is now declining globally, including in Asia, where most of the risk is concentrated. In most of the world the risk of being killed by a tropical cyclone or a major river flood is lower today than it was in 1990.

The Global Assessment Report on Disaster Risk



Left: The 2010 Haiti earthquake resulted in the collapse of around 70 per cent of regions buildings killing more than 200,000 people.

Opposite: Climate change has been implicated in the wildfires and extreme temperatures experienced in the Russian Federation.

Reduction 2011 (GAR11) highlights the climate-related hidden risk: drought. Thanks to improved early warning, preparedness and response, the massive mortality from sub-Saharan African droughts in the 1970s has not been repeated. Globally, drought is still a hidden risk and locally its social and economic impacts are disproportionately concentrated on poor rural households.

“It’s critical for local governments and their partners to incorporate climate change adaptation in urban planning,” said Margareta Wahlström, the United Nations Special Representative of the Secretary-General for Disaster Risk Reduction, stressing that disaster risk reduction was no longer optional. “What we call ‘disaster risk reduction’ – and what some are calling ‘risk mitigation’ or ‘risk management’ – is a strategic and technical tool for helping national and local governments to fulfil their responsibilities to citizens.” Applying disaster risk reduction measures can significantly reduce losses – even in a changing climate.

Earthquake impacts in 2009 and 2010

Both 2009 and 2010 were marked again by powerful earthquakes. The United States Geological Survey (USGS) estimates that several million earthquakes occur in the world each year. Many go undetected because they hit remote areas or have very small magnitudes. Are earthquakes really on the rise, however? “A partial explanation may lie in the fact that in the last twenty years, we have definitely had an increase in the number of earthquakes we have been able to locate each year. This is because of the tremendous increase in the number of seismograph stations in the world and the many improvements in global communications”, says USGS.

In 2009, 22 earthquakes killed 1,888 persons, affected a further 3.2 million and caused US\$6.2 billion of damages. In 2010, 25 earthquakes killed 226,735 persons, affected a further 7.2 million and caused US\$46.2 billion of damages.

In 1756, Voltaire wrote to Rousseau regarding the Lisbon earthquake and tsunami disaster, where an estimated 10,000 people were killed. “It is not the earthquake that killed the people of Lisbon, but the fact that they lived in Lisbon.” More than 250

years later, as Voltaire’s letters suggested, when earthquake strikes, unsafe buildings in urban sprawl remain a primary killer.

For several centuries, cities have been growing as people move away from the countryside in search of better jobs and living conditions. Now, for the first time in human history, the majority of the world’s population is living in urban areas. Each day, almost 180,000 people move to cities – with 60 million per year moving from developing countries alone. While city populations grow faster than city infrastructure can adapt, migrants often encounter a lack of infrastructure, services and housing and property rights. These urban newcomers are forced to live in unsafe places.

2010: Two major earthquakes – two different outcomes

On January 12, a magnitude 7.0 earthquake struck Haiti. Just over a month later, on February 27, a magnitude 8.8 earthquake struck Chile. Given the difference in magnitude, why were far fewer people killed in Chile than in Haiti? The earthquake in Haiti, which struck closer to the surface than in Chile, resulted in the collapse of around 70 per cent of regions buildings killing more than 200,000 people.

However, in Chile strict building codes implemented after the devastating magnitude 9.5 earthquake in 1960, helped protect the Chilean people even though the tremor was 500 times stronger than the earthquake in Haiti. In Chile, buildings were better built and people better prepared. For Haiti, no lesson had been learned from the past. Earthquakes had not shaken Port-au-Prince for two centuries, although the capital had been completely destroyed in 1751 and 1757.

“In earthquake zones, three factors affect our degree of risk: Changes to our natural environment, the quality of the built environment around us, and whether awareness and knowledge is widespread enough for us to modify our behaviour in response to these factors,” said Margareta Wahlström.

“The key to surviving high magnitude quakes is to live and work in seismically safe buildings, while being aware of how nature around us can also change.” ■

Globally, drought is still a hidden risk and locally its social and economic impacts are disproportionately concentrated on poor rural households

Excerpt from the *Annual Disaster Statistical Review 2010* published by the Centre for Research on the Epidemiology of Disasters (CRED), available at www.cred.be

CLOSING COMMENT

John Hamilton, Director Civil Defence Emergency Management



A suburban Christchurch street in which residents have mucked in together to clear fallen masonry and chimney's, piling up the rubble for council collection.

Having a community focus

We enlarged this issue of *Impact* to provide greater coverage of the response to the Christchurch earthquake. Even then it is still difficult to capture all the nuances, experiences and lessons contained within the response and to give the appropriate credit to those that worked so hard and so well.

The recovery phase is likely to produce another round of lessons and experiences we should all heed. Inevitably there will be formal reviews of both the response and the recovery operations to identify aspects that worked well and to find the areas that warrant enhancement.

In this closing comment, let me applaud the people of Christchurch for your fortitude and resilience as individuals, families and communities in very tough times, and thank you for your patience and forbearance during the time I had as National Controller. You have set the standard for other New Zealand communities in an emergency.

The wellbeing of the community was the focus of the efforts of those in the Christchurch Response Centre (CRC). In my role I was well supported by an energetic and enthusiastic team drawn from the Christchurch City Council's staff, other local authorities, the emergency services and Defence, staff from various government departments and agencies and many, many willing and able volunteers. It was truly a team effort.

The response operation was never just about restoring utilities or making streets and buildings safe. Those important tasks are carried out to ensure the wellbeing of the community, and while that connection seems so obvious, in the heat and urgency of the response, it is easy to forget that it is all being done for the people and their community.



It is the same in recovery. The recovery strategy is about ensuring actions occur in a deliberate planned and integrated manner across the social, economic, built and natural environments that together will make the communities of Christchurch safe, attractive, viable and successful.

The community, in all its guises, is the focus of civil defence emergency management. ■