

## Brief Report on the 12<sup>th</sup> World Conference on Earthquake Engineering (12WCEE) Held in Auckland, New Zealand During 30 January-4 February 2000

### 1. BACKGROUND

The World Conference on Earthquake Engineering (WCEE) is held every four years in a host country on behalf of the International Association for Earthquake Engineering (IAEE).

The aim of IAEE is "to promote international co-operation and to interchange knowledge, ideas and the results of research and practical experiences among scientists and engineers in the field of earthquake engineering". WCEEs have been very successful in helping to achieve this aim.

Host countries for past WCEEs have been:

1WCEE	Berkeley, USA	1956
2WCEE	Tokyo/Kyoto, Japan	1960
3WCEE	Auckland/Wellington, New Zealand	1965
4WCEE	Santiago, Chile	1969
5WCEE	Rome, Italy	1973
6WCEE	New Delhi, India	1977
7WCEE	Istanbul, Turkey	1980
8WCEE	San Francisco, USA	1984
9WCEE	Tokyo/Kyoto, Japan	1988
10WCEE	Madrid, Spain	1992
11WCEE	Acapulco, Mexico	1996
12WCEE	Auckland, New Zealand	2000

### 2. ORGANISATION OF 12WCEE

The Organising Committee (initially formed as a Steering Committee) was the key committee for the organisation of 12WCEE. The Committee met initially every 3 months. The frequency of meetings increased as activities and time dictated. The Committee had at least 19 one-half or full-day meetings during the almost four years since 11WCEE. The Committee comprised a blend of eleven scientists and engineers with strong interests in earthquake engineering from the universities, research organisations and consulting firms, plus a representative of the principal sponsor and a Secretary. A representative of a professional conference organising firm was also co-opted. The members of the Organising Committee are listed below:

## MEMBERS OF THE ORGANISING COMMITTEE OF 12WCEE

### Affiliation

Bob Park (Chair)	University of Canterbury
David Hopkins (Deputy Chair)	Sinclair Knight Merz Ltd, Wellington
Ian Billings	Beca Carter Hollings and Ferner Ltd, Auckland
Michael Brice (Secretary)	New Zealand Society for Earthquake Engineering
Ian Buckle	University of Auckland
Richard Buchanan	Convention Management Services Ltd
Barry Davidson	University of Auckland
Andrew King	Building Research Association of New Zealand (President of NZSEE at the time)
Kevin McManus	University of Canterbury
Les Megget	University of Auckland
Ivan Skinner	New Zealand Earthquake Commission
Euan Smith	Victoria University of Wellington

### SUB-COMMITTEES OF 12WCEE

The Organising Committee distributed major responsibilities to the following sub-committees, namely:

<b>Sub-Committees</b>	<b>Members</b>
Finance	Andrew King (Convenor) Michael Brice, David Hopkins
Local Arrangements	Barry Davidson (Convenor), Richard Buchanan, Jason Ingham
International Liaison	David Hopkins (Convenor), Bob Park
Publications	Les Megget (Convenor), Barry Davidson, Richard Buchanan, Bob Park
Publicity	David Hopkins (Convenor), Barry Davidson, Bob Park
Social Programme	Barry Davidson (Convenor), Richard Buchanan
Sponsorship and Technical Exhibition	Euan Smith (Convenor), Richard Buchanan, Barry Davidson, David Hopkins
Technical Programme	Bob Park (Co-convenor), Ian Billings (Co-convenor), Margaret Brown, Ian Buckle, David Brunson, Richard Buchanan, Andrew Charleson, Barry Davidson, David Hopkins, Jason Ingham, Andrew King, Les Megget,

	Arthur O'Leary, Michael Pender, Warwick Smith, Leicester Steven, David Whittaker
Tours	Les Megget (Convenor), Richard Buchanan
Debate	David Hopkins (Convenor), Bob Park

The Convenor of each of these sub-Committees was a member of the Organising Committee and reported to meetings of the Organising Committee.

The largest sub-Committee at 12WCEE was the Technical Programme sub-Committee which had members covering all of the eleven topic areas in which technical papers were likely to be submitted to the conference. A convenor was appointed in each of the topic areas which were:

### **Topic Areas of the Technical Programme Sub-committee**

<b>No.</b>		<b>Convenors</b>
1	Earthquake risk reduction in developing countries	Andrew Charleson
2	Earthquake engineering in practice	Ian Billings
3	International issues in earthquake engineering	David Hopkins
4	Engineering seismology	Warwick Smith
5	Geotechnical engineering	Michael Pender
6	Structural engineering	Arthur O'Leary/ Ian Billings
7	Lifeline systems	David Brunndon
8	Design criteria and methods	David Whittaker
9	Social and economic issues	Leicester Steven
10	Lessons from recent earthquakes	Andrew King
11	Other issues	Ian Buckle

At 12WCEE it was always intended to have a strong focus on issues concerning developing countries, earthquake engineering in practice and international issues. This was reflected in the topics offered.

Convention Management Services Ltd, a company which is expert in the management of large conferences, was employed by the Organising Committee to arrange the non-technical details of 12WCEE. Convention Management Services Ltd had a very good history of the overall skills required and familiarity with the proposed venue for conferences of this size. The technical secretariat was sited at the University of Canterbury.

The non-technical publications prepared for 12WCEE were:

- The First Announcement of the Conference
- The Second Announcement of the Conference and the Call for Abstracts and Suggestions for Special Theme Sessions
- The Registration Brochure for the Conference
- The Technical Programme and Conference Handbook

### 3. 12WCEE PROGRAMME

#### 3.1 Rooms for Sessions

The principal venues for 12WCEE were the Aotea Centre, Auckland, and the Auckland Town Hall.

The seating capacities of rooms which were used for conference sessions were:

<b>Aotea Centre</b>	<b>No. of Theatre Style Seats</b>	
Main auditorium	2240	*
Level 1 – Kupe Room	550	*
Level 1 – Hauraki Room	200	*
Level 3 – Kaikoura Room	200	*
Goodman Fielder Wattie Room	130	
Alberts Restaurant	200	
<b>Town Hall</b>		
Great Hall	1569	*
Concert Chamber	496	*
Reception Lounge	250	*

\* Used for seven concurrent technical sessions of oral presentations.

#### 3.2 Technical Presentations

The timetable of the Programme of 12WCEE is attached.

Each day (after the first day) began with State-of-the-Art Plenary Sessions (the list of speakers is attached). There were eleven state-of-the-art speakers selected by the Organising Committee in key areas of earthquake engineering (see attached); each to make a one-half hour presentation. The state-of-the-art presentations were chosen so as to ensure that the content was of high quality since they set the tone for the remainder of the oral sessions.

#### 3.3 Selection of Technical Papers for Oral Theme Sessions and Poster Sessions

The general call for Abstracts for technical papers resulted in about 2,700 Abstracts being received from at least 83 different countries, of which about 1,240 were in Structural Engineering, 356 in Engineering Seismology and 354 in Geotechnical Engineering. Suggestions for Special Theme Sessions were also received. The authors were requested to indicate the topic area of their abstract. Where the topic area was not given by the author a decision was made by the Chair of the Technical Programme Committee.

In order to ensure uniformity of quality of all papers presented in sessions at the Conference and to avoid duplication of material presented as far as possible, Abstracts were requested for all papers in proposed Special Theme Sessions and they were reviewed along with the other Abstracts received. Each Abstract was sent to at least three Reviewers as decided by the Convenor of the topic area. Gradings of papers were sought

from Reviewers on a 1 to 6 scale (1 = poor, 6 = excellent). Hence the distinction between general and special theme sessions disappeared in many cases and the sessions were referred to simply as theme sessions with the specific theme title of the cluster of papers within it. The Technical Programme Committee arranged the accepted papers into sessions. The allocation of rooms to oral sessions needed to be done carefully to ensure as far as possible that the seating capacities of the rooms would be adequate.

### 12WCEE STATE-OF-THE-ART SPEAKERS AT 12WCEE

	<b>Speaker</b>	<b>Title of Address</b>
11.00–12.30 Monday	A Arya (India) (unable to be present at the Conference)	Non-engineered Construction in Developing Countries
	S Mattingly (USA)	Emergency Management in Developing Countries
	H Kameda (Japan)	Engineering Management of Lifelines Systems
8.30-9.30 Tuesday	MJN Priestley (USA/NZ) P E Pinto (Italy)	Performance Based Seismic Design Design for Low/Moderate Seismic Risk
8.30-9.30 Wednesday	P Somerville (USA) M Romo (Mexico)	Earthquake Risk and Hazard Assessment Seismic Design of Foundations
8.30-9.30 Thursday	I G Buckle (NZ/USA) T T Soong (USA)	Passive Protection Systems for Structures Active, Semi-active and Hybrid Control of Structures
8.30–9.30 Friday	K Kawashima (Japan) W T Holmes (USA)	Seismic Design and Retrofit of Bridges Risk Assessment and Retrofit of Existing Buildings

As a result of the assessment of the Reviewers gradings of the Abstracts, 90% of the 2,700 Abstracts submitted were accepted for the conference to be presented in either oral theme sessions or poster sessions. Of the Abstracts accepted 20% were accepted for presentation in oral theme sessions and 80% were accepted for poster presentation. The oral theme sessions were either 1 hour or 1½ hour duration. There were up to seven concurrent oral theme sessions. A total of 419 papers were presented during the 5 days of the conference in oral theme sessions. Each paper in an oral theme session was allocated 15 minutes of which 10 minutes was for presentation and the remaining time for introductions and discussion. Audio tapes were made of all oral theme sessions. The Organising Committee was impressed with the success of the poster presentations at 11WCEE which gave an

**12WCEE AUCKLAND 2000 PROGRAMME**  
**Aotea Centre and Town Hall**  
**Auckland, New Zealand**

<b>Time</b>	<b>Sunday 30 January</b>	<b>Monday 31 January</b>	<b>Tuesday 1 February</b>	<b>Wednesday 2 February</b>	<b>Thursday 3 February</b>	<b>Friday 4 February</b>
	Registration all day	7.30 am-9.00 am Registration	State-of-the-Art Plenary Session 2 (8.30 am-9.30 am)	State-of-the-Art Plenary Session 3 (8.30 am-9.30 am)	State-of-the-Art Plenary Session 4 (8.30 am-9.30 am)	State-of-the-Art Plenary Session 5 (8.30 am-9.30 am)
<b>9.30-10.30 am</b>		9.00 am-10.30 am Opening Ceremony	Concurrent Theme Sessions 2	Concurrent Theme Sessions 5	Concurrent Theme Sessions 8	Concurrent Theme Sessions 11
<b>10.30 am-11.00 am</b>		Coffee	Coffee	Coffee	Coffee	Coffee
<b>11.00 am-12.30 pm</b>		State-of-the-Art Plenary Session 1	Posters 2	Posters 3	Posters 4	Posters 5
<b>12.30 pm-2.00 pm</b>		Lunch	Lunch	Lunch	Lunch	Lunch
<b>2.00-3.30 pm</b>		Posters 1	Concurrent Theme Sessions 3	Concurrent Theme Sessions 6	Plenary Session on Taiwan Earthquake (1.00 pm-2.15 pm) Concurrent Theme Sessions 9	Concurrent Theme Sessions 12
<b>3.30 pm-4.00 pm</b>		Coffee	Coffee	Coffee	Coffee	Coffee
		Concurrent Theme Sessions 1 (4.00 pm-5.30 pm)	Concurrent Theme Sessions 4 (4.00 pm-5.30 pm)	Concurrent Theme Sessions 7 (4.00 pm-5.30 pm)	Concurrent Theme Sessions 10 (4.00 pm-5.30 pm)	Special Plenary Session IDNDR and WSSSI (4.00 pm-4.30 pm)
			Plenary Session on Turkey Earthquake (6.00 pm-7.30 pm)			Closing Ceremony (4.30 pm-5.30 pm)
<b>Evening</b>	6.30 pm-8.00 pm Ground Breaker Reception	7.30 pm-10.30 pm Carnival Evening	FREE	8.00 pm-10.00 pm Debate	7.30 pm-11.00 pm Gala Dinner	

excellent opportunity to discuss findings and ideas face to face with authors. A total of 1,028 posters was displayed during the 5 days of the conference. The poster presentations were given exclusive time.

### 3.4 **Technical Publications**

The technical proceedings of the Conference were contained on CD Rom and a copy issued to all registrants. The single CD Rom contained all abstracts, papers and a search engine with capability to search by topic, author and word. In addition hard copies of the Abstracts of all papers were printed and a copy issued to all registrants. Hard copies of the Proceedings were also available at extra cost to registrants if pre-ordered.

### 3.5 **Debate**

A novel feature of 12WCEE was a debate which was organised for one of the Wednesday evening of the conference. Two invited teams of experts debated the topic "That earthquake professionals are successfully meeting the challenge of reducing earthquake risk worldwide". The evening was most successful being both thought provoking and entertaining.

### 3.6 **Special Presentations**

In addition during the conference there were special presentations on a number of recent earthquakes which had occurred in 1999 including those that occurred in Colombia, Turkey and Taiwan.

### 3.7 **Social Programme**

#### 3.7.1 **Sunday Afternoon Groundbreaker Reception**

This was an informal gathering. The Chair of the Organising Committee gave a brief "3 minute" welcome and there was a ten minute performance by Pacific dancers. It was partly inside and outside the conference centre. It set a welcoming and inclusive atmosphere for the conference.

#### 3.7.2 **Monday Evening Carnival Evening**

This was an informal buffet dinner. It included many performers, dancers, etc and allowed the delegates to get active and join in the dancing. Monday was chosen as it seemed that even though delegates could be tired from the long travel times required to get to New Zealand, it was more important that they join into the conference as early as possible.

#### 3.7.3 **Thursday Formal Dinner**

The difficulty faced and many other countries will also have to face, is finding a venue to seat 2000 plus delegates and spouses. At 12WCEE an equestrian exhibition centre was chosen. It was carefully decorated and an extremely entertaining after dinner speaker was engaged. This event, though desirable for the conference, is fraught with difficulties. The size means that most delegates do not meet and speak to others. Speakers no matter how

skillful have difficulty entertaining delegates from such diverse backgrounds. The preparation and delivery of food is almost impossible. The evening was successful. Other hosts may need enormous planning and large amounts of luck to produce a good formal dinner. An alternative would be a special concert or similar followed by supper.

### 3.8 **Opening and Closing Ceremonies**

#### 3.8.1 **12WCEE Opening Ceremony**

The Opening Ceremony occupied 1½ hours (9.00-10.30 am) on the Monday of the Conference. At 8.00 am the official guests assembled and the protocol and procedure was explained to them. A Maori challenge (welcome) had been arranged for the official guests. The Conference was to be opened by the Governor General of New Zealand. At 8.30 am the Governor General arrived and was introduced to the other members of the official party. The other members of the official party consisted of the members of the Organising Committee, representatives of the principal sponsor, the State-of-the-Art Speakers, the President, the Immediate Past-President and the Secretary General of IAEE, the Chairman of the Debate and the chairman of 11WCEE. After the Maori challenge (welcome) there were speeches by some of the Maori welcome party, as well as by the Chairman of the 12WCEE Organising Committee and the President of IAEE before the Governor General presented his opening address and officially opened the Conference.

#### 3.8.2 **Closing Ceremony**

The Closing Ceremony occupied 1 hour (4.30–5.30 pm) on the Friday. On stage were a number of distinguished guests. Thirty minutes were given to the President and Secretary General of IAEE to present IAEE matters and to announce the venue of 13WCEE followed by a presentation by a representative of the 13WCEE Committee. The Chairman of the 12WCEE Organising Committee gave a thank you speech and the ceremony closed with a brief Maori song.

## 4. **12WCEE FINANCE**

### 4.1 **Budget**

The Organising Committee and the Finance Sub-Committee prepared a detailed budget. The total expenses budgeted were \$2.31 million NZ.

Various sponsors provided \$200,000 NZ and assistance with cash flow was provided by the major sponsor, the New Zealand Earthquake Commission. A registration fee of \$1,400 NZ for a full delegate, if paid by 31 October 1999, was set or \$1,600 NZ if paid after 31 October. The registration fee for an accompanying person was \$400 NZ and for a full-time student was \$250 NZ. There were also reduced registrations for one (\$400NZ) or two (\$700NZ) days attendance (non presenting).

Donations from developed countries were sought by the President of the International Association for Earthquake Engineering to allow for some expenses to be met for some delegates from less developed countries. As a result about \$34,000 US was pledged and distributed by the Organising Committee.

Careful control of expenditure was necessary to meet budget constraints and ensure the best possible value for participants. Finances were budgeted to break even financially and possibly have a small surplus.

#### 4.2 **Sponsors**

Sponsorship was received for 12WCEE from the following sources:

- Principal Sponsor - New Zealand Earthquake Commission
- Gold Sponsors - Benfield Greig Group PLC and Aon Re Worldwide
- Silver Sponsors - Munich Re, Computers and Structures, Milburn Cement, Pacific Gas and Energy
- Bronze Sponsors - NZ Building Industry Authority, Robinson Seismic Ltd, Building Research Association of NZ, Auckland City Council, Ministry of Emergency Management and Civil Defence
- Sponsorship income - NZ\$230,000
- Exhibitors - some thirty-five sites (three complimentary) were finally occupied returning a gross income of NZ\$72,000 (ex-tax)

#### 5 **ATTENDANCE**

A total number of registrations received was 2,161 including accompanying persons (192), students (184), and others (eg, one and two day registrations) of which 1,334 were full delegates.

Registrations were received from 71 countries (see the attached list). The number of registrations not including accompanying persons received from Japan was 696, from the USA 265, from New Zealand 146 and from Italy 92. Unfortunately 168 delegates, some of whom had paid their registration and others who had not, did not finally come to the conference.

R Park  
**for the 12WCEE Organising Committee**

June 2000

