Proceedings of North East Asia – UK International Conference and Study Tour on Adaptation for Safer Cities

05-07 September 2011
Newcastle Upon Tyne, United Kingdom

Organised by

Newcastle City Council

School of the Built and Natural Environment, Northumbria University, UK

Faculty of Safety Science, Kansai University, Japan

GRS Lab, Yonsei University, the Republic of Korea

In partnership with

Tyne and Wear Fire and Rescue Service, UK

Prepared by

Shaun Brown, Francesca Hughes and Olivia Dobson

with

Hideyuki Shiroshita and Komal Raj Aryal

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Contents

1. Programme

Day One: 05 September 2011 Venue: Newcastle City Council Chambers	
09:00-09: 30	Registration
09:30	Waiting to go to Conference Venue
09:30	*Dr. Geoff O' Brien*, Lord Mayor's arrival
09:30 – 09:35	Opening Session Chair : *Dr. Geoff O' Brien*, Lord Mayor
09:35-09:45	**Opening Remarks -***Mr Masataka Tarahara,* Consul General of Japan to Edinburgh and Northeast of England
09:45-10:05	Guest of Honour Presentation ***Past and Current approaches in Disaster Management : Case Study from the Republic of Korea-*** *Dr. Y. Soo Park,* Former Head, National Emergency Management Agency (NEMA), the Republic of Korea
10:05-10:25	Special Guest Address: ***Recent Risk Management Activities of OECD Secretariat-*** *Mr. Seong Ju Kang,* OEDC Delegate and Director General, Ministry of Public Administration and Safety (MOPAS), Republic of Korea.
10:25-10:50	Special Guest Address: ***Building Resilience, Responding to Crises: the Role of Central Government in the UK*** *Dr. Robert MacFarlane*, Assistant Director, Emergency Planning College, Cabinet Office, UK
10:50-11:15	***Building Resilient Communities: the present situation and problem of public health sector in Japan*** *Dr. Toshio Takatorige*, Professor, Kansai University, Japan
11:15-11:45	Q&A and Closing remarks by the chair and closing of the opening session.
11:45-13:00	Lunch
13:00-14:30	**<u>Afternoon Session:</u>** Chair : *Professor Dr. Hong-Gyoo Sohn***,** Yonsei University, Republic of Korea ***Protecting London for Next 100 years-****Dr. Peter Glaves*, Department of Geography and Environment Management, School of the Built and Natural Environment, Northumbria University, UK ***Software Simulation for Preparing Emergency Response Teams in Dealing with Incidents within the Gas Infrastructure.*** *Ms. Kay Ragage*, School of the Built and Natural Environment, Northumbria University, UK ***Role of Safety and Disaster Education for building Resilient Communities in Japan and UK*** *-Dr. Hideyuki*

	Shiroshita, Faculty of Safety Science, Kansai University and *Dr. Bernard Manyena,* Department of Geography and Environment Management, the School of the Built and Natural Environment, Northumbria University, UK ***Bridging the gaps between Disaster Risk Reduction and Climate Change Adaptation in Asia and the Pacific Region-****Komal Raj Aryal* Department of Geography and Environment Management, the School of the Built and Natural Environment, Northumbria University, UK and *Kyung Ho Kang GRS Lab,* Yonsei University, Republic of Korea
14:30-14:45	Tea Break
14:45-15:30	*Closing Session:* Chair: *Dr. Samantha Jones*, Department of Geography and Environment Management, School of the Built and Natural Environment, Northumbria University, UK ***What we learned today and what we do next?-*** *Professor Phil O'Keefe*, Department of Geography and Environment Management, School of the Built and Natural Environment, Northumbria University, UK *Professor Dr. Hong-Gyoo Sohn***,** Yonsei University, Republic of Korea *Professor Toshio Takatorig*, Kansai University, Japan Closing Remarks *by Dr. Samantha Jones*
15:45-16:45	Visit to Visualization Centre, School of the Built and Natural Environment, Northumbria University, UK (for international delegates) Presentation by :Mr. Graham Kimpton
18:00- 22:00	**(By Invitation Only)** Official Dinner hosted by *Dr. Geoff O' Brien*, Lord Mayor, Newcastle upon Tyne, UK Special Guest: *Mr. Iain Bathgate*, Chief Fire Officer, Tyne and Wear Fire and Rescue Service.

Day Two: 06 September 2011 **(By Invitation Only)** Venue: Tyne and Wear Fire and Rescue Service Headquarter Coordinated by: Mr.Trevor Tague, Regional Coordinator, National Resilience Team, CFOA, UK	
10:00-15:30	**<u>Study Visit</u>** Tyne and Wear Fire and Rescue Services and Training Centre, Community Fire Station and Risk Works *1000:Introduction TWFRS HQ Conference room* *1030: Visit to Training Centre* *1130: Tour of Headquarters* *1200: Buffet Lunch* *1330: Visit to Colby Court Community Fire Station* *1430: Visit to Safety Works (Community Risk Reduction and Safety Awareness Centre)* *1600: Conclusion*
16:00-16:45	Meeting with Resilience Planning Team of Newcastle City Council***.*** ***Special Presentation :*** ***Adapting a city for the preparation of 2012 Olympics: Case study from Newcastle City Council*** *-Mr. Steven P. Savage,* Director, Regulatory Services and Public Protection, Newcastle City Council, UK
18:00-22:30	**(By Invitation Only)** Evening Reception hosted by **Dr. Geoff O' Brien**, Lord Mayor, Newcastle City Council Newcastle upon Tyne, UK
Day Three: 07 September 2011 **(By Invitation Only)** Venue: 22 Whitehall, Cabinet Office, London Coordinated by: Amanda Crouch, International Team Civil Contingencies Secretariat	
07:30	Departure by train to London to the Cabinet Office, Civil Contingencies Secretariat. Presentations on **UK National Crisis Response arrangements and National Risk Assessment** (14:00-15:00)

2. Overview of Proceedings

The North East Asia – UK International Conference and Study Tour on Adaptation for Safer Cities was organised to provide a platform for knowledge sharing between academics and professionals from within the field of disaster risk reduction, safety and resilience. This event was organised as a part of North East Asia – UK Disaster Risk Reduction, Resilience and Safety Study Network. The main of objective of the network new is to share British emergency and resilience planning activities to policy makers, academics and practitioners from North East Asian countries.

The following section provides an overview of the proceedings from each of the three days of the conference.

3. Day One Activities

3.1 Opening Session

Mr. Masataka Tarahara, Consul General of Japan to Edinburgh and North East of England opened the morning session of the event. He stated that within the last 40 years, 90% of casualties caused by natural disasters based around water occurred within the Asia-Pacific region, showing the level of experience that Japan and Korea have in responding to these types of situations. He also acknowledged that risk can be human-made, leading to different experiences which could be shared within conferences such as this.

Opening Remarks by Mr Masataka Tarahara**,** Consul General
Of Japan to Edinburgh and North East of England

Disaster management can be divided into three aspects, the first being preparing for a disaster, the second how to rescue the people and finally post disaster efforts focusing on how to provide necessities for life such as food, water and medicine. Different levels of government, the private sector and universities should cooperate with each other in the

preparatory phase over issues such as disaster education. Therefore, it was acknowledged as timely and important to have such a seminar on adaptation for safer cities to foster continued partnerships in the future.

The following presentations were then made.

3.1.1 Past and Current Approaches in Disaster Management : Case Study from the Republic of Korea - *Dr. Y. Soo Park, Former Head, National Emergency Management Agency (NEMA), the Republic of Korea*

The average global temperature has increased by 0.7°C in the last century. Within the major metropolitan regions of Korea there has been a 1.5°C rise. On top of this the temperature could rise by a further 4 °C by the end of the next century, according to Korean weather agency. This will affect 20-30% of ecological systems in Korea. Asia as a whole will be affected by a higher than average temperature increase as well as sea level rise. The effects of climate change are characterised by loss of human life as well as damage to property by an increase in the number magnitude and complexity of disasters.

From the left: Professor Dr Hong-Gyoo Sohn,
Mr Seong Ju Kang,Lord Mayor Dr Geoff O'Brien and Dr Y. Soo Park

The Korean Disaster Safety Management Basic Act is made up of 19 smaller acts to allow for the strengthening of national disaster management systems. NEMA, in normal day to day running, is highly localised with 550 staff which are responsible for; legislation, regulation, training, standards and system development. This moves to a centralised approach in times of emergency with NEMA acts as the control tower working with 230 local governments, 202 fire stations, and 38 central agencies. This provides a low cost and highly efficient system.

Within Korea, a proactive approach for adaptation initiatives for safer cities is supported with a basic strategy of land constitution strengthening which aims not to fight against nature but cope with nature whilst aiming to change the way of thinking within the development of adaptation technology. This is done while following three principles: invest money on prevention projects; set up new design criteria and codes; and change development practice. The future direction of this approach should be characterised by joint global response, for example the Northeast Asian Office, established in Incheon, which looks at

forecasting and response against typhoons, dust storms, earthquakes, and droughts. Another aspect is to strengthen self-responsibility through public awareness as citizens are generally the first responders to a disaster. These two issues lead to a disaster management paradigm shift as shown below (Plate 1)

Plate 1: Disaster management paradigm shift

3.1.2 Recent Risk Management Activities of OECD Secretariat - *Mr. Seong Ju Kang, OEDC Delegate and Director General, Ministry of Public Administration and Safety (MOPAS), Republic of Korea.*

Mr. Seong Ju Kang, OEDC Delegate and Director General of Ministry of Public Administration and Safety (MOPAS), Republic of Korea is addressing the opening session

Since 1999, the OECD future risks program has been run by the OECD. It has found the following trends: a growth in interdependencies within economic, social, environmental spheres with seamless interconnectedness and an increase in complexity of systems and concentration of assets and population. This is significant due to limited availability of resources, unreliable market conditions, pressures to return to protectionism and increasing difficulties in obtain consensus on multilateral measures.

Lessons therefore need to be learned as global shocks are of a different nature and scale compared to large complex disasters, (for example the Sub-prime crisis had costs of around USD 11 trillion whereas the Tohoku earthquake caused damage costing 300B), and efforts need to be focused on improving international cooperation, surveillance and awareness, more investment on databases and models, and diversity of systems for redundancy. This will lead to certain changes in policy to improve data, whilst promoting situational awareness. This should take into account diversity, robustness and system redundancy, or resilience amongst society.

The OECD has organised a High-level Risk Forum which aims to improve cross country learning, map implementation of practices and policies, facilitate the sharing of lessons from recent disruptive events and provide an online platform to share non-classified documents. The expected outcomes are the development of National Risk Assessments; country and peer reviews leading to an updating of analytical framework and methodology; and the production of rapid reaction and thematic reports.

Three Korean initiatives were then discussed. These were: 'Safe City', focusing on safety issues to create a culture of safety providing both finical and symbolic benefits; 'Safe Culture' which focuses on cognitive aspects to prevent accidents at the individual, community and regional level; and the Cyber Security Index which prepare government and private enterprise for protecting infrastructure from cyber threats.

3.1.3 Building Resilience, Responding to Crises: the Role of Central Government in the UK - *Dr. Robert MacFarlane, Assistant Director, Emergency Planning College, Cabinet Office, UK*

To start the presentation certain terms were defined these were: Resilience ability to detect, prevent, withstand and handle; Civil Protection, a term for structures and activities; risks, hazards and threats; hazards, non-malicious and threats have a malicious intent; Integrated Emergency Management which anticipating, assessing, preventing, preparing, responding and recovering from an event. Capabilities, made up of kit, systems and people. Crisis management; with a crisis being an unexpected event(s) that threatens strategic objectives or reputation.

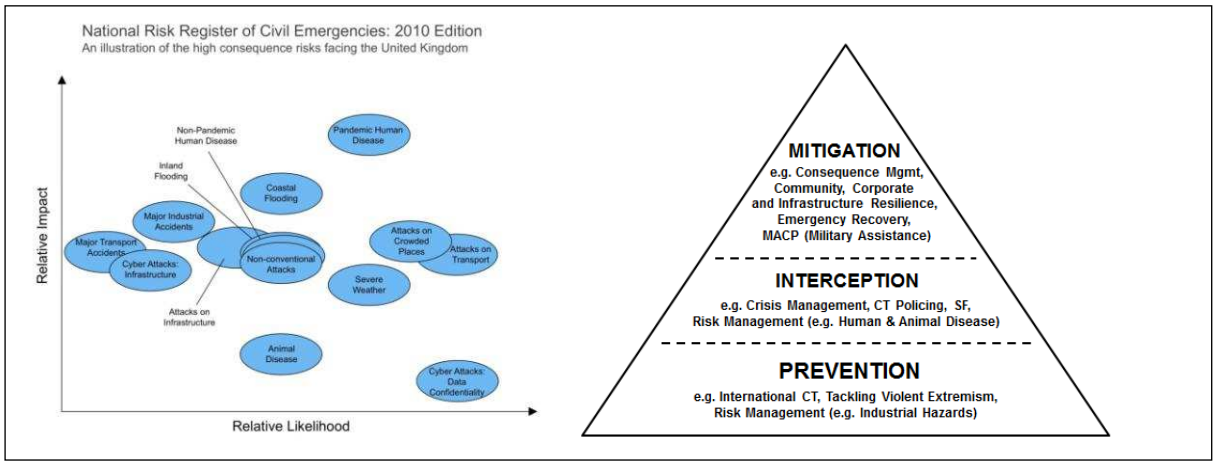

Plate 2: National Risk Register of Civil Emergencies by relative likelihood (Adapted from MacFarlane's Presentation)

The figure above shows the National Risk Register which plots civil emergencies by the relative likelihood they may happen and the relative impact of the event. It is a document that

is dynamic and changes year on year. The figure also shows the ladder of risk control taken from the National Security Strategy, with national security defined as the ability to maintain normality.

A key Civil Contingencies Secretariat activity is supporting the Civil Contingencies Act, which works with accompanying non-legislative measures to deliver a single long-term national framework for civil protection fit for the challenges of 21st century to help build resilience. It has two parts: Part 1 is the local arrangements for civil protection; and Part 2 modernises the UK's emergency powers. The Act received Royal Assent in November 2004 and sets out two categories of local responders: Category 1 - emergency services, local authorities, NHS bodies; and Category 2 - responders from co-operating bodies such as Health & Safety Executive, transport and utility companies.

To aid with this, UK Civil Protection has various work streams, these are:

A: Crisis management, at a national level
B: Horizon scan & risk assessment, national level and disaggregated down to a local scale
C: CCA and local response, which must be a collective activity to be successful
C: National capabilities, such as backup communications in an emergency
C: Catastrophes, associated with terrorism which have a low likelihood but profound impacts
C: Critical (National) Infrastructure, duties that rest on category 2 responders
C: Corporate resilience, building resilience of small and medium size business
C: Community resilience, building from the ground up.

Dr. Robert MacFarlane, Assistant Director, Emergency Planning College, Cabinet Office, UK is delivering his presentation.

The principles of Cabinet Office Briefing Room (COBR) these are; Preparation – being ready; Continuity – use what is there; Subsidiarity – take decisions as locally as possible; Direction – working to agreed, common aims; Integration – working together, vertically and horizontally; Communication – up, down, sideways, inside, out, always; Co-operation – understanding leading to trust; and Anticipation – look before leaping. COBR facilitate the rapid co-ordination of the central government response and effective decision making in an emergency, through command, co-ordination and control use CONOPS, which is the primary statement of central response doctrine, including its relationship with the local response. It

allows distinguishing between national strategic and local strategic issues and objectives and what the likely impact of an event might be (Plate 3).

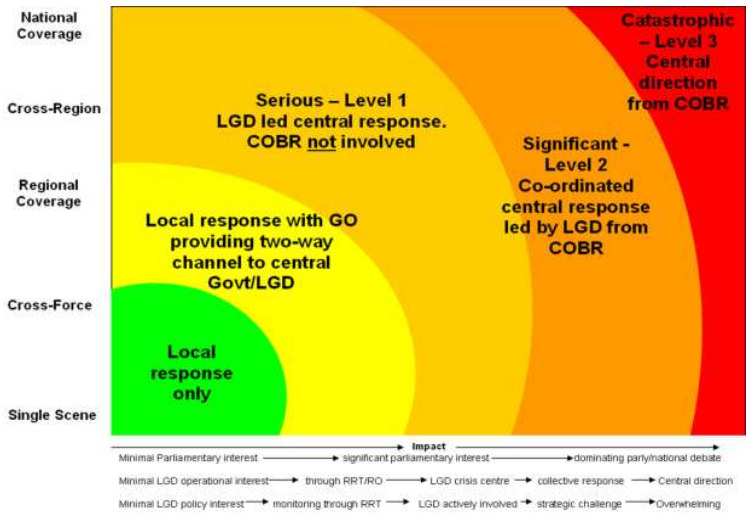

Plate 3: Distinguish between national strategic and local strategic issues

3.1.4 UNICEF Disaster Risk Reduction in Eastern and Southern Africa - *Dr. Bernard Manyena, School of the Built and Natural Environment, Northumbria University, UK*

The general aim of UNICEF's action was to strengthen UNICEF's child focused disaster risk reduction strategy in Eastern and Southern Africa. The specific objectives were assessing UNICEF's engagement in Disaster Risk Reduction (DRR); looking at national progress in DRR beyond UNICEF; and identifying key opportunities based around the Hyogo Framework for Action(HFA). The HFA framework informed the African regional strategy, with each country looking at how it could be implemented using a global platform every two years held in Geneva, combined with regional platforms since 2005 to discuss issued raised.

Dr. Bernard Manyena, Senior Research Associate of Northumbria University is sharing his recent work in Africa.

The findings of the work focused on how DRR is understood as a concept. This was measured by looking at whether policy documents on DRR existed, with most countries surveyed found to have little compliance in terms of the creation of policy, legislation or

structures. Similar results were found when looking at the capacity of DRR institutions due to a lack of resources and reliance on NGOs. The second aspect of the project was to evaluate UNICEFs implementation of HFA, it was found that little implementation had taken place in terms of DRR. There was a focus on emergency response and not preparedness or prevention, as the implementation of early warning was still low, with DRR education again focusing on emergencies.

DRR elements are visible but mainly when looking at response, which is only one of the elements of DRR. It was recommended that UNICEF should use its strength of working with children and use this as a strategy to influence government engagement in DRR through highlighting how children have suffered or missed out on education due to disasters such as drought. DRR should be moved across UNICEF away from the emergency response officers, creating a programme-wide strategy to embed DRR in UNICEF and other UN organisations. This could be done by mainstreaming into all programs through a shift in culture and day to day practice. Resilience should be seen as an everyday cultural issue which is addressed with cost effective strategies through investment in education and local resilience building initiatives.

The afternoon session was chaired by Prof Dr Hong-Gyoo Sohn and Mr Yasuhiro Shibata. The following presentations were made.

3.1.5 Protecting London for Next 100 years - *Dr. Peter Glaves, Department of Geography and Environment Management, School of the Built and Natural Environment, Northumbria University, UK*

The presentation reported on a study undertaken with the Environment Agency looking at flood management and risk in London, entitled Thames Estuary 2100. This is a very important issue: if London is flooded it would take six months to pump out the London Underground. To provide some national context, in the UK 1 million properties are at risk of coastal flooding, 3.8million at risk of river flooding and 5.2million at risk from flooding from other sources. The location at most risk is London. This is because of the funnel system of the Thames Estuary, made worse by human actions and the defences placed within it. Flooding has significant impacts on all infrastructures and can have large economic costs. It is estimated that £1.4billion of damage occurs nationally from flooding each year. This also leads to psychological stress. Expenditure on prevention increased until 2010, but has subsequently dropped due to the economic recession. At a household level, a 1 metre flood costs on average £30,000 in terms of damage caused, however this does not take into account the individual impacts to people and their psychological wellbeing.

London has a history of flooding with the last large event in 1953 when barriers were breached in London and the surrounding areas, causing a loss of life and a loss of property. If a major flood was to occur under current conditions, within 60minutes the Houses of Parliament, Ministry of Defence, Downing Street and other major centres would be inundated.

In the twenty first century there will be an increase in flood risk exacerbated by the movement of the Earth's crust which is tipping the UK, with Scotland rising and the South East dipping. This, coupled with subsidence within London, will increase flooding likelihood.

Thames Estuary 2100 looked at how to respond to the flood risk issues in the next 100 years, and how flood prevention options could affect London, either the building of walls, the storing of water or the building of barriers or barrages. The report was carried out in urban

and rural locations in and around London, and considered a range of variables, such as land use, soil type, historical importance and socioeconomic status. Walls are already in place but in certain areas, such as around the Tower of London, the sea defence would need to be raised by two metres which may impact on tourism. The storing of water on agricultural land around London is an acceptable solution but within the capital it is difficult to find these types of areas to flood. In the west of London, the only available areas to flood would be parks and historic areas. Another approach is to build barrages, but the barrages being built to protect London are being built in international conservation areas where global protection agreements are in place.

Dr. Peter Glaves, Reader and Director of Enterprise, Department of Geography and Environment Management is sharing his recent research finding

A risk assessment model was developed to analyse a range of flood defence options and their impacts. Flood causes both direct and indirect losses which are highly complex, increasing the difficulty of predicting this. Although the study was comprehensive, it did not help the decision makers: it provided lots of information but not necessarily a solution, as all options had some negative consequences associated with them. The study's scientific nature also highlighted the importance of including qualitative methods in such investigations. The general public do not necessarily understand flooding and flood defence in a detailed scientific way: for example, flooding nearby farmland to prevent urban flooding makes it that much more visible, and so people perceive themselves to be at greater risk.

3.1.6 Software Simulation for Preparing Emergency Response Teams in Dealing with Incidents within the Gas Infrastructure - *Ms. Kay Rogage, School of the Built and Natural Environment, Northumbria University, UK*

This research is working in collaboration with a UK gas infrastructure provider to conduct a collaborative study. It looks at an uncontrolled event that requires a response outside the routine that occurs as a result of transient work activity. The resulting response is required from multiple agencies: Emergency services, utilities, Local Authorities etc. Such category two responders are covered by various bodies as well as health and safety legislation: the UK Health and Safety Executive who are responsible for planning and prevention of major incidents under the Control Of Major Accident Hazards regulations 1999 (COMAH) and Pipeline Safety Regulations 1996 (PSR).

Ms.Kay Ragage from School of the Built and Natural Environment
of Northumbria University is sharing her ongoing PhD research

This legislation provides guidance for planning and prevention of major incidents. Therefore the above bodies must prepare emergency response plans, review and test emergency response plans with emergency response teams every 3 years and provide evidence of plans and testing to UK Health and Safety Executive. The testing can take different forms such as tabletop role playing exercises, which disseminate information about plan with other agencies and highlight amendments required to the plan whilst encouraging communication between agencies and highlighting issues to other agencies.

The research provides a case study of current industry practice for planning and preparing for incidents involving high pressure gas pipelines. It also investigates the use of software simulation in other industries and what use software simulation brings to conducting the exercises, through the use of multi-player activities conducted across multiple sites simultaneously as a training tool, providing opportunities to participate in exercises even if a participant can't attend the exercise on the day it is held. It provides an audit trail of attendees and exercise details for HSE and acts as a repository for multiple scenarios that can be altered overtime to reflect changes in the scenario environment. Software also provides the ability to pick scenarios from other exercises to make up a new exercise, saving time and money on developing new scenarios.

Simulation of Control/Command room scenarios is currently used by the military, medicine, emergency services, aerospace, flight, marine and automobile companies, all of which would have common elements, which are a multi-player role playing environment with exercises made up of scenarios using audio and visual resources in both 2D and 3D with the ability to record participant responses. Software therefore has the potential to preparing emergency responders for incidents involving the gas infrastructure.

3*.1.7 Role of Safety and Disaster Education for Building Resilient Communities in Japan and UK -* *Dr. Hideyuki Shiroshita, Faculty of Safety Science, Kansai University and Dr. Bernard Manyena, Department of Geography and Environment Management, the School of the Built and Natural Environment, Northumbria University, UK*

Dr. Hideyuki Shiroshita making his presentation on Disaster Education in Japan

Disaster education in Japan is a necessity and started to grow after the 1995 Kobe earthquake. There is now a notable increase in the levels of disaster education in schools compared to pre-1995, with a similar growth noted in the amount of research on-going with disaster education in Japan post-Kobe. The history of disaster education in Japan is short, but it is underpinned by the idea that if people have training and knowledge they are better equipped to deal with the effects of a disaster. Therefore, the main direction in research is based around this simple idea of how to teach disaster education optimally, which often requires that teachers receive further training and an increase in funding.

Disaster education in Japan takes lessons from other disasters such as the Indian Ocean tsunami (2004) with the realisation that education of citizens in basic disaster management would have saved lives. Conversely, in Japan after the earthquake in 2011 it was found only 37% of people surveyed evacuated after the tsunami warning, even though 98% understood the risk. This is attributed to the notion of 'the double blind', whereby experts know it is important to evacuate as soon as possible and issue information as soon as possible, and therefore citizens think they do not have to evacuate until formally ordered too, even after a warning has been announced.

Disaster education therefore aims to transfer knowledge of disaster education from the experts to the non-experts to avoid this scenario. It is a participant-based approach in which experts and non-experts work together. An example of this would be using eliminatory pupils to install and maintain a seismometer in their school. This allows for non-expert participation in real disaster research. This is important for safety science also, so ideas of collaboration and co-learning are at its foundation, with an integration of disaster risk management approaches.

Within the UK, disaster education is not as embedded as that of Japan. The work presented explored the conceptual challenges of disaster education, as well as how an inter-disciplinary network of academics and practitioners could be developed and used to identify disaster education policy options in the UK. As communities are generally the first responders (Category 1a) before the blue light services (Category 1b), disaster education is important with some progress found within the UK, through Local Resilience Forums; Community Risk Registers; and business continuity and recovery planning, although this is still predominantly carried out by practitioners.

Other examples of progress include the UK HE Disaster Relief Project which was developed post 2004 Asian Tsunami and the Kashmir earthquake and led to establishment of the Enhanced Learning and Research for Humanitarian Assistance (ELHRA). It provides an on-going discussion on the need for professionalisation within the humanitarian sector and the need for improving skills and competencies. Another aspect is getting disaster education on the school curriculum with current efforts including Personal Social Health & Economic education (PSHE) and citizenship classes; Guidelines for Health Education in Scotland; Fire and Rescue Service Inputs to Schools and School Safety; and Community Resilience through Schools in Essex.

To be successful certain challenges need to be overcome. A common understanding of boundaries of subject is required for UK schools. The approach should be community driven with the media having a greater understanding of the risks. To do this, emergency planning should be taught on the school curriculum (this is more advanced in Japan and the US), utilising the role of children in this process. It should be appropriate to the local community in relation to different types of disasters experienced.

From a recent seminar held in London, the following questions were proposed and formed the conclusion of this presentation:

- Should we matter-of-factly accept that the 'first world' perspective on risk is usually at considerable variance with that of the 'third world'?
- Do we have an honest debate about what we can realistically achieve?
- Can we show humility and acknowledge that others may know more than us in many areas?

3.1.8 Bridging the Gaps between Disaster Risk Reduction and Climate Change Adaptation in Asia and the Pacific Region *- Komal Raj Aryal, Department of Geography and Environment Management, the School of the Built and Natural Environment, Northumbria University, UK and Kyung Ho Kang, GRS Lab, Yonsei University, Republic of Korea*

The disaster management paradigm has developed over time. In 1945 it was a descriptive approach, focusing on people, technology and nature within a hazard management approach. By the 1970's it was more analytical, focusing on vulnerability with a people centred approach. Now it revolves around pro-active building of resilience using disaster risk reduction as a tool.

One aspect that aids this is the Hyogo Framework for Action, which led to the development of the Asian Ministerial Conference on DRR. The latest conference in the Republic of Korea focused on creating a road map for disaster risk reduction, as well as the tools to implement this road map. This has led to greater uptake and implementation of DRR strategies.

The developing 'Procedural Guidelines for integrating weather related Disasters Risk Reduction and Adaptation in Asia and the Pacific Regions for Senior Government Officials 'are looking at how DRR and climate change adaptation can be brought together. This document is aimed at facilitating disaster risk and adaptation in development policies, plans and programmes that aim to minimise the impact of changing weather related disaster, enhance local adaptation to address poverty, exposure, vulnerability and resilience for sustainable ecological wellbeing in Asia and the Pacific region. The main findings were a lack of definition of development from the disaster discourse and no evidence of comprehensive DRR and CCA integration. Although there are many examples on sector based initiations, few of these show true integration of DRR and CCA (e.g. RoK and UK). However, they do not explicitly use the words DRR and CCA during the integration in

policies, plans and programmes. Further findings included gaps in knowledge and awareness on DRR and CCA were apparent at senior government levels in Asia and the Pacific.

The Procedural Guidelines are not being developed as a manual of risk reduction and adaptation strategies, but rather as a guidance on the procedures to be followed to facilitate the cross sector integration of DRR and CCA considerations into government plans, policies and programmes. The process follows simple steps, as set out below (Plate 4):

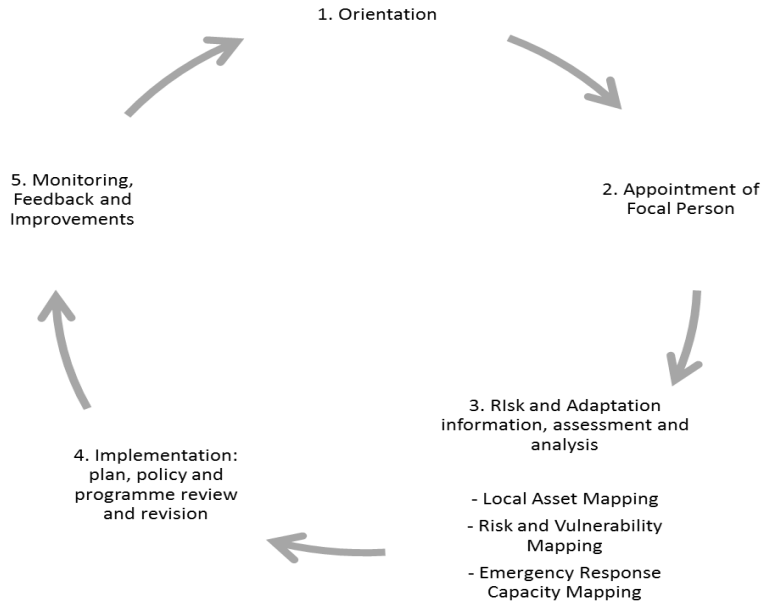

Plate 4: DRR and CCA cross sector integration cycle for government departments in Asia and the Pacific Region.

3.1.9 Closing Session

Dr Samantha Jones chaired the final session of the day, entitled 'What we learned today and what we do next' She introduced Prof Phil O'Keefe, who gave some context to the day's proceedings.

A common theme of the day was the apparent movement from a focus on turning research into teaching, to a focus on turning research into policy.

Global post-disaster interventions have increased 12-fold in fifteen years, dominated by complex emergencies and continuing natural disasters; but a lack of joined-up policy in humanitarian intervention persists.

The current focus is shifting from an analysis of vulnerability (of people) to an analysis of resilience and how we can build resilience, which is the function of Disaster Risk Reduction (DRR). Another common theme of the day has been to highlight the importance of the local level interventions, and to focus on building DRR at a local level to reduce vulnerability.

The climate change debate has been distorted by the media, but in policymaking the most important thing about climate change is not the averages, but the increase in extreme events: the question has become "how many more extreme events will there be?"

There are two options with regard to climate change related events. The first is mitigation, which usually takes the form of technological intervention. This is generally a preferred option for government as it requires a one-off capital payment. The second option is adaptation, which is about people and livelihoods. This requires recurrent payments and is therefore a revenue issue.

This throws some light on why the debate has been dominated by mitigation, but this is a false logic, especially for developing countries where there is no choice but to adapt. The following points complicate everything that academics, planners and policymakers try to do:

- First responders are the affected people, not the emergency services. Once this is realised, we know that we need to deliver different emergency services.
- Small-scale disasters are cumulatively greater than the one-off big events that drive policy.
- The main driver of risk – loss of life – is poverty, and this is as true in the UK as it is in developing countries. The danger spots are the poorest areas. The recent tsunami in Japan is costing the economy just over 1%, compared to New Zealand, with a smaller economy and smaller turnover, where the earthquake is costing the economy 10%.
- In disasters, we frequently do not have information, therefore decisions are made in order to gain information and generate an information base.

Dr Samantha Jones introduced Prof Dr Hong-Gyoo Sohn, who noted that a recurrent theme is that prevention is the best policy; but it is not clear how important it is to national development. A 'guidelines' project is currently in development in Korea, based on the fact that it is critical to persuade governments of the benefits of DRR, especially for 'megacities' such as Seoul. The approach being used for this project is 'lessons learned', or problem-based learning. The aim is to build up multiple case studies of what other countries and cities are doing. The guidelines will only focus on weather-related events such as storms and floods, as they are combining DRR and climate change adaptation. They will consider the relationship between disasters and vulnerability; and how events and DRR measures will impact citizens economically, politically and spiritually. The project will acknowledge that the creation of a hazard map is also important for national development; but that care must be taken when publicising disaster-prone areas. The aim is to complete the guidelines by May 2012.

Prof Phil O'Keefe then closed the day by thanking all the presenters and chairs.

4. Visit to School of the Built and Natural Environment Visualisation Centre, School of the Built and Natural Environment, Northumbria University.

Following the sessions in the Council Chambers, there was a visit to the Northumbria University School of the Built and Natural Environment Visualisation Centre, where Mr Graham Kimpton presented Virtual Newcastle Gateshead (http://www.virtualng.co.uk). This is a collaborative project between Northumbria University, Newcastle City Council and Gateshead Council. It shows a 3D digital model of approximately 8.5km^2 of the urban core areas, created using aerial photogrammetry and laser scanning survey technology. It can improve efficiency by providing high quality visualisations (which can also be made into 3D models), which can aid decision-making for a variety of sectors. The technology is used for research, teaching and learning, urban and landscape planning, and flooding analysis. In future it may be developed for use in emergency planning, traffic and pedestrian modelling, noise mapping, and air pollution mapping.

International delegates after visiting School of the Built and Natural Environment of Northumbria University

Challenges include keeping the model up-to-date; improving the accuracy (currently 20cm) and the implications of this on file size; and the level of detail included. The current system uses polygon models, but BIM – which measures weight, depth, volume, and can be used for calculations – is being piloted on campus by Estate Services.

In the evening, guests were invited to an official dinner, hosted by the Right Worshipful the Lord Mayor of Newcastle Dr Geoff O'Brien at the Mansion House. The Chief Fire Officer at Tyne & Wear Fire and Rescue Service, Mr Iain Bathgate, was the special guest.

5. Day two study visit activities

5.1. Tyne and Wear Fire and Rescue Service and Urban Disaster Risk Reduction Training Centre.

The second day of the conference started with a visit to Tyne & Wear Fire and Rescue Services Headquarters for a presentation about the services provided and a tour of the facilities.

The service covers five unitary authority areas, aiming to create the safest community for people who live, work and visit the area. It serves a population of 1.1m people with 1250 members of staff, 900 of which are frontline operational staff. Expenditure in 2010/11 was £56.1m, but this is due to be cut to £47m over the next 4 years. 60% of funding comes from national government and the remainder is provided through local taxes.

Tyne & Wear Fire and Rescue Services provide 3 core functions:

- Prevention: the service invests heavily in targeted risk reduction programmes, such as home risk assessments, as well as fire safety education to 5 and 10 year olds. There is also a targeted campaign in secondary schools in areas where deliberate fires occur; and citizenship and social inclusion programmes. These measures have led to a reduction in accidental and deliberate fires in the region.
- Protection: this is mainly focused on legislation, ensuring businesses are aware of their duties and risks, and where necessary, enforcing legislation through legal

action. The service aims to work with business owners to encourage responsibility and safety.

- Response: there are 17 fire stations and 30 fire appliances in the region, as well as 8 special appliances. Tyne & Wear has the fastest first-pump response in England. The service is also involved in national resilience capability, such as Urban Search and Rescue (USR) and Swift Water Rescue.

The service works in partnership with the police, health service, and voluntary sector, at strategic, thematic and neighbourhood levels, delivering agreed interventions with recognisable impact. This includes agreements with social housing companies to fit smoke alarms, which led to them fitting 86,000 properties in 5 years, alongside 125,000 properties fitted with smoke alarms by the service.

After the presentation, delegates were taken on a tour of the training centre at the Headquarters. The facility incorporates a yard with two live fire structures, which are ignited on a daily basis. There is also a collapsed building for USR training, scrap cars for traffic collision training, and a bus and Metro train.

International delegates with Dr. Geoff O'Brien, Lord Mayor of Newcastle City Council and Mr. Iain Bathgate, Chief Fire Officer at Tyne & Wear Fire and Rescue Service Headquarters.

The training centre building is used to train fire-fighters in command and control by simulating fires of varying degrees, using Minerva and Hydra software. The building includes four 'pods' which show a scenario from different angles, which allows the exercise to demonstrate that the different decisions made by the fire-fighters will have different effects. There is discussion following the scenario to ensure the training is a positive experience. Importantly, this system allows fire-fighters to learn in a risk-free and cost effective environment.

International delegates are observing facilities of the Tyne & Wear Fire and Rescue Service Headquarters and Urban Disaster Risk Reduction Training Centre

5.2 Visit to Colby Court Community Fire Station and Safety Works! (Community Risk Reduction and Safety Awareness Centre)

Following the visit to Headquarters, delegates were taken for a tour of Colby Court Community Fire Station and Safety Works! Interactive Safety Centre. Delegates were shown the facilities at Colby Court, including the fire appliances, live fire structure, staff gym, and community facilities. The Safety Works! Centre incorporates 15 life-sized scenarios – including a Metro station and pedestrian road crossing – to enable visitors to learn about hazards and safety in an enjoyable, but realistic and interactive way. Between October 2009 and August 2011, there have been approximately 21,000 visitors to the centre, including school groups, older people, carers, and young offenders.

Delegates are observing risks in the Metro Station scenario at the Safety Works! Centre

5.3. Meeting with 2012 Olympics Planning Task Force of Resilience Planning Team of Newcastle City Council

Delegates then travelled to Newcastle City Council for a presentation on 'Adapting a city for the preparation of 2012 Olympics: Case study from Newcastle City Council'. Newcastle will be involved in the Olympics in two ways: the torch relay will stop overnight on 15th June 2012, and nine football games will take place between 26th July and 4th August 2012. The torch relay will take 2 hours to travel through the city, culminating in a free event for 20,000 people in St James's Park football stadium. Additional activities will be available in the city during the Olympics, such as children's sporting activities, theatre and festivals.

Delegates were shown the national structure set up for the Olympics, which incorporates five domains, including central, local and transport coordination. At the local level, the Local Resilience Forum Olympic Planning Group has been established. This is a multiagency group involving police, health, and fire and rescue services. This group is charged with preparing for things that might impact on the city and surrounding area, for example, road closures due to risk of vehicular bombs.

The Olympics have provided an opportunity to discover resilience issues and risks, such as back-up power supplies, and test existing local and national plans. It is also being used as an opportunity to generate tourism in the region, inspire children, and champion volunteering.

6. Day three study visit activities

6.1 Visit to The Cabinet Office, Civil Contingencies Secretariat, London

The final day of the tour involved a journey to London to visit The Cabinet Office, for presentations on UK Crisis Response Arrangements and National Risk Assessment.

The first presentation outlined the UK's integrated emergency management framework, especially the 'response' stage, which is coordinated through the Cabinet Office Briefing Room (COBR). COBR is a minister-led emergency response strategy, which is able to be set up with one hour's notice, 24 hours a day, 365 days a year. Delegates were told how COBR is structured, what types of emergencies COBR responds to, and how information is handled. The strategy paid off, as shown when comparing the response to Foot & Mouth Disease in 2001 with that in 2007.

The second presentation introduced delegates to the National Risk Assessment (NRA) process. The NRA is a strategic assessment of possible risks to the UK in the next 5 years. It is updated annually and considers plausible risks (1 in 200,000 chance of occurring) that could potentially present a challenge to responders. Risks are prioritised through a matrix analysis of likelihood and impact, and then used to inform planning. 'Significant likely risks' (medium to high likelihood, and significant to catastrophic impact) have individual work streams and plans. This includes pandemic flu, bioterrorism, wide area flooding and Icelandic volcanic activity. The National Risk Register (NRR) is used to communicate risk to local areas, communities, and voluntary and private sector organisations. The NRA is also distributed to local resilience forums, along with guidance to shape their planning.

Following the two presentations at The Cabinet Office, some delegates were taken on a tour of Parliament by the Right Honourable Nick Raynsford MP.

International delegates with *the Right Honourable Nick Raynsford MP*.

7. Conclusion

Four key points of actions were agreed to develop at the conference and study tour. These were:

- Agreed to encourage UK and North East Asian academic and policy exchanges between institutions through bi-lateral agreements.
- Agreed to publish a book looking at disaster management in Asia by 11-March-2012. Contributions for this book will come from young and mid-career researchers on top of practitioners within the disaster management field.
- Agreed to work together to explore funding for joint activities with various organisations that help to promote bilateral or multilateral relationships between North East Asia and the United Kingdom including European Union, Japan Foundation, Great Britain Sasakawa Foundation, Nippon Foundation, The Daiwa Anglo Japanese Foundation, Korea Foundation, ESRC, UK, British Academy, and The Royal Society.
- Agreed to develop North East Asia – UK Disaster Resilience and Safety Study Network websites before Christmas 2011.

8. Photos

Dr. Geoff O'Brien Lord Mayor Newcastle City Council is welcoming Dr. Y.S.Park, (Former Head of National Emergency Management Agency (NEMA) Republic of Korea) in Lord Mayor's Office at Newcastle, UK.

Dr. Geoff O'Brien and Dr.Y.S.Park are having meeting in the presence of Professor Phil O'Keefe (Northumbria University), Professor H G Sohn (Yonsei University, Korea), Mr. Trevor Tague, (Coordinator National Resilience Team, UK) and Dr. Hediyuki Shiroshita (Kansai University, Japan).

Breakfast meeting: Professor Hong –Gyoo Sohn, Yonsei University is having a meeting with Mr. Stephen Hodgson, Dean , School of the Built and Natural Environment, Northumbria University.

Professor David Greenwood, Associate Dean for Research, School of Built and Natural Environment with distinguished guests during the social evening.

Mr. Stephen Hodgson, Dean, School of Built
and Natural Environment with distinguished guests during the social evening.

Dr. Y. S. Park with the Japanese academics from Kansai University.

Dr. Robert MacFarlane with the international delegates at Civil Contingencies Secretariat, Cabinet Office, London

Dr. Robert MacFarlane is having discussion with the Japanese academics

If you are interested to join North East Asia – UK Disaster Resilience and Safety Study Network please email to <ggadrr@gmail.com>