

# ANDROID

DISASTER  
RESILIENCE  
NETWORK

# Exchange

Volume 1 Issue 3

## A Roadmap for European Higher Education

An update on the ANDROID projects that will contribute to a roadmap for European disaster resilience education



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



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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.

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## Editorial

Welcome to this third issue of ANDROID Exchange, 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 the roadmap for European education in developing societal resilience to disasters, a key output of the ANDROID network, planned for release in 2014. The roadmap will bring together results from other ANDROID activities, including two survey projects and research special interest groups. It is expected that roadmap will set an agenda for educational policy in the field. The article includes details about the roadmap and the related inputs, as well as information on how you can contribute to this important activity.

The issue also includes details of our successful first annual ANDROID conference, which took place in the beautiful city of Tallinn, Estonia in October 2012. The event was the first opportunity for the ANDROID partners to meet as a group. Over sixty partners attended the event, which was organised by Tallinn University of Technology. We are extremely grateful to the organising team, who provided a fantastic context from which to formally launch our workplan.

Later in the issue, two important upcoming events are also announced: the ANDROID doctoral school, which will be held in online and residential forms, and the second annual ANDROID conference, to be held in Cyprus in October 2013. Please make a note of these events and their corresponding dates as they are both important activities in the coming year.

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.

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  
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## A Roadmap for European Education in Developing Societal Resilience to Disasters

A major output of the first ANDROID workplan, due for completion in 2014, is the development of a roadmap for European education in developing societal resilience to disasters. The roadmap will collate the major findings that arise from the network's survey and analysis projects (WP5, 6&7) in order to set an agenda for educational policy in the field. This report will not be about predicting the future. Instead, its starting point will be simply to consider some of the greatest challenges and opportunities for education in the 21st century in helping society address the threat posed by hazards of natural and human origin. The report will consider society's requirements in terms of skills (WP6) and scientific advances (WP7). It will also consider the existing capacity of European HEIs to meet these requirements (WP5). Finally, the report will consider what needs to happen in education policy to help address this key European and global challenge. The report will be a major output for the network that can be disseminated to key stakeholders, and also form the basis of the network's future activities. It is anticipated that the report will be published in four languages.

In this issue, we provide an update on some of the activities that will contribute to this roadmap, and also detail how partners and other stakeholders can engage in the process of its development.

## Inventory of European disaster resilience education

The inventory of European disaster resilience education will describe, analyse, and compare disaster resilience related education programmes in order to establish existing capacity among European HEIs to address the threat posed by hazards of natural and human origin.

The work is led by Frederick University, Cyprus and there are members from Herriot Watt University, UK, VSB-Technical University of Ostrava and Czech Technical University, both from Czech Republic, Mining and Geology University, Bulgaria and Catholic University of Sacred Heart Milan, Italy.

In order to achieve the objectives of this work package, its members have developed an online survey to capture education programmes directly related to disaster resilience (as this is defined by UNISDR) currently being undertaken within Europe. For the development of this survey, previous similar surveys and different platforms incorporating such information were studied. A pilot study was also performed among the Android partners to assess the developed survey prior to its online launch.

Courses at different European Qualification Network (EQF) level are included such as level 5, 6 (e.g. Bachelor/first degree), 7 (e.g. Masters/ postgraduate), and 8 (e.g. Doctorate). The survey captures information about the programmes such as duration, department and discipline, areas and subjects covered in the





programme, type (distance learning, classroom etc), frequency the programme is offered, as well as other information such as links with industry and research centres.

The developed online survey is user friendly and even though a lot of information is collected, the questions are short, clear and only require a few minutes for the course coordinator to complete the survey.

The inventory of European disaster resilience education that will be prepared from the results will include descriptions, analysis and a comparison between the disaster resilience related education programmes.

The project network would very much appreciate it if course coordinators of relevant courses could spend about 5-10 minutes completing this survey. The survey can be found at the following website or accessed through the ANDROID network website.

[www.survey.disaster-resilience.net/index.php/survey/index/sid/395269/lang/en](http://www.survey.disaster-resilience.net/index.php/survey/index/sid/395269/lang/en)

### **Capacity of national and local government public administrators in European urban areas to address disaster risk**

A second survey project (WP6) is to establish the capacity of European national and local public administrators to address disaster risk. The project is led by Tallinn University of Technology, Estonia.

To cope with the (geographical, population, risk, etc.) differences in a Europe-wide survey, it was necessary to adopt a common baseline from which to measure capacity - the fulfilment of the Hyogo Framework for Action (HFA) priority actions. Since these apply to the national level, a corresponding set of local level actions which follow from the HFA priority actions were derived for this survey.

The link to the survey is provided below:

<http://www.survey.disaster-resilience.net/index.php/survey/index/sid/948653/lang/en>

The questioning logic is similar for both national and local levels and proceeds as follows.

For each of the identified (local or national level) actions:

Is this action successfully completed?

If YES, then there is no capacity constraint and hence no immediate need for further capacity development. [Questionnaire goes automatically to the next action].

If NO, then:

Is this the result of capacity constraint?

If YES, then the respondent is asked to rate a given list of capacity dimensions in terms of their importance and the degree to which they are constrained for fulfilling the action.

If NO, then there is no immediate need for further capacity development. [Questionnaire goes automatically to the next

action].

In this way, it is intended to discover:

- the degree to which disaster resilience capacity is constrained with respect to the fulfilment of obligations under the HFA;
- the relative importance and degree of constraint of the capacity dimension relating to knowledge and skills of staff compared to other capacity dimensions;
- comparative capacity differences across Europe at both national and local levels.

The respondents for this questionnaire will be primarily national and local government officials but could also include other persons who are in a position of competence to comment on national or local government capacity (perhaps from emergency services, academia, etc.).

ANDROID partners will be contacted to generate lists of respondents for their own countries and administer the survey to them in collaboration with the WP6 team. Where appropriate, they will also be asked to assist in the translation of the survey into local languages: our WP6 team are arranging German, Russian and Turkish translations at the moment.

### **Research futures**

The third major input for the roadmap will emerge from the network's Special Interest Groups (SIGs), which represent the particular research and teaching concerns of groups of members. These groups hold meetings at the annual network conference and are managed and developed by network partners for network partners. All partner members are eligible to join any of these groups, who are expected to define a scope and work plan, organise seminars, contribute to ANDROID Exchange. In addition, each group will be expected to contribute to a report on future research directions in disaster resilience research, and the implications for education. This report will provide an important research and innovation dimension to the ANDROID roadmap.

### **Contributing to the roadmap**

Future issues of ANDROID Exchange will provide updates from these SIGs, as well as details of progress from the two survey projects.

As detailed in this article, there are already plenty of opportunities for ANDROID members and other stakeholders to contribute and direct the development of the roadmap. Indeed, the quality of the roadmap is very much dependent on your input. We strongly encourage participation in the survey projects, as detailed above, and also contribution to the SIGs. Please contact the WP leaders for further information on you can get involved. Also, we urge you to share details of these projects with your colleagues and networks so we can gain representative input from all relevant stakeholder groups.

The final roadmap will be developed and published in 2014, downloadable from the network website, and also shared with key stakeholders across Europe.

## Over sixty members attend the First Annual ANDROID Conference held in Tallinn, Estonia

The first annual ANDROID conference was held in Tallinn, Estonia between 17th and 19th October 2012. The conference was hosted by the Tallinn University of Technology and chaired by Professor Irene Lill. The event was held at the historic Teachers' House (Õpetajate Maja), which stands on Town Hall Square, right in the centre of the city's Old Town. It was first mentioned in historical records as early as 1333, but its current layout dates back to the 1830s when it served as an officers' club and casino.

The conference was the first gathering of the entire network. Over 60 partners from across Europe and Australia attended.

The conference was an opportunity for all partners to meet and learn about the scope of the Network's activities. Full details and downloadable copies of presentations are available on the ANDROID website: [www.disaster-resilience.net/index.php/news/2012-android-conference](http://www.disaster-resilience.net/index.php/news/2012-android-conference).

The conference programme incorporated two thought provoking keynote addresses by members from ANDROID partner institutions:

- Helena Valdes, Director a. i., UNISDR (United Nations International Strategy for Disaster Reduction), Making Cities Resilient: My City is Getting Ready
- Professor Tarmo Soomere, Estonian Academy of Sciences, Reflections on marine coastal disaster management and resilience building in the eastern Baltic Sea

Much of the programme was also focused on sharing and understanding the three year ANDROID workplan to ensure that all members can actively participate in the detailed plans and activities of the Network.

- Overview of Workplan, Professor Richard Haigh, University of Salford
- Survey of European Education, Dr Skevi Perdikou, Frederick University
- Survey of Public Administrators, Dr Emlyn Witt, Tallinn University of Technology
- Inter-disciplinary Methodologies, Kazuyoshi Nishijima, Swiss Federal Institute of Technology
- Doctoral School, Professor Srinath Perera, University of Northumbria
- Research Futures & Special Interest Groups, Professor Maurizio Indirli, Italian National Agency for New Technologies, Energy and SD
- Collaboration Opportunities, Professor Dilanthi Amaratunga, University of Salford
- Network Management, Dr Menaha Thayaparan, University of Salford
- Dissemination and Communication, Professor Arturas Kaklauskas, Professor Richard Haigh & Professor Dilanthi Amaratunga

We are extremely grateful to Professor Irene Lill and her team at Tallinn University of Technology, Estonia, for organising such a successful first annual conference.



ABOVE: The annual ANDROID network conference was held in Tallinn, Estonia and the first opportunity for all partners to meet and discuss the network's ambitious workplan

## Second Annual ANDROID Conference to be held in Limassol, Cyprus

After such a successful first event, it is with great pleasure that the ANDROID network is announcing its second annual conference to be held on 24th and 25th October 2013, in Limassol, Cyprus.

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.

It is expected that all partners will participate or send a nominated representative to attend the annual conference.

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).

The conference programme will be as follows:

23 October 2013: Welcome and reception dinner

24 October 2013: Full day conference followed by a conference dinner

25 October 2013: Conference will be closed by noon

Dr Skevi Perdikou from Frederick University, the Conference Chair, will be contacting all partners with further details about the event in due course, including registration information. Please reserve these dates and look out for further information on the conference in future issues of Exchange.

We look forward to seeing you in Cyprus.

## ANDROID Doctoral School Announced

An important objective of ANDROID is to develop Higher Education capacity for research and teaching into the development of societal resilience to disasters. With growing population and infrastructures, the EU's exposure to hazards – of both natural and man-made origin – is predictably increasing. This unfortunate reality will require communities to become more resilient, both physically and socially. The EU's Higher Education Institutes will have an important role in developing innovative education to address this challenge.

In recognition of the need to develop long term capacity in this field, WP3 will establish an EU-based Doctoral School that is open to all interested doctoral candidates from Europe and beyond. The ANDROID Doctoral School will be 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. A certificate of attendance will be issued to participants completing the programme by the ANDROID Network.

### Online Doctoral School (ODS)

The objective of the ODS is to transfer knowledge and develop the knowledge base of doctoral candidates. This is achieved through the conduct of series of domain expert presentations along with detailed discussion sessions aimed at engaging the participants in knowledge discovery through detailed discussion. A panel of experts in disaster management and resilience will lead the discussion.

The first ODS will be a two day workshop conducted online on 19 & 20 March 2013. Please refer to the ODS programme on the ANDROID web site for further details. There are no charges involved in participation at the ODS programme.

### Residential Doctoral School (RDS)

The RDS programme aims to actively engage the participants in presenting and discussing their doctoral research projects. It involves each candidate submitting a research paper (which will be double-blind peer reviewed) and making a short presentation of it to a panel of experts at the residential workshop. Detailed discussion providing valuable independent feedback will follow each of the presentations. The papers submitted to the RDS by the doctoral candidates will form into an edited published doctoral proceeding. The RDS programme will include keynote presentations from renowned experts and other activities such as excursions to disaster sites or other relevant activity.

The RDS will be a two day residential workshop conducted in Cyprus on 23rd and 24th October 2013. There are 15 scholarships of €750 each available for selected successful candidates who attend the RDS programme to cover expenses incurred against the programme (subject to selection criteria and ANDROID Network membership). Full fee paying candidates will be charged a €250 registration fee. Details of cost of accommodation, venue and all other details will be announced shortly.

## Application Process

Prospective candidates are requested to submit applications for both the ODS and RDS programmes using the Application available on the ANDROID website.

The closing date for applications for the doctoral school is: 4th March 2013

Eligibility: Only candidates currently registered for a doctoral programme in a higher education institution in the broad area of disaster resilience are eligible to apply.

Candidates selected for the doctoral school programmes will be notified by 14 March 2013.

## Selection Criteria

Candidates for the doctoral school ODS and RDS will be selected from applicants who meet the eligibility criteria mentioned above. The RDS scholarships will be awarded to successful candidates who are registered for doctoral studies at one of the ANDROID network partner institutions (see ANDROID web: <http://www.disaster-resilience.net/index.php/android-membership>).

Candidates from Non ANDROID partner institutions are also considered for both the ODS and RDS programmes, but they are not eligible to apply for the scholarship scheme. The ODS programme is offered free for all selected candidates while candidates not receiving the scholarship will be required to pay a registration fee of €250.

The following criteria have been defined (For full details of selection criteria please refer to Selection Criteria):

- Applicants must have enrolled for a PhD. Preferences will be given to applicants in first and second year of their doctoral degree programme
- Preference will be given to applicants from ANDROID network partner institutions
- Applicants' PhD research must be relevant to Disaster Resilience Network themes
- In addition to the above, the selection for the fifteen RDS scholarship will be based on following principles:
- Registered doctoral candidate of an ANDROID network partner institution
- A good geographical spread of candidates
- An interdisciplinary good mix of selected candidates (natural and social science, engineering, technology etc.)
- Balanced spread between partnering institutions (ANDROID network)

## Further information

For further enquiries please contact Prof Srinath Perera (WP3 leader) ([doctoralworkshops@disaster-resilience.net](mailto:doctoralworkshops@disaster-resilience.net)).

## 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, P24 National University of Ireland, Ireland

## Making Cities Resilient: From Awareness to Implementation

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

Guest Edited by:

Helena Molin Valdés

Director a.i., United Nations International Strategy for Disaster Reduction (UNISDR)

ANDROID partner, the International Journal of Disaster Resilience in the Built Environment, has just published a special issue entitled 'Making Cities Resilient: From Awareness to Implementation', which has stemmed from the United Nations International Strategy for Disaster Reduction (UNISDR) campaign on Making Cities Resilient. This special issue is edited by Helena Molin Valdés Director a.i., United Nations International Strategy for Disaster Reduction (UNISDR), also a partner in the ANDROID Network.

### Background to the themed issue

Cities and local governments need to get ready, reduce the risks and become resilient to disasters. For 2010–2015 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 2010-2015 World Disaster Reduction Campaign "Making Cities Resilient" addresses issues of local governance and urban risk.

This themed issue of the International Journal of Disaster Resilience in the Built Environment is 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. All papers were subjected to the journal's double-blind peer review process.

The International Journal of Disaster Resilience in the Built Environment (IJDRBE) and the UNISDR "Making Cities Resilient Campaign"

The International journal of Disaster Resilience in the Built Environment is the leading academic journal to promote research and scholarly activity associated with the UNISDR "Making Cities Resilient" Campaign.



### Contents of the themed issue:

- "Making Cities Resilient: From Awareness to Implementation". Guest Editorial by Helena Molin Valdés, Director a.i., United Nations International Strategy for Disaster Reduction (UNISDR)
- Negotiating community resilience in the city in a time of political change and deficit reduction, by Fuad Ali and Keith Jones
- Implementation of Hyogo Framework for Action in Makati City, Philippines, by Yuki Matsuoka, Yukiko Takeuchi and Rajib Shaw
- Social capital and sociological resilience in megacities context, by Barbara Lucini
- Creating disaster resilient built environment in urban cities: role of local governments in Sri Lanka, by Chamindi Malalgoda, Dilanthi Amararatunga and Richard Haigh
- Framing responses to post-earthquake Haiti: how representations of disasters, reconstruction and human settlements shape resilience, by Gonzalo Lizarralde, Lisa Bornstein, Kevin Gould and Colin Davidson
- A Framework to Construct Post-Disaster Housing, by Saumyang Patel and Makarand Hastak

Please visit: [www.emeraldinsight.com/ijdrbe.htm](http://www.emeraldinsight.com/ijdrbe.htm) to access the issue, read more about the Journal and to find out how to submit your own research.

### 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)

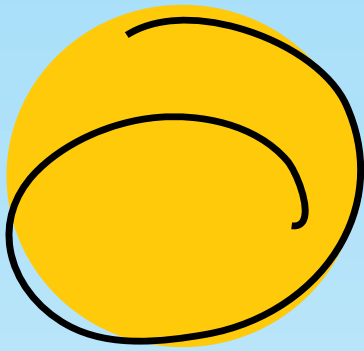




International Strategy for Disaster Reduction



United Nations



Making Cities Resilient

My City is Getting Ready

[www.unisdr.org/campaign/resilientcities/](http://www.unisdr.org/campaign/resilientcities/)



# Guidance on Resilience in Urban Planning

*Helena Molin Valdes (molinvaldes@un.org), Deputy Director of UNISDR and Chief of Advocacy and Outreach & Patricia Holly Purcell (holly-davis@un.org), Technical and Strategic Adviser, Making Cities Resilient Campaign*

**Urban planning and design has a key role to play in defining a city's and urban area's resilience. It can address some of the underlying risk factors linked to natural hazards and related technological and other disasters, and reduce the exposure of people and assets and their degree of vulnerability in the context of rapid urbanization. As part of its mission to improve the ability of local governments to reduce disaster risk, the United Nations Office for Disaster Risk Reduction's Making Cities Resilient Campaign, in conjunction with several partners, is developing Guidance on Resilience in Urban Planning. The aim of the program is to promote and facilitate better integration and understanding of disaster risk into urban plans and land-use management through multi-sector coordination, as well as detailed local data on risks, and a commitment to disaster risk reduction.**

The following article outlines the rationale and key objectives of this initiative, which is partly based on the findings of the first Making Cities Resilient Report, published in September 2012 by UNISDR and the International Institute for Environment and Development (IIED). Highlights of the report are available for downloading at <http://www.unisdr.org/campaign/resilientcities/toolkit/report2012/>.

The Making Cities Resilient Report highlights how the provision of basic infrastructure and services upon which urban dwellers depend, and the extent to which infrastructure such as drainage systems and paved roads exists and are well maintained, are an essential element of resilience to natural hazards. It also outlines how certain cities are using urban planning to manage risks.

One of the Ten Essentials central to reducing disaster risk, developed by the Campaign, is the application of realistic risk-complaint building regulations and land-use planning principles, including identifying safe land for urban expansion and upgrading informal settlements wherever feasible. According to the research conducted by IIED, several cities have integrated hazard risk information into their urban planning processes. Albay Province, Philippines, for examples, has supported 18 municipalities to prepare comprehensive land use plans that address climate and disaster risk and integrate these risks into provincial plans. This has been institutionalized through a special planning ordinance and an updated provincial Comprehensive Land Use Plan (CLUP) for disaster risk reduction and climate change adaptation and mitigation. However, many other local governments are challenged to incorporate good practices into their planning and investments. This is especially evident in the case of ensuring that low-income households can buy, build or rent housing located on safe sites. Upgrading informal settlements has become the norm in many cities and this can be linked to disaster risk reduction. Other cities are undertaking or considering relocating communities at high risk – but relocation often impoverishes those who are moved as it disrupts their livelihoods and social networks. Upgrading informal settlements (so inhabitants do not have to move) is usually as effective in risk reduction.

According to UN-Habitat, the importance of urban planning in building resilience has many implications. Firstly, urban planning allows towns and cities to be analyzed and planned as a system comprised of various sectors and institutions. This is crucial in coping with interdependencies among failures in infrastructure in disaster situations. Urban planning also contributes to preventing secondary disasters and delays in the rehabilitation and recovery process. Disaster risk assessment, preparedness and planning for recovery, with multiple stakeholders involved in urban management before a disaster is one potential solution that can contribute to foreseeing multiple systems failures.

Secondly, the planning exercise can reinforce stakeholder relationships, and institutional frameworks and partnerships among all urban stakeholders, particularly planners, architects, engineers, the private sector, communities, and other actors to address risk reduction and resilience in a holistic manner.

Thirdly, it is important to strengthen the legal planning frameworks and codes in urban areas to support resilience. Cities, towns and settlements are expanding and village settlements are becoming towns and cities. A legal framework can guide future planning and integration of disaster risk reduction. It is important to apply and enforce realistic and risk compliant codes that can also meet the needs of low-income citizens and guide upgrading of informal settlements.

Urban planning can contribute to resilience and disaster risk reduction in a number of ways. These include working with multiple stakeholders throughout the planning process to identify known risks, needs and potential solutions and realizing the potential of communities to contribute to risk reduction; incorporating risk assessment – considering exposure, vulnerability and hazards, urban settlements development and services- in all urban development designs, projects and programs.

Additional factors and potential benefits to consider in the urban planning process include assessing how urban development contributes to improving the lives of the poor or more vulnerable people in a city; making safe land available for urban development; ensuring that public space for streets, infrastructure and parks is identified and protected; upgrading informal settlements, with attention to access roads, flood-risk, other safety measures; installing risk-reducing infrastructure, including drainage and sewerage systems; protecting ecosystems to allow proper storm water drainage; and developing good information on risk and communicating risk information widely.

As urban areas expand, both organically and through rural-urban migration, how to plan for resilience will continue to raise important questions and challenges for both city governments and planners. Urban planning approaches that recognize these challenges and aim to maximize synergies between municipal governments, the planning profession, hazard scientists, civil society, private sector, residents, and other critical stakeholders, can prove highly effective in managing and reducing disaster risk and emerge as a key component of resilience.

**Interested in knowing more about the 2010-15 World Disaster Reduction Campaign?**

Find all the relevant info at:  
[www.unisdr.org/campaign/resilientcities/](http://www.unisdr.org/campaign/resilientcities/)

# Space: the final frontier of disaster risk reduction

*Helena Molin Valdes and Tricia Holly Purcell, UNISDR*

**Outer space isn't a place organizations typically think of when looking for solutions to build resilience and reduce disaster risks to natural hazards on the ground. While it might sound like science fiction, the implications of space technologies, such as satellites for communication, earth observation, navigation, and telecommunication, have very real impacts to lives on a daily basis.**

Typically used by the humanitarian community to respond to disasters, emergencies and crises, these technologies are increasingly being used to forecast weather, aid in urban planning and development, monitor the health of the environment, and provide communication channels critical to ensuring people's safety.

Indeed, the classical applications of space technology tell only part of the story, according to Niklas Hedman, Chief of Section for the UN's Office for Outer Space Affairs (UNOOSA). Speaking during a forum convened last month by the United Nations Office for Disaster Risk Reduction (UNISDR) and UNOOSA, Mr Hedman emphasized how these extraterrestrial tools can not only help communications in times of emergency, but also address broad-based issues of resilience in the areas of urban planning, land-use planning and rural development.

The interactive forum, which brought together experts across a variety of fields and nations, aimed to better understand how the integrated and coordinated use of space-based and terrestrial technologies could support disaster risk management and reduction—for example, by providing accurate and timely information and communication support to improve risk assessments, early warning and monitoring of disasters.

UNISDR's Deputy Director Helena Molin Valdes, who also coordinates the Making Cities Resilient Campaign, which has signed up over 1,400 cities to date, added: "We need to make these technologies more accessible and educate people on the benefits of new technologies to reduce disaster risks and support resilience building. The question now is how we link space-based technologies, and the information they capture, to the wider issue of disaster risk reduction and long-term sustainable development. There is also the question of how such technologies can be applied by urban planners, engineers, and development practitioners to innovate and improve resilience of the built environment."

Attendees also considered how improving access to geographical information and geospatial data, and building capacities to use scientific knowledge in areas such as climate monitoring, land use planning, water management, and health and food security, can improve the accuracy of environmental and social impact assessments and lead to more informed decision-making at all levels. To take just one example, several national space agencies are currently working with the UN Food and Agricultural Organization (FAO) to put in place a process for crop forecasting in an effort to help improve yield estimates and combat food insecurity.

The forum also explored how outer space technologies can reveal important clues lurking in 'underground space' that can help scientists to head off a looming disaster. For example, Han Admiraal, Chairman of the International Tunneling and

Underground Space Association's Committee on Underground Space, cited the timely evacuation of residents living near the Usu Volcano, which erupted in 2000. Thanks to the ability of satellites in outer space to detect seismic shifts, scientists were able to forecast volcanic activity and consequently evacuated some 16,000 residents to safer ground. In addition to understanding the benefits of technologies in outer space, ITACUS is also promoting the use of underground space itself to make cities and communities more resilient. "When developed properly, underground space can be less susceptible to disaster" said Admiraal. "As cities continue to grow and house a majority of the world's population, research and focus in this area will also need to increase. Yet, we only know 1% of what there is to know about underground space compared to how much resources we've put towards outer space research."

This interactive forum, which took place on 14 March in Geneva, was organized as part of the 33rd session of the United Nations Inter-Agency Meeting on Outer Space Activities, which was also hosted by UNISDR. Among the countries represented during the event were Barbados, China, Colombia, Ecuador, Germany, Greece, Guatemala, Indonesia, Italy, Mexico, Philippines, Russia, South Africa, Switzerland, Thailand, and Turkey.

## ANDROID and the UNISDR Making Cities Resilient Campaign

This need for on-going capacity building and implementation support closely aligns with the aim of ANDROID: to promote co-operation and innovation 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 ANDROID partners will work closely with UNISDR to ensure that the activities of the network have a sustained impact on the target groups and achieve the intended outcomes. These target groups include policy makers, local authorities and other linked stakeholders. A Stakeholder Board will be appointed to assist the network in realising this objective. 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 ANDROID partners will also be engaged to support cities in implementing the checklist of Ten Essentials that will make their cities more resilient.

Future issues of ANDROID Exchange will continue to provide updates on the campaign.

# Upcoming events

## Dealing with Disasters International Conference (DwD 2013) together with the 4th Conference of the International Society for Integrated Disaster Risk Management (IDRiM 2013)

### From Opportunity to Action: Bridging the Gap between Disaster Reduction and Development through Science(s), Technology and People Centred Actions

4th – 6th September 2013

Northumbria University, Newcastle upon Tyne, UK

ANDROID partner Northumbria University, UK, is organising an international conference, to be held in September 2013.

The focus of the conference builds on opportunities through science and technology, political will and behaviour change to address current crises and reduce risks for future generations. Whilst knowledge about the nature and context of disasters has proliferated, many potential actions for integrated disaster reduction remain far from realised. The disjuncture between existing opportunities and actions both present and anticipated is a complex problem of the disaster and development nexus. Driven by common objectives of survivability, there is a need to bridge gaps between disaster reduction and development through varied types of science (natural, social and others), technologies and people centric actions. This requires 'smart awareness', motivation and vision to enable combined disaster reduction and sustainable development at local and global levels. The conference aims to address opportunities for action through varied state of the art contributions from the worlds of disaster science, technology, policy and practice. It is also open to expertise less conventionally recognised within this field. It intends to stimulate a next generation of ideas and actions for disaster reduction.

### Cross-cutting Themes

The conference focus solicits papers and sessions informed by cross-cutting themes of disaster management, sustainable development, resilience building, vulnerability reduction, risk assessment and governance, risk financing, living with uncertainty, transformative processes, cultural recognition and change, poverty reduction, wellbeing, climate change adaptation, integration science, disaster communication, social sub-groups, innovation, communities of practice, and policy including dialogue from different disciplines related to risk. These cross-cutting themes from academic, policy and practice dialogues will for the purpose of this conference be considered interrelated, mutually informative and key to moving from opportunity to action. The conference focus will be maintained by reflecting on how theory, method and implementation presented by these processes can make a difference to the future of dealing with disasters.

### Conference topics particularly encouraged

We are keen to receive proposals for papers or sessions relating to the following, though other contributions associated with the conference theme absent from this list will also be considered:

- Understanding uncertainties to reduce gaps to action
- Using poverty led actions to address disaster risk
- Developing public-private-civil societal-academic partnerships in disaster and development work
- Investing in safer human habitats – safety science – post disaster reconstruction and building resilience
- Experiential and intuitive learning in disaster and development contexts
- Engaging demographic change – child centred and elderly persons disaster risk reduction
- Health and wellbeing centred disaster reduction
- Social and economic mobility, displacement and adaptation
- Visualisation and communication in disaster risk reduction
- Social protection, insurance and human security
- Risk governance, education, development and collective decision making
- 'The risk governance, scientific advisors, science and policy interface' (This theme already identified as a Special Session - proposals for papers are invited)
- Complex 'Natech' disasters – critical scenario development
- Developing applications of forensic science, emergency management and disaster warning systems
- A new humanitarianism

### Conference Features

The conference will include plenary, parallel, poster, panel, 'young scientists' and doctoral sessions.

A full set of double blind peer reviewed proceedings will be produced with special editions of journals / book. Several publishers are interested in providing outlets for this event.

Further partnerships and sponsorships in progress.

### Dates

December 10th Opening of abstract and session proposals.

Send to [sz.dwdconf@northumbria.ac.uk](mailto:sz.dwdconf@northumbria.ac.uk);

December 19th Opening of registrations via [www.northumbria.ac.uk/dwd-idrim2013](http://www.northumbria.ac.uk/dwd-idrim2013);

April 20th Abstract and session proposals closing;

April 30th Notification of session and abstract acceptance;

May 15th Announcement of conference programme.

June 30th Full paper submission and early registration close.

# 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 Dr Richard Haigh.

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