University of Salford MANCHESTER

Implementation of the UNISDR World Disaster Reduction Campaign on Making Cities Resilient

Summary of actions by the Centre for Disaster Resilience, University of Salford, UK

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Introduction

University of Salford, UK was ranked 6*, the highest grade in the UK's competitive Research Assessment Exercise (RAE) in 2001 and 1996, the only built environment research institute in the UK to achieve this. In the 2008 RAE Salford's research in this field was rated as the best in the UK and finished top in Research Fortnight's 'Research Power' table for the built environment. It has considerable experience of large research projects; between 1996 - 2004, it completed over £20M of funded research.

The University's Centre for Disaster Resilience (CDR) promotes research and scholarly activity that examines the role of building and construction to anticipate and respond to disasters that damage or destroy the built environment. The Centre has strong links to extensive international networks and organisations such UN-HABITAT and the International Institute for Infrastructure Renewal and Reconstruction. Salford is thus well placed to lead the transfer of knowledge from project outcomes to the UNISDR and broader international community. Its previous research and industry engagement work in disaster management, disaster risk reduction, developmental activities, alternative dispute resolution, post-conflict reconstruction, gender empowerment, and general construction, will provide the campaign with a strong theoretical and practical knowledgebase. Further details about the Centre and its work are documented at www.disaster-resilience.salford.ac.uk.

CDR is an academic partner of the Making Cities Resilient campaign and its members, Professor Dilanthi Amaratunga and Dr Richard Haigh are Advisory Panel members of the campaign. Accordingly, CDR contributes as a main global partner in the campaign, representing academic, technical and expert institutions, and also contributes toward the overall goal - empower local governments with stronger national policies to invest in risk reduction at local level, as part of urban and regional development plans by working with them closely.

This brief document summarises key activities that have been carried out by the Salford team in contributing towards the Making Cities Resilient Campaign. Key activities are briefly described under the following themes:

- International Conference on Building Resilience: Interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities
- Survey of perceptions of the campaign's ten point criteria
- Partners in the national launch of the Making Cities Resilient campaign in Sri Lanka and post conference support towards Ministry of Disaster Management Sri Lanka
- UN Global Assessment Report 2011
- Working with the local authorities
- International Journal of Disaster Resilience in the Built Environment– Call for papers on a special themed issue on "Making Cities Resilient"
- ANDROID (Academic Network for Disaster Resilience to Optimise Educational Development)
- Other research projects
- Other activities

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International Conference on Building Resilience

Interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities, 19th – 21st July, 2011 – Kandalama, Sri Lanka

Heritance Kandalama near Dambulla, Sri Lanka was the setting for a major international conference on the development of societal resilience to natural and human induced disasters. The International Conference on Building Resilience welcomed over 125 international and 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 programme featured five keynote addresses by leading industrialists and academics: Dakshitha Thalgodapitiya, CEO Chamber of Construction Industry Sri Lanka; Dr Ananda Mallawatantri, Environment, Energy and Disaster Risk Management, United Nations Development Programme, Sri Lanka; Professor Peter Barrett, Professor of Management in Property and Construction at University of Salford, UK; Professor John Fein, Professor of Sustainability in the Innovation Leadership programme of RMIT University, Australia; and, Professor Terrence Fernando, Director of the Future Workspaces Research Centre, University of Salford, UK. These keynote addresses provided a local and global perspective and vision for disaster resilience research and practice.

The conference also included the publication and presentation of 109 research articles and practice notes that had been subject to double blind peer review by a distinguished international scientific committee. All accepted papers were published in the conference proceedings. Selected papers will also be published in a special issue of the International Journal of Disaster Resilience in the Built Environment, by Emerald Publishing.

The conference outcomes are being 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 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 and the RICS Disaster Management Commission. The local organisers and hosts were Chamber of Construction Industry Sri Lanka, University of Moratuwa, University of Peradeniya, and University of Colombo.

The Conference was chaired by Professor Dilanthi Amaratunga and Dr Richard Haigh, from the Centre for Disaster Resilience, University of Salford, UK.

Further details on the conference can be found at www.buildresilience.org. Please see Appendix 1 for the conference flyer.

The following is a summary of major findings that were presented during the conference by leading scientists and practitioners. They are provided as a means to inform policy for national and local government, thereby helping to ensure that the conference results in positive action towards sustainable development and reduced disaster risk.

Community engagement

- In contrast to many other stakeholders involved in disaster risk reduction, the community is typically not organised. As such, efforts must be made to rebalance this relationship. Communities need to be empowered through an organisation.
- Through greater consultation, participation, community building and empowerment, communities must be made resilient before facing a disaster, rather than trying to increase resilience post-disaster.
- Infrastructure reconstruction programmes have the potential to connect and divide communities. A community sensitive reconstruction process should be adopted to increase the development of the community's assets, including physical, economic, human, institutional, natural, and social capital.

Joined up for effective action

- There is a need to develop adaptive capacity to deal with the unknown and unexpected, moving from the planning phase to action. The plan must be flexible enough to allow and even facilitate creative and innovative action in appropriate circumstances. In doing so, it must overcome the tension between innovation, creativity, and following a plan.
- It is essential to provide the right actors with the right information, at the right time. In order to achieve this, it is necessary to establish what information is available and who is responsible.
- Protocols must be identified so that intelligent systems can be utilised, including simulation, modelling, and sensitivity analysis.

Mainstreaming disaster risk reduction

- Decision makers must develop a common understanding of what resilience is – to absorb, adapt and thrive – and what it means in practice.
- Disaster management needs to be integrated within all sectors and not just focused through a single government unit. This might be achieved through a coordinating Ministry, but also by mainstreaming disaster risk reduction throughout other government activity.
- Disaster risk reduction must be incorporated into national development policy and practice.
- Legislation frameworks must reinforce policies. Otherwise, policies are unlikely to yield tangible differences in practice.
- If disaster risk reduction is to be mainstreamed effectively, prioritisation of emphasis and effort will be vital.

Survey of perceptions of the campaign's ten point criteria

The International Conference on Building Resilience: Interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities, represented an opportunity to gain some feedback in relation to the campaign's ten point criteria for reducing disaster risk, as well as to get some early input from local government as to their capacity in these areas.

Based on the details of how cities can get involved in the campaign, including the 10 point checklist that cities are expected to work toward and the set of questions relating to the criteria that was prepared as a self-evaluation questionnaire, a study was undertaken to explore whether these criteria sufficiently capture and prioritise the breadth of issues that need to be addressed in order to develop resilience, as well as understand in which areas local government feel they are inadequate.

This looked very suitable regarding the actions that should / are being taken and people's views regarding their comprehensiveness / relative importance / effectiveness. Accordingly, the simpler 10-point approach was used as a sort of questionnaire in giving a very credible foundation. These were combined with some questions regarding perspectives on longer term contextual trends.

As a baseline, the Delphi approach was used with the conference delegates and a parallel postal questionnaire for the local Government representatives, the results of which were used to discuss the issues face to face with them in July 2011, during the conference. A copy of questionnaire is included in Appendix 2.

Professor Peter Barrett led this study. He is the immediate past Chairman of the CIB (International Council for Building) and is a current Board Member of the CIB. The main findings of this survey were presented as a key note speech by Professor Peter Barrett (title of the speech: *"Disaster Management: Working with Rocks and Levers"*) at the International Conference on Building Resilience, held from 19th – 21st July, 2011 at Kandalama, Sri Lanka. Appendix 3 is a copy of the presentation given by Professor Peter Barrett.

As part of the International Journal of Disaster Resilience in the Built Environment (IJDRBE) themed issue on "Making Cities Resilient", a detailed paper will be written further expanding the findings from the aforementioned survey.

Partners in the national launch of the Making Cities Resilient campaign in Sri Lanka

The International Conference on Building Resilience 2011 (www.buildresilience.org) was held in association with the National Launch of the United Nations International Strategy for Disaster Reduction (ISDR) Making Cities Resilient Campaign. The Ministry of Disaster Management and the Disaster Management Centre led the national launch in partnership with Ministry of Local Government, University of Salford UK, Practical Action, UNDP Sri Lanka and UNISDR. The launch provided an appropriate backdrop for a policy, academic and practitioner audience to explore how they may support the campaign's goal: to help cities and local governments to get ready, reduce the risks and become resilient to disasters.

The launch of the Campaign aimed to:

- 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)
- To 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).
- To 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).

Support towards Ministry of Disaster Management, Sri Lanka

The Centre for Disaster Resilience, University of Salford, UK is offering 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 identifies key priority activities that follow the 'Ten Essentials' of the ‘Making Cities Resilient’ campaign. The action plan will be implemented in coordination with the Ministry of Disaster Management and the Ministry of Local Government & Provincial Council. This is to convene platforms or task forces for collaboration in the regions of Sri Lanka.

UN Global Assessment Report 2011

The International Conference on Building Resilience 2011 (www.buildresilience.org) incorporated the National Launch of the UN Global Assessment Report 2011.

The 2011 Global Assessment Report on Disaster Risk Reduction was prepared while disasters have continued to wipe out the lives and livelihoods of millions. The impacts of the catastrophic earthquake in Haiti in January 2010 and floods in Pakistan in July 2010 show how disaster risk and poverty are closely interlinked. Meanwhile, in 2011, floods in Australia, the earthquake in Christchurch, New Zealand, and the earthquake, tsunami and nuclear disaster wreaking havoc in north-eastern Japan as this report goes to press are a stark reminder that developed countries are also very exposed. Less visible internationally, hundreds of smaller disasters associated with climate variability have caused enormous damage in Benin, Brazil, Colombia, the Philippines and other countries. These events reveal how risks are continuously constructed through existing development gaps and growth in economic and population exposure. Moreover, as the Japan disaster highlighted, there are emerging risks and new vulnerabilities associated with the complexity and interdependency of the technological systems on which modern societies depend.

All delegates received a copy of the UN Global Assessment Report as a part of the conference proceedings.

Working with local authorities

Through strong commitment for implementation of disaster risk reduction policies, Centre for Disaster Resilience (CDR) is:

- Working closely with the local authorities in committing to disaster risk reduction through for example, programmes associated with capacity building
- Collaborating in applied research projects on risk management and reduction in local government environments;
- Making its expertise available to local governments and the public at large;
- Adapting the science agenda to emphasise this paramount research topic and advance the state-of-the art in risk reduction;
- Making risk knowledge, assessments and risk reduction part of the university curricula for urban planners, architects, engineers, geographers and similar disciplines, as well as a cross disciplinary subject.

Further, Salford actively took part in the local government nominations process and is already working with "Batticaloa District" in Eastern Sri Lanka, in respect of a nomination for "Resilient City Participant" status. The District was severely affected due to the 2004 Tsunami and by the country's 30 year long civil war. Salford University is working very closely with the Batticaloa District's local government & a range of national and international partners towards improvement in the ten steps for city resilience.

In response to the Global assessment Report 2011 on DRR and the state of disaster risks and progress on various disaster risk reduction mechanisms, including identifying capacity building mechanisms in these important areas, CDR undertook a project entitled "Capacity Development for Disaster Risk Reduction in the Built Environment".

Capacity development project

This initiative focused upon how to meet the requirements of affected communities and manage mitigation and reconstruction activities effectively, efficiently and sustainably. The destruction caused by recent natural and human-induced disasters has highlighted the susceptibility of the built environment and its vulnerability to hazards. Due to its linkages with other sectors, the destruction of the built environment by disasters hinders the regular functioning of any social and economic context. It is suggested that in the longer term, improved governance, policies, planning, management and capacity-building can provide the framework for better access by households and local communities to the professional expertise and knowledge within business, local government and civil society. In doing so, it will help communities to reduce their risk to natural disasters, and build their properties, villages and neighbourhoods to withstand the threat posed by hazards, when they cannot be avoided.

In this context, a capacity development framework has been developed with the aim of strengthening the knowledge, abilities, skills and behaviour of individuals responsible for the built environment, and improving institutional structures and processes to ensure that disaster risk reduction meets its mission and goals in a sustainable way.

The framework identifies four stages of capacity development: analysis; creation; utilisation; and retention. The four stages of capacity development are mapped against major stakeholder groups that are involved in disaster risk reduction activities. The categorisation of stakeholder groups within this study is at high level and thus one category may cover a wide range of stakeholders. Stakeholders are any identifiable group or individual who can affect the achievement of disaster risk reduction objectives, or who is affected by the achievement of those objectives. Six major stakeholder groups have been identified: National and local government; International community; Community; Civic society; Private and corporate sector; and, Academia and professional associations.

Following publications highlight the details of this capacity development exercise:

- Ginige, K., Amaratunga, D. & Haigh, R. (2010), “Developing Capacities for Disaster Risk Reduction in the Built Environment: Capacity analysis in Sri Lanka”, International Journal of Strategic Property Management, Volume 14, Issue 4, 2010, pp. 287-303
- Ginige, K. & Amaratunga, D. Capacity development for post disaster reconstruction of the built environment (2011), in Amaratunga, D. & Haigh, R. (Ed.), Rebuilding for Resilience: Post-Disaster Reconstruction of the Built Environment, Blackwell Publishing

International Journal of Disaster Resilience in the Built Environment

Launched in 2010 and edited by Professor Dilanthi Amaratunga and Dr Richard Haigh from the University of Salford, UK, the International Journal of Disaster Resilience in the Built Environment (IJDRBE) is the only journal to promote research and scholarly activity that examines the role of building and construction to anticipate and respond to unexpected events that damage or destroy the built environment.

The journal seeks to:

- Develop the skills and knowledge of the built environment researchers and professions working in disaster prone areas, so that they may strengthen their capacity in strategic and practical aspects of disaster prevention, mitigation, response and reconstruction
- Provide a unique forum for novel enquiries into the development and application of new and emerging practices as a source of innovation to challenge current practices
- Promote the exchange of ideas between researchers, educators, practitioners and policy makers
- Influence disaster prevention, mitigation, response and reconstruction policies and practices

Unique attributes

IJDRBE aims at developing the skills and knowledge of the built environment professions and will strengthen their capacity in strategic and practical aspects of disaster prevention, mitigation, response and reconstruction to mitigate the effects of disasters nationally and internationally. The journal publishes original and refereed material that contributes to the advancement of the research and practice and provides contributing authors with an opportunity to disseminate their research and experience to a broad audience.

Editorial objective

IJDRBE promotes research and scholarly activity that examines the role of building and construction to anticipate and respond to unexpected events that damage or destroy the built environment (for example, an infrastructure project – from earthquakes, flooding and climate change to terrorist attacks) and reflects construction's on-going responsibility toward built environment's users. Accordingly, the journal is designed for researchers and academics, policy makers and other professionals working with, or who anticipate having, disaster prevention, mitigation, response and reconstruction responsibilities, and who wish to improve their working knowledge of both theory and practice

Topicality

IJDRBE helps to communicate new practical ideas, applications and development details of education and training, and thus build capacity for self-sufficiency. The journal reports research that assists capacity-building for reconstruction, renewal and development of sustainable infrastructure, supports proactive and fruitful collaborations and networking among various stakeholders, and helps develop appropriate policy development and plans for implementation. Regular special issues on a range of multidisciplinary subjects keeps readers abreast of topical subjects.

Key benefits

This multidisciplinary journal is published under the guidance of an expert international board and presents fully refereed papers on practice and progress in the field. Internationally distinguished contributors will regularly address major topics of relevance to bring subscribers independent, expert and practical information, and will enjoy an influential role in the field. The journal is internationally acknowledged and established, and is formally encouraged by the CIB for its relevance and link with industry and academia.

- The leading journal contributing to the body of knowledge on disaster mitigation, response and reconstruction within the context of the built environment
- The only journal to promote research and scholarly activity that examines the role of the built environment community in anticipating or responding to natural and human induced events that damage or destroy the built environment
- The only journal that develops the skills and knowledge of the built environment professions and strengthens their capacity in strategic and practical aspects of disaster preparedness, rehabilitation and reconstruction to mitigate the effects of disasters nationally and internationally

Coverage

Coverage is international and includes (but is not limited to): Assessment of disaster-related damage; Building resilience auditing; Business continuity analysis and planning; Capacity building for disaster mitigation and reconstruction; Community engagement and participatory approaches to reconstruction; Compensation and insurance; Development and reconstruction; Disaster prevention, mitigation, response and reconstruction; Disaster risk reduction; Disaster vulnerabilities; Disasters and the built environment; Extreme weather events and coping strategies; Knowledge management practices and best practice sharing; Law and regulatory frameworks; Livelihood development, micro finance and community co-operatives; Post-conflict reconstruction; Post-disaster construction waste management; Procuring and supplying temporary services and shelter; Project management for post-disaster reconstruction; Protection and empowerment of women and other vulnerable groups; Public policy and programmes, governance, procurement and financial management; Reconstruction and sustainable economic development; Resilience of critical infrastructure; Resilience of the built environment to natural and manmade disasters; Restoration of major infrastructure and rehabilitation; Risk management and sustainability; Role of women in mitigating and managing disasters; Social impact of reconstruction; Stakeholder management and corporate social responsibility

Links with the UNISDR 'Making Cities Resilient' campaign

Contributions are encouraged on Making Cities Resilient' related themes and so far, several papers have been published that address this topic. Vol. 1, Issue 2 included an article about the campaign that was written by Helena Molin Valdés, Deputy Director, United Nations, International Strategy for Disaster Reduction (UNISDR). In this way, the journal is used by its editors, Professor Dilanthi Amaratunga & Dr Richard Haigh to publicise campaign updates among the publisher's audiences.

Key journal audiences

Researchers and academics, policy makers and students (both undergraduate and postgraduate), will benefit from the journal. In addition, the journal is designed for professionals working with, or who anticipate having, disaster prevention, mitigation, response and reconstruction responsibilities, and who wish to improve their working knowledge of both theory and practice. These professionals may be working with or for local and national government agencies, relief agencies, private sector companies, public sector agencies, UN organisations, national and international aid agencies, civil and military services, and insurance appraisers and investigators.

Please visit www.emeraldinsight.com/ijdrbe.htm to read more about the Journal.

UNISDR will continue to receive complimentary copies of the journal from the editors.

Themed journal issue on *Making Cities Resilient*

Background and scope

Cities and local governments need to get ready, reduce the risks and become resilient to disasters. For 2010 – 2011 and beyond, the United Nations International Strategy for Disaster Reduction (UNISDR) will campaign together with its partners for this to happen. *"I call for the need of world leaders to address climate change and reduce the increasing risk of disasters- and world leaders must include Mayors, townships and community leaders"*, stated UN Secretary-General Ban Ki-moon (2009). In this context, the 2010-2011 World Disaster Reduction Campaign "Making Cities Resilient" 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 urbanizations principles developed in the UN-Habitat World Urban Campaign 2009-2013.

Local governments are the institutional level closest to the citizens and to their communities. They play the first role in responding to crises and emergencies and in attending to the needs of their constituencies. They deliver essential services to their citizens (health, education, transport, water, etc.), which need to be made resilient to disasters. Accordingly, there is a need for national governments, local government associations, international, regional and civil society organizations, donors, the private sector, academia and professional associations as well as every citizen to engage in the process of making cities safe from disasters.

A themed issue of the International Journal of Disaster Resilience in the Built Environment is proposed for researchers and academics, policy makers and other professionals working with disaster prevention, mitigation, response and reconstruction responsibilities who wish to improve their working knowledge of both theory and practice in making cities resilient to disasters.

Themes

This issue will cover the following sub themes (but not limited to):

- National and local governance
- Participation of citizen groups and civil society in the disaster risk reduction process
- Role of the local government in the disaster mitigation, management and reconstruction process
- Risk assessment on hazards and vulnerabilities
- Disaster risk reduction
- Manage and reduce urban risk
- Disaster risk reduction educational programmes and capacity building
- Risk-reducing infrastructure
- Infrastructure upgrades and improvement
- Building regulations and land use planning norms
- Early warning systems and emergency management capacities
- Building resilience auditing
- Risk reduction and continuity management
- Knowledge management practices
- Community engagement and development

High quality original papers are invited within the "Making Cities Resilient" Themed Issue. All papers will be subjected to the journal's double-blind peer review process.

Current progress

Abstracts were called at the first instance with the proposed title and up to three key words. These were reviewed against the Themed Issue scope, and journal's aim and objectives. There were a large number of submissions addressing various issues of the campaign: empowering local governments, Climate Resilient Urban Planning, Implementation of Hyogo Framework for Action in Makati City- Philippines, Community Action Planning in East Delhi: A Wider Approach to Build Mega-city Resilience, Negotiating Resilience to

today and tomorrow's extreme local weather, An integrated resilience and vulnerability model: A holistic view, Resilient cities: Organizations, urban policies and projects in the face of risk etc.

Relevant authors were then asked to submit full papers. The themed issue editors are Helena Molin Valdés, Professor Dilanthi Amaratunga & Dr Richard Haigh. (Helena is the Deputy Director, United Nations International Strategy for Disaster Reduction Secretariat (UNISDR) and the champion of the Making Cities Resilient Campaign. Dilanthi and Richard are the Editors of the International Journal of Disaster Resilience in the Built Environment who are also Advisory panel members of the UNISDR's "Making Cities Resilient" Campaign).

Accordingly, full papers have been submitted by the respective authors and currently, the papers are being reviewed by the members of the journal review panel. Selected papers, along with an editorial on the campaign will be published as a themed issue of the journal in 2012.

Please visit www.emeraldinsight.com/ijdrbe.htm to read more about the Journal.

Make risk knowledge, assessments and risk reduction part of the university curricula

As part of the long term capacity building process, University of Salford has invested in a three year PhD study (valued at £70,000 over three years) in a theme directly related to the Making Cities Resilient Campaign. The title of the PhD is "Empowering local governments to make cities resilient to disasters". The researcher is currently in the middle stage of her PhD study having successfully completed her interim assessment. Based on her research, she has already published the following articles:

- Malalgoda, C., Amaratunga, D. & Haigh, R. (2011), "Empowering local governments to make disaster resilient cities", in the proceedings of International conference on Building Resilience 2011: Interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities, July 2011, Sri Lanka.
- Malalgoda, C., Amaratunga, D. & Pathirage, C. (2010). "Role of local governments in disaster risk reduction". In the proceedings of the Royal Institution of Chartered Surveyors (RICS) Construction, Building and Real Estate International Research Conference (COBRA), Université Paris-Dauphine in Paris, France, September 2010.
- Malalgoda, C., Amaratunga, D. & Haigh, R. (2010). "Exploring Disaster Risk Reduction in the Built Environment", Proceedings of the CIB World Congress, Salford, May 2010.

Appendix 4 summarises the aims and objective of this PhD project.

Key note speeches and sessions linked to the Campaign

CDR's members continuously make reference to the campaign during related key note speeches, workshops and other events. Examples are given below:

- Keynote address: "Disaster Resilient Built Environment: A Community Based Disaster Risk Reduction Approach", Patuakhali Science and Technology University, Patuakhali, Bangladesh, September 2011
- Session lead: "Community Based Disaster Risk Reduction: Examples from Post Disaster Reconstruction", Patuakhali Science and Technology University, Patuakhali, Bangladesh, September 2011
- Key note address: " The Case for Building Resilience: Are we really Emerging from Adversity?" , "Cost management in a real world emerging from adversity", 15th Pacific Association of Quantity Surveyors Congress, Organized by Institute of Quantity Surveyors Sri Lanka (IQSSL), July 2011 , Sri Lanka
- Speech and presentation on "Multi University Consortium for Building Resilience" National Disaster Management Coordination Committee Meeting. Disaster Management Centre, 27th July 2011, Colombo, Sri Lanka
- 2010, Keynote address on "Developing a resilient built environment", at International Conference on Sustainable Built Environment, Kandy, Sri Lanka.
- Session lead, International Conference on Sustainable Built Environment, Kandy, Sri Lanka, December 2010.
- Session lead "Emergency Preparedness" - Annual International Conference on Disaster Management, organized by the International Institute for Infrastructure, Renewal and Reconstruction (IIIRR), USA, in collaboration with American Society of Civil Engineers (ASCE), USA, November 2010
- Speech and presentation on Socio-economic conditions in post conflict reconstruction, Annual International Conference on Disaster Management, organized by the International Institute for Infrastructure, Renewal and Reconstruction (IIIRR), USA, in collaboration with American Society of Civil Engineers (ASCE), USA, November 2010
- Key note speech on "A Resilient City – A myth or a reality?" The Royal Institution of Chartered Surveyors (RICS) Annual Research Conference on Building and Construction (COBRA), Dauphine Université Paris, France, on 2-3 September 2010
- Session lead. International Workshop on Disaster Risk reduction and Resilient Cities, Batticaloa, Eastern Sri Lanka, June 2010. Resilient Cities Initiative 2010 - 2011. United Nations International Strategy for Disaster Reduction (UNISDR)
- International Panel Discussion on "Built Environment Education Trends". International Research Conference on Sustainability in Built Environment, The Commonwealth Association of Surveying and Land Economy (CASLE) UK and Building Economics and Management Research Unit (BEMRU), Department of Building Economics, University of Moratuwa, Sri Lanka, June 2010
- Session chair on "Disaster Management". International Research Conference on Sustainability in Built Environment, The Commonwealth Association of Surveying and Land Economy (CASLE) UK and Building Economics and Management Research Unit (BEMRU), Department of Building Economics, University of Moratuwa, Sri Lanka, June 2010

- Workshop session leader, "Capacity Development for a Resilient Built Environment", United Nations Development Programme (UNDP) National Training Workshop on Disaster Risk Assessment and Management for the Coastal Zone of Sri Lanka: Developing a knowledge base on Hazards, Vulnerabilities and Capacities for Disaster Risk Reduction, Kandy, Sri Lanka, June 2010.
- Workshop session leader, "The Concept of Empowerment", United Nations Development Programme (UNDP) National Training Workshop on Disaster Risk Assessment and Management for the Coastal Zone of Sri Lanka: Developing a knowledge base on Hazards, Vulnerabilities and Capacities for Disaster Risk Reduction, Kandy, Sri Lanka, June 2010.
- Workshop Session Lead (with Richard Haigh), Making Batticaloa a Resilient City : 2010-2011 World Disaster Reduction Campaign, United Nations Development Programme (UNDP) National Training Workshop on Disaster Risk Assessment and Management for the Coastal Zone of Sri Lanka: Developing a knowledge base on Hazards, Vulnerabilities and Capacities for Disaster Risk Reduction, Kandy, Sri Lanka, June 2010.
- Speech titled Evaluation of disaster risk reduction practices and vulnerabilities of infrastructure reconstruction at the International Research Conference on Sustainability, The Commonwealth Association of Surveying and Land Economy (CASLE) and Building Economics and Management Research Unit (BEMRU), Department of Building Economics, University of Moratuwa, Sri Lanka, June 2010
- Session chair, Workshop on Capacity Development for Disaster Risk Reduction in the Built Environment, CIB World Congress 2010 : Meeting Society's Challenges - Disaster Management, CIB World Congress, Salford Quays, Salford, UK, May 2010
- Invited speech on " environmental disaster risk reduction and capacity development" , Department of Civil and Environmental Engineering, RMIT University, Melbourne, Australia, March 2010
- Invited speech on "Disaster risk reduction and capacity development", Faculty of Built Environment and Engineering, Queensland University of Technology, Brisbane, Australia , March 2010
- Session on Disaster "risk reduction and the built environment", Department of Civil Engineering, University of Melbourne, Melbourne, Australia, March 2010
- Session on "social impact of reconstruction", Centre for Refugee Studies, York University, Toronto, Canada
- Session lead at the Mini-Symposium Organized by the International Institute for Infrastructure, Renewal and Reconstruction (IIIRR), Schulich School of Engineering, University of Calgary, February, 2010. Title of the symposium "Best Practices for Disaster Management". Title of the session "Risk Management for Community Based Post Disaster Reconstruction
- Session on disasters and the built environment, Eastern University of Sri Lanka, Batticaloa, Sri Lanka, November 2009.
- Session lead - disaster management applications in the built environment. University of Cape Town, South Africa, October 2009.
- 2008 (November), Led a workshop in Colombo, Sri Lanka, organised by the Chamber of the Construction Industry Sri Lanka, which examined how we can increase the resilience of communities by developing the capacity to learn from past disasters and enable better future protection through risk reduction measures, and effective sustainable reconstruction following a disaster. The workshop was entitled Reducing Risk through Post-Disaster Reconstruction, and involved approximately 90 industrialists, academics and politicians from Sri Lanka.

ANDROID (Academic Network for Disaster Resilience to Optimise Educational Development)

Title: ANDROID (Academic Network for Disaster Resilience to Optimise Educational Development)
Commencement: October 2011; **Lead partner:** Centre for Disaster Resilience, University of Salford, UK
Partnership: 64 European Institutions and 3 Third Country (non-EU) Institutions
Value: Approximately Euro 850,000.00

Aim

ANDROID aims to promote co-operation and innovation among European Higher education institutions (HE) to increase society's resilience to disasters of human and natural origin. 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 increase disaster resilience.

Rationale

The ANDROID network brings together a consortium of inter-disciplinary scientists and inter-sectorial partners based at European HEIs and International Organisations with the goal of increasing society's resilience to disasters of human and natural origin. The term resilience has been widely adopted in research, policy and practice to describe the way in which they would like to reduce society's susceptibility to the threat posed by hazards. Resilience has also been used freely across a range of academic disciplines, including materials, ecology, economics and sociology. Despite this, the complex nature of disasters has led to recognition that risk reduction through increased resilience will require a strategy that is inter-disciplinary. True inter-disciplinarity only occurs where a number of separate disciplines surrender their own concepts and goals, and collectively define themselves by reference to a common set of strategic concepts and goals.

There is also widespread agreement within the literature that addressing disaster risk is an endless or continuous process that cannot stop. Early examples such as comprehensive emergency management were criticised for their excessive focus on hazards at the expense of broader contextual factors and simplistic phases that do not include a sufficient breadth of activities and supporting expertise. There is now recognition of the need for multi-actor engagement that places greater emphasis on the development of resilience, and the link between risk reduction and sustainable development. The process of reducing society's susceptibility to disaster is thus commonly visualised as a two-phase cycle, with post-disaster recovery informing pre-disaster risk reduction, and vice versa. Although usually represented as discrete stages, there is now a strong view that these stages are inter-connected, overlapping and multidimensional. The significance of this concept is its ability to promote a holistic approach to increased resilience.

ANDROID is based on an inter-disciplinary consortium of partners that comprises scientists from applied, human, social and natural disciplines. These partners from across HE have complementary skills, expertise and competences to identify and understand the varied attributes of resilience that underpin the capability and capacity of a community to cope with the threat posed by natural and human hazards. The consortium also has major International Organisations as partners, including the UNISDR, and a Stakeholder Advisory Board. These partners offer strong inter-sectorial linkages and will assist the network in becoming a reliable partner as stakeholders seek to reduce society's vulnerability to hazards. In recognition of the global impact of disasters and the complex nature of their causes, which frequently require international action to address them, the consortium also includes three partners from third countries, who will contribute specific scientific expertise.

Detailed objectives and work plan

ANDROID will:

- Promote discourse among European applied, human, social and natural scientists to, pool their results and findings, discuss methods and develop inter-disciplinary explanations that increase society's resilience to disasters;
- Describe, analyse, and compare the capacity of European cities and HE to address disaster risk, and thereby reinforce the link between education and society;
- Build the capacity of HE to address emerging challenges in disaster resilience, strengthen the link between research and teaching, and inform policy development.

ANDROID will achieve these objectives by:

1. Managing network partners to deliver outputs and achieve intended outcomes, and by developing a virtual network platform for European disaster resilience education (WP1&2);
2. Organising an inter-disciplinary doctoral school (WP3);
3. Capturing and sharing innovative approaches to inter-disciplinary working in disaster resilience (WP4);
4. Surveying European education to map teaching and research programmes in disaster resilience (WP5);
5. Analysing the capacity of European public administrators to address disaster risk (WP6);
6. Creating Special interest groups (SIGs) that address emerging research and teaching concerns in disaster resilience (WP7);
7. Developing and hosting Open Educational Resources (OERs) for disaster resilience education (WP8);
8. Raising awareness and promote a common understanding among stakeholders of the importance of disaster resilience education and the essential role of European Higher Educational Insinuations (HEIs) in improving society's ability to withstand the threat posed by hazards. (WP9);
9. Organising inter-disciplinary conferences and seminars that promote innovation and knowledge exchange on disaster resilience between Higher Education and relevant stakeholders (WP10); and,
10. Planning to continue the network and sustain its impact beyond its initial funding (WP11).

In doing so, ANDROID will increase inter-disciplinary and inter-sectorial cooperation to develop innovative European education that can increase societal resilience, and thereby reduce the threat posed by natural and human hazards, a challenge of critical European and global importance.

Methodology

The ANDROID work plan is designed to meet the aim and objectives of the network, and based on the explicit interests and expertise of the partners involved. It achieves an appropriate balance between management, quality, dissemination, exploitation and implementation. It also balances the need to establish effective infrastructure and events that can sustain the network during and beyond the proposed three years, while also proposing meaningful survey and analysis projects. Each work package (WP) has a clear purpose, detailed method, and specified outputs and outcomes. The organisational structure allows for the involvement of the entire network in a transparent process in order to make sure that all goals will be achieved on schedule and within the budget. The Network Board is responsible for ensuring that the network will deliver its planned outputs and achieve its intended outcomes. It will plan and monitor activities of WPs; define and enforce quality standards; and, report to other partners through regular newsletters and the virtual network. The Board comprises the applicant and WP Leaders. Each WP has a nominated Leader who has been selected for their experience and to ensure representation from different many partner institutions in a strategic role within the network. The applicant will have responsibility for the general administration of

the network, and for the contract agreement between applicant and the Commission. However, the Board will operate democratically to determine major strategic decisions. A major function of the Board will be to ensure systematic monitoring and evaluation of the network's activities. It will oversee the development of a comprehensive quality plan that will establish standards, define objectively verifiable indicators, and describe the means of verification. This verification will incorporate internal and external 'customer' evaluations, including those of an Independent Evaluator and a Stakeholder Board. The network's quality plan will include standard reporting templates for individual WPs. WP leaders will be required to submit reports on a quarterly basis. All reports will be considered by the Network Board. Each WP leader is supported by a working group of partners that will offer specific technical input and contribute to activities. To avoid complexity, partners have been strategically chosen to perform specific tasks within the working groups. All partners not included in working groups will still be expected to attend conferences and seminars, join special interest groups, interact using a virtual network, and contribute to and review regular newsletters.

Contribution towards the making cities resilient campaign

UNISDR is a partner of this network. The project team will ensure that ANDROID has a sustained impact on the target groups and achieves it intended outcomes. They will also ensure that the network's output is put to good use. In line with the network's scope – to enhance societal resilience to disasters – they will also exploit the network to meet national economic and public service objectives. Target groups of ANDROID include policy makers, local authorities and other linked stake holders. A Stakeholder Board will be appointed to assist the network in realising this. The team will attempt to identify and exploit the network partners' and stakeholder board's relationship capital to extend ANDROID's reach and impact, and ensure that the network's activities and outputs are accessible to relevant target groups. For example, a dedicated seminar series to disseminate the European Roadmap for disaster resilience education in disaster resilience, targeted at public administrators and other stakeholders engaged in increased societal resilience is to be organised in conjunction with UNISDR, with a view to transferring knowledge and impacting policy. The table overleaf provides a summary of the network's links with the campaign.

ANDROID Activity	**Outputs with links with the UNISDR making cities resilient Campaign**
Managing network partners to deliver outputs and achieve intended outcomes, and by developing a virtual network platform for European disaster resilience education (WP1&2);	Virtual platform Newsletters ANDROID virtual network *Note: all campaign related data will be shared via above*
Organising an inter-disciplinary doctoral school (WP3);	Residential doctoral school Residential doctoral school proceedings Online doctoral school *Note: upcoming researchers will be encouraged to pursue campaign related ideas for their future research*
Capturing and sharing innovative approaches to inter-disciplinary working in disaster resilience (WP4);	Survey of inter-disciplinary working in disaster resilience education Good practice review of inter-disciplinary working in disaster resilience education Seminars on inter-disciplinary working in disaster resilience education *Note: all campaign partners will have access to these outputs*
Surveying European education to map teaching and research programmes in disaster resilience (WP5);	Inventory of European disaster resilience education *Note: all campaign partners will have access to these outputs*
Analysing the capacity of European public administrators to address disaster risk (WP6);	Capacity analysis of public administrators in European urban areas *Note: all campaign partners will have access to these outputs*
Creating Special Interest Groups (SIGs) that address emerging research and teaching concerns in disaster resilience (WP7);	Special Interest Group meetings Future research directions report in disaster resilience research, and the implications for education Seminars by Special Interest Groups on disaster resilience research futures *Note: all campaign partners will have access to these outputs*
Developing and hosting OERs (Open Educational Resources) for disaster resilience education (WP8);	Open Educational Resource Platform Open Education Resource standards *Note: all campaign partners will access to these outputs*

ANDROID Activity	Outputs with links with the UNISDR making cities resilient Campaign
Raising awareness and promote a common understanding among stakeholders of the importance of disaster resilience education and the essential role of European Higher Educational Institutions (HEIs) in improving society's ability to withstand the threat posed by hazards. (WP9);	ANDROID public website ANDROID brochure Special issue of peer reviewed journal Roadmap for European Education in Developing Societal Resilience to Disasters Three stakeholder seminars will be organised to promote the network's agenda for educational policy in the field. Translation of major outputs *Note: all campaign partners will have access to these outputs*
Organising inter-disciplinary conferences and seminars that promote innovation and knowledge exchange on disaster resilience between Higher Education and relevant stakeholders (WP10); and,	First annual conference and set of proceedings consisting of papers and others presentations and publications Second annual conference and set of proceedings consisting of papers and others presentations and publications Third annual conference and set of proceedings consisting of papers and others presentations and publications *Note: As a continuation of the 2011 building resilience conference that we organised in 2011 www.buildresilience.org , there will be 3 further conferences, planned to take place in 2012, 2013 and 2014 as part of ANDROID. The campaign will be a major feature of these events.*
Planning to continue the network and sustain its impact beyond its initial funding (WP11).	Stakeholder seminars *Note: all campaign partners will have access to these outputs*

Sustaining the network

The ANDROID work plan is designed to ensure the network has a sustained impact on the target groups and achieves its intended outcomes. A Stakeholder Board will be appointed to assist the network in realising this aim. The Board will include four experts that represent different stakeholder groups pertaining to disaster resilience education and practice. The Board will appointed in year 1 of the network so that it can influence direction, review emerging outputs and assist in the organisation of impact events. This Board offer strong inter-sectorial linkages and will assist the network in becoming a reliable partner for public administration, civil society and industry as it seeks to reduce society's vulnerability to disaster hazards. This Board will represent a privileged channel for network valorisation. A detailed valorisation plan will be established early in the project, which will make reference to the objectively verifiable indicators and target groups identified in the network's quality plan.

Other research projects

CDR currently leads several research projects which are linked with the concept of the Building Resilient Cities. In this context, these projects provide the Centre the opportunities to populate the Building Resilient Cities among the target and beneficiary groups of these projects:

BELLCURVE (Built Environment Lifelong Learning Challenging University Responses to Vocational Education)

It is widely recognised that at each stage of disaster management process the built environment discipline has invaluable expertise and key role to play in the development of society's resilience to disasters. Construction professionals are expected to possess specific knowledge and expertise. The main reason is the peculiar nature of disaster reconstruction. Educating the construction professional to make them act efficiently and effectively in a disaster situation is therefore vital. HEIs delivering Built Environment programmes have a major responsibility to provide specific skills and knowledge that are necessary to be acquired and applied in a disaster situation. Lifelong learning opportunities further enhance this provision as it will facilitate HEIs to act as continuing education centres, providing skills and knowledge in a dynamic environment.

In this context this project analyses lifelong learning needs for disaster management education in the built environment and is funded by the EU LLP scheme. This project further explores the complexity of disaster management in terms of its body of knowledge and modes of education. The implications for lifelong learning provision via HEIs are discussed with specific references to governance system.

CEREBELLA (Community Engagement for Risk Erosion in Bangladesh to Enhance Lifelong Advantage)

CEREBELLA aims at creating a long-term sustainable and strategic partnership between Patuakhali Science and Technology University (PSTU), Bangladesh and Centre for Disaster Resilience, School of the Built Environment, University of Salford, UK to share skills, knowledge and experience on climate change and disaster management academic learning and research. This project is funded by the British Council under is IMSPIRE strategic partnerhsips scheme.

Bangladesh has been identified as a country that is more vulnerable to climate change and subsequent natural disasters. Dense population and poverty has reduced the adaptability of Bangladesh in disastrous situations thus further increasing severity of disasters. Lack of education and research on disaster risk reduction and climate change adaptation affects socio-economic conditions in Bangladesh. Losses created by disasters and climate change in Bangladesh highlight the importance of making communities resilient against them. In this context, CEREBELLA intends to achieve following objectives:

- Carryout hazard, vulnerability, risk analysis and develop risk response strategies for disaster risk reduction and climate change adaptation with the engagement of community and local authority of Patuakhali, Bangladesh
- Make recommendations for urban safety planning based on disaster risk and climate change impacts of Patuakhali, Bangladesh
- Update and develop undergraduate/postgraduate curriculum on disaster risk reduction and climate change adaptation
- Facilitate staff exchange and training programmes to enhance capacity of partner institutions to develop knowledge, competencies and international research skills

In formulating the above objective, direct reference has been made to Building Resilient Cities Campaign 10 basics and its 10 point check list.

Reconstruction for Peace

While war in the N&E of Sri Lanka has ended, peace, especially sustainable peace, is not so easily forthcoming. Post-conflict reconstruction supports the transition from conflict to peace through the rebuilding of the socio-economic framework of the society. However, there is a need to pay special attention to conflict dynamics that may arise through development work. Interest in helping to support a lasting resolution to the Sri Lanka conflict has led some to focus efforts on strengthening incentives for peace and reconciliation, including encouraging conflict sensitive approaches and supporting post conflict recovery & reconstruction. Physical infrastructure broadly defined to include services that are essential ingredients to quality of life and economic activity – has the potential to connect or divide communities. Reconstructing physical infrastructure after a war can help in the peace building process through restoring dignity, providing much needed employment opportunity and promoting conflict sensitive approaches.

Any physical reconstruction needs to be tailored to the needs of the affected people, including diverse ethnic groups. Precautions need to be taken to avoid repeating mistakes that occurred during post tsunami reconstruction efforts – lack of consideration of ethnic co-existence. Conflict also tends to deepen gender discrimination and disadvantages faced by women. Similarly, youth, who have been born into and often participated in the war, must overcome persisting inequalities and differential access to opportunities, while the elderly face challenging economic constraints and often require special care. There is growing recognition that reconstruction requires interdisciplinary solutions; those professions traditionally involved in reconstruction of infrastructure – the construction industry – must understand the sensitive environment in which they will be operating. Understanding the needs of those living in the region will be vital if reconstruction is to help prevent future conflict.

Reconstruction for Peace is a one-year programme of research and capacity building that seeks to explore the interaction between youth and infrastructure reconstruction programmes in the North and East of Sri Lanka as a means to prevent future conflict in the region. The team are from University of Salford, UK (Dr Richard Haigh, Professor Dilanthi Amaratunga & Professor Martin Hall), University of Colombo, Sri Lanka (Professor Siri Hettige), University of Jaffna, Sri Lanka, and Eastern University, Sri Lanka. The project is advised by the Chamber of Construction Industry Sri Lanka and funded by the UK Foreign and Commonwealth Office.

The team will specifically examine:

- How reconstruction programmes engage, employ, connect and divide youth in the region;
- The extent to which inequality in access to infrastructure affects social cohesion among youth;
- The factors of infrastructure reconstruction programmes that are most sensitive to impacting conflict prevention.

The study will be used to inform policy development and build the capacities of: Universities in the North and East of Sri Lanka; and, the Sri Lankan construction industry (including SMEs) and local government engaged in reconstruction projects within the region.

Other conferences

CDR members used the following conferences and events to raise awareness of the campaign and its objectives:

- CIB World Congress, Salford Quays, Salford, UK, May 2010
- Partner, International Open Science Conference: Global Environmental Change Innovations and Challenges, 21-24 February 2012, Chennai, INDIA, organised by University of Madras, India
- Member of the organising committee, International Conference on Structural Engineering, Construction and Management , 16 - 18 December 2011, Kandy, Sri Lanka, organised by the Universities of Peradeniya and Moratuwa, Sri Lanka and University of Melbourne, Australia
- International Conference on Sustainable Built Environment (ICSBE), 13th and 14th December 2010, Faculty of Engineering, University of Peradeniya and Earl's Regency, Kandy, Sri Lanka
- Member of the conference organisation committee, The Royal Institution of Chartered Surveyors (RICS) Annual International Conference (COBRA) 2010, Disaster Management stream, Dauphine Université Paris, France, on 2-3 September 2010
- Member of the conference organising committee, International Institute for Infrastructure Renewal & Reconstruction international conference, University of Hawaii, USA. (to be held in September 2010)
- Member of the conference organising committee. Construction Research Congress 2010. Innovation for reshaping construction practice, May 2010, University of Alberta, Canada

Publications

A large number of publications that address issues associated with the Making Cities Resilient campaign have been written by CDR. A list of publications can be accessed at www.disaster-resilience.salford.ac.uk

Alternatively, individual publications for Professor Dilanthi Amaratunga and Dr Richard Haigh can be found at: www.dilanthiamaratunga.net & www.richardhaigh.info respectively.

Other activities

Following are some of the other initiatives associated with the campaign and that CDR has had input to:

- Dr Richard Haigh led the disaster management theme at the CIB World congress, held in Salford in May 2010. Dr Haigh and Professor Amaratunga were also part of the editorial team of the CIB World Congress proceedings. Free access to the proceedings is available at: www.cib2010.org/post
- A special themed workshop entitled "Capacity Development for Disaster Risk Reduction in the Built Environment" was also held as part of the CIB World Congress. Please see Appendix 5 for a copy of the workshop flyer.
- CDR is providing input for the Making Cities Resilient Mayors handbook input
- CDR members share their research findings by uploading related research outputs to Prevention web
- CDR actively participated in the Third Session of the Global Platform held in Geneva, May 2011, including specific events associated with the Making Cities Resilient campaign associated events
- CDR members continuously make reference to the campaign during key note speeches, workshops and other events
- CDR members are including the resilient cities concept in research proposals that are being developed, including the European Union FP7 Scheme
- CDR members are providing input for the PRIMERS that are being prepared by the Asian Disaster Prepared Centre on Urban Resilience
- CDR members promote the campaign through membership of related networks such as The International Institute for Infrastructure Renewal and Reconstruction (IIIRR) and CIB

Appendix 1: International Conference on Building Resilience flyer

International Conference on Building Resilience

Interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities

Heritance Kandalama, Sri Lanka, 19th – 21st July 2011

The Annual Conference of the International Institute for Infrastructure Renewal and Reconstruction (IIIRR), organised by the University of Salford and RMIT University

Background

With growing population and infrastructures, the world's exposure to hazards – of natural and man-made origin – is inevitably increasing. This reality reinforces the need to proactively consider disaster risk as a part of the sustainable development agenda. The International Conference on Building Resilience will encourage debate on individual, institutional and societal coping strategies to address the challenges associated with disaster risk. The conference will be held in Sri Lanka, a country subject to several large scale disasters in recent years, including the 2004 Tsunami and a civil war spanning several decades. It provides an ideal setting to explore the challenge of creating resilient communities and cities.

Key Dates:

Abstract deadline: 4th February 2011

Full paper submission: 18th February 2011

Camera-ready paper: May 2011

General Enquiries & Conference Website:

enquiries@buildresilience.org

www.buildresilience.org

IIIRR Website:

www.iiirr.ucalgary.ca/

Conference Themes

- Risk assessment and monitoring
- Detection, warning and evacuation
- Infrastructure planning and design
- Project management
- Sustainable housing
- Public health
- Disaster preparedness and response
- National and local governance
- Poverty and economic support
- Resilient livelihoods
- Social protection and vulnerability
- Development and planning
- Social support processes
- People, displacement and security
- Conflict affected communities
- Community engagement and development
- Inter-disciplinary working and partnerships
- Physical and social integration
- Disaster research methodologies
- Transition between relief and recovery
- Resettlement
- Communication and Engagement for Community Safety
- Post-disaster reconstruction: The role of NGOs
- Health aspects of disaster relief preparation, management, and outcomes
- Social vulnerability and vulnerability assessments, displacement and relocation
- Community organizing
- Displaced people re-settlement
- Post-conflict entrepreneurship
- Enterprise Emergence
- Social Capacity Building in War-torn Areas
- Development and Post-conflict Reconstruction
- Dynamics of conflicts and disasters
- Social support processes for survivors
- Empowerment of women and prevention of vulnerabilities
- Social cohesion and gender

Venue

The conference will be held at the Heritance Kandalama Hotel. Occupying a most unique site in the cultural triangle's heartland the Geoffrey Bawa designed Hotel is flanked by two UNESCO world heritage sites - the 1st Century BC Dambulla rock temple and the 5th Century AD Sigiriya rock fortress.

Organised by: The University of Salford; RMIT University

In association with: International Institute for Infrastructure Renewal and Reconstruction; UNDP Sri Lanka; Disaster Management Center, Ministry of Disaster Management

In support of: ISDR Making Cities Resilient Campaign 2010 - 2011

Local hosts: University of Moratuwa; University of Peradeniya; SPARC; CCI Sri Lanka Chamber of Construction Sri Lanka

Conference Chairs:

Professor Dilanthi Amaratunga

Dr Richard Haigh

For abstract submission details and other information about the conference, refer to the conference website:

www.buildresilience.org

Appendix 2: Survey of perceptions of campaign's ten point criteria

Survey of perceptions of trends in Disaster Management

Overview

This brief questionnaire should take around 15 minutes to complete. You will only be asked for your informed view and you do not need to research your answers. We have provided some general contextual information, in case you find it useful. Your response will be treated in strict confidence by the research team at Salford University in the UK. Your views will be combined with those of other respondents and aggregated feedback will be given at the upcoming workshop in Kandalama, Sri Lanka on the 19th July 2011. This will then be used to provide the basis for a discussion about issues of distaster management and resilience.

About You

Q1 Role in relation to DM? Local Government ☐ National Government ☐ Other ☐ _____

Q2 City / Region / Country in which working? _____ / _____ / _____

Trends in the incidence of disasters

Disaster refers to "a situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering".

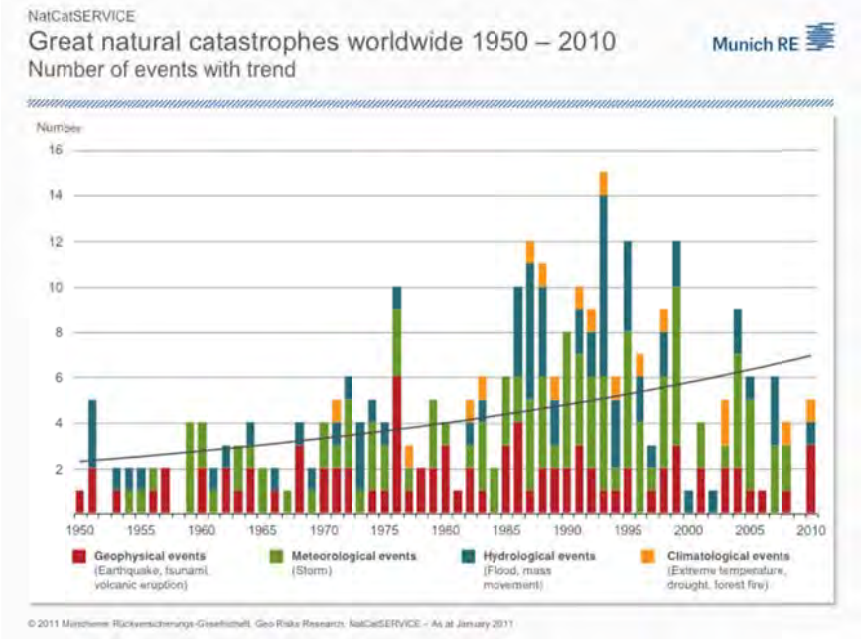
Over the past decade, countries across the world – both rich and poor – have witnessed thousands of major disasters. The following table details the total number of reported disasters in Asia and across the World during the period 2000 – 2009. These figures refer to disasters with a natural or a technological trigger only, and do not include wars, conflict-related famines, diseases or epidemics.

Total number of reported disasters, 2000 - 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Asia	303	295	310	294	318	359	304	257	238	255
World	799	727	797	706	739	811	723	686	620	576

Source: EM-DAT, CRED, University of Louvain, Belgium

A longer-term view (1950-2010) is provided by the following chart focusing on "natural" catastrophes:



Q3 What is your perception of the likely **trend in the incidence** of disasters **globally** over the **next 10 years,** focusing on those with a **natural or a technological trigger**? Based on your experience and in the context of the above information, using 2010 as a baseline. Circle one number.

Much Less	Less	Same	More	Much more
1	2	3	4	5

Up to three reasons for your judgement: Main reason _____

Second reason _____

Third reason _____

Trends in the impacts of disasters

Launched by the International Federation of Red Cross and Red Crescent Societies last September, the 2010 World Disasters Report details both the economic and the human cost of major disasters over the last decade. Among its findings:

- Earthquakes killed the most people over the period from 2000 to 2008 – an average of 50,184 people pa.
- Floods, meanwhile, have affected the largest number of people – an average of 99 million people a year.

Total number of people reported **killed**, 2000 - 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Asia	88,056	105,960	89,427	39,030	238,404	90,796	20,634	15,581	235,618	9,744
World	97,341	115,904	101,075	120,709	252,381	100,508	33,842	24,135	242,199	17,258

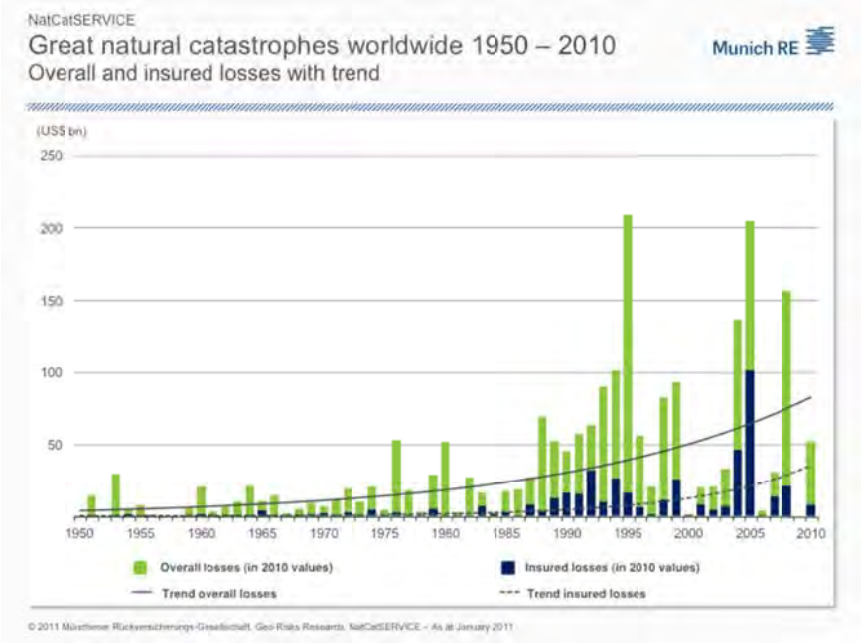
Source: EM-DAT, CRED, University of Louvain, Belgium

Total amount of disaster estimated damage, 2000 – 2009 (in millions of **US dollars** at 2009 prices)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Asia	27,108	15,687	15,855	27,630	75,332	30,494	24,873	35,747	117,927	15,449
World	57,995	35,528	74,561	81,277	154,619	237,404	36,295	77,436	190,102	41,474

Source: EM-DAT, CRED, University of Louvain, Belgium

Again a longer-term view (1950-2010) is provided by the following chart focusing this time on **financial** losses.



Q4 What is your perception of the likely **trend in the human and economic impact** of disasters **globally** over the **next 10 years**? Based on your experience and in the context of the above information, using 2010 as a baseline. Circle one number.

Much less	Less	Same	More	Much more
1	2	3	4	5

Up to three reasons for your judgement:

Main reason _____

Second reason _____

Third reason _____

Hazard **threat** to your city, region or country

Many communities are at risk of disaster from a variety of hazard threats, including those of natural and technological origin. These threats may include (this is not exhaustive):

- **Biological:** Insect infestations, epidemics and animal attacks
- **Geophysical:** Earthquakes and tsunamis, volcanic eruptions, dry mass movements (avalanches, landslides, rockfalls and subsidence of geophysical origin
- **Climatological:** Droughts (with associated food insecurities), extreme temperatures and wildfires
- **Hydrological:** Floods (including waves and surges), wet mass movements (avalanches, landslides, rockfalls and subsidence of hydrological origin)
- **Meteorological:** Storms
- **Industrial:** Chemical spills; collapse of industrial infrastructure; explosions; fires; gas leaks; poisoning; radiation
- **Transport accidents:** Transportation by air, rail, road or water

Q5 In your opinion, what hazard(s) pose the greatest level of threat in relation to **your** city or region, or country if you have a broader responsibility?

Please indicate up to three hazards:

Main hazard _____

Second hazard _____

Third hazard _____

Actions to mitigate the impacts of disasters

The United Nations International Strategy for Disaster Reduction (UNISDR) 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. The ISDR "Making Cities Resilient" campaign seeks gain the commitment of city leaders and local governments to a checklist of actions, the so called "Ten Essentials". It is thought that acting on 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.

Q6 It may be that you consider all ten elements of the checklist to be important, but this question asks you to think in terms of the next **five years** and to give your *confidential* rating for each element in terms of its likely **impact in practice**. As an individual with a particular responsibility this will be in relation to your city or region, or country if you have a broader responsibility.

	Impact in practice?				
	None	Minimal	Some	Moderate	Big
"Ten Essential" actions					
1 – Organisation and coordination in place	1	2	3	4	5
2 – Budget assigned	1	2	3	4	5
3 – Risk assessment prepared	1	2	3	4	5
4 – Investment in infrastructure	1	2	3	4	5
5 – Safe schools and health facilities	1	2	3	4	5
6 – Building regulations and land use applied	1	2	3	4	5
7 – Education and training programmes	1	2	3	4	5
8 – Ecosystems / natural buffers protected	1	2	3	4	5
9 – Early warning systems installed	1	2	3	4	5
10 – Needs-based (survivors) reconstruction	1	2	3	4	5

You have the opportunity here to insert up to three other actions you feel are important and to rate them.

a) _____	1	2	3	4	5
b) _____	1	2	3	4	5
c) _____	1	2	3	4	5

Level of **preparedness**

Q7 Give your *confidential* rating for each element in terms of your judgement of the **level of preparedness** of your city / region / country for possible disasters **now** and the likely position in **five years' time.** Please respond from your experience in your current position.

	Preparedness NOW			… … …	*and in 5 YEARS TIME?*			
	Poor	Some	Good		Poor	Some	Good	
"Ten Essential" actions								
1 – Organisation and coordination in place	1	2	3		1	2	3	N/A
2 – Budget assigned	1	2	3		1	2	3	N/A
3 – Risk assessment prepared	1	2	3		1	2	3	N/A
4 – Investment in infrastructure	1	2	3		1	2	3	N/A
5 – Safe schools and health facilities	1	2	3		1	2	3	N/A
6 – Building regulations and land use applied	1	2	3		1	2	3	N/A
7 – Education and training programmes	1	2	3		1	2	3	N/A
8 – Ecosystems / natural buffers protected	1	2	3		1	2	3	N/A
9 – Early warning systems installed	1	2	3		1	2	3	N/A
10 – Needs-based (survivors) reconstruction	1	2	3		1	2	3	N/A

Any other **comments** you would like to make?

The box below provides a space for you to write in any comments you would like to add:

Your comments:

Thank you for completing this questionnaire. Please return your completed questionnaire to the workshop facilitator (where appropriate) or alternatively, post to Mr U W L Chandradasa, Director Technology and Mitigations, Disaster Management Centre, Ministry of Disaster Management and Human Rights, 2nd Floor, No.498, R.A.de Mel Mawatha, Colombo-3; T 0773957893 / 011-2136140 / 011-2136140; E chandradmc@yahoo.com / chandra@dmc.gov.lk.

Optionally if you would be happy to possibly be contacted by the researchers for clarification, please give:

Name / phone / email: _____ / _____ / _____

Appendix 3: Copy of the presentation based on the survey of perceptions of campaign's ten point criteria

Disaster Management
Working With Rocks and Levers

Professor Peter Barrett
Chairman of SCRI
University of Salford, UK
www.rgc.salford.ac.uk/peterbarrett

Page 1

Outline

- **Survey feedback DM1 and DM2**
- **Summary**
- **Opportunities for DM in a wider systemic context**

Page 2

Survey of delegates

- Questionnaire survey via web
- Round 1: inc open-ended questions
  - 64 respondents
  - 27 countries: eg Sri Lanka, India, Pakistan, Iran, UK, USA, Nepal, Canada, Australia, New Zealand, Thailand, Indonesia
  - 56% researchers, 19% experts, 11% local gov, 6% national gov, 8% other
- Round 2
  - 29 respondents (13 new = 77 total)
  - 2 new countries = 29 total

Page 3

Definition of Disaster Used

"a situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance;

an unforeseen and often sudden event that causes great damage, destruction and human suffering"

Page 4

Scope of survey

- Incidence of disasters?
  - Perceptions of likely trends
  - Reasons
- Impact of disasters?
  - Perceptions of likely trends
  - Reasons
- Greatest Hazards?
- Response via ISDR "Ten Essentials"?
  - Likely impact
  - Other actions
  - Level of preparedness, now and in 5 years

Page 5

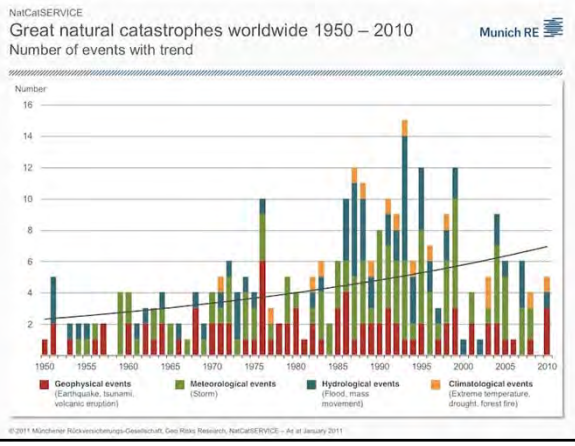
Incidence of Disasters

Natural or technological / natural triggers

Total number of reported disasters, 2000 - 2009

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
799	727	797	706	739	811	723	686	620	576

Source: EM-DAT, CRED, University of Louvain, Belgium



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Your perception of incidence

Natural or technological triggers; Next 10 yrs from 2010

Round 2 Ratings (as Round 1, but slightly more consolidated on "more")

Much less	Less	Same	More	Much more	Rating Average
0.0% (0)	0.0% (0)	14.8% (4)	**77.8% (21)**	7.4% (2)	3.93

Round 1 and 2 Reasons categorised

	Reasons chosen			R1 (N=62)	R2 (N=27)
Reasons for trend in incidence	Main (No.)	Second (No.)	Third (No.)	**Weighted score** (3-2-1)	**Weighted score** (3-2-1)
Climate change (inc glob warm)	14	15	7	79	37
Urbanism in risk areas	11	9	9	60	34
Complex human environ. impacts	6	15	10	58	33
Natural trend +/-	14	4	6	56	30
Population growth	9	5	1	38	27

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Your perception of impacts

Human and economic; Next 10 yrs from 2010

Round 2 Ratings (as Round 1, but with some consolidation towards "same" and "more")

Much less	Less	Same	More	Much more	Rating Average
0.0% (0)	0.0% (0)	14.8% (4)	**66.7% (18)**	18.5% (5)	4.04

Round 1 and 2 Reasons categorised

	Reasons chosen			R1 (N=62)	R2 (N=27)
Reasons for trends in impacts	Main (No.)	Second (No.)	Third (No.)	**Weighted score** (3-2-1)	**Weighted score** (3-2-1)
Dense development in risky areas	15	11	6	73	48
Inaction / low DM capacity (+)	7	6	11	44	17
Trend in incidence of disasters	8	6	6	42	32
Increase in population	8	5	1	35	24
Rising value of built environment	7	2	1	26	14
Improved mitigation / response (-)	4	4	5	25	11
Role of insurance (+/-)	2	5	3	19	2
Social, econ', techn' interconnectedness	2	4	4	18	9
Economic downturn	2	5	1	17	8

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Your perception of Main Sources of Threat

Round 1 and 2 Hazards categorised

	Greatest hazard choices			R1 (N=62)	R2 (N=27)
Hazard categories	Main (No.)	Second (No.)	Third (No.)	Weighted score (3-2-1)	Weighted score (3-2-1)
Geophysical	23	14	5	102	55
Hydrological	14	21	9	93	39
Climatological	11	12	9	66	31
Industrial	2	5	16	32	9
Meteorological	5	3	7	28	21
Biological	4	1	4	18	7
Transport accidents	0	2	4	8	6

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ISDR 10 Essentials

"Making Cities Resilient Campaign"

1 – Organisation and coordination in place
2 – Budget assigned
3 – Risk assessment prepared
4 – Investment in infrastructure
5 – Safe schools and health facilities
6 – Building regulations and land use applied
7 – Education and training programmes
8 – Ecosystems / natural buffers protected
9 – Early warning systems installed
10 – Needs-based (survivors) reconstruction

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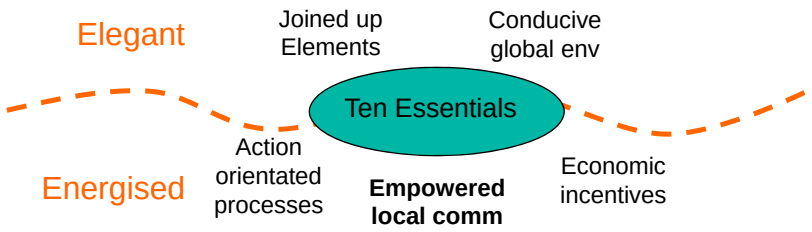
Round 1 *suggestions* for "Other actions" No's 11-15

Other possible actions	No. times suggested	Links to "Ten Essentials"
Empower local communities, especially vulnerable categories (1)	24	7 - ed and train
Action-orientated plans, monitoring and evaluation	9	3 - risk assess
Conducive global context - policies, standards, good practice, etc	7	
Join up actors (2), information and legal frameworks	6	1 - org and coord
Create economic incentives	4	
(1) children, old, women, disabled		
(2) National and local government bodies and civil society organisations		



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Ratings for Impact and Preparedness

UNISDR "Ten Essentials" + 5	Likely **impact** in next five years (mean	Level of **preparedness** **Now** (mean score)	In **five** years (mean score)	
1 Organisation and coordination in place	4.4	1.9	2.4	Round 1 (N=64)
2 Budget assigned	4.3	1.8	2.2	
3 Risk assessment prepared	4.1	2.0	2.4	
4 Investment in infrastructure	4.1	1.8	2.1	
5 Safe schools and health facilities	3.9	1.9	2.3	
6 Building regulations and land use applied	4.4	1.8	2.2	
7 Education and training programmes	4.3	2.0	2.4	
8 Ecosystems / natural buffers protected	4.0	1.7	2.1	
9 Early warning systems installed	4.1	2.0	2.4	
10 Needs-based (survivors) reconstruction	3.9	1.8	2.2	
11 Empower local communities	4.4	1.7	1.9	R2 (N=29)
12 Action-orientated plans, monitor and eval	4.1	1.9	2.2	
13 Conducive global context	3.8	1.8	2.3	
14 Join up actors, info and legal frameworks	3.9	1.6	2.0	
15 Create economic incentives	3.8	1.5	2.0	
	Where 1=None 2=Minimal 3=Some 4=Moderate 5=Big	**Where:** 1=Poor 2=Some 3=Good		

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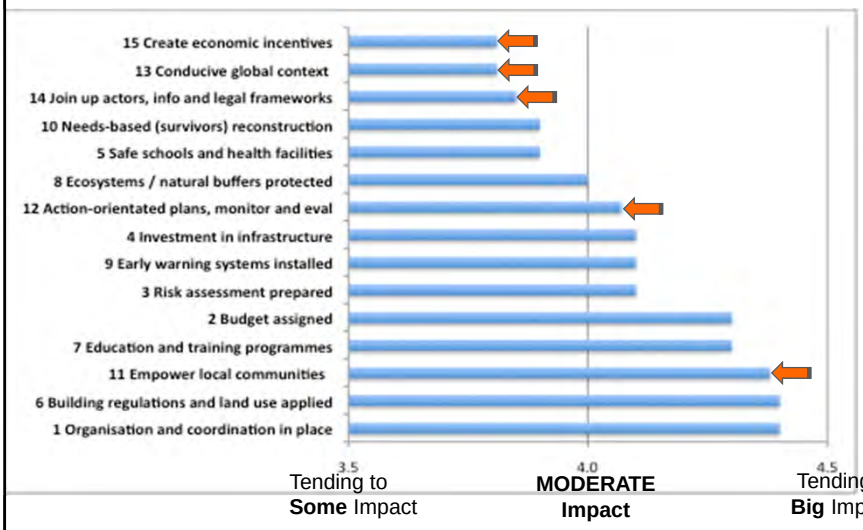
Likely Impacts of Actions

Impacts in practice; Over next 5 Yrs



Tending to **Some** Impact

MODERATE Impact

Tending to **Big** Impact

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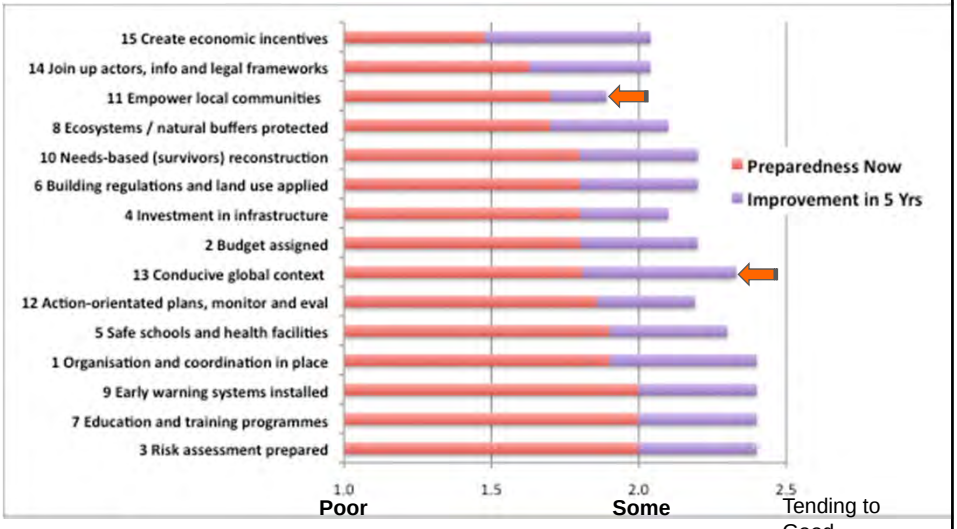
Preparedness: Now + 5Yrs



Poor

Some

Tending to Good

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Impact v Preparedness

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Summary of survey 1

- **78% think incidence of natural / technological disasters will be "more" in 10 Yrs**
  - Main reason *Climate change*, but also urbanism, population growth and "natural" trend*
  - Main sources geophysical, hydrological and climatological
- **67% think the human and economic impact will be "more" in 10 Yrs**
  - Main reason by far *is Dense development in risky areas*, but also inaction / low DM capacity and, some would say, a simple implication of the above "natural" trend*
- **Rocks and levers**
  - Phenomenon* + human activity = disaster
  - But "other things don't have to be equal"
  - There are lots of levers available
- **UN Global Assessment Report 2011**
  - For weather related events: housing / economic loss UP
  - But, mortality down – EXCEPT in low GDP countries
  - Drought seen as the "invisible risk"

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Summary of survey 2

- ISDR "Ten Essential" actions
  - Plus your suggestions to create a more elegant and energised context
- Likely impacts vary around "moderate"
- Preparedness now is "some" or less
- Some positive movement is anticipated in the next five years, but well short of "good"
  - And, maybe careful attention needed to: B'regs, budgets and local community

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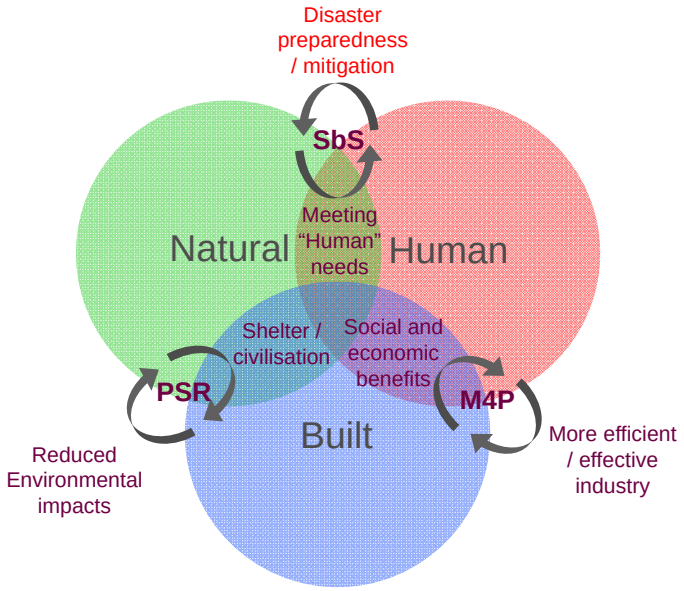
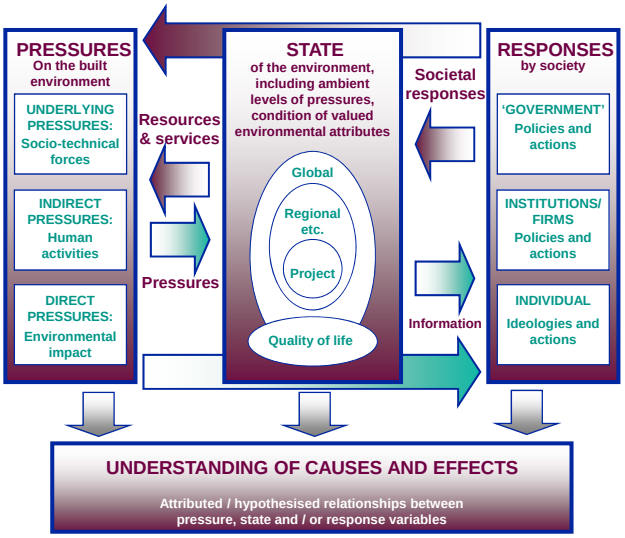
Opportunities in (Environment)^3



Built – Natural interface: PSR environmental model



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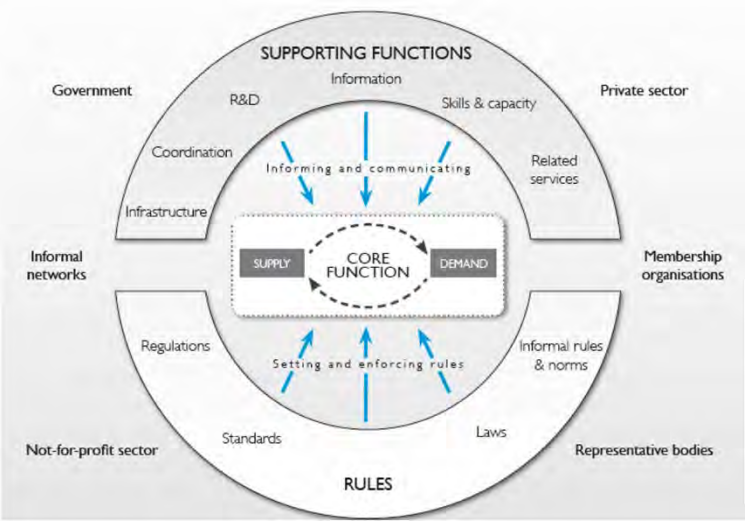
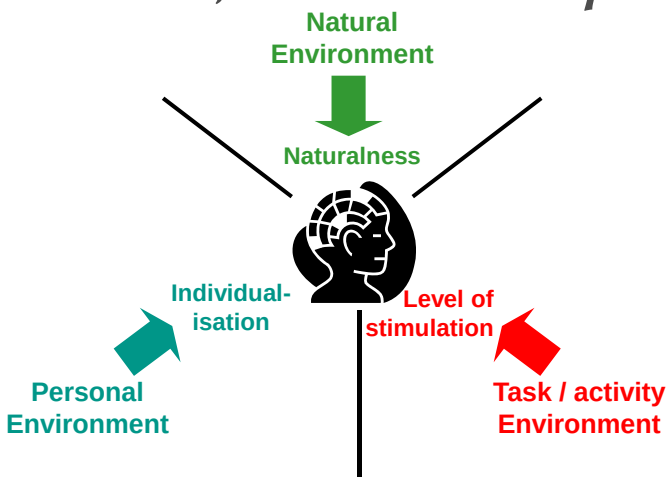
Built – Human Interface
DM and the M4P Development Agenda

UNDP $5Bn; DfID £8Bn ➔ Impact



SbS

Human – Natural Interface
Senses, Brain and Spaces



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SbS

SbS "coincidence" with Chinese *energy-saving* designs

(Hongru Zhang, SRIBS)

Underlying principle: *harmony* between people, buildings and their environment

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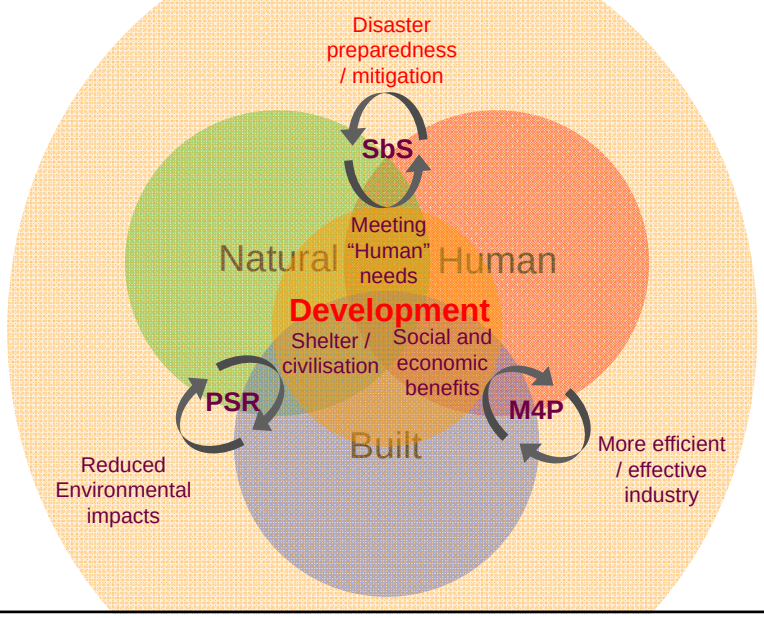
DM in a Synergetic Context …



Appendix 4: PhD study on empowering local governments

Empowering Local Governments in Promoting Disaster Resilient Cities

CHAMINDI MALALGODA
PROF. DILANTHI AMARATUNGA
DR. RICHARD HAIGH

Background

Disasters cause a considerable impact to the entire world. The occurrence of disasters has increased significantly in the recent past resulting a higher number of mortalities and economic and social losses. It is evident that the severity of the impact of disasters is linked to unplanned urban development. Due to rapid urbanization and population growth the cities are becoming increasingly vulnerable to disasters. Therefore, there is a high need to incorporate proper risk reduction mechanisms to make cities resilient to disasters. This requires a serious effort of various stakeholders including governmental and non-governmental institutions. The local governments being the first responder and the one responsible for community development, has a key role to play in achieving the resilience of the cities under their jurisdiction. Even though there is a growing concern among researchers and practitioners on the role of the local governments in making cities resilient, several incidents have been reported on the inadequate contribution of local governments in taking the lead role of initiating risk reduction. This could mainly be attributed to inadequate financial, manpower and other resources available with local governments, in addition to their failure to make timely decisions due to lack of authority. This has emphasised the need for empowering local governments with improved governance structures and the need for developing capacities to lead the concept of resilience in their respective local areas.

Even though much research is available on the role of local government in disaster risk reduction and making cities resilient, there is a gap in research yet to be filled on how the local governments can be empowered to take up a lead role in successful implementation of disaster risk reduction initiatives in their respective local areas.

Aim

The aim of the research is to develop a framework to empower the local governments to make cities resilient to disasters in the built environment context.

Methodology

Case studies have been identified as the most appropriate research strategy for this research. Accordingly, it is intended to conduct three case studies by selecting three cities in Sri Lanka which are potentially vulnerable to disasters and the findings would be generalized across the country. Within the case studies, interviews would be conducted to gather valid and reliable data that are relevant to the area of study. The interviews would be designed to capture the city's resilience to disasters and to understand the commitment of the local government in making the city resilient to disasters and associated problems. As such, the data would be gathered through semi-structured interviews with the local government officials, policy makers, industry practitioners and experts who are engaged in the respective areas of study. In addition, a questionnaire survey will be conducted among the local population to determine their awareness of disaster resilient activities implemented by local governments and to obtain their views and concerns about their city's disaster resilient activities.

CHAMINDI MALALGODA

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University of Salford MANCHESTER

Appendix 5: Capacity development for disaster risk reduction in the built environment

CIB World Congress 2010

Meeting Society's Challenges – Disaster Management

Workshop on Capacity Development for Disaster Risk Reduction in the Built Environment

Aim of the workshop:
The aim of the workshop is to identify ways to develop the capacities of major stakeholders involved in disaster risk reduction in the built environment

Time and venue:
The workshop will take place immediately following the Disaster Management key note address that is scheduled for 14:00 hrs on the 11th May 2010. The workshop is scheduled to start at 15:00 in Large Lecture Room 3.

Facilitators:
Professor Dilanthi Amaratunga, Dr Richard Haigh & Kanchana Ginige
Centre for Disaster Resilience, School of the Built Environment, University of Salford



Panel members:
This workshop will also comprise of an open discussion for all workshop attendees, with expert contributions a panel of experts in further capturing their views on capacity development.

Workshop details
The session will contribute to an initiative led by Professor Dilanthi Amaratunga and Dr Richard Haigh from the Centre for Disaster Resilience, University of Salford, UK and on behalf of CIB and the United Nations (UN).

The session will focus upon how to meet the requirements of affected communities and manage mitigation and reconstruction activities effectively, efficiently and sustainably. The destruction caused by recent natural and human-induced disasters has highlighted the susceptibility of the built environment and its vulnerability to hazards. Due to its linkages with other sectors, the destruction of the built environment by disasters hinders the regular functioning of any social and economic context. Within its 2006 *Mind the Gap!* report, the RICS suggests that in the longer term, improved governance, policies, planning, management and capacity-building can provide the framework for better access by households and local communities to the professional expertise and knowledge within business, local government and civil society. In doing so, it will help communities to reduce their risk to natural disasters, and build their properties, villages and neighbourhoods to withstand the threat posed by hazards, when they cannot be avoided.

In this context, a capacity development framework is being developed with the aim of strengthening the knowledge, abilities, skills and behaviour of individuals responsible for the built environment, and improving institutional structures and processes to ensure that disaster risk reduction meets its mission and goals in a sustainable way.

The proposed framework identifies four stages of capacity development: analysis; creation; utilisation; and retention. The four stages of capacity development are mapped against major stakeholder groups that are involved in disaster risk reduction activities. The categorisation of stakeholder groups within this study is at high level and thus one category may cover a wide range of stakeholders. Stakeholders are any identifiable group or individual who can affect the achievement of disaster risk reduction objectives, or who is affected by the achievement of those objectives. Six major stakeholder groups have been identified: National and local government; International community; Community; Civic society; Private and corporate sector; and, Academia and professional associations.

The session will provide the opportunity for participants to learn about the stages of capacity development and the identified major stakeholder groups, as well as input into the further refinement of the framework. The session will move on to explore how capacities can be enhanced to better meet the needs of the affected communities. As such, this session will comprise of interim findings of the work done on this initiative to date, with an encouragement of contribution from the workshop participants towards the final results.

Some of the questions that will be addressed:

- What is meant by capacity development in the context of disaster risk reduction in the built environment?
- Who are the major stakeholder groups associated with the capacity development process?
- What are the existing capacities and capacity gaps associated with major stakeholder groups?
- What strategies should be employed to facilitate the creation, utilisation and retention of these capacities?
- What specific challenges must be addressed in order to enhance capacity in developing economies?
- How can we strengthen the knowledge, abilities, skills and behaviour of individuals and improve institutional structures and processes to ensure that disaster mitigation and reconstruction can efficiently meet its mission and goals in a sustainable way

Expected "take aways" for the CIB World Congress Audience from the Workshop:

- Be informed about the role of the built environment community in disaster risk reduction
- Be informed about the need to develop the capacities of key stakeholders involved in disaster risk reduction in the built environment
- Be informed about existing capacities and capacity gaps of key stakeholders
- Be informed about existing and future research and other related activities that are attempting to address capacity gaps
- Be informed about strategies to create, utilise and retain capacity more effectively

Alignment to external bodies:

The focus of the workshop has strong links with the RICS President's Commission on Major Disaster Management, which promotes the use of built environment professionals in recovering from and reducing risk of disasters affecting the built environment. The work is directly aligned with the United Nations International Strategy for Disaster Risk Reduction campaign on Resilient Cities. University of Salford is an academic partner in the Campaign. The workshop also supports the Higher Education Funding Council for England (HEFCE) strategic review of sustainable development in higher education in England's recommendations on the need for capacity building in institutional development

Planned outcomes and their contribution:

Outcomes from the session will contribute to a broader initiative that is attempting to strengthen the knowledge, abilities, skills and behavior of individuals, and improve institutional structures and processes, to ensure that disaster mitigation and reconstruction can efficiently meet its mission and goals in a sustainable way. Outcomes will also help towards the identification of strategies to create, utilise and retain capacities so as to enhance the effectiveness of disaster risk reduction efforts.

Outcomes will provide the basis for a high status and high impact series of activities and reports that identify challenges and opportunities, recognise synergy and propose future work in the field of Disaster Risk Reduction. This session will give opportunities for participants to actively involved in this initiative and to contribute towards related publications. Longer term, it is hoped that participants will be able to contribute towards a series of cross-disciplinary initiatives to address capacity gaps and to focus future research, teaching and training activities in this domain.

Profile of likely attendees:

This session is designed for researchers and professional in related fields who are working with, or who anticipate having, disaster risk reduction responsibilities, and who wish to improve their working knowledge of both theory and practice, on capacity development in particular. These professionals may be working with or for local and national government agencies, relief agencies, private sector companies, public sector agencies, UN organisations, national and international aid agencies, civil and military services. It will also have a wider relevance to other professional, civil and academic organisations including: Academic Researchers in the field, Charity Rescue Organisations, Chief Defence and Emergency Planners, Government Departments and Civil Defence Agencies, Health and Safety Executives; Local Authority Chief Executives and Senior Civil Servants, Agencies, Other , Disaster Relief Agencies