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# Open educational resources

## Can OERs support educational transformation to enhance resilience?

## An update on the ANDROID Network's efforts to develop open educational resources



Commissioned and published by the ANDROID Disaster Resilience Network

[www.disaster-resilience.net](http://www.disaster-resilience.net)



Lifelong Learning Programme

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## About ANDROID

ANDROID is an Erasmus academic network. It aims to promote co-operation and innovation among European Higher Education 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 to increase disaster resilience.

Professor Dilanthi Amaratunga  
Professor Richard Haigh  
Centre for Disaster Resilience  
University of Salford  
Salford  
Greater Manchester M5 4WT  
United Kingdom

Tel. +44 (0) 161 295 4600  
Fax. +44 (0) 161 295 5011  
e-mail: [android@disaster-resilience.net](mailto:android@disaster-resilience.net)  
website: [www.disaster-resilience.net](http://www.disaster-resilience.net)

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## Editorial

Welcome to this first issue of ANDROID Exchange's second volume, the regular newsletter of the ANDROID Disaster Resilience Network, a global inter-disciplinary consortium that seeks to promote co-operation and innovation, and increase society's resilience to disasters of human and natural origin. ANDROID is supported by a grant obtained from the EU Lifelong Learning Programme, under the Erasmus networks action.

This issue begins with an introduction to working group 8's efforts to develop an OER platform, which will host digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research. This is an important area of activity for the network and will be the means by which many of the network's activities and outputs are disseminated in the years ahead.

The issue also includes details of our successful first online doctoral school that was organised in March 2013. The event was attended by 27 doctoral students from across Europe and beyond.

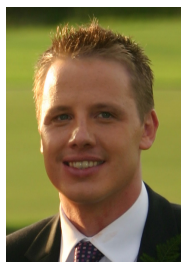
As usual, we have updates from two of our regular contributors to Exchange: the UNISDR Making Cities Resilient Campaign and the International Journal of Disaster Resilience in the Built Environment. Both are important partners for the network and we encourage you to explore recent developments.

There is also news on the launch of the Global Assessment Report on Disaster Risk Reduction, the UN flagship publication on global disaster risk and disaster risk management. The third edition of this biennial publication, the 2013 report, titled "Creating Shared Value: the Business Case for Disaster Risk Reduction" presents a new body of evidence that highlights how the transformation of the global economy over the last forty years has led rapid increases in disaster risk in low, medium and high income countries, affecting businesses and societies.

Finally, the issue includes a report from the recent International Conference on Building Resilience, that was held in Sri Lanka, and also details of upcoming events in Cyprus and the USA.

Don't forget, you can also use Exchange to provide updates on your own institution's work in this field. We very much welcome your contributions.

Professor Richard Haigh & Professor Dilanthi Amaratunga  
Centre for Disaster Resilience, University of Salford, UK



## Educational transformation through open educational resources: an update on the activities of working group 8

Professor Arturas Kaklauskas and working group 8 are focusing on the development of a platform for open educational resources that will be used to share learning materials developed by network partners. In this article we look at what open educational resources are and how they fit into the broader goal of the ANDROID network.

If European Higher Educational Resources are to be able to support European local administrators in tackling disaster risk, it is important that priority areas for capacity development can be identified and appropriate learning programmes and materials developed to address them. ANDROID working group 6 is already undertaking a capacity analysis of public administrators in European urban areas. This will be used to highlight capacity gaps.

Alongside this work, working group 8 has been set up to develop innovative educational resources that support capacity building for improving societal resilience to disasters. The working group will achieve this by developing an Open Educational Resources (OER) platform to host digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research.

Working group 8 is responsible for drafting standards on platforms, accessibility and inclusion, rights management, and approaches to describing, managing, and sharing learning resources, online. They are also developing a platform to host these materials.

The platform will be built using a free and open-source e-learning software platform, such as Moodle. The platform will be expected to support the searching and organisation of content, and on-line learning communities. Initially, the platform will be populated with OERs developed through the activities and outputs of the network's other WPs, such as the events and materials from the Doctoral School (WP3), and reports and seminars organised as part of the Inter-Disciplinary Methodologies (WP4), and the three survey and analysis projects (WP5, WP6 and WP7). However, partners will be invited to upload other educational resources that they wish to disseminate and make available to educators, students and self-learners. The digital materials may include courses, course materials, content modules, learning objects including audio/visual, collections, and journals. They may also include materials on best practices such as case studies, techniques, and methods.

### What are Open Educational Resources (OER)?

In its simplest form, the concept of Open Educational Resources (OER) describes any educational resources (including curriculum maps, course materials, textbooks, streaming videos, multimedia applications, podcasts, and any other materials that have been designed for use in teaching and learning) that are openly available for use by educators and students, without an accompanying need to pay royalties or licence fees.

The term OER is largely synonymous with another term: Open CourseWare (OCW), although the latter may be used to refer to a specific, more structured subset of OER.

OER has emerged as a concept with great potential to support educational transformation. While its educational value lies in the idea of using resources as an integral method of communication of curriculum in educational courses (i.e. resource-based learning), its transformative power lies in the ease with which such resources, when digitized, can be shared via the Internet. Importantly, there is only one key differentiator between an OER and any other educational resource: its licence. Thus, an OER is simply an educational resource that incorporates a licence that facilitates reuse, and potentially adaptation, without first requesting permission from the copyright holder.

### Is OER the same as e-learning?

OER is not synonymous with online learning or e-learning, although many people make the mistake of using the terms interchangeably.

Openly licensed content can be produced in any medium: paper-based text, video, audio or computer-based multimedia. A lot of e-learning courses may harness OER, but this does not mean that OER are necessarily e-learning. Indeed, many open resources being produced currently – while shareable in a digital format – are also printable. Given the bandwidth and connectivity challenges common in some developing countries, it would be expected that a high percentage of resources of relevance to higher education in such countries are shared as printable resources, rather than being designed for use in e-learning.

### Types of educational resources

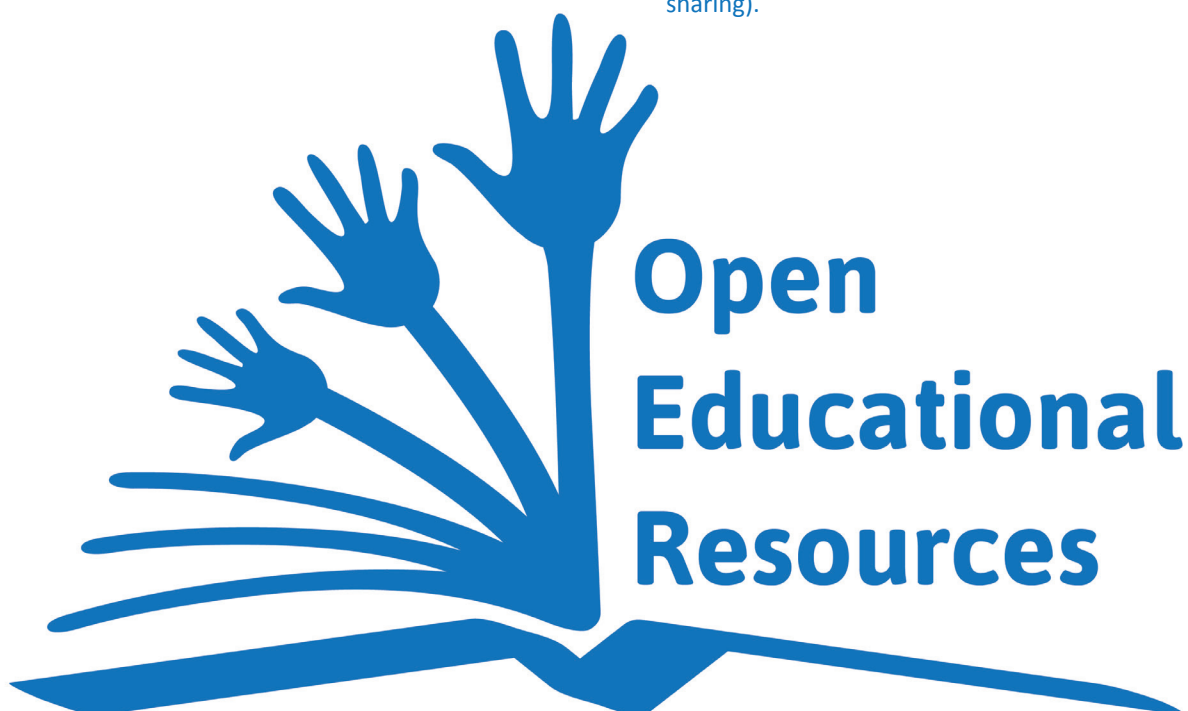
Whilst purely informational content has a significant role in learning and teaching, it is helpful to consider learning resources by their levels of granularity and to focus on the degree to which information content is embedded within a learning activity:

- Digital assets – normally a single file (e.g. an image, video or audio clip), sometimes called a 'raw media asset'.
- Information objects – a structured aggregation of digital assets, designed purely to present information.
- Learning objects – an aggregation of one or more digital assets which represents an educationally meaningful stand alone unit.
- Learning activities – tasks involving interactions with information to attain a specific learning outcome.
- Learning design – structured sequences of information and activities to promote learning.

## Benefits that can accrue from sharing content under an open license

Many people appear surprised that educators would seek to facilitate making their content, which may have required many person hours and others resources to develop, available for use by others. However, a number of potential benefits have been identified that is driving the development of open educational resources.

- As digitized content can so easily be shared between students and institutions, sharing it publicly under an open licence is the safest way to protect the author's IPR and copyright; the licence can ensure that, when content is shared, it remains attributed to the original author. Open sharing of content can more rapidly expose plagiarism, by making the original materials easy to access. In addition, releasing materials under an open licence also reduces the incentive for others to lie about the source of materials because they have permission to use them.
- Sharing of materials provides institutions opportunities to market their services. Educational institutions that succeed economically in an environment where content has been digitized and is increasingly easy to access online are likely to do so because they understand that their real potential educational value lies not in content itself, but in offering related services valued by their students. These might include: guiding students effectively through educational resources (via well-designed teaching and learning pathways); offering effective student support (such as practical sessions, tutorials, individual counselling sessions or online); and providing intelligent assessment and critical feedback to students on their performance (ultimately leading to some form of accreditation). Within this environment, the more other institutions make use of their materials, the more this will serve to market the originating institution's services and thereby attract new students.
- For individual educators, proper commercial incentives for sharing content openly are most likely to flow when institutions have policies to reward such activity properly. Up to now, many institutional and national policies and budgetary frameworks have tended, at worst, to penalize collaboration and open sharing of knowledge (by removing possible streams of income when knowledge is shared openly) or, at best, to ignore it (as so many universities do by rewarding research publication over other pursuits). Thus, for most educators, the incentives lie in changing the institutional and national policies and budgetary frameworks so that they reward collaboration and open sharing of knowledge.
- Even if institutional and national policies and budgetary frameworks do not reward collaboration and open sharing of knowledge, there are still incentives for educators to share their resources openly. Open licenses maximize the likelihood of content-sharing taking place in a transparent way that protects the moral rights of content authors. Furthermore, people who seek to ring-fence, protect, and hide their educational content and research will likely place limits on their educational careers. They will also increasingly be excluded from opportunities to improve their teaching practice and domain-specific knowledge by sharing and collaborating with growing networks of educators around the world. Those who share materials openly already have significant opportunities to build their individual reputations through these online vehicles (although, of course, the extent to which they manage this will remain dependent on the quality of what they are sharing).





## Creative commons licences



In common with many other efforts to develop open educational resources, working group 8 has chosen Creative Commons copyright licenses as the basis upon which learning materials will be shared and used.

Creative Commons is a nonprofit organisation that was set up to enable the sharing and use of creativity and knowledge through free legal tools.

Their free, easy-to-use copyright licenses provide a simple, standardized way to give creators, educators, and scientists permission to share and use creative work — on conditions of the creator's choice. The licenses let a creator easily change your copyright terms from the default of "all rights reserved" to "some rights reserved."

The Creative Commons copyright licenses and tools forge a balance inside the traditional "all rights reserved" setting that copyright law creates. The tools give everyone from individual creators to large companies and institutions a simple, standardized way to grant copyright permissions to their creative work.

All Creative Commons licenses have many important features in common. Every license helps creators — they call them licensors if they use their tools — retain copyright while allowing others to copy, distribute, and make some uses of their work — at least non-commercially. Every Creative Commons license also ensures licensors get the credit for their work they deserve. Every Creative Commons license works around the world and lasts as long as applicable copyright lasts (because they are built on copyright). These common features serve as the baseline, on top of which licensors can choose to grant additional permissions when deciding how they want their work to be used.

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## OER standards

The platform to host ANDROID open educational resources is still under development. A prototype will be released in late 2013. However, working group have already drafted a set of standards that sets out how the platform will be managed and requirements for uploading and use. Although still in draft form, the latest version can be downloaded from [www.disaster-resilience.net](http://www.disaster-resilience.net).

It is essential that content released through ANDROID can be found, used, analysed, aggregated and tagged. In order to facilitate this, content will have to be accompanied by some form of metadata. In this instance metadata doesn't necessarily mean de jure standards, application profiles, formal structured records, cataloging rules, subject classifications, controlled vocabularies and web forms. Metadata can also take the form of tags added to resources in applications such as flickr and YouTube, time and date information automatically added by services such as slideshare, and author name, affiliation and other details added from user profiles when resources are uploaded. However, the draft standards indicate that the ANDROID OER Platform will mandate the following "metadata":

- Programme tag - androidoer
- Project tag - each project should devise a short tag for use in conjunction with the programme tag. e.g. projectname
- Title - of the resource being described
- Author / owner / contributor – Most systems, whether repositories, vles or applications such as SlideShare, YouTube, etc allow registered users to create a user profile detailing their name and other relevant details. When a user uploads a resource to such a system these details are usually associated with the resource.
- Date - This is difficult to define in the context of open educational resources which have no formal publication date. Most applications are likely to record the date a resource is uploaded but it will also be important to record date of creation so users can judge the currency of a resource.
- URL - Metadata must include a url that locates the resource being described. The system must assign each item a unique url.
- Licence information – Creative Commons is the preferred licence for programme outputs. The cc:license element can be used to provide a URI for the licence chosen and the dc:rights element can be used to provide general textual information about copyrights, other IPR and licence. Embedding the license within the resource is also recommended where practicable.
- Technical information such as file format, name and size may be added but is no longer mandatory.
- The hash symbol # should be added to the programme and project tag for use on twitter. E.g. #ukoer for twitter, ukoer for blogs etc.

Creators will also encouraged to think about providing additional information that will help people to find and access resources. For example:

- Language information - The language of the resource.
- Subject classifications - Specific subject classifications vocabularies are not mandated. However if a controlled vocabulary is required, projects are advised to use a vocabulary that is already being used by their subject and domain communities. It is not recommended that projects attempt to create new subject classification vocabularies.
- Keywords - May be selected from controlled vocabularies or may be free text.
- Additional Tags - Tags are similar to keywords. They may be entered by the creator / publisher of a resource and by users of the resource and they are normally free text. Many applications such as flickr, SlideShare and YouTube support the use of tags.
- Comments - Are usually generated by users of a resource and may describe how that resource has been used, in what context and whether it's use was successful or otherwise.
- Descriptions - In contrast to comments, descriptions are usually generated by the creator/ publisher of a resource and tend to be more authoritative. Descriptions may provide a wide range of additional information about a resource including information on how it may be used or repurposed.
- It's also useful for authors to be aware that once OERs are released they can easily become separated from their metadata descriptions, if this information is recorded in an associated file. Consequently authors are encouraged to consider embedding relevant descriptive information within the open educational resource where practicable.

### What next?

Working group 8 is still finalising plans for the OER platform and the accompanying standards are in draft form. The team welcome feedback so if you would like to get involved or provide comments, please contact the android secretariat who will be happy to put you in contact with the working group team:

[android@disaster-resilience.net](mailto:android@disaster-resilience.net)

In addition, all members of the ANDROID network will be encouraged to upload and download materials once the platform is launched.

Further details on the ANDROID OER platform will be provided in future issues of ANDROID Exchange.

## Partners host the first ANDROID Online Doctoral School

Professor Srinath Perera and the working group 3 team organised a successful first Online Doctoral School on the 19th and 20th March 2013 using the Blackboard Collaborate™ platform. The event was attended by 27 doctoral students from across Europe and beyond.

An important objective of ANDROID is to develop Higher Education capacity for research and teaching into the development of societal resilience to disasters. In recognition of the need to develop long term capacity in this field, WP3 is establishing an EU-based Doctoral School that is open to all interested doctoral candidates from Europe and beyond.

The ANDROID Doctoral School is a fully coordinated, innovative, and international interdisciplinary doctoral teaching and research programme focused on the most salient issues and features shaping society's ability to tackle the challenges posed by natural and human induced hazards.

The doctoral school consists of two programmes - Online Doctoral School (ODS) and Residential Doctoral School (RDS) - providing students with different ways to engage.

The first ODS included a diverse programme that addressed topics such as Risk, disasters & environmental hazards, Community engagement & inclusive development towards society resilience, and Society-environmental relations – Social and physical factors in resilience.

Guest speakers for the event were invited from across the ANDROID partnership. Speakers included Prof Srinath Perera, Dr Janaka Jayawickrema, Dr Jose Manuel Mendes, Prof Phil O'Keefe, Dr Yamuna Kaluarachchi, Dr Roshani Palliyaguru, Prof Piotr Matczak and Dr Geoff O'Brien.

The Blackboard Collaborate™ online collaboration platform was used to bring speakers and students into a collaborative, interactive, and mobile environment.

Copies of presentations and other materials delivered during the event are now available for download from [www.disaster-resilience.net](http://www.disaster-resilience.net).

The working group 3 team are already working towards the next event, a two day residential workshop conducted in Cyprus on 23rd and 24th October 2013.

The next issues of ANDROID Exchange will provide an update from this residential workshop. Further online and residential workshops are planned for 2014.

### Work Package Team

Professor Srinath Perera, Northumbria University, UK

Dr. Irina Shklovski, IT University of Copenhagen, Denmark

Hans Jorgen Henriksen, Geological Survey of Denmark and Greenland, Denmark

Alexandra Lima Revez, National University of Ireland, Ireland

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## Improving resilience of existing infrastructure and built assets against extreme weather

Special issue now published in the *International Journal of Disaster Resilience in the Built Environment*

Guest Edited by:

*Dr Bingunath Ingirige and Professor Keith Jones*

ANDROID partner, the *International Journal of Disaster Resilience in the Built Environment*, has just published a special issue entitled 'Improving resilience of existing infrastructure and built assets against extreme weather',

### Introduction and rationale

Evidence suggests that there has been a long-term upward trend in the number of extreme weather events (EWEs). The 2005 heat wave, 2007 summer floods, and 2009 and 2010 heavy winter snowfall are some examples from the UK. But at an international scale the extreme flood events in Pakistan in 2010 and 2011, tropical cyclones in India, flooding due to hurricanes in the USA and flash flooding and storms in various parts of Europe predominate the headlines. Climate change is expected to induce further changes in the frequency and severity of these extreme weather events. Most recently the devastating impact by Hurricane Sandy (2012) showed that New York City (NYC) is one of the most vulnerable cities to coastal flooding around the globe. The low-lying areas in NYC can be flooded by north Eastern storms and North Atlantic hurricanes (Aerts et al., 2013). These events have caused large losses of life as well as significant economic losses. As a result, cumulative economic and social costs of extreme weather-related events have been increasing significantly. The World Bank estimated that, in 1998, various natural disasters killed over 50,000 people and destroyed \$65 billion worth of property and infrastructure. Disasters that occur due to weather extremes affect the existing infrastructure and other built assets creating significant losses to the Government, individual households and the business sector in general. It is estimated that the global annual cost of weather damage on average is to be in the range of \$200-330 billion. The Pitt Review of 2007 discloses that there were about 200 major floods worldwide during 2007 alone, affecting 180 million people, causing 8,000 deaths and over £40 billion worth of damage and disruption.

Another problem that is fast growing is the increasing urbanisation in cities. This has caused a lot of cities with high population density to be overly dependent on its infrastructure assets to continuously function with minimum disruption. Given the growing evidence of increasing severity and intensity of EWEs, some major cities have become increasingly vulnerable to effects of EWEs. For instance, the prolonged cold weather during the winter of 2010 had a crippling effect on the transport system, schools and businesses, costing the UK economy over £600 million a day. Considering this growing problem facing the existing infrastructure and built assets in many cities around the world, this journal special issue focuses on the effects of EWEs on the resilience of infrastructure and built assets, and their reconstruction.



### Infrastructure resilience

CIRIA (2010) in the UK studied the effects of flooding on critical infrastructure. The study took into consideration the effect on critical infrastructure on a five-point criticality scale (based on the cabinet office rating scale). This criticality scale is based on the sensitivity of the infrastructure to the delivery of the nation's essential services. Infrastructure in general is affected to a large extent due to extreme weather events. For instance, in the UK it is estimated that the railroad infrastructure exposed to flooding has increased from 12,000 to 18,000 km, with added risks of bridge failure to occur. Increasingly the environment and the society is characterised by densely populated urban areas (Lall and Deichmann, 2011). As a result, the overall vulnerability (of people, infrastructure, environment and the economy) has increased as they have been exposed to new risk situations.

### Built assets and adaptation

Enhancing resilience to extreme weather requires more than identifying technical solutions that can be fitted to buildings. Whilst the need for a strong evidence base, clear lines of responsibility, effective contingency planning and a sense of social responsibility are known to be prerequisites for a resilient community, it is the inter-relationships between these factors that determine a community's vulnerability and adaptive capacity to an extreme weather event. The Community Resilience to Extreme Weather (CREW) project identified a mismatch between what each stakeholder (households, businesses and policy makers) thought were their responsibilities and the expectations that the others stakeholders had of them (Hallett, 2013). This mismatch ultimately led to a false sense of security that would minimise adaptive capacity and leave many communities vulnerable to the adverse impacts of extreme weather events.

### The current evidence base

Several studies have been initiated to assess the impact of climate change and extreme weather events on the whole of the society. To name a few: The IPCC, UKCIP weather scenarios, Pitt Review and the Stern Review. In addition to these major reports, there have also been several other reports initiated in the UK by the Association of British Insurers (ABI), The Environment Agency, The RICS, DEFRA and CIRIA. These reports identify the impacts of various EWEs and measures to overcome the growing problem. The Stern Review (Stern, 2007) for instance predicts that the average global temperatures could rise by 2-3°

within the next 50 years leading to many severe impacts such as melting glaciers, rising sea levels, decline of eco-systems, etc. In addition to the gradual change of climatic conditions, climate change is expected to increase the intensity and frequency of EWEs. IPCC, in their special report presented at their 34th session held in November 2011 stated that the frequency of hot days are likely to increase “by a factor of 10 in most regions of the world” and that heavy precipitation will occur more often. In a recent BBC (2013) report it has been revealed that about 20 of the UK’s leading scientists and meteorologists met at the Met Office to discuss Britain’s “unusual” weather patterns. They discussed the factors that caused the intense cold winter of 2010-2011 and the prolonged wet summer of 2012. They will also try to work out why the spring of 2013 was the coldest in 50 years with a UK average of 6°C (42.8°F) between March and May. One of the objectives of the meeting was to identify new priorities for research in the area of climate change and extreme weather. Given this context, it has become a necessity to enhance the resilience of infrastructure and other built assets, especially, which are vulnerable to the climate change and EWEs, in order to counteract the threat of such events and to ensure their continuous operation. More sustainable initiatives need to evolve to overcome the disruption and to enhance adaptation and coping capacities of individual households and the business sector.

### Contents of the themed issue:

- Heat wave adaptations for UK dwellings and development of a retrofit toolkit; Stephen M. Porritt, Paul C. Cropper, Li Shao, Chris I. Goodier (pp. 269 - 286)
- Assessing vulnerability, resilience and adaptive capacity of a UK Social Landlord; Keith Jones, Helen Brydson, Fuad Ali, Justine Cooper (pp. 287 - 296)
- The awareness of two stakeholders and the resilience of their built assets to extreme weather events in England; Yamuna Kaluarachchi (pp. 297 - 316)
- Participatory project management for improved disaster resilience; Lynn Crawford, Craig Langston, Bhishna Bajracharya (pp. 317 - 333)
- Development of conceptual framework for understanding vulnerability of commercial property values towards flooding; Namrata Bhattacharya, Jessica Lamond, David Proverbs, Felix Hammond (pp. 334 - 351)
- Achieving success in post-disaster resettlement programmes through better coordination between spatial and socio-economic/cultural factors; Kaushal Keraminiyage, Pantip Piyatadsananon (pp. 352 - 372)

Please visit: [www.emeraldinsight.com/ijdrbe.htm](http://www.emeraldinsight.com/ijdrbe.htm) to access the issue.

### Call for papers

ANDROID has a partnership with the International Journal of Disaster Resilience in the Built Environment (IJDRBE), providing ANDROID partners a publishing opportunity for their research findings.

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. 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.

IJDRBE welcomes papers from ANDROID partners which fit in well with the journal coverage, which includes, but is not limited to: Disaster mitigation, response and reconstruction; Risk reduction and continuity management; Linking reconstruction to sustainable economic development; Participatory approaches to reconstruction and empowerment of women and vulnerable groups; Project management for post-disaster reconstruction; Waste management and recycling after a disaster; Knowledge management practices at different phases of the disaster lifecycle; Financial management, governance and transparency; Corporate social responsibility; Law and regulatory frameworks; Post-conflict reconstruction; and Social impact of reconstruction.

### Submit a paper

For author submission guidelines and full editorial team details please go to [www.emeraldinsight.com/ijdrbe.htm](http://www.emeraldinsight.com/ijdrbe.htm)

As a guide, articles should be between 3,000 and 5,000 words in length.

A title of not more than eight words should be provided. Submissions to IJDRBE are made using ScholarOne Manuscripts, Emerald’s online submission and peer review system. Registration and access are available at <http://mc.manuscriptcentral.com/ijdrbe>

### Contact the Editorial Team

We are happy to receive ideas for papers from ANDROID partners.

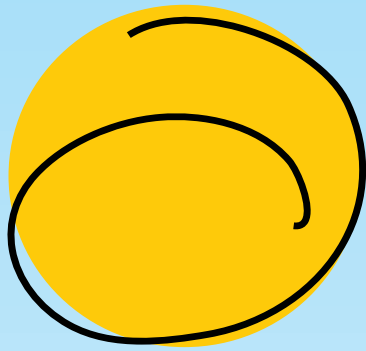
Journal homepage: [www.emeraldinsight.com/ijdrbe.htm](http://www.emeraldinsight.com/ijdrbe.htm)



International Strategy for Disaster Reduction



United Nations



Making Cities Resilient

My City is Getting Ready

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## Consultation of Local Governments towards Post 2015 Framework for DRR

At the World Conference on Disaster Reduction in January 2005, 168 countries adopted the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. The UN General Assembly endorsed the HFA later that year in 2005. The HFA responds to the need for a comprehensive, integrated, multi-disciplinary approach to identify and implement disaster risk reduction measures.

In December 2012, the UN General Assembly decided to convene the Third World Conference on Disaster Risk Reduction in Japan in early 2015 to review the implementation of the HFA over its 10-year term and develop a post-2015 framework for disaster risk reduction (referred to as Hyogo Framework for Action 2 or HFA2). The UN Office for Disaster Risk Reduction (UNISDR) was requested to serve as the secretariat of the Third World Conference, to facilitate the development of an HFA2, and to coordinate the preparatory activities in consultation with all relevant stakeholders.

The 2009-2011 mid-term review of progress against the HFA reflected substantial reduction in mortality due to natural disasters. However, the Report also highlighted weak capacity in many local governments. Even where countries have developed policies and institutional systems for disaster risk reduction, they are challenged to address risk accumulation on the ground. This consequently challenges governments' ability to accurately account for disaster risk in investment and development decisions.

Hence, it is envisaged that the engagement and feedback of local governments is critical for the effective implementation of risk reduction now and even more in the years to come.

The first phase of the consultations from March 2012 to May 2013 focused on broad substantive issues for the new framework of disaster risk reduction.

The narration below compiles the views expressed by Local Governments and partners for HFA 2 in the first year of consultation. Many Local governments leaders, Mayors, International agencies and community organizations have called for:

- a. the HFA2 should be designed with local actors in mind as a primary implementer. This would help them to understand the importance of disaster risk reduction, successful implementation strategies, and how to build their capacities and leverage their existing resources in the most cost effective way.
- b. efforts to clearly demarcate the responsibilities at the central, provincial, district or municipal levels, and to strengthen the processes of decentralization of responsibilities including resources to local government, through improved regulation and mechanisms for accessing resources.
- c. HFA2 to ensure that disaster risk reduction is made a core function of the Local Governments, with consistent budget allocation and staffing.
- d. stronger linkages between national and local government – including the alignment of national policies with local needs.
- e. greater emphasis on monitoring and accountability

instruments to guarantee law enforcement.

f. more support for capacity - building and awareness at the local level for the HFA2, including further training of local government and communities and ensuring access to available tools and knowledge.

g. ensuring community involvement in decision-making processes and building partnerships with community-based or grassroots associations.

h. stronger emphasis on school safety, education, and ensuring children and youth's participation in risk analysis and resilience-building initiatives.

i. the urgent need to cultivate a culture of prevention in households, communities, institutions and businesses was re-iterated. This includes the view that more attention needs to be given to understanding the factors that can influence the way people interpret risk and the conditions that lead people to act on risk information.

j. application of indigenous and traditional knowledge, cultural values and belief systems in public awareness efforts has also been recommended.

k. further collaboration between communities, local and national governments, NGOs, and the private sector must be consciously nurtured.

Phase I of the consultations (March 2012-May 2013) were conducted at the local, national and sub-regional level inclusive of various thematic areas which concluded with the 4th Session of Global Platform held in May 2013. This initial phase focused on broad substantive issues for a new framework. The first phase of the consultations confirmed the high interest of Local Governments in a post- 2015 instrument for disaster risk reduction or a HFA2.

The findings note that climate change exacerbates existing risk factors and calls for measures to mitigate greenhouse gas (GHG) emissions to prevent a generation of further risk, while taking steps to adapt to the new patterns of climate risk and extreme events that are already locked into place. It points to previous calls for adopting a holistic approach that embraces DRR and climate risk management as fundamental for poverty reduction and sustainable development. Read more: [www.preventionweb.net/files/32535\\_hfasynthesisreportfinal.pdf](http://www.preventionweb.net/files/32535_hfasynthesisreportfinal.pdf)

### Second Phase – HFA2

There is a consensus that the new instrument (informally referred to as HFA2) should build on the Hyogo Framework for Action and introduce the innovations necessary to address the challenges of increasing risk over the next 20 to 30 years.

Phase II of the consultations from July 2013 until the 3rd World Conference on Disaster Reduction in March 2015, will now focus on the content, indicators and measurement of the draft HFA2.

ANDROID partners will be invited to contribute to these consultations. Further information on how you can engage will be provided in future issues of ANDROID Exchange. In the meantime, if you would like further information, please contact the ANDROID Secretariat.



# UN Global Assessment Report on Disaster Risk Reduction

The Global Assessment Report on Disaster Risk Reduction is the UN flagship publication on global disaster risk and disaster risk management. The third edition of this biennial publication, the 2013 report, titled “Creating Shared Value: the Business Case for Disaster Risk Reduction” presents a new body of evidence that highlights how the transformation of the global economy over the last forty years has led rapid increases in disaster risk in low, medium and high income countries, affecting businesses and societies. The UNISDR 2013 Global Assessment Report on Disaster Risk Reduction (GAR13): Creating Shared Value: the Business Case for Disaster Risk Reduction highlights how the transformation of the global economy over the last 40 years has led to rapid increases in disaster risk in low, medium and high income countries.

The first Global Assessment Report on Disaster Risk Reduction, Risk and Poverty in a Changing Climate (GAR09), as well as the second, Revealing Risk – Redefining Development (GAR11), focused primarily on public policy and the role of national and local governments in disaster risk reduction. The key message of GAR09 was that addressing the underlying risk drivers is critical not only to the achievement of the Hyogo Framework of Action (HFA) i, but also the Millennium Development Goals (MDGs) and climate change adaptation. GAR11 built on that evidence to provide guidance to governments on how to effectively manage their disaster risk. GAR09 highlighted how intensive disaster risk is disproportionately concentrated in lower-income countries with weak governance. Within countries, it showed how underlying drivers—such as poor urban governance, vulnerable rural livelihoods and declining ecosystems—concentrate extensive disaster risk in low-income communities and households and drive further the depth and breadth of poverty, undermining development.

Building on the findings of GAR09 and GAR11, this third Global Assessment Report 2013 on Disaster Risk Reduction seeks to fill that gap. It explores why increasing disaster risks represent a growing problem for the economic and business community at different scales. The report examines how paradoxically business investments that aimed to strengthen competitiveness and productivity may have inadvertently contributed to increasing risk.

GAR13 explores how businesses, by investing in disaster risk management, can reduce costs and interruptions represented by disaster losses and impacts; how performance and reputation can also be enhanced by minimising uncertainty and unpredictability; why effectively managing disaster risks should be the hallmark of a competitive, sustainable and resilient business; and why a broader approach to business value creation that also addresses underlying drivers of risk is required.

GAR13 highlights the interdependence of the public and private sectors and why business competitiveness, sustainability and resilience will also depend on governments' ability to manage disaster risk through effective policies.

Governments depend on business investment to generate employment and the wealth required to provide public services. Likewise, businesses depend on reliable public infrastructure and utilities, on efficient urban systems, on an educated and healthy workforce and on a range of ecosystem services. Reducing disaster risks in business and in public investment presents a win-win situation for both.

GAR2013 analyses three key global investment sectors – urban development, agribusiness, and coastal tourism – and reveals that prevailing business models in each sector continue to drive disaster risk.

A new global risk model developed by UNISDR and partners, demonstrates that annual average losses from just earthquakes and cyclonic winds can be expected to be in the range of \$180 billion this century. The report makes a strong case that globalization, the search for lower costs, higher productivity, and just-in-time delivery are driving business into hazard-prone locations with little or no consideration of the consequences on global supply chains.

## Why do disasters challenge business?

The major disasters that struck Japan and Thailand in 2011 and the United States of America in 2012 revealed how disasters can impact businesses. Earthquakes, floods and storms can damage exposed and vulnerable factories, offices and other facilities and resources, interrupting and paralysing output and business processes.

But disaster risk does not stop at the factory gate. Businesses depend on infrastructure and urban systems run by utilities and the public sector. Damage to transport and energy networks, ports and airports or to neighbourhoods where employees live interrupts business and imposes additional costs. And in today's globalised world, even businesses in safe locations may be affected by disasters that hit suppliers and partners on the other side of the globe.

Extended insurance coverage may enable businesses to compensate for both direct loss as well as supply chain interruption. But disasters have broader, more pervasive effects on business competitiveness. When business is interrupted, skilled workers may leave, market share may be lost to competitors, relationships with key suppliers and partners may be severed and confidence and reputation may be eroded. Once business is lost, it may never come back.

Businesses, of course, come in many shapes and sizes. And different sizes are exposed to different kinds of risk. Small businesses, for example, that serve local markets are affected directly by localised extensive disasters, as associated with flooding or landslides. And these businesses also depend heavily on local public infrastructure. Destruction of a bridge in a flash flood, for example, may isolate a local smallholder farm, workshop or restaurant from markets and suppliers for days. And many such businesses go bankrupt because they lack the cash flow or reserves to be resilient.



## New GAR13

The previous two editions of the Global Assessment Report were predominantly written for an audience of policy and decision-makers in government departments. GAR09 laid out key recommendations for governments as well as civil society actors engaged in disaster risk management; GAR11 sought to reach beyond this traditional audience and targeted its analysis and findings particularly at finance and planning ministries of national governments.

In expanding its analysis to include and focus on the role of private investment, GAR13 aims at business leaders and private investors, on the one hand, and at local and national regulators, on the other hand. This report seeks to engage businesses in a dialogue on disaster risk management that goes beyond the current emphasis on response and preparedness and instead identifies opportunities for the creation of shared value for business and society.

As with previous Global Assessment Reports on Disaster Risk Reduction, GAR13 has been developed on the basis of original research commissioned to and contributed by a wide range of partners, including academic, scientific and technical organisations, governments and regional organisations, international and non-governmental bodies and most importantly by the private sector on a global scale. This report offers businesses as well as investors for the first time a review of practices that can reduce their risk of disaster loss.

## Key features of GAR13

### A global assessment of economic disaster risk

A completely new probabilistic multi-hazard GAR global risk model is being developed in collaboration with scientific and technical partners to replace the earlier model used in GAR09 and GAR11. This major modelling initiative will provide a unique vision of global disaster risk, generating information and metrics for risk-sensitive investment planning for governments and business, as well as for analysts and forecasters. An overview of the methodology is provided in Annex 1 of the online version of GAR13. GAR13 also explores the resilience of national economies to these risks through a number of different models, indexes and simulations, including the development of hybrid loss exceedance curves, building on the pioneering work in GAR11.

### A more complete estimation of disaster losses

The number of countries developing national disaster loss databases continues to grow. GAR13 features detailed national disaster loss data from a total of 56 countries, including new data from Djibouti, Ethiopia, Guyana, Honduras, Jamaica, Kenya, Lebanon, Laos, Mali, Nicaragua, Timor Leste, Uganda, Uruguay and a regional database for the Pacific Island nations. A new approach to modelling direct economic losses from these data permits most likely the most complete estimation to date of the real cost of disasters. This approach combines internationally reported economic losses from intensive disasters, as recorded in the EM DAT database, with modelled economic losses in the housing, infrastructure and agriculture sectors from extensive disasters captured in national disaster databases.

### Understanding how businesses manage disaster risk

A centrepiece of GAR13 is an in-depth analysis of how businesses are currently managing their disaster risks. In partnership with a major consultancy company, workshops were held with 14 global corporations from Asia, Europe and North America to understand current approaches to disaster risk management, challenges and opportunities. Based on an innovative risk management framework, these workshops provide lessons learned and unique insights into how large global businesses assess disaster risks and how this information is used to inform risk management. A survey of about 1,200 businesses in six disasterprone cities in the Americas (Bogota, Kingston, Miami, San Jose, Santiago and Vancouver) provides valuable information on another perspective, in particular, on the capacities of small and medium-sized businesses to manage disaster risks. This survey also examines the enabling environment for private sector involvement in disaster risk reduction.

### Reviewing progress in disaster risk reduction

Approximately 135 countries are reviewing their progress against the HFA for 2012–2013, and 94 countries have submitted reports that provide unique insights into the implementation of the HFA. Governments have reviewed their progress against each of the priority areas of the HFA, and provided supporting evidence on challenges in critical areas such as public investment and risk assessment. GAR13 highlights these developments, and a fuller analysis of all national reports is presented in Annex 3 of the online version.

In addition, governments in eight countries in Asia and Latin America have provided detailed case studies of their investments in disaster risk reduction and how these are measured. As new investments flood into emerging economies, results reported in these case studies provide useful context. In partnership with a major global social research organisation, 30 senior officials in national finance and planning ministries, regional and international organisations were interviewed, providing additional insight into how policy and decision-makers view the risk landscape.

### A focus on the urban development, tourism and agribusiness sectors

GAR13 also commissioned research to examine the challenges and opportunities to risk-sensitive business investment in three sectors: urban development; tourism; and agribusiness. These sectors are not only some of the most dynamic in the world economy, but also play a key role in the configuration of disaster risks. In each sector, GAR13 examines the interactions between business and the public sector and the incentives and constraints for disaster risk reduction.

*Continues overleaf*

# GAR

## Global Assessment Report on Disaster Risk Reduction

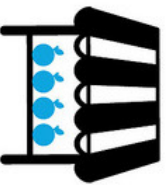
The third edition of UNISDR's flagship publication, the Global Assessment Report on Disaster Risk Reduction (GAR), is entitled "From Shared Risk to Shared Value: The Business Case for Disaster Risk Reduction".



Learn more and download the Global Assessment Report for Disaster Risk Reduction.  
[unisd.org/we/inform/gar](http://unisd.org/we/inform/gar)

### The Good News

*With the private and public sectors working together we are moving from creating shared risks to creating shared value.*

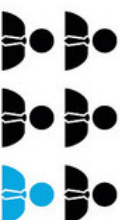


The market for climate change adaptation is estimated at \$100 billion a year until 2050 representing a huge opportunity for business.



Date: 10 May 2013 | OCHA Humanitarian Symbol (2012).  
<http://go.gl/Assdr> | Businessperson designed by Devochkina Olena from The Noun Project | Find out more about UNISDR: <http://www.unisdr.org>

### The Bad News



Fewer than one in six small businesses have business continuity plans.

# \$2.5 trillion

The direct cost of disasters in the 21st century - at least 50 percent higher than previous estimates.

# \$180 billion

Estimated average losses from earthquakes and cyclonic wind every year.



Our ability to build resilience has not kept pace with our ability to grow.

# Invest



New Zealand electricity distributor Orion invested \$6 million in seismic strengthening and saved \$65 million in potential losses in the Christchurch earthquakes.

# Save



Mexican fisherman whose livelihoods were devastated by Hurricane Isidore invested in risk management that saved each on average \$35000 when Hurricane Wilma hit three years later.



In Scotland partnerships have reduced flooding in 28 of the country's 29 local authorities.

# UN Global Assessment Report on Disaster Risk Reduction

## Finance, insurance and public regulation

Business investment decisions in these and other sectors are mediated by the availability of finance, insurance pricing as well as public sector regulation and incentives. In partnership with the insurance industry, and through a set of case studies, GAR13 examines the challenges faced in the development of insurance markets that contribute towards risk-sensitive business investment. It also looks at the role of capital markets and financial institutions in providing incentives or disincentives for risk-sensitive investment.

Public regulation has traditionally been privileged as a means to avoid the externalisation of risks and costs by business investments to the public sector and community. But GAR13 also examines how the incentives provided by countries and cities to attract foreign direct investment (FDI) may actually encourage investment in hazard-prone areas. Further, it seeks to identify examples where it has been recognised that the costs of the resulting shared risks are becoming untenable for both business competitiveness and the sustainability of societies.

## Nascent business practices in disaster risk management

GAR13 also identifies and describes nascent business practices that are starting to positively transform the landscape of disaster risk management. These practices include efforts to strengthen corporate risk management strategies; new approaches to supply chain resilience; initiatives to increase the accessibility and usability of risk information; investors' growing appetite for risk disclosure and transparency; and new opportunities for creating shared value by investing in disaster risk management in partnership with the public sector.

The report also identifies encouraging signs of change. Public-private partnerships in risk management have proven their worth during several disasters, including the 2010 and 2011 earthquakes in Christchurch, New Zealand.

GAR2013 surveys 1,300 small and medium-sized businesses in six disaster-prone cities in the Americas and finds that three-quarters have suffered business disruptions related to damaged or destroyed power, telecommunications and water utilities demonstrating the inter-dependence between the private and public sectors when it comes to disaster risk management. Yet only a minority of the companies surveyed – 14.2 percent in the case of companies with fewer than 100 employees – had even a basic approach to crisis management in the form of business continuity planning.

## The full GAR 2013 Report

The full report can be downloaded at:

<http://www.preventionweb.net/english/hyogo/gar/2013/en/home/download.html>

Browse the available material for downloadable versions of selected chapters and sections of the report, all annexes, case studies and background papers

## Contributing papers

The Global Assessment Reports are developed on the basis of a large body of original research commissioned by and contributed to UNISDR by a wide range of partners, including independent scientific institutions, think tanks, UN agencies, governments, non-governmental organisations and businesses. This includes original case studies, analysis and survey results from businesses and governments – all available online at:

[www.preventionweb.net/english/hyogo/gar/2013/en/home/documents.html](http://www.preventionweb.net/english/hyogo/gar/2013/en/home/documents.html)

## Data platform

The global risk analysis presented in the Global Assessment Reports is based on a joint effort by leading scientific institutions, governments, UN agencies and development banks, the private sector and non-governmental organisations. All available data is provided via the interactive Risk Viewer, the national disaster loss database platform DesInventar, and the global risk database Preview: [www.preventionweb.net/english/hyogo/gar/2013/en/home/data-platform.html](http://www.preventionweb.net/english/hyogo/gar/2013/en/home/data-platform.html)



# International Conference on Building Resilience 2013

## Sri Lanka welcomes 142 local and international delegates for a major international conference on building resilience, held in conjunction with the ANDROID network

Heritage Ahungalla, Sri Lanka, 17th - 19th September 2013

Heritage Ahungalla, near the Southern city of Galle, Sri Lanka, was the setting for a major international conference on the development of societal resilience to disasters. The 3rd International Conference on Building Resilience welcomed 142 delegates, including 87 academics, practitioners, professionals and policy makers, and 55 technical officers from the Southern Provincial Council. Alongside local delegates, the conference attracted 40 leading scientists from Europe, Asia, North America and Australasia. The conference also incorporated the National Launch of the United Nations Global Assessment Report and a Capacity Building Workshop for the Sri Lankan Southern Provincial Council.

This event built upon the successful 2011 International Conference on Building Resilience, which was held in Dambulla, Sri Lanka. The 2011 Conference was held in association with the launch of the United Nations Making Cities Resilient: 'My City is getting ready!' campaign, which addresses issues of local governance and urban risk. The 2013 Conference further supported the campaign focus areas up to 2015, including city-to-city learning and capacity building, and an emphasis on partnerships.

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

The conference programme incorporated keynote addresses by respected government officials, leading industrialists and implementers, and distinguished local and international academics.

Mrs Marina Mohamed, Secretary at the Ministry of Disaster Management Sri Lanka, and Hemanthi Goonasekera, Chief Executive Officer of the Federation of Sri Lankan Local Government Authorities welcomed delegates and provided an important policy context for the subsequent debate, highlighting national and local priorities and action plans. They also established an expectation that the conference will serve as an impetus for further action in helping Sri Lanka to tackle the challenge of disaster risk.

The conference programme featured five keynote addresses by distinguished practitioners and academics: Professor Martin Hall, Vice Chancellor, University of Salford, UK; Vinod Thomas,



Director General of Independent Evaluation, Asian Development Bank; Professor Sarath Abayakoon, Former Vice Chancellor, University of Peradeniya, Sri Lanka; Dan Lewis, Chief of Urban Risk Reduction, UN-Habitat, Kenya; Dr Samantha Hettierachichi, Professor of Civil Engineering, University of Moratuwa, Sri Lanka and Chairman, Working Group on Risk Assessment, UNESCO/IOC/ICG/IOTWS; and, N.M.S.I. Arambepola, Deputy Executive Director, Asian Disaster Preparedness Centre (ADPC), Bangkok, Thailand. These keynote addresses provided a local and global perspective and vision for disaster resilience research and practice.

The conference included the publication and presentation of 87 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, held in association with the ANDROID Disaster Resilience Network, was organised by the Centre for Disaster Resilience, School of the Built Environment, University of Salford, UK, the Royal Melbourne Institute of Technology (RMIT) University, Australia and Queensland University of Technology (QUT), Australia, in conjunction with local hosts the University of Colombo, the University of Moratuwa, and the University of Peradeniya.

The Conference was chaired by Professors Martin Hall, Dilanthi Amaratunga and Richard Haigh, from the University of Salford, UK.

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

Further details on the conference can be found at [www.buildresilience.org/2013](http://www.buildresilience.org/2013).

### Capacity Building Workshop for the Sri Lankan Southern Provincial Council

Alongside the main conference in Sri Lanka, a workshop for capacity building on disaster resilient measures was organised in association with the Federation of Sri Lankan Local Government Authorities, the Southern Provisional Council, Sri Lanka and University of Salford, UK. The event was well attended by technical offices and engineers of the Sri Lankan Southern Provincial council. As part of the workshop, a number of guest presentations were delivered by academics from: the University of Peradeniya, Sri Lanka; and ANDROID partners, the University of Moratuwa, Sri Lanka and the University of Salford, UK. The speeches focused on improving disaster resilient measures within the built environment. Further, with the participation of members of the Southern Provincial council, a discussion was conducted to make recommendations for Post 2015 Framework for Disaster Risk Reduction: Hyogo Framework for Action (HFA2). Participants of the workshop collectively addressed the following key areas related to disaster risk reduction at local level:

- existing/applied tools and mechanisms for taking disaster risk information into account in construction
- strengths and weaknesses of existing/applied tools and mechanisms for achieving disaster resilient construction at the local level
- disaster risk information available and how is it used for urban/habitat/infrastructure construction planning to make them disaster resilient
- main barriers for developing and utilizing disaster risk inclusive land use plans, spatial and habitat plans, building codes and how these barriers can be overcome in ongoing and future construction activities?

The suggestions made during the workshop will be fed into the on-going HFA2 consultation process.

### 2nd Annual ANDROID Conference

23rd - 25th October, 2013, Limassol, Cyprus

A reminder that the ANDROID network is having its second annual conference from the 23rd to 25th October 2013, in Limassol, Cyprus. The Conference Chair is Dr Skevi Perdikou from Frederick University.

The conference will be a great opportunity to bring together the 67 network partners from 31 countries. During the conference, developments and results from each work-package will be presented and the network members will get the chance to discuss developments in the Android project and exchange ideas in a round table format, participate in workshops and work-package group meetings. Partners will also have the opportunity to present their work in the disaster resilience field, following abstract submission.

The conference will be held at the Amathus beach hotel in Limassol, Cyprus, adjacent to the clear blue waters of the Mediterranean Sea. The hotel is located close to the ancient city of Amathus which was built between the 10th and 8th centuries BC and was the island's first city-state. You can still see remains of the aqueduct as well as the columns of the agora (marketplace).

We look forward to seeing you in Cyprus.

### 10th Annual Conference of the International Institute for Infrastructure Renewal and Reconstruction

20th - 24th May, 2014, Purdue University, USA

The Department of Building Construction Management at Purdue University, in partnership with the Division of Construction Engineering Management, Purdue Homeland Security Institute and others, will host the 10th Annual Conference of the International Institute for Infrastructure Renewal and Reconstruction (IIR2) at Purdue University, May 20-22, 2014.

The theme of the conference is "Global Collaboration for Effective Disaster Mitigation, Response, and Recovery." Organizers seek to enhance mutual understanding and teamwork among stakeholders who mitigate and respond to disasters and recover the built environment in the aftermath.

Important dates before the conference:

Abstracts due by January 10, 2014.

Abstracts accepted by February 7, 2014.

Papers due by March 7, 2014.

Keep watching for more details about research tracks, agenda, and accommodations, which will be published later this year.

Questions about the conference, including sponsorship opportunities, should be directed to Randy Rapp, D. Mgt., associate professor of building construction management at Purdue.





# Write for ANDROID Exchange

The ANDROID Disaster Resilience Network provides an opportunity for people to share knowledge and experience. ANDROID Exchange is written by the ANDROID membership for the ANDROID membership, and also for other readers working with national and international NGOs, UN agencies, government and donor institutions, academics, and independent consultants.

We, the Editors of ANDROID Exchange, welcome contributions from ANDROID Members and Associate Members. We are also pleased to consider articles submitted by anyone involved in some way in increasing societal resilience to disasters. If you have knowledge and experience to share, please consider making a contribution.

The scope of contributions should be consistent with the aims of ANDROID. 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. Typically, we welcome contributions in the following categories (word counts are advisory):

- News and reports from activities and events linked to the Network (100 - 500 words)
- Reports on developments in the field / projects that are being investigated by partners – these do not have to be activities directly linked to the Network, but should be relevant to Network members (100 - 500 words)
- Useful Resources – relevant publications, websites (up to 20 - 40 words)
- Upcoming events (20 words)

We welcome suggestions for alternative types / styles of contribution. If you have an idea for an article that you would like to develop, the Editors would be pleased to discuss it with you - send an email to [android@disaster-resilience.net](mailto:android@disaster-resilience.net).

The Editors reserve the right to edit any contribution.

This edition of ANDROID exchange was edited by Professor Richard Haigh.

ANDROID Disaster Resilience Network  
Centre for Disaster Resilience  
University of Salford  
Salford  
Greater Manchester M5 4WT  
United Kingdom

Tel. +44 (0) 161 295 4600  
Fax. +44 (0) 161 295 5011  
e-mail: [android@disaster-resilience.net](mailto:android@disaster-resilience.net)  
website: [www.disaster-resilience.net](http://www.disaster-resilience.net)