

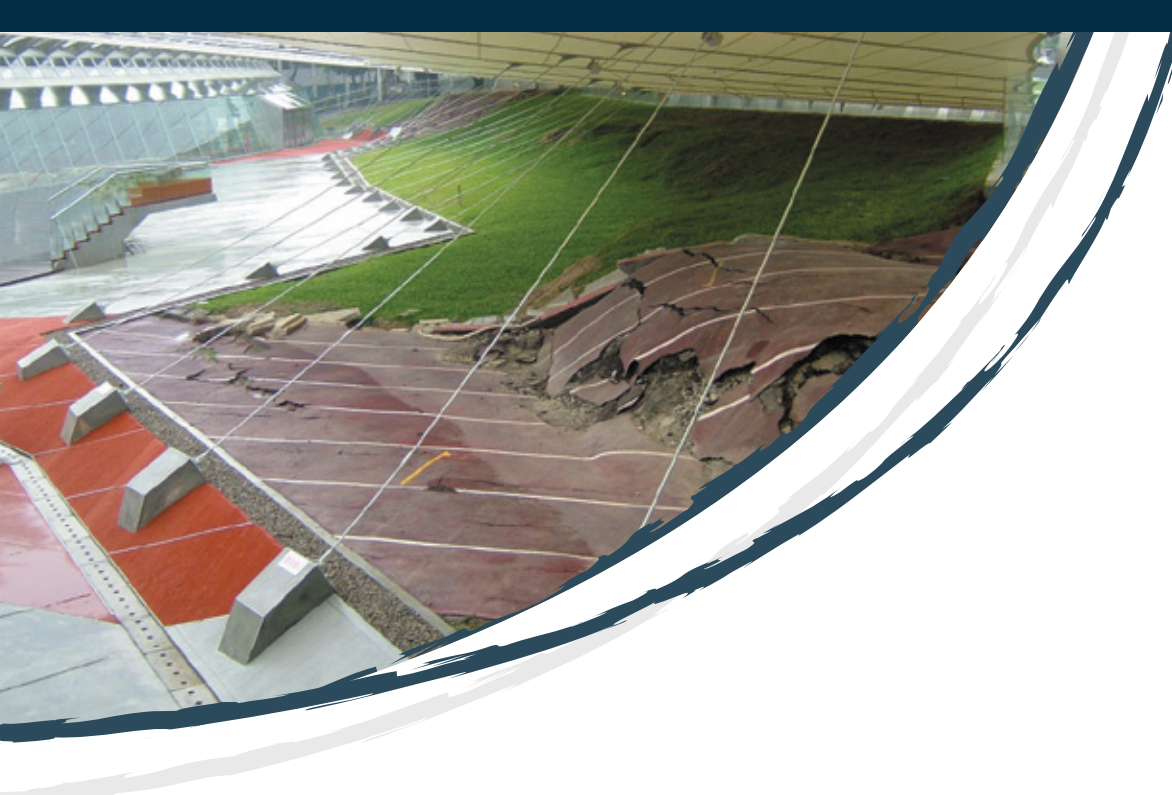
**1<sup>ST</sup> UIC CONFERENCE ON  
NATURAL DISASTER MANAGEMENT  
FOR RAILWAY SYSTEMS**

CONFERENCE BOOK

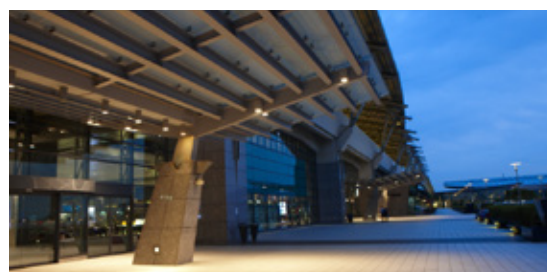


**Taipei**  
**14-16 May 2014**





## WELCOME MESSAGE



Taichung station of Taiwan High Speed Rail

IT IS OUR GREAT PLEASURE TO INVITE YOU TO THE 1<sup>ST</sup> UIC CONFERENCE ON NATURAL DISASTER MANAGEMENT FOR RAILWAY SYSTEMS.

The Conference will be taking place in Taipei **from 14th to 16th May 2014**. This conference will provide attendees an in-depth understanding and discussion of issues concerning the management and possible countermeasures against various natural disasters on railway systems, as well as a well-structured platform to facilitate information exchange and experience sharing for these challenging events.

In this event, practitioners and experts with background in a variety of railway systems and professional/academic institutions from around the world will contribute as keynote speakers and session presenters. Themes in six sessions will comprehensively cover disaster prevention/mitigation, disaster preparedness, and emergency responses for railway systems. Discussions will be well-organized during the **two-day Conference**.

**A Technical Visit of site installations will be arranged for the third day of the Conference.**

An important goal of this conference is to create an opportunity for current and prospective railway operators and their management teams to evaluate their approaches to address natural hazards and to define improvements to their effective management of such natural hazards. All the participants are encouraged to take advantage of this informative program to advance their expertise on natural disaster management and to utilize networking opportunities offered by this Conference.



## OVERVIEW

### VENUE

The 1st UIC Conference on Natural Disaster Management for Railway Systems will take place at **Le Meridien Hotel Taipei**.



*Le Meridien Hotel Taipei*

### LANGUAGE

The conference will be conducted in English including papers presentation and discussion. Chinese and Russian interpretation could be available if required.

### PROGRAMME AND PRESENTATION

The conference is a three-day event focusing on a wide range of natural disasters faced by railway systems. Natural hazards result from unique and rare high-risk events such as earthquakes, heavy snow fall, sand storms, and/or wildfires, or widely and more regularly occurring events such as floods, cyclones, heavy rain, and landslides will be discussed comprehensively and will cover various types of railway systems (high-speed rail, conventional rail etc.).

The program includes keynote speeches, plenary/technical sessions, and a roundtable.



## CONFERENCE SCHEDULE AT A GLANCE

WEDNESDAY  
14 MAY 2014

- 08:30 - 09:30 Registration
- 09:30 - 09:50 Opening Ceremony
- 09:50 - 10:50 Keynote Speeches
- 10:50-11:10 *Coffee Break*
- 11:10 - 12:40 **Session 1: Concepts and Strategies of Natural Disaster Management on Railway Systems**
- 12:40 - 14:00 *Lunch*
- 14:00 - 15:30 **Session 2: Ways of Detection and Warning of Natural Disasters**
- 15:30 - 16:00 *Coffee Break*
- 16:00 - 18:00 **Session 3: Disaster Preparedness: Planning, Organising and Training**
- 18:30 Welcome Cocktail

THURSDAY  
15 MAY 2014

- 08:30 - 10:00 **Session 4: Civil & Technical measures for Disaster Prevention & Mitigation**
- 10:00 - 10:30 *Coffee Break*
- 10:30 - 12:00 **Session 5: Natural Disasters on High Speed Systems and other Specific Cases**
- 12:00 - 13:30 *Lunch*
- 13:30 - 15:00 **Session 6: Mechanism & Practice on Emergency Response, Relief and Recovery**
- 15:00 - 15:30 *Coffee Break*
- 15:30 - 16:30 Debriefing of 6 Technical Sessions and propositions of follow-up actions
- 16:30 - 17:30 Round Table
- 17:30 - 17:45 Closing ceremony
- 19:00 Official Dinner

FRIDAY  
16 MAY 2014

- 09:00 - 17:00 Technical Visit

# WEDNESDAY 14 MAY 2014

08:30 - 09:30 Registration

09:30 - 09:50 Opening Ceremony

## Opening speeches

Mr. LOUBINOUX Jean-Pierre, Director General, UIC  
Mr. SEINO Satoshi, Chairman of UIC Asia-Pacific region, Chairman JR-East  
Mr. ZHENG Guangyuan, CEO THSRC

## Presentation of the program and chairmen of the sessions

Mr. VU Vincent, Director Institutional Relations & Coordination Asia-Pacific, UIC

09:50 - 10:50 Keynote Speeches

Mr. LOUBINOUX Jean-Pierre, Director General, UIC  
Mr. ZHENG Guangyuan, CEO THSRC

## Classification and overview on forecast, societal impact, risk reduction, emergency management of natural disasters

Mr. GRADINARIU Teodor, Senior Technical Advisor, Rail System Department UIC

10:50 - 11:10 Coffee Break

11:10 - 12:40 Session 1: Concepts and Strategies of Natural Disaster Management for Railway Systems

Chairman: Mr. GAUTIER Pierre-Etienne, Vice-President of Innovation, SYSTRA

### Natural Disaster Management of Taiwan High Speed Rail Civil Infrastructure

Mr. WANG Karl, Assistant Vice President, Infrastructure Maintenance Dept., THSRC

### Seismically strengthening of the railway structure in JR-East

Mr. KAWASAKI Atsushi, Deputy Manager, Facilities Department, JR East

### The development of an Integrated Natural Disaster Management Framework for Railway Systems

Mr. LAI Yung-cheng, Associate Professor, National Taiwan University

### UIC Concept on Comprehensive Protection for Railways. Studies on Natural Disasters

Mr. BARRON Iñaki, Director Passengers & High Speed Department, UIC  
& Mr. COLLIARD Jacques, Head of Security Division, UIC

### Australian experience and Strategy – Mitigation and Recovery

Mr. SARGANT Tom, UIC Pacific Representative

## Questions & Answers

12:40 - 14:00 Lunch



# WEDNESDAY 14 MAY 2014

## 14:00 - 15:30 Session 2: Ways of Detection and Warning of Natural Disasters

*Chairman: Mr. GRADINARIU Teodor, Senior Technical Advisor, Rail System Department UIC*

### **On-site Earthquake Early Warning for Railway Systems Using Support Vector Machine**

*Mr. HSU Ting-Yu, Associate Research Fellow, NCREE (National Center for Research on Earthquake Engineering)*

### **Increase Density of Earthquake Detection in Taiwan High Speed Rail Signaling System**

*Mr. TAM Chi-Ming, Senior Engineer (Signalling), THSRC*

### **Improvement of earthquake early warning system for Shinkansen**

*Mr. YAMAMOTO Shunroku, Senior Researcher, Laboratory Head, RTRI*

### **Safety Management System of Railway Infrastructure using measuring Data**

*Mr. KIM Hyun Ki, Senior Researcher, Railroad Structure Research Division, KRRRI*

### **Questions & Answers**

## 15:30 - 16:00 Coffee Break

## 16:00 - 18:00 Session 3: Disaster Preparedness: Planning, Organizing and Training

*Chairman: Mr. CHEN Chiang, Assistant Vice President, Railway Operation Division, THSRC*

### **Weather service for railway disaster prevention**

*Mr. PENG Chi-Ming, General Manager, WeatherRisk Explore Inc.*

### **Operational regulations against natural disasters and PreDAS (Prevention of Disaster Alarm System)**

*Mr. KAMIYA Hiroshi, Deputy Manager, Facilities Department, JR East*

### **The typhoon monitoring and response mechanism in THSRC**

*Mr. LEE Luke, Assistant Manager, THSRC*

### **Analysis and Development of Emergency Management Information System for Railway Systems in Taiwan**

*Mr. CHEN Cheng-Chung, Sinotech Engineering Consults, Inc.*

### **The Management of natural disasters in Australia**

*Mrs. MIHAI Florentina, Senior Project Manager, Main Roads West Australia*

### **Natural Disaster Preparedness of Indian Railways**

*Mr. BINDRA J.S., Director Safety, Indian Railways*

### **Controlling train operation for each weak section in heavy rain**

*Mr. HWANG In-Gyu, Manager, R&D Planning Team of KORAIL Research Institute, KORAIL*

### **Questions & Answers**

## 18:30 Welcome Cocktail

# THURSDAY 15 MAY 2014

## 08:30 - 10:00 Session 4: Civil & Technical measures for Disaster Prevention & Mitigation

*Chairman: Mr. SATO Yutaka, General Manager, International Affairs Department, RTRI*

### **Risk assessment method of debris flow occurrence utilizing digital terrain model**

*Mr. TAKAYANAGI Tsuyoshi, Researcher, RTRI*

### **Natural Disaster Management of THSRC River Bridges**

*Ms. CHEN Chih-Huei, Deputy Engineer, THSRC*

### **Wireless Slope Monitoring System**

*Ms. CHEN Fang-Chu, Director, Taiwan Industrial Technology Research Institute*

### **The method of appropriately installing anemometers to observe strong winds for train operation control**

*Mr. FUKUHARA Takaaki, Assistant Senior Researcher, RTRI*

### **Risk analysis of cross wind and protection strategies of high speed lines: a comparison of international practices**

*Mr. GONZVA Michaël, PhD Student, SYSTRA*

### **Questions & Answers**

10:00 - 10:30 Coffee Break

## 10:30 - 12:00 Session 5: Natural Disasters on High Speed Systems and other Specific Cases

*Chairman: Mr. BARRON Iñaki, Director Passengers & High Speed, UIC*

### **Taipei Metro System after Typhoon Nari**

*Mr. YU Kai, Associate Engineer, Taipei Rapid Transit Corporation*

### **Resilience of High-Speed and Intercity lines against natural risks**

*Mr. GAUTIER Pierre-Etienne, Vice-President of Innovation, SYSTRA*

### **A case of the disaster caused by volcanic eruption**

*Safety director, KAI, Indonesia*

### **The TRA reaction operation system of disaster prevention and rescue – take the example of landslide TRA's South Link Line on 31 August 2013**

*Mr. TSAI Jui-Ming, Dispatcher, Taiwan Railways Administration, MOTC*

### **Questions & Answers**

12:00 - 13:30 Lunch



# THURSDAY 15 MAY 2014

## 13:30 - 15:00 Session 6: Mechanism and Practice on Emergency Response, Relief and Recovery

*Chairman: Mr. COLLIARD Jacques, Head of Security Division, UIC*

### **Passenger service and emergency response in an earthquake incident**

*Ms. CHEN Irene, Senior Specialist, THSRC*

### **Enhancement of Emergency Management in Taiwan High Speed Rail – Using of information and communication technologies**

*Mr. JEN Tommy, Deputy Head of Operation Control Center, THSRC*

### **Future vision: the research projects in progress involving UIC**

*Mr. COLLIARD Jacques, Head of Security Division, UIC*

### **Questions & Answers**

15:00 - 15:30 Coffee Break

## 15:30 - 16:30 Debriefing of 6 Technical Sessions and propositions of follow-up actions

*Chairman: Mr. LOUBINOUX Jean-Pierre, Director General, UIC*

### **Debriefing by the Chairman of each Session:**

- » a. Summary of presentations key points
- » b. Summary of key issues
- » c. Propositions of follow-up actions if any
- » d. Questions and answers

## 16:30 - 17:30 Round Table

*Chairman: Mr. LOUBINOUX Jean-Pierre, Director General, UIC*

### **Subject: "The Future of Managing Natural Disasters for Railways"**

## 17:30 - 17:45 Closing Ceremony

*Mr. LOUBINOUX Jean-Pierre, Director General, UIC*  
*Mr. ZHENG Guangyuan, CEO THSRC*

19:00 Official Dinner



## TECHNICAL VISIT AT THE 921 EARTHQUAKE MUSEUM OF TAIWAN

### PREFACE: PECULIAR MATERIAL OF NATURAL SCIENCE

At 01:47AM on September 21, 1999, the central part of Taiwan was struck by an earthquake that registered 7.3 on the Richter Scale. The resultant loss of life and damage to property put it among the worst natural disasters of the past century in Taiwan. In the wake of the 921 disaster, the local government decided to preserve some of the phenomena related to the earthquake such as slips in the fault line, collapsed school structures, raised river beds and other selected locations, to serve as reminders for the public of the need to prepare for such disasters and to be ready to provide emergency rescue services.

With the rebuilding of Kwangfu Junior High on its present site, the Earthquake Memorial Museum was renamed the 921 Earthquake Museum of Taiwan on February 13, 2001. The new plan retains the original sites as a record of the damage wrought by the earthquake, and it also adds educational facilities designed to inform the public and school children about earthquakes and disaster readiness.

### ARCHITECTURE: THE STRUCTURE SERVE AS POINTERS TO THE FAULT LINES HIDDEN UNDER THE EARTH, AND MAKE THE EARTHQUAKE MORE REAL TO VISITORS

The 921 Earthquake Museum of Taiwan combines an Exhibitions Building with the geological changes and destroyed structures in one place to present a clear impression of the damage that was caused by the earthquake. The structures serve as pointers to the fault lines hidden under the earth and make the earthquake more real to visitors. Chelungpu Fault Gallery is located right next to the oval track that was sharply displaced during the earthquake, showing very distinctly how the fault line moved. The site takes what happened in different areas during the earthquake and reduces it to the most basic logic and then presents it to the visitor.

Visual images of structures throughout the area are used to display the upper layers of the ground and to determine how far away the safe zone would be from each one. If you follow the structures along the line of the fault and study how the land is formed, you find both isolated and linked areas that represent different kinds of spaces to the observer.

## FRIDAY 16<sup>TH</sup> MAY, 2014

### 921 Earthquake Museum of Taiwan

08:54 09:46	THSR train from Taipei Station to Taichung Station	13:00 14:30	Visit 921 Earthquake Museum of Taiwan
10:00 10:40	Bus to Chelungpu Fault Preservation Park	14:30 15:45	Bus back to Taichung Station with a stop at LIN Family Garden
10:40 11:50	Visit Chelungpu Fault Preservation Park	15:45 16:15	Visit THSR Taichung Station
11:50 12:20	Bus to 921 Earthquake Museum of Taiwan	16:15 17:06	THSR train from Taichung station back to Taipei Station
12:20 13:00	Lunch in 921 Earthquake Museum of Taiwan		



台中  
Taichung



## TRANSPORTATION FROM THE INTERNATIONAL AIRPORT

**Bus:** Information related to the bus transportation between the airport and Taipei Main Station is available at the following website: [www.taoyuan-airport.com](http://www.taoyuan-airport.com)

**Taxi:** Taxi fare from Taoyuan International Airport to Taipei is around 1200NT\$.

## ACCOMMODATION

**LE MERIDIEN HOTEL TAIPEI:** [www.starwoodhotels.com](http://www.starwoodhotels.com)

Package for "special price", please contact: Ms. DJ Ma (THSRC): [dj\\_ma@thsrc.com.tw](mailto:dj_ma@thsrc.com.tw)

**HOME HOTEL TAIPEI:** [www.homehotel.com.tw](http://www.homehotel.com.tw)

Please send the hotel booking form to [Reservation@homehotel.com.tw](mailto:Reservation@homehotel.com.tw)

Form available on: [www.uic.org/IMG/pdf/home\\_hotel-reservation\\_.pdf](http://www.uic.org/IMG/pdf/home_hotel-reservation_.pdf)

**THE TANGO HOTEL TAIPEI XINYI:** [www.tango-hotels.com](http://www.tango-hotels.com)

Please send the hotel booking form to Russell Chang at: [rsvn.xy@tango-hotels.com](mailto:rsvn.xy@tango-hotels.com)

Form available on: [www.uic.org/IMG/pdf/the\\_tango\\_taipei\\_xinyi-reservation\\_.pdf](http://www.uic.org/IMG/pdf/the_tango_taipei_xinyi-reservation_.pdf)

## TAIPEI IN BRIEF

The conference will be held in Taipei, that was first known to the West as Formosa, or Beautiful Island. Taipei City is situated at the northern tip of the island. The population of Taipei city is estimated to be 2,618,772 people. Considered to be a global city, Taipei is part of a major industrial area. Railways, high speed rail, highways, airports, and bus lines connect Taipei with all parts of the island. Taipei is the political, economic, and cultural center of Taiwan. The National Palace Museum has one of the largest collections of Chinese artifacts and artworks in the world, which is listed as one of the five top museums in the world. The Taipei 101 is the place visitors can not miss. The city also has 24-hour bookstores and convenience shops, and bustling night markets. More information about the city of Taipei, please visit the website: <http://eng.taiwan.net.tw/>



Taichung station of Taiwan High Speed Rail



## GENERAL INFORMATION AND SIGHTSEEING

### PASSPORT & VISA

All foreign visitors entering Taipei must be in possession of a valid passport.

Requirements for entry into Taiwan differ from country to country. Delegates are advised to contact Taipei Economic and cultural offices in their countries, or their travel agents, or visit the website [www.boca.gov.tw](http://www.boca.gov.tw) to ensure that they obtain visas in time to attend the Conference.

For any help, please contact Ms. DJ Ma (THSRC):  
[dj\\_ma@thsrc.com.tw](mailto:dj_ma@thsrc.com.tw)



Taichung station of Taiwan High Speed Rail

### TIME

Taiwan is eight hours ahead of Greenwich Mean Time (GMT) and does not practice daylight saving time in summer. You can check Taiwan's local time and the time difference from your local time via this link:

[www.worldtimeserver.com](http://www.worldtimeserver.com)

### LANGUAGE

Mandarin is the official language.

### ELECTRICAL APPLIANCES

Taiwan operates on 110 volts for electrical appliances.

### CURRENCY EXCHANGE

Only New Taiwan dollars (NT) is acceptable at regular stores and restaurants. You can buy NT at foreign exchange banks.

### TRAVELER'S CHECKS AND CREDIT CARDS

Traveler's checks are accepted only by leading banks and major hotels in principal cities, and the use of traveler's checks in Taiwan is not as popular as in some other countries. VISA and MasterCard are widely accepted at hotels, department stores, shops and restaurants in Taipei.

### SIGHTSEEING

Sightseeing of Taipei and surroundings is easily achievable by using the efficient Taipei Mass Rapid Transport system. Information related to the sites accessible by MRT is available on the following website:

[http://english.trtc.com.tw/MP\\_122032.html](http://english.trtc.com.tw/MP_122032.html)

General information is also available on the following websites:

<http://en.wikipedia.org/wiki/Taiwan>

<http://www.gio.gov.tw/mp.asp?mp=807>

<http://eng.taiwan.net.tw/>





## Contact

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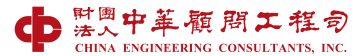
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