Natural Hazards New Zealand

Briefing Paper

4 November 2005

Vision

"Our goal is to help organisations and communities manage the risk of Coastal Erosion, Cyclone, Drought, Earthquake, Fire, Flood, Ground Deformation, Landslide, Rain Storm, Seiches, Slope Instability, Tsunami, Volcanic Eruption and Wind.. We deliver best practice for the management of your risks spanning Reduction, Readiness, Response and Recovery."

Capabilities and Action Initiatives

Natural Hazards New Zealand (NHNZ) is a Wellington-based business cluster of professionals with expertise in the risk management, recovery and mitigation from earthquake and tsunami, as well as other natural hazards including cyclones, climate change, floods, landslides, volcanic eruption, fires, coastal erosion and drought. They are drawn from research, emergency management, consultancy, engineering, education and other organisations, and have specialist skills in emergency and recovery management, risk management, along with economic, legal, education and insurance expertise. There are over 30 member organisations and companies.

Plus there is additional expertise and resource from the closely associated *Earthquake Engineering New Zealand* (EENZ) cluster network, giving a combined resource of over 50 member organisations and companies. EENZ members provided design assistance and earthquake protection base isolation technology for the new Bhuj Hospital in Gujarat, India, with funding of the technical assistance input provided by NZAID, and are involved with current Aceh projects.

Natural Hazards New Zealand (NHNZ) was established 5 years ago following the initial establishment and success of the associated *Earthquake Engineering New Zealand* (EENZ) cluster network, in parallel with a major new shift by the major international development agencies (UN, World Bank and ADB) towards resourcing disaster risk prevention and reduction mitigation projects rather than just recovery and reconstruction after major natural disasters, and to ensure that future disaster risk is reduced by incorporating improved hazard resistance into the rebuilding initiatives.

Natural Hazards New Zealand already has five projects underway plus others under discussion in Aceh Indonesia covering project scoping, watershed management, earthquake design and training, community disaster risk reduction, and seismic risk assessment.

International Shift towards Disaster Mitigation by Major Development Agencies

The ADB (Asia Development Bank) new Disaster & Emergency Assistance Policy that came into effect in June 2004 and associated report this major shift in policy well, including the critical importance to reducing the impact of disaster to reducing poverty:

> "The 1990s saw a growing recognition in the international community generally, and at ADB and its DMCs more specifically, that initiatives to mitigate the effects of natural hazards before they develop into disasters were essential….. in contrast to rehabilitation projects, mitigation projects are inherently long-term."

The Kobe Conference held in Japan in January 2005 at the end of the official UN Decade for Disaster Reduction was attended by NZ Government Officials and *Natural Hazards New Zealand* (NHNZ) representatives.

Through the Institute of Geological & Nuclear Sciences (GNS Science), NHNZ has close links and collaborative projects with the Hawaii based Pacific Tsunami Warning Centre and the Pacific Disaster Centre. GNS Science was also an official participant at the January 2005 Kobe World Conference on Disaster Reduction, and was represented there by GNS Science Hazards International Services Manager and Natural Hazards NZ Co Chair Dr Noel Trustrum.

Boxing Day Asia Earthquake & Tsunami, and latest South Asia Earthquake

Since the Boxing Day 2004 Asia Earthquake and Tsunami Disaster the *Natural Hazards New Zealand* (NHNZ) cluster in association with members of the *Earthquake Engineering New Zealand* (EENZ) cluster network has been particularly focused on recovery reconstruction initiatives in Aceh Indonesia, with associated longer term links for other parts of Indonesia and the Asia Pacific region.

These recent cluster initiatives have been led by a special joint NHNZ/EENZ Asia Earthquake & Tsunami Recovery Task Group comprising cluster co chairs and lead company representatives, with several cluster members involved across a wide spread of specialist areas. This Task Group has worked at developing a closer longer term strategic partnership approach with NZAID. It is hoped that this will lead to a greater NZ Government and business clusters long term collaborative strategic approach to NZ being able to provide a greater level of required timely specialist disaster reduction and recovery assistance in the future. It is early days yet to achieving this vision.

The recent massive South Asia Earthquake mainly affecting Pakistan Kashmir is currently another area of early stage follow up by members of our *Earthquake Engineering New Zealand* (EENZ) cluster network.

Natural Hazards New Zealand (NHNZ) Services

Members have worked in the Pacific, Asia including Indonesia, India, Vietnam, Philippines, China, Turkey and elsewhere.

NHNZ operates by the appointment one of its members as a lead consultant to manage specific projects. Depending on the nature of the work sought, NHNZ brings together a team of top specialists for each identified project.

Services offered by NHNZ include emergency recovery and risk management; emergency communications and early warning systems; information technology for disaster management; damage and loss assessment; vulnerability studies; risk transfer and insurance; institutional strengthening and capacity building; prevention and mitigation measures.

Example Services:

1. Emergency Recovery & Management:
   - Strengthening of Emergency and Risks Management Processes;
   - Land and Risk Information Management
   - Improvement of Building Standards and Review of Building Codes
   - Community Based Disaster Management

2. Emergency Communication and Early Warning Systems

3. Information Technology for Disaster Management

4. Establishment of National and Regional Disaster Response Centres (planning, design, construction, human resources)

5. Damage and Loss Assessment, and Asset Risk Management Analysis

6. Contingency Funding for Reconstruction and Recovery

7. Risk Transfer and Insurance

8. Microzonation & Hazard Vulnerability Studies

9. Institutional Strengthening and Capacity Building

10. Prevention and Mitigation Measures (structural and non-structural solutions)

11. Disaster Reconnaissance

12. Economic resilience through resource-based re-development.

Projects Track Record

Projects that the *Natural Hazards NZ* cluster has assisted with facilitating member involvement:

- Aceh Indonesia NZAID Scoping Mission & Report (AC Consulting Group, GNS on behalf of NHNZ & EENZ cluster members) (Feb/March 2005);
- Aceh Indonesia NZAID funded Earthquake Design & Training, and Aceh Contractors Association capacity building projects (current)(AC Consulting Group with Beca Jakarta) (Current);
- Aceh Indonesia NZAID funded Leuser International Foundation Watershed Management & Sustainable Eco Systems Scoping Report Project (GNS)(Sept 2005);
- Aceh Indonesia Community Disaster Risk Proposal for UNDP (GNS, ACCG, et al) (Current – under consideration);
- Aceh Indonesia UNESCO Community Disaster Risk Local Knowledge Project Proposal (TOPNZ, Massey, GNS, NIWA)(Current – under negotiation);
- Tonga World Bank funded cyclone risk management emergency recovery project (Landcare Research, Beca & GNS) (Current);
- Fiji Wainimala River Catchment Scoping Stage flood recovery protection SOPAC project (AC Consulting Group, GNS, NIWA)(2004);
- Samoa World Bank funded Emergency Assistance Infrastructure Project (Beca, Kestrel Group, Consultel Associates, EQC)(Current);
- Workshop Training Proposals prepared for the Gujarat State Disaster Management Authority (Beca, GNS, Emergency Management Managers, et al)(2004);
- Scoping stage planning with SOPAC for a Pilot Project to develop regional RiskScape capacities to manage vulnerability and build resilience to disasters for Pacific Island States (GNS, NIWA, AC Consulting Group et al)(Concept Proposal stage);
- Organised participation by NZ lead speakers (incl Margaret Shields, then Chair of Greater Wellington the Regional Council) in the World Bank Provention Consortium sponsored "Disaster Risk – Building Safer Cities" Workshop (December 2002);

Projects that the associated *Earthquake Engineering NZ* cluster has directly assisted with facilitating member involvement:

- Istanbul Residential Housing Earthquake Retrofit Strengthening Assessment Pilot Project for 369 multilevel buildings with 4,200 apartments World Bank funded for Turkey Govt Prime Ministry (Beca, David Hopkins Consulting Ltd, Holmes Consulting Group, GNS with Turkish partners Prota Engineering and the Middle East Technical University);

- Earthquake resistant design input and base isolation bearings supply for new 300 bed Bhuj District Hospital following Gujarat earthquake in India (Beca, Robinson Seismic Ltd, Holmes Consulting Group, Dunning Thornton Consultants);

Other Projects by *Natural Hazards NZ* cluster members include:

- Input into SOPAC Regional Workshop on developing an action plan for the second World Conference on Disaster Reduction and other SOPAC initiatives (GNS, NIWA et al);
- Vietnam Flooding Natural Hazards reduction recovery NZ Aid and World Bank funded projects (AC Consulting Group; Environmental & Community Risk International Pty Ltd);
- PNG tsunami recovery assessment project (GNS, GeoEnvironmental Consultants);
- Vanuatu Tsunami Project (Environmental & Community Risk International);
- Disaster Assessment Reconnaissance studies in several countries including in the Pacific, PNG, Turkey, Taiwan, Peru and India;
- Gujarat Earthquake ADB World Bank Assessment Team (Beca);
- Reconstruction of housing, water, sanitation and power infrastructure in the Pacific on Manihiki Atoll following tropical Cyclone Martin (AC Consulting Group);
- Emergency Communication and Early Warning Systems, including design of emergency communications in lifeline networks such as for electricity, fire and ambulance services. Includes reconstruction design and build of public communication infrastructure in PNG (Consultel Associates) and elsewhere (GNS, et al);
- Development of Geonet, a modern system designed for real-time monitoring of earthquakes, tsunamis and volcanic unrest. Initially developed for New Zealand, now being developed for use in the Pacific and elsewhere (GNS, EQC, et al);
- Reconstruction Planning and Project Management including modelling comparisons of different levels of resourcing, materials supplies, providing time and cost profiles, to assist with planning decisions (GNS, Future Impact, et al);
- Indonesia Earthquake Building Code, developed with the assistance of Beca NZ in early 1980's with NZ Govt Bilateral Funding;
- Water Treatment projects undertaken in Sumatra, Indonesia (Beca);
- Institutional strengthening of water resource agencies in the Pacific region;
- Advice on the establishment of Natural Disaster Funds, including legislation, fund development, fund protection and scheme management processes and systems, and planning of Catastrophe Response Programmes, in the Pacific region (EQC et al);
- Risk insurance schemes development and systems (GNS, Aon, et al), including the design for a Natural Disaster Insurance Scheme for the Government of Taiwan (Aon);
- Disaster Management training for local government administrative officers (District officers, District Planning officers, Province Secretary Generals, District and Province disaster committees) in Fiji, Samoa, Vanuatu and Solomon Islands.

Benefits

Natural Hazards NZ provides co-ordination facilitation for specialist smaller firms and individuals as well as larger organisations to be involved in overseas project work they would not otherwise undertake. Members through cooperation to combines resources have the capacity and experience to resource and lead major projects at an international, national and community level.

New Zealand's institutional, technical and consultative hazard management practices are recognised internationally as innovative and pragmatic. These lead to sustainable solutions that meet the needs of affected communities and countries.

As well as the valuable direct and indirect benefits for clients and communities assisted overseas, the *Natural Hazards NZ* enhances the development of New Zealand's own disaster risk management capabilities through the experiences, national and international relationship, and new products and service innovations that arise from involvement in international marketing and project assignments.

The *Natural Hazards NZ* assessed during 2004 that it has the cluster members have the potential to generate export earnings income through cluster assisted initiatives that will provide them with additional revenue of $ 19 - $ 37 million over the next 3 – 5 years (subject to sufficient resources being available to get established in the priority markets).

About $ 3 million worth of such projects has so far been secured and are underway, with several other initiatives in various stages of consideration and negotiation. A recent independent survey commissioned by Positively Wellington Business reported a 10% increase in export revenue in the last year from cluster members surveyed.

Facilitation, Marketing and Administration Support – Local and Central Government

Natural Hazards NZ is an incorporated society (NGO) cluster network group led by two Co Chairs with regular member meetings, strategic planning and much sharing of information amongst members and task groups.

A very lean operational administration support base comprises a part-time funded cluster facilitator who provides business development and marketing support, along with support by Positively Business Wellington, an agency of the Wellington Regional Economic Development Trust established by the Wellington, Lower Hutt, Upper Hutt and Porirua city councils and Kapiti District Council. The Cluster Members pay annual fees and make considerable resource contributions mostly focused on specific market and project initiatives.

The cluster also has support from New Zealand Trade & Enterprise, who provided partial cluster facilitation funding on a shared basis with the Earthquake Engineering NZ cluster during the last couple of years. This has now finished, but there is on going NZTE Client Manager support. The NHNZ and EENZ clusters have also been paying NZTE for the last few years for annual Washington World Bank and Manila Asian Development Bank monitoring liaison service annual fees. Positively Wellington Business provide contract administration support for the clusters for this service.

There is also liaison and specific project support from NZAID, and liaison with Ministry of Foreign Affairs & Trade officials (especially with regard to specific officials to Wellington NZ by Presidents/Prime Ministers/Senior Ministers from other countries (eg Indonesia, Turkey, Iran and Vietnam).

There is also on going liaison with the Ministry of Civil Defence and Emergency Management. The Ministry was initially an Associate Member of the cluster, but chose during this last year to step back from being a listed Associate due to possible conflicts of interest when they are contracted by other Governments to provide independent review assessments of World Bank and other funded projects that *Natural Hazards NZ* cluster members are involved in.

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Administration and Facilitation Support:

Administration and other cluster support services for *Earthquake Engineering New Zealand* and *Natural Hazards – New Zealand* and are provided by *Positively Wellington Business* (PWB), of the Wellington Regional Economic Development Trust. This is the regional economic development arm of the Wellington City Council and associated Hutt, Upper Hutt and Porirua City Councils and Kapiti District Councils. Along with support from New Zealand Trade & Enterprise.

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Natural Hazards NZ Cluster Members

AC Consulting Group
Aon Risk Services NZ Ltd
Barnett & MacMurray Ltd
Beca International Consultants Ltd
Business & Economic Research Ltd (BERL)
Business Continuance Planning Ltd
Building Research Association of NZ
Consultel Associates
Critchlow Associates
Devereux-Blum Training & Development Ltd
Future Impact Ltd
Geoconsultants Ltd
Infometrics Ltd
Institute of Geological and Nuclear Sciences (GNS Science)
Kestrel Group
Landcare Research Ltd
Massey University
Met Service
National Institute of Water and Atmospheric Research (NIWA)
NZ House Inspection Co Ltd
Niu Pacific
Opus International Consultants Ltd
Robinson Seismic Ltd
Statistics Research Associates
The Open Polytechnic of NZ
Tse Group
University of Canterbury Natural Hazards Research Centre

Associates:

Earthquake Commission
Greater Wellington – the Regional Council
Wellington City Council Emergency Management Office
Environmental & Community Risk International Pty Ltd (Australia)

For more information on NHNZ go to **www.naturalhazards.co.nz**

Attachment:

Quotes from the ADB (Asia Development Bank) new Disaster & Emergency Assistance Policy that came into effect in June 2004 and associated report:

> "Although disasters and emergencies occur worldwide, Asia and the Pacific is the most affected region. Between 1991 and 2000, the region accounted for (i) 46% of reported natural and technological disasters, (ii) 42% of reported conflicts, (iii) 80% of people killed by natural and technological disasters and 14% of those killed by conflict; and (iv) 84% of people affected by disasters and conflicts."
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> "Sustained economic growth requires the continual building and upgrading of physical and social infrastructure. However, when a disaster occurs, such infrastructure is damaged or destroyed, thus threatening the DMC's ability to reduce poverty. Disasters also entail major social risks, especially among poor and near-poor people (as recognized in ADB's Social Protection Strategy)."
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> "Disasters disproportionately affect the poor. Poor people are often the most exposed to natural and manmade hazards, despite the fact that they are the group who can least afford it: "Disasters in developing countries are an integral part of their poverty cycle. Poverty causes disasters, and disasters exacerbate poverty."
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> Globally, including the Asia and Pacific region, the impact of disasters and conflicts are felt most acutely in countries classified by the United Nations (UN) as medium or low human development.[1] This reality may be attributed to resource constraints in poorer countries. The Governments in such countries lack the resources needed to shoulder the economic burden, as well as the institutional and human resources capacities needed to deal quickly and comprehensively with disaster and emergency."
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> "Aside from their traditional role in disaster response operations, MDBs now treat disaster prevention as an integral part of operational support to member countries. This represents a major shift from the environment in which ADB last formulated a policy (1989). In 2003, most of the MDBs have specific policies, instruments, and institutional arrangements to structure assistance in disaster/emergency and post-conflict situations."
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> "The World Bank clearly defined its operational approach for dealing with disasters, beginning with the formulation of its emergency assistance policy in 1995. In 1998, WB established a special Disaster Management Facility (DMF) to improve disaster prevention and mitigation practices and emergency response. The objective was to mainstream disaster prevention and mitigation considerations into all WB activities."
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> "There is a growing consensus in the international community that there are institutional, technical, and financial shortfalls in most existing humanitarian relief efforts. This can aggravate the destructive impact of an emergency and inadvertently fuel a downward spiral of risk, vulnerability, and poverty. Recognizing this, multilateral institutions such as IADB and the WB have reassessed the unique role that MDBs can play. That role is multidimensional and includes the traditional emphasis on rehabilitation and reconstruction, while also addressing (i) the role of development cooperation as an instrument of emergency prevention and mitigation, and (ii) the transitional requirements between relief and renewed social and economic development."