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Haigh, Richard and Amaratunga, Dilanthi

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4th International Conference on Building Resilience, Building Resilience 2014, 8-10 September 2014, Salford Quays, United Kingdom

## Editorial



Richard Haigh<sup>a\*</sup>, Dilanthi Amaratunga<sup>b</sup>

<sup>a</sup>Global Disaster Resilience Centre, University of Huddersfield, United Kingdom

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### 1. Introduction

This volume includes selected papers presented at the 4<sup>th</sup> International Conference on Building Resilience, held in MediaCity, Salford Quays, United Kingdom from 8<sup>th</sup> – 11<sup>th</sup> September 2014.

The conference was organised by: the Centre for Disaster Resilience, University of Salford, United Kingdom; the Global Disaster Resilience Centre, University of Huddersfield, United Kingdom; and the ANDROID Disaster Resilience Network, a project of the EU Lifelong Learning Programme.

The conference was organised in association with: the United Nations International Strategy for Disaster Risk Reduction (UNISDR); the International Journal of Disaster Resilience in the Built Environment; the Asian Disaster Preparedness Center (ADPC); the UK Foreign and Commonwealth Office; the United Nations Development Programme (UNDP); the Intergovernmental Oceanographic Commission (IOC) of UNESCO; the United Nations Human Settlements Programme (UN-HABITAT); Collaborative Action towards Disaster Resilience Education (CADRE); Collaborative Action towards Societal Challenges through Awareness, Development, and Education (CASCADE); and, the Royal Institution of Chartered Surveyors (RICS).

The conference incorporated keynote addresses by: Professor Martin Hall, Vice Chancellor, University of Salford; Dan Lewis, Chief, Urban Risk Reduction, UN-HABITAT; Dan Lewis, Chief, Urban Risk Reduction, UN-HABITAT; Professor Siri Hettige, University of Colombo, Sri Lanka and Adjunct Professor, RMIT University, Australia; Professor Janaka Ruwanpura, Vice-Provost (International), University of Calgary, Canada; and, Professor Samantha Hettiarachchi, University of Moratuwa, Sri Lanka.

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\* Corresponding author. *E-mail address:* [r.haigh@hud.ac.uk](mailto:r.haigh@hud.ac.uk)

## 2. Conference themes

The risks and vulnerabilities exposed by natural hazards and disasters are on the rise globally, and the impacts are severe and widespread: extensive loss of life, particularly among vulnerable members of a community; economic losses, hindering development goals; destruction of the built and natural environment, further increasing vulnerability; and, widespread disruption to local institutions and livelihoods, disempowering the local community. Rising population and infrastructures, particularly in urban areas, has significantly increased disaster risk, amplified the degree of uncertainty, challenged emergency arrangements and raised issues regarding their appropriateness.

What is becoming equally apparent, however, is the importance of resilience - not only in the structures that humans design and build, but in the way society perceives, copes with, and reshapes lives after the worst has happened: to use change to better cope with the unknown.

Despite resilience having been widely adopted in research, policy and practice to describe the way in which they would like to reduce our society's susceptibility to the threat posed by such hazards, there is little consensus regarding what resilience is, what it means to society, and perhaps most importantly, how societies might achieve greater resilience in the face of increasing threats from natural and human induced hazards.

This 4th International Conference on Building Resilience explored the concept of resilience as a useful framework of analysis for how society can cope with the threat of hazards, helping to understand the attributes that enable physical, socio-cultural, politico-economic and natural systems to adapt, by resistance or changing in order to reach and maintain an acceptable level of functioning.

The conference included contributions from industry practitioners, researchers and academics. The themes of the conference included, but were not limited to:

### 1. *Resilience*

- Conceptual understanding of resilience
- Overall systems resilience
- Measurement of resilience

### 2. *Built environment*

- Structural mitigation
- Infrastructure
- Sustainable development
- Shelter and housing

### 3. *Communication*

- Community engagement and participation
- Inter-disciplinary working and partnerships
- Digital media
- Knowledge management

### 4. *Disaster risk*

- Multi-hazard scenarios
- Risk assessment, monitoring and evacuation

### 5. *Healthcare facilities, infrastructure and system resilience planning*

- Emergency planning and disaster response
- Community resilience planning for emergency preparedness
- Social determinants of health
- Health and wellbeing of disadvantaged and socio-economically excluded populations
- Health system resiliency planning

**6. Social resilience**

Livelihoods  
 Social protection and vulnerability  
 Social support processes  
 People, displacement and security

**7. Governance**

Local government and disaster risk reduction  
 National planning  
 Role of NGOs  
 Evidence based policy-making

**8. Education**

Capacity building  
 Lifelong learning

In common with previous conferences in the Building Resilience series, the 2014 event was set up to facilitate successful communication between researchers and research-users. The organisers believe this is crucial for the effective utilisation and implementation of research in decision-making for policy and practice.

**3. ANDROID Disaster Resilience Network**

The conference incorporated the third annual meeting of the ANDROID Disaster Resilience Network. ANDROID is an Erasmus academic network that aims to promote co-operation and innovation among European Higher Education to increase society's resilience to disasters of human and natural origin.

A consortium of partners from 64 European higher education institutions and key actors in disaster resilience has embarked on the project, joined by three institutions from Australia, Canada and Sri-Lanka.

The network's teaching and research is concerned with what resilience is, what it means to society, and how societies might achieve greater resilience in the face of increasing threats from natural and human induced hazards. The network will create a European approach that will help us understand the attributes that enable physical, socio-cultural, politico-economic and natural systems to adapt, by resistance or changing, in order to reach and maintain an acceptable level of functioning. The network will also raise awareness and promote a common understanding among stakeholders of the importance of disaster resilience education and the essential role of European HEIs in improving society's ability to increase disaster resilience.

For further information about the ANDROID network, visit [www.disaster-resilience.net](http://www.disaster-resilience.net).

**3.1. EU Lifelong Learning Programme**

The ANDROID Network is funded under the EU Lifelong Learning Programme. With a budget of nearly €7 billion, the programme funds a range of actions including exchanges, study visits and networking activities. Projects are intended not only for individual students and learners, but also for teachers, trainers and all others involved in education and training.

There are four sub-programmes which funded projects at different levels of education and training:

- Comenius for schools
- Erasmus for higher education
- Leonardo da Vinci for vocational education and training
- Grundtvig for adult education

The conference was organised with the financial assistance of the European Union. The contents are the sole responsibility of the authors and can under no circumstances be regarded as reflecting the position of the European Union.

#### 4. Making Cities Resilient: My City is Ready

The conference was linked with the United Nations International Strategy for Disaster Reduction (UNISDR) "Making Cities Resilient: My City is Ready" campaign, which is now in its second phase.

Based on the success and stock-taking by partners and participating cities in the first phase (2010-2011) the campaign is continuing and shifting its focus to more implementation support, city-to-city learning and cooperation, local action planning and monitoring of progress in cities.

In addition, the campaign will continue to advocate widespread commitment by local governments to build resilience to disasters and increased support by national governments to cities for the purpose of strengthening local capacities. Develop global goals and targets that are applicable for all cities. Private sector partners will be targeted to support development of 'industry standards' and innovative urban risk reduction solutions.

The United Nations International Strategy for Disaster Reduction is working with its partners to raise awareness and commitment for sustainable development practices that will reduce disaster risk and increase the wellbeing and safety of citizens - to invest today for a better tomorrow. Building on previous campaigns focusing on education and the safety of schools and hospitals, ISDR partners are launching a new campaign in 2010: Making Cities Resilient. The campaign will seek to convince city leaders and local governments to commit to a checklist of Ten Essentials for Making Cities Resilient and to work alongside local activists, grassroots networks and national authorities.

UNISDR and its partners have developed this checklist as a starting point for all those who want to join in the campaign. Equally important is that commitment to these Ten Essentials will empower local governments and other agencies to implement the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, adopted by 168 governments in 2005. Good urban and local governance is the key to this resilience!

The vision of the campaign is to achieve resilient, sustainable urban communities. The campaign will urge local governments to take action now to reduce cities' risks to disasters. Further details about the campaign can be found at: <http://www.unisdr.org/campaign/resilientcities/>.

"My City is getting ready" is a rallying call for all mayors and local governments to make as many cities as possible as resilient as possible. It is also a call for local community groups, citizens, planners, academia and the private sector to join these efforts. While the campaign addresses citizens – those who live in urban areas and who elect the decision makers who can take the necessary steps to make their cities safer – the campaign's principal target groups are mayors and local governments of cities of different sizes, characteristics, locations and risk profiles. Mayors and local governments are the agencies who can take action and make our cities safer. Mobilizing these important actors in the disaster risk reduction process is essential to making cities resilient. The campaign slogan has meaning for everyone. Whatever the city, the message to reduce risk will resonate with all citizens worldwide. For example, Sao Paulo is Getting Ready! Kobe is Getting Ready! Istanbul is Getting Ready! Santa Tecla is getting ready!

Dilanthi Amaratunga, Professor at the Huddersfield Centre for Disaster Resilience, University of Huddersfield, and co-conference chair, is a member of the campaign steering committee. It is hoped that the continued association with UNISDR and the Building Resilience Conference series will help to:

- Increase the knowledge and awareness of urban risk issues and solutions, as well as the role of local governments in addressing disaster risk at all levels (communication drive, adaptable to local needs and languages).
- Raise the political profile of disaster risk reduction for local governments and local governance, to improve the development investments to reduce risk and to provide stronger synergy between local and national policies (promote "compacts" between local and national authorities).
- Develop a "Hyogo Framework for Local Governments" guide, enhance and disseminate technical tools to apply risk reduction at local levels (promote training, capacity development opportunities; city-to-city learning).

The Campaign updates are posted on the campaign website and sent out to partners, participating cities and institutions. For further information please visit: [www.unisdr.org/campaign](http://www.unisdr.org/campaign).

## 5. Organising and scientific committees

The conference chairs, Professor Richard Haigh and Professor Dilanthi Amaratunga, Global Disaster Resilience Centre, University of Huddersfield, UK, would like to take this opportunity to express our sincere appreciation to the organising and scientific committees.

### *Organising committee*

Nuwan Dias, University of Salford, UK  
 Professor Michael Havbro Faber, Technical University of Denmark, Denmark  
 Kanchana Ginige, University of Salford, UK  
 Dr Maurizio Indirli, Italian National Agency for New Technologies, Energy and SD, Italy  
 Dr Bingu Ingirige, University of Salford, UK  
 Professor Artūras Kaklauskas, Vilnius Gediminas Technical University, Lithuania  
 Dr Kaushal Keraminiyage, University of Salford, UK  
 Dr Udayangani Kulatunga, University of Salford, UK  
 Professor Irene Lill, Tallinn University of Technology, Estonia  
 Chamindi Malalgoda, University of Salford, UK  
 Abhilash Panda, United Nations International Strategy for Disaster Reduction, Switzerland  
 Dr Chaminda Pathirage, University of Salford, UK  
 Professor Maggie Pearson, University of Salford, UK  
 Professor Srinath Perera, Northumbria University, UK  
 Dr Skevi Perdikou, Frederick University, Cyprus  
 Dr Claudio Rochas, Riga Technical University, Latvia  
 Dr Francesco Romagnoli, Riga Technical University, Latvia  
 Dr Jörgen Sparf, Mid Sweden University, Sweden  
 Dr Menaha Thayaparan, University of Salford, UK  
 Dr Nirooja Thurairajah, University of Salford, UK  
 Dr Jerry Velasquez, United Nations International Strategy for Disaster Reduction, Switzerland

### *International scientific committee*

Dr Ifte Ahmed, RMIT University, Australia  
 Dr George Blumberg, Oxford Brookes University, United Kingdom  
 Mr Julij Jeraj, Emergency Management Department -Ljubljana, Slovenia  
 Professor Boyko Kirilov Rangelov, Mining and Geology University, Bulgaria  
 Professor Snjezana Knezic, University of Split, Croatia  
 Professor Marinko Oluić, GeoSAT, Croatia  
 Dr Skevi Perdikou, Frederick University, Cyprus  
 Dr Andrew Lees, Frederick University, Cyprus  
 Dr Silas Chr. Michaelides, Meteorological Service, Cyprus  
 Associate Professor Jiri Horak, VSB-Technical University of Ostrava, Czech Republic  
 Assistant Professor Irina Shklovski, IT University of Copenhagen, Denmark  
 Mr Hans Jorgen Henriksen, Geological Survey of Denmark and Greenland, Denmark  
 Professor Michael Havbro Faber, Technical University of Denmark, Denmark  
 Professor Irene Lill, Tallinn University of Technology, Estonia  
 Dr Emlyn Witt, Tallinn University of Technology, Estonia  
 Professor Dominique Daudon, Grenoble Institute of Technology, France  
 Ms Alexandra Lima Revez, National University of Ireland, Ireland  
 Dr Champika Liyanage, University of Central Lancashire, UK  
 Professor Marco Imperadori, Politecnico di Milano University, Italy  
 Dr Maurizio Indirli, Italian National Agency for New Technologies, Energy and SD, Italy  
 Dr Francesco Romagnoli, Riga Technical University, Latvia  
 Mr Claudio Rochas, Riga Technical University, Latvia  
 Professor Artūras Kaklauskas, Vilnius Gediminas Technical University, Lithuania

Professor Piotr Matczak, Adam Mickiewicz University, Poland  
 Assistant Professor Jose Manuel Mendes, University of Coimbra, Portugal  
 Dr Peter Fajfar, University of Ljubljana, Slovenia  
 Professor Kurt Petersen, Lund University, Sweden  
 Dr Jörgen Sparf, Mid Sweden University, Sweden  
 Mr Jerry Velasquez, United Nations International Strategy for Disaster Reduction, Switzerland  
 Mr Abhilash Panda, United Nations International Strategy for Disaster Reduction, Switzerland  
 Dr Michael Bründl, WSL Institute for Snow and Avalanche Research SLF, Switzerland  
 Professor Srinath Perera, Northumbria University, United Kingdom  
 Professor, Andrew Collins, Northumbria University, United Kingdom  
 Dr Carolyn Hayles, University of Bath, United Kingdom  
 Dr Roshani Palliyaguru, Heriot Watt University, United Kingdom  
 Dr Yamuna Kaluarachchi, Kingston University, United Kingdom  
 Assc Professor Sujeeva Setunga, Royal Melbourne, Institute of Technology, Australia  
 Dr Michael Chiari, University of Natural Resources and Applied Life Sciences, Austria  
 Mr Jouni Honkanen, Tampere University of Technology, Finland  
 Mr Daniel Asare-Kyei, United Nations University, Germany  
 Ms Herdis Sigurjonsdottir, University of Iceland, Iceland  
 Prof Antonino Scarelli, Università degli Studi della Tuscia, Italy  
 Assistant Professor Mohammad Muslem Uddin, Università di Ferrara, Italy  
 Mr Radoslaw Szczerba, Rzeszow University of Technology, Poland  
 Dr Cristian Arion, Technical University of Civil Engineering of Romania, Romania  
 Mr Wesley Verheul, Utrecht University, Netherlands  
 Ms Shayani Weeresinghe, University of Moratuwa, Sri Lanka  
 Professor Dilanthi Amaratunga, University of Huddersfield, UK  
 Kanchana Ginige, University of Salford, UK  
 Professor Richard Haigh, University of Huddersfield, UK  
 Dr Bingu Ingirige, University of Salford, UK  
 Dr Kaushal Keraminiyage, University of Salford, UK  
 Dr Udayangani Kulatunga, University of Salford, UK  
 Chamindi Malalgoda, University of Salford, UK  
 Dr Chaminda Pathirage, University of Salford, UK  
 Professor Maggie Pearson, University of Salford, UK  
 Dr Menaha Thayaparan, University of Salford, UK  
 Dr Nirooja Thurairajah, University of Salford, UK

## **6. The International Conference on Building Resilience series**

This 2014 event was the fourth in a series of conferences aimed at increasing societal resilience to disasters.

The International Conference on Building Resilience series began in 2008 at the Heritance Kandalama Hotel in Sri Lanka. The conference was a landmark gathering for international academics, practitioners, professionals and policy makers concerned with the future of built environment education and research.

The 2008 conference specifically targeted the promotion of built environment related education and research towards a more expansive view of the life cycle of infrastructure projects, one that extends beyond the traditional cycle of feasibility analysis, planning, design, construction, operation, maintenance and divestiture. This revised life cycle should encompass the construction professional's ability to anticipate and respond to unexpected events that damage or destroy an infrastructure project. 168 papers were published in the conference proceedings and over 170 delegates participated. The conference gained the support and endorsement of a wide range of organisations: CEBE, Centre for Education in the Built Environment; RICS, Royal Institution of Chartered Surveyors; AIQS, Australian Institute of Quantity Surveyors; ISR, Institute of Sustainable Resources; SLIA, Sri Lanka Institute of Architects; IESL, Institution of Engineers, Sri Lanka; UGC, University Grants Commission, Sri Lanka; Ministry of Education,

Sri Lanka; ICTAD, Institute of Construction Training and Development, Sri Lanka; HFH, Habitat for Humanity; World Bank; Sri Lanka Convension Bureau.

Key events during the conference included:

- Five keynote addresses by leading academics and practitioners on different challenges across the disaster management lifecycle
- A themed discussion on the role of the construction industry in disaster preparedness, response and reconstruction, with contributions from a range of CIB working commission and task group coordinators
- Meetings of five major CIB working commissions and task groups
- A special issue of the *Journal of Education in the Built Environment*
- A special session of student papers from the University of Moratuwa and the University of Ruhuna
- A CIB student chapter annual general meeting and research skills workshops
- Prizes by CIOB, Emerald Publishing and Taylor & Francis publishing

Heritage Kandalama near Dambulla was again the setting for the 2<sup>nd</sup> International Conference on Building Resilience, which welcomed over 65 international and 45 Sri Lankan academics, practitioners, professionals and policy makers concerned with interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities. The conference had a particular focus on the challenges associated with reconstruction of communities in a post-war environment.

The conference programme incorporated keynote addresses by respected government officials, leading industrialists and implementers, and distinguished local and international academics. The Chief Guest, Minister of External Affairs, Hon Professor G L Peries, and Guest of Honour, Mrs Marina Mohamed, Secretary, Ministry of Disaster Management Sri Lanka, welcomed delegates and provided an important policy context for the subsequent debate, highlighting national priorities and action plans. They also established an expectation that the conference will serve as an impetus for further action in helping Sri Lanka to tackle the challenge of disaster risk. The conference also included the publication and presentation of 109 research articles and practice notes.

The conference was organised by the Centre for Disaster Resilience, School of the Built Environment, University of Salford, UK and RMIT University, Australia, in association with UNDP Sri Lanka and the Disaster Management Center, Ministry of Disaster Management, the Central Environmental Authority, and the Ministry of Environment. The local organisers and hosts were Chamber of Construction Industry Sri Lanka, University of Moratuwa, University of Peradeniya, and University of Colombo. Further details on the conference can be found at <http://www.conference2011.disaster-resilience.net>.

The conference outcomes were used to support the 2010-2011 United Nations World Disaster Reduction campaign 'Making Cities Resilient', which addresses issues of local governance and urban risk while drawing upon previous ISDR Campaigns on safer schools and hospitals, as well as on the sustainable urbanisations principles developed in the UN-Habitat World Urban campaign 2009-2013. The Centre for Disaster Resilience, University of Salford, UK continued to offer its support to the Ministry of Disaster Management with a view to incorporating the conference outcomes in the local government joint action plan to tackle hazard risk in Sri Lanka, which was launched in July 2011. The plan identified key priority activities that follow the 'Ten Essentials' of the 'Making Cities Resilient' campaign. The action plan was later implemented in coordination with the Ministry of Disaster Management and the Ministry of Local Government & Provincial Council.

Heritage Ahungalla, near the Southern city of Galle, Sri Lanka, was the setting for the 3<sup>rd</sup> conference in the series. The 2013 conference welcomed 142 delegates, including 87 academics, practitioners, professionals and policy makers, and 55 technical officers from the Southern Provincial Council. Alongside local delegates, the conference attracted 40 leading scientists from Europe, Asia, North America and Australasia. The conference also incorporated the National Launch of the United Nations Global Assessment Report and a Capacity Building Workshop for the Sri Lankan Southern Provincial Council. This event built upon the successful 2011 event that was held in association with the launch of the United Nations Making Cities Resilient: 'My City is getting ready!' campaign, which addresses issues of local governance and urban risk. The 2013 Conference further supported the campaign focus areas up to 2015, including city-to-city learning and capacity building, and an emphasis on partnerships.



The conference encouraged debate on individual, institutional and societal coping strategies to address the challenges associated with disaster risk. As a country subject to several large-scale disasters in recent years, including the 2004 Tsunami and a civil war spanning several decades, Sri Lanka provided an ideal setting to explore the challenge of creating resilient communities and cities.

The conference programme incorporated keynote addresses by respected government officials, leading industrialists and implementers, and distinguished local and international academics. Mrs Marina Mohamed, Secretary at the Ministry of Disaster Management Sri Lanka, and Hemanthi Goonasekera, Chief Executive Officer of the Federation of Sri Lankan Local Government Authorities welcomed delegates and provided an important policy context for the subsequent debate, highlighting national and local priorities and action plans. They also established an expectation that the conference will serve as an impetus for further action in helping Sri Lanka to tackle the challenge of disaster risk. The conference included the publication and presentation of 87 research articles and practice notes.

The conference was organised by the Centre for Disaster Resilience, School of the Built Environment, University of Salford, UK, the Royal Melbourne Institute of Technology (RMIT) University, Australia and Queensland University of Technology (QUT), Australia, in conjunction with local hosts the University of Colombo, the University of Moratuwa, and the University of Peradeniya. The conference was also held in association with the ANDROID Disaster Resilience Network, a major EU funded global network of 67 organisations across 31 countries that promotes collaboration among Higher Education Institutes to address disaster risk ([www.disaster-resilience.net](http://www.disaster-resilience.net)). Further details on the conference can be found at [www.buildresilience.org/2013](http://www.buildresilience.org/2013).

The conference outcomes are being used to support the United Nations World Disaster Reduction campaign 'Making Cities Resilient', which addresses issues of local governance and urban risk while drawing upon previous ISDR Campaigns on safer schools and hospitals, as well as on the sustainable urbanisation principles developed in the UN-Habitat World Urban campaign 2009-2013.