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**Recovery from disaster**

**No stranger to seismic activity, Christchurch in New Zealand will host the 2016 FIG Working Week, which will look at how surveyors can help deal with the aftermaths of earthquakes and other natural disasters**

A magnitude 6.3 (ML) earthquake struck Christchurch and the Canterbury region of New Zealand's South Island at 12.51pm on February 22 2011 local time. The earthquake was centred 2km west of the port town of Lyttelton and 10km southeast of the centre of Christchurch, New Zealand's second-most populous city. It followed nearly six months after September 4 2010 magnitude 7.1 earthquake in Darfield, which caused significant damage to Christchurch and the central Canterbury region, but no direct fatalities.

The February 22 earthquake caused further widespread damage across Christchurch, especially in the central city and eastern suburbs, with damage exacerbated by buildings and infrastructure already weakened by the September 4 2010 earthquake and its aftershocks. Significant liquefaction again affected the eastern suburbs, producing around 400,000 tonnes of silt.

In total, 181 people were killed in the February 22 earthquake, making it the second-deadliest natural disaster recorded in New Zealand (after the 1931 Hawke's Bay earthquake), and fourth-deadliest disaster of any kind recorded in New Zealand, with nationals from more than 20 countries among the victims.

The February 22 earthquake was one of three major earthquakes in a year-long earthquake swarm affecting the Christchurch area, and was followed by a large aftershock on June 13 2011, which caused considerable additional damage.

It has been estimated that the total rebuilding cost to insurers is of the order of NZ\$15-16bn, making it by far New Zealand's costliest natural disaster, and the third-costliest earthquake (nominally) worldwide.

**FIG Working Week 2016**

New Zealand has been chosen as the venue for FIG Working Week 2016. Each year, FIG organises an international event in cooperation with a national member association. Every four years, the large Congress is held (the latest in Kuala Lumpur, Malaysia in June 2014), and in the intervening years an annual Working Week is organised.

The FIG Working Week 2016 will be co-hosted by the New Zealand Institute of Surveyors (NZIS) and have the theme 'recovery from disaster'. New Zealand is a (relatively) geologically active country with a history of seismic events and Christchurch is an ideal location from which to consider this theme.

The recovery and rebuild of the Christchurch CBD, its suburbs and the surrounding region will provide a significant and poignant backdrop to the 2016 FIG Working Week. It is being held at a time when considerable re-building and renewal is underway. Many inhabitants throughout the world face various kinds of disasters apart from earthquakes, such as flooding, storm events, tsunamis, drought and the after-effects of conflict. These are a worldwide challenge, especially taking the effects of climate change into consideration.

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Another important backdrop to FIG Working Week 2016 is the post-2015 framework for disaster risk reduction, which was adopted at the United Nations Third World Conference on disaster risk reduction, held from March 14-18 in Sendai, Japan.

To reduce the risk of disaster, the Sendai framework recognises the need to address existing challenges and prepare for future ones by focusing on:

- Monitoring, assessing and understanding disaster risk and sharing such information and how it is created.
- Strengthening disaster risk governance and coordination across relevant institutions and sectors and the full and meaningful participation of relevant stakeholders at appropriate levels.
- Investing in the economic, social, health, cultural and educational resilience of people, communities and countries, and in the environment, also through technology and research.
- Enhancing multi-hazard early warning systems, preparedness, response, recovery, rehabilitation and reconstruction.

To complement national action and capacity, there is a need to enhance international cooperation between developed and developing countries and between states and international organisations. The aim is to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors.

### Key responders

Disasters, natural or otherwise, directly affect surveyors and geospatial professionals and their work on the land, at sea, in the air and in space. Surveyors and geospatial professionals are at the forefront of emergency response. One of the key response drivers in the immediate aftermath of an event is accurate geospatial information to inform building and infrastructure assessment and assist search and rescue. In addition and further down the recovery path are the many engineering and building support roles undertaken by surveyors that are essential for rebuilding.

The surveying and spatial professions are key responders to a disaster, natural or otherwise, but equally, and probably more importantly, are uniquely positioned to play a key role in risk mitigation both nationally and internationally, particularly in terms of building resilience through better and smarter infrastructure development and strengthening the national cadastre/land administration system.

One of the aims of FIG Working Week 2016 is to enable delegates to come away from Christchurch with a greater knowledge of the role of the surveyor and allied professionals in reducing disaster risk, responding to disasters, recovery and resilience. The FIG Commissions are actively encouraging papers addressing the Working Week theme and Sendai framework to be presented in the technical programme. FIG Council and the local organising committee are inviting a host of distinguished international and local speakers to discuss issues arising from these broad and important themes from international, regional and local contexts.

### Lessons learned

As with any major natural disaster, critical lessons have been learned in the recovery and rebuilding of Christchurch and its environs that can be applied to any global disaster. Despite the events, Christchurch remains fully functional and repairs to essential service infrastructure have largely been completed

The local surveying and spatial communities were actively engaged in the Christchurch recovery from immediately after the seismic events and are at the forefront of the rebuilding of a new and vibrant city. It is these shared experiences that will provide the platform for the FIG Working Week 2016.


The local surveying and spatial communities were actively engaged in the Christchurch recovery

Simon Ironside and Louise Friis-Hansen are co-conference directors of FIG Working Week 2016

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