

Earthquake Engineering New Zealand

Visit to Tianjin, Tangshan and Beijing November 2001

Report by David C Hopkins

1. Introduction

The visit was principally to attend a two-day Workshop on Urban Development and Disaster Planning in Tianjin on 13 and 14 November. This coincided with the visit of the Mayor of Wellington, Kerry Prendergast to Tianjin, who attended the opening ceremony. In addition to the Workshop, site visits to the Port of Tianjin, Tianjin Economic Development Area, Emergency Management Office and Seismological Bureau were made.

Dr Fouad Bendimerad, Chairman of the Earthquakes in Megacities Initiative travelled from San Francisco for the Workshop, considerably enhancing its status.

Five members of the Cluster attended, all of whom gave presentations. Rachel Rogers, Manager of Wellington's Emergency Management Office, Kevin Murphy, WCC Public Advocate also gave presentations. A total of 32 presentations were given, comprising equal numbers from New Zealand and China. A copy of the programme is attached.

Attendance of Cluster members was supported by EQC, WCC, Wellington Regional Economic Development Agency, EENZ funds and by the firms of those attending.

2. Objective of Workshop and Visits

The objective of the Workshop and Visits was to exchange knowledge on the various topics, to further develop relationships with Tianjin, and to identify topics from which worthwhile collaborative projects could be found.

3. Workshop Programme

A copy of the programme for the Workshop is attached. Also attached are notes taken by David Hopkins of the sessions. Proceedings from the Workshop were not available but will be distributed by the organisers later.

4. Workshop Final Session

At the conclusion of presentations, a joint session was held to determine key topics and to identify next steps. This resulted in a number of topics being identified and a range of agreed actions to continue the development of the relationship.

Director Liu had Memorandum of Understanding in Chinese and went through it. He said that the overall focus should be on Urban Development and Disaster Management – i.e. same as now. Discussion topics were suggested and the list extended. Other ideas for enhancing and continuing the relationship were discussed and recorded.

Topics Identified:

- a) Education for Earthquake Disaster Mitigation
- b) Legislation development for urban areas to increase level of enforcement
- c) Detection of Active Faults in Urban Areas
- d) Seismic Risk Analysis on GIS Platform, with intention to apply commercially
- e) Application of Seismic Isolation Technology (Wellington to Tianjin)
- f) Search and Rescue Technology (Tianjin to Wellington)
- g) Observation Technology (precursors etc) (Tianjin to Wellington)
- h) Insurance Issues
- i) Lifelines vulnerability.

Approach and Activities

- a) Tianjin to produce Draft MoU in English and Chinese for review and comment
- b) Both sides to consider viable projects for each topic and to produce a "Concept Paper" on each to help clarify issues involved and to better define the nature of proposed projects.
- c) We should focus on 3 or 4 projects maximum, while not losing sight of the possibilities in other topics.
- d) There should be an exchange of experts in both research and practice areas.
- e) A bi-lingual Annual Report of activities should be published, in Wellington.
- f) Reports on mayoral impressions, and the reaction of policy/decision-makers, should be reported by each side.
- g) Each city would develop a website or section of a website dedicated to the Tianjin-Wellington relationship. This would be used to store and exchange information of relevance.
- h) There should be an exchange of letters by Mayors each year to help reinforce the relationship between Tianjin and Wellington. The Mayor of Tianjin will write the first of these to Mayor Kerry Prendergast, summarising the outcomes of the Workshop.
- i) EMI would be an integral part of the relationship, providing advice, facilitation, sponsorship and advocacy. This reflects EMI's continuous commitment to helping megacities to address disaster mitigation.
- j) A Wellington Workshop has been suggested for 2002. This will need to be programmed to account for the EMI Megacities Conference in Shanghai in October 2002.

5. Visits and Meetings

On 12 and 15 November, our hosts, the Tianjin Municipality, Tianjin Seismological Bureau and China Seismological Bureau, took the New Zealand and EMI representatives on a number of visits. Refer attached outline of activities.

The following are worth special comment:

Tianjin Economic Development Area

This area has seen major investments by multi-national firms such as Motorola (US\$1.5billion so far with an equal amount scheduled). Prospective investors get basic information on seismic risk and general geotechnical conditions. An opportunity exists to prepare a much more comprehensive and credible background technical document for Tianjin, using NZ and Tianjin skills. TEDA would need to be persuaded of the merit of such a report in attracting investment.

China Re

China Reinsurance Company, headquartered in Beijing, was set up formally in March 1999 and is under the direct control of the State Council. It has 439 staff with offices in several locations in China, and liaison or representative offices in Hong Kong, Dubai, New York and London. Their main role is to enhance the underwriting capacity of insurance companies and to stabilise their businesses by spreading operations globally.

They have assets of Y15Billion (US\$2Billion approx.) having started with Y3Billion in 1996. It is clear that they are modelling themselves on other Reinsurance companies, and carry out their own analyses of earthquake risk. Continued contact with them is intended. They have not shown much interest to date in using outside services for such analyses, but it would be worth looking at a joint project for them using both NZ and Chinese skills. GNS have had contact with them over the last few years.

China National Association of Engineering Consultants

It is clear that this association is modelling itself on similar associations around the world. It is a member of the international body, FIDIC, and its NZ counterpart is the Association of Consulting Engineers of NZ (ACENZ). The CNAEC has over 300 members and is growing rapidly.

They represent a valuable contact for future marketing, particularly in facilitating contact with local consultants and contractors. We can also use them to disseminate promotional information to their members. For example, this could include EENZ credentials on base isolation of major buildings.

Several consultants in Tianjin are listed as members. EENZ would look to involve one or more of these in future workshops in order to provide the input on building design, approvals and construction monitoring.

6. Conclusions

The Workshop and visits provided excellent opportunities to develop relationships, identify key personnel and to improve NZ knowledge of work going on in the field of urban development and disaster mitigation in China, or at least in Tianjin. Much of the focus was on seismology and on seismic risk analysis. There was no information from the Tianjin side on building controls, design approaches, approval procedures and monitoring of construction. This needs to be rectified in the next workshop, by

inviting some designers from Tianjin and at least one representative from the Tianjin Municipality responsible for building controls and/or design.

EENZ should actively work on identifying viable projects from the list of possibilities and follow up with TEDA, China Re and CNAEC as suggested above.

There will be no shortage of interesting and, from our perspective, worthwhile, projects to work on in conjunction with our Tianjin colleagues. The challenge will be to come up with those which will most appeal to likely funders.

The attendance of Dr Fouad Bendimerad from EMI greatly enhanced the status and value of the Workshop. There is every expectation that EMI's interest and support will be of assistance in securing funds for joint projects.

The failure to make meaningful contact with the World Bank representatives was disappointing, but much can be achieved by telephone and email. The fact that representatives did not attend any part of the Workshop suggests that they do not have a strong interest in the topic. However, we will not know their level of interest until specific project proposals are put to them.

7. Acknowledgements

Earthquake Engineering New Zealand gratefully acknowledges the support it has received to participate in this Workshop and visits. In China, the support and hospitality of the Tianjin Municipality, Tianjin Seismological Bureau and China Seismological Bureau were outstanding and much appreciated. It helped greatly to create a spirit of co-operation amongst participants from Tianjin and Wellington.

The support of Wellington City Council, both financial and in the attendance of the Mayor and key personnel is gratefully acknowledged.

Without the financial support of the Earthquake Commission, Wellington Regional Economic Development Agency, and EENZ, attendance at the Workshop by Cluster members would not have been as representative.

The support of EMI and Dr Fouad Bendimerad was most welcome and motivating.

David C Hopkins
Co-Chair EENZ
November 2001

Appendix A – Summary of Activities

Saturday 10 November

- Travel by Yuan, Mander, Stroombergen, Hughson and Hopkins via Hong Kong to Beijing.
- Met by Director Liu and Wang Yinghua and Dr Mu Guangxun
- Fouad Bendimerad arrived from SF via Shanghai, almost simultaneously
- Travel by van in fog to Hotel in Jixian County.

Sunday 11 November

- Visit in van to TSB station overlooking mountains and lake. Received by Director Liu and representatives of TSB in the area. Introductions and welcome plus responses. Briefing on TSB station by person in charge (name?). Photo in front of building looking in to sun. Tour of station and visit to GPS monitoring station.
- Sophisticated equipment and comprehensive monitoring. Equipment not secured for earthquake. Korean seismometer and others in basement.
- Rural countryside. Red brick single sometimes two storey dwellings with tiled roofs.
- Lunch at Yu Yang Hotel hosted by official from Ji County. Many toasts and fine food in Banquet Room No 1, the round table holding at least 20.
- 30km drive through pleasant rural countryside into steep mountain country and to Great Wall.
- 2-hour drive to Tianjin via 4-lane road. Dinner at Crystal Palace Hotel with TSB reps including Director Liu, He Qin, Dr Mu, Guo Runqing, Xu Zhizhong.
- Walk in environs of hotel. Wide streets, not very busy. Tianjin very spread out. Not as many large apartment buildings as expected. Some modern looking 15 to 20-storey bank buildings. Difficult to tell standard of engineering.

Monday 12 November

- Visit to TSB and inspection of their facilities and equipment –very impressive 6-storey building with briefing rooms, data reception and analysis equipment.
- Travel to TEDA (Tianjin Economic Development Area) near port area, 40 km away from downtown Tianjin. Received and briefed by official and shown a video of the development. Lunch in TEDA cafeteria.
- Travel to Port of Tianjin. Brief Inspection of facilities – large busy port with impressive container handling capabilities. Handles large volumes of coal for export.
- Return to Tianjin. Mayoral Banquet at Astor Hotel. Li Shenglin Mayor, Yang Dong Liang Vice Mayor

Tuesday 13 November

- Opening Ceremony and speeches.
- Workshop Sessions for remainder of the day. Lunch at Crystal Palace Hotel (Conference Venue)

- Reception Banquet hosted by TSB and ex-Mayor Liang Su at Crystal Ballroom.

Wednesday 14 November

- Workshop Sessions all day.
- Closing ceremony including presentation of Wellington caps to presenters.
- Review meeting to identify projects.
- Dinner at Goubuli Restaurant hosted by TSB.

Thursday 16 November

- Travel to Tangshan and visit to Memorial Museum
- Lunch at restaurant in Tangshan
- Travel to Beijing and Hotel Xiyuan
- Buffet dinner at New Zealand Ambassador's residence with Sir Paul Reeves
others

Friday 17 November

- Return travel by NZ party except Mike Kozuch and David Hopkins
- Travel to Forbidden City and Tianenmen Square plus tour, with He Yongnian and Wang Zhiqiu.
- Visit by Mike Kozuch and David Hopkins to China Re, joined by George Zhao, representative of Tse Group in Wellington. Presentation by MK to four reps of China Re.
- Visit by MK, DH and GZ to China National Association of Engineering Consultants. Fruitful discussions.
- Meeting with Fouad Bendimerad re risk analysis models.

Saturday 17 November

- MK and DH returned to New Zealand.