



Hazards forum

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*Edited by Dr Ian Lawrenson OBE
Views expressed are those of the authors, not necessarily of the Hazards Forum*

Further information regarding the articles in this issue is available from Alison Brown on 020 7665 2230, email admin@hazardsforum.org.uk

1. A new Secretary.....

Brian Neale has been undertaking the role of secretary of the Hazards Forum since April, although he stood in at the AGM last March to help out. Many of you will now have seen him and hopefully met him at events during last year; however, he has yet to be introduced to the Forum through the pages of the Newsletter. These few paragraphs redress that by giving a very brief background of some aspects of Brian's activities and professional interests.

He is both a chartered Civil Engineer and chartered Structural Engineer, being a fellow of both institutions. He is now an independent consultant focussing on aspects that include forensic engineering, risk management and sustainable built environment issues which include wider health and safety considerations. He is involved with the institutions, and for example sits the Editorial Advisory Panel for ICE's flagship *Civil Engineering* publication and also leads on the forthcoming Fourth International Conference on Forensic Engineering at ICE - a series which he initiated. He has international involvement, for example, in the USA with ASCE, recently in Asia and also in Europe by chairing one of the Structural Eurocodes for CEN. He has been involved with BSI for many years – and still is!

Brian's employment bases have included the HSE, Contractors, a Consultant, a local authority, other Government departments and UKAEA. Other activities have included membership of the Standing Committee on Structural Safety, for example. Available space precludes a longer write up!

.....and a new Editor

This is the last issue of the Newsletter which I shall edit. I have been Editor for almost eight years and 32 issues, ever since I retired as Secretary of the Hazards Forum. Time flies when you're having fun!

I should like to thank all of you who have contributed articles or helped me in numerous other ways. It has been a most enjoyable job, but the time has come to move on. I hope I shall see many of you again at Hazards Forum meetings in the future.

The new Editor will be Dr John Bond, who would welcome suggestions or contributions for future Newsletters. He can be contacted at john.bond007@ntlworld.com or at the new address for the Newsletter editor which is newslettereditor@hazardsforum.org.uk

Ian Lawrenson

2. The International Risk Governance Council

Recent and Current Work Programme

by Christopher Bunting
Secretary General of the International Risk Governance Council.

In Summer 2003, the Hazards Forum had a presentation on the newly established International Risk Governance Council and the Spring 2006 edition of the Newsletter contained an update on its work. A further update is timely since the IRGC is now working on a number of topics of interest to Hazards Forum members, including Nanotechnology, Critical Infrastructures, Risk Communication and Geological Sequestration of CO₂. In its work, the IRGC has an increasingly wide range of international collaborators.

Overview

Risk governance is at the heart of IRGC's work programme. We undertake ongoing project work on the concept itself and we apply it and its principles within all our other projects. These projects focus on particular risks and problem fields and, particularly, identifying gaps in governance processes and structures and making recommendations for rectifying them.

Project: Basic Concepts of Risk

When IRGC published its White Paper No1 "Risk Governance – Towards an Integrative Approach" we described the audience for it as partly IRGC itself, as our multidisciplinary approach required a common methodology and language within our projects. The White Paper is available on the ISO Risk Management Working Group website (go to Projects, then Archive, then IRGC Risk Governance Framework).

Since its publication, the White Paper has been disseminated amongst both those who may benefit from it (potential 'end users' of the framework – in particular from the industrial and governmental sectors) and those whose feedback may enable us to further refine the framework and the document's description of it. We have also presented the framework at a large number of international conferences in Europe, North America and Asia.

We are aware that the framework remains a theoretical model, and we have also sought to conduct test applications and, through them, to confirm the framework's practicability (e.g. applicability, robustness and explanatory power). We have conducted seven such tests in each of which we apply the framework to a distinct risk problem. The seven subjects are:

- Listeria in raw milk soft cheese
- Genetically modified crops
- Nagara River Estuary conflict
- Nature-based tourism
- Acrylamide in food
- Energy security for the Baltic region
- Nanotechnology

These test applications have all been undertaken by experts in each particular field. For example, the test application focusing on listeria in raw milk cheese was researched and written by a team from the National Food Safety and Toxicology Center at Michigan State University. This particular study addressed a real risk from which people still die and, at least in the United States, for which there is a legal framework which actually bans – for reasons of consumer safety – the production and sale of such cheese. The team found that the framework acted as the catalyst for both a board and deep study (going further than other frameworks) and that the rigour required to use it fully allowed new thinking on risk governance approaches to emerge. In this particular case, the team concluded that in a consumer-led society, consumer sovereignty is a strong frame by which groups of consumers – in this case cheese connoisseurs and certain ethnic minorities – can choose to ignore the law in the quest for the “best” cheese or a cheese made according to their ethnic traditions. The team also stressed that US citizens were more than aware of the inequality with which regulation was being applied – in France, for example, many cheeses are made from unpasteurised milk.

We have concluded from the studies that the framework is robust and that its innovations – such as the addition of the pre-assessment and tolerability and acceptability judgment phases and the inclusion of a concern assessment within the risk appraisal stage, make it a powerful tool in gaining and understanding of a risk problem and in identifying how the problem may be managed. We have also learned that it is a tool that forces rigour into risk management – the framework acts as a catalyst to ensuring a multi-dimensional approach.

Full texts of all seven test applications will be included in an edited volume which is being published by Springer Academic Publishers in late 2007, entitled *Global Risk Governance: Concept and Practice* using the IRGC Framework. IRGC has also been working on a summary of the framework, which will also be published in late 2007 as an IRGC Policy Brief¹.

Project: Nanotechnology risk governance

The IRGC has been conducting a major project on nanotechnology risk governance since early 2005.

The manipulation of nanoscale particles and materials has enormous potential to provide economic and social benefits; nanotechnology impacts on all scientific disciplines and its potential benefits derive from applications and products in almost all product areas, from diagnostics and treatments in medicine through chemical coatings to ingredients for food and cosmetics.

The increased reactivity of some substances at the nanoscale, a size many times smaller than the human eye can see, and the new physical and chemical properties and functionalities of nanosystems result in the potential for new risks. These include possible penetration into and reaction with the human body, release into and reaction with human surroundings (e.g. work place, environment, and on disposal), changes in degradability and persistence in the environment of materials, and longer-term societal issues

The IRGC project on nanotechnology addresses the need for adequate risk governance approaches at the national and international levels in the development of nanotechnology and nanoscale products. The project’s main objective has been to work with a wide range of

¹ Now published. *Global Risk Governance, Concept and Practice Using the IRGC Framework*, O Renn, K Walker (Editors), (Springer, Dordrecht, 2008) ISBN978-1-4020-6798-3

international experts drawn from government, industry, academic and research institutions and non-governmental organizations to identify current and potential risk governance deficits, to develop recommendations for managing them and to communicate our findings to key decision makers, primarily in the governments of those countries who are most active in nanotechnology research and development.

Using the IRGC's risk governance framework, surveys of opinion amongst key individuals in governments, industry, research, NGOs and other international organizations and through the deliberations of two expert workshops, the project team has developed a generic global framework for the risk governance of nanotechnology. IRGC's second White Paper, "Nanotechnology Risk Governance", published in July 2006, describes both the risk governance deficits identified by the project and IRGC's recommendations for dealing with them.

Our work led to the conclusion that it was not possible to develop a common approach to risk governance that embraced the many sciences and applications that are grouped within the term nanotechnology. It was essential to use the framing element of the pre-assessment phase to clarify more precisely the applications and associated risks to which to give attention. For this reason we decided to work on two different frames, with Frame 1 being first generation products and processes concerned with relatively simple, passive or merely reactive nanostructures with steady behaviour and Frame 2 being future generations involving more complex and/or evolving-active nanostructures and nanosystems.

This dual approach has underpinned all subsequent project work and a number of different recommendations have been developed for each frame (although there are a number that are common to both). As the first Frame includes a number of nanotechnology applications already on the market (eg paints and sunscreens), a major governance need is to ensure that health and safety and consumer protection regulations absorb the need for possible reassessment of the toxicology of materials at the nanoscale which have previously been assessed only in a larger structural form. For Frame 2, which includes a number of possible developments which have far-reaching societal implications (eg evolutionary artificial organs; brain modification), we identify the particular need to assess the social acceptability of the potential applications.

An international conference was held at the Swiss Re Centre for Global Dialogue in July 2006. This conference debated and discussed IRGC's ideas contained in our White Paper No2, and we are currently making final revisions to our risk governance recommendations before publishing them.

A second nanotechnology project has now started, focusing on nanotechnology applications in food and cosmetics. Our findings and recommendations from this project will be published in mid-2008.

Project: Critical Infrastructures

IRGC started work on the risks associated with critical infrastructures in late 2003. In early 2005 we began a project of which the focus has been the risk governance of five critical infrastructures – electric power supply, gas supply, systems for general information and communication services, urban water supply and waste water treatment, and rail transport. These share a number of similarities. For example, all involve distributed complex physical networks and are organised along similar value chains with elements embedded within the socio-political-economic framework, and their operating strategies and end-user behaviours are subject to significant and evolving contextual changes and risk-shaping factors.

Our work has addressed both the risks associated with each of the individual infrastructures and the risks associated with the increasing interdependence between them – as in the use of information and communication technologies (ICT) to monitor and control almost all critical infrastructures and, for example, the multiple dependencies between the rail network (as both carrier of essential supplies and user of electricity) and the electrical power system.

Project work has involved a definition of ‘critical infrastructures’ and an overview of the physical structure and of the governance structures and processes of each of the five critical infrastructures. It has also included an exploration of such issues as the factors which have promoted and caused tighter integration and greater interdependency among critical infrastructures and the vulnerabilities and main drivers behind this tighter integration including possible political and institutional short-comings. Based on our findings we have developed proposals for technical, management and organisational strategies needed to reduce social vulnerabilities to disruption of these systems as well as recommendations for policy options that could be used to promote the adoption of such socially desirable technical, management and organisational strategies.

Our conclusions are both specific to the individual infrastructures and more general. For example, we recommend an open and transparent dialogue on the security of supply of electricity, as policy decisions regarding price should, we believe, be made in the knowledge of how highly consumers value low prices as opposed to security of supply (which may require higher prices in order to fund the necessary investment in the transmission infrastructure). A problem common to all critical infrastructures is the ubiquitous use of ITC for control and monitoring the systems; here, we recommend use of closed networks, rather than the Internet, to reduce the risk of malicious hacking.

Our report of this study was published in October 2006 as IRGC White Paper No3, ‘Managing and Reducing Social Vulnerabilities from Coupled Critical Infrastructures’. We hope this report will provide pertinent information to senior public and private decision makers and end-user groups, will raise awareness of critical issues and contradictory aims and will suggest and stimulate a new approach to the risk governance of critical infrastructures.

Project: Regulation of Geological Sequestration of Captured CO₂

Until the world can meet its energy needs largely with renewable sources such as wind energy or advanced solar coupled with energy storage or from new technologies still in the early stages of development, existing technologies – including coal – will remain the predominant source of electricity. Coal with carbon-capture and deep geological sequestration (CCS) is a highly promising emerging technology, and one that both technically and politically, could play a key transitional role through reducing CO₂ emissions whilst the world moves towards a low- or non-carbon energy system.

As CCS technology becomes widespread, the sequestration of carbon dioxide in deep geological reservoirs must be regulated in such a way as to protect ecological and public health and ensure that overarching climate objectives are met. The lack of consistent norms and standards, both domestically and internationally, could simultaneously increase the investment portfolio risk and exacerbate the potential harm to local populations and the environment from uncontrolled leakage to the surface or near subsurface.

Because very little work has been done to develop and evaluate possible alternative regulatory frameworks, or explore how a range of different national regulations might coalesce into an agreed international regulatory framework, IRGC began work in 2006 on a project with precisely these objectives. The project has involved reviewing and evaluating (for

their supporting safe and permanent large-scale injection) existing national regulations governing deep geological injection and commissioned 12 expert authors from North America, Europe and Australia to prepare brief outlines of what they believe would constitute an appropriate regulatory framework. In March 2007 we ran a small invitational workshop in Washington DC to further develop our thinking. This has led to submissions to the European Commission and to the Secretariat of the UNFCCC as well as the drafting of an IRGC Policy Brief which will be presented at a conference to be held in Zurich in November 2007.

Project: Stakeholders in Risk Communication

Since early 2004 IRGC has been a member of a consortium working on a project whose purpose has been to identify best practice in risk communication. The project, "Stakeholders in Risk Communication" (STARC) has been funded under the European Union's Sixth Framework Programme and our partners are Electricité de France, INERIS, European Commission Joint Research Centre's Institute for the Protection and Security of the Citizen, Trilateral Research and Consulting and Süddeutsches Institut für empirische Sozialforschung (SINE) e.V.

Four key questions are at the heart of the project and its work:

- What is/are risk communications?
- Why is there a need for risk communications?
- What are the roles of risk communications?
- Who are the stakeholders involved and concerned by risk communications?

In the view of the STARC consortium, risk communications can and should be regarded as being at the heart of risk governance. Risk communications should provide the necessary links and feedbacks between the other phases (pre-assessment phase, risk assessment, risk evaluation and risk management) in order to enhance the overall effectiveness and robustness of risk governance. It may even be seen as the glue which holds the entire process together.

Project STARC examined the role and place of risk communications within the risk governance structures and processes of modern society. It identified how risk decision-makers, stakeholders, the media and the public should be involved and able to participate in the development of a more dynamic risk governance culture and how to ensure interaction between all stakeholders and the public. While the focus of the project has been on risk communications, other risk governance issues (e.g., risk detection, risk assessment, risk management, mitigation measures) were also addressed in relation to risk communications.

STARC has sought to promote the co-ordination of national approaches on risk communication and to propose initiatives for involving all stakeholders and civil society in a more dynamic risk governance culture. Specifically, the project examined the dimensions of risk communications and the extent to which the EU Member States have risk communications plans at the national level and within specific risk domains (e.g., natural and/or man-made, accidental and/or deliberate). The project also studied the role and place of risk communications in the risk management process, policy-making and decision-making, and how stakeholders and those interested in or affected by risks should be able to participate in the decision-making process. It identified the roles of policy-makers, risk managers, the media, NGOs, the private sector and others in the development of a more dynamic risk culture. It set out the features of best practice in risk communications and ways of promoting co-ordination of national approaches towards risk communications, both within

and among countries. As a result of the analysis, recommendations for improved risk communication have been made to the European Commission and the Member States.

The project concluded with the presentation of the final report to the European Commission in January 2007. The full text of this report and all the papers developed during the project can be accessed at and downloaded from the project's web-site, <http://mahbsrv4.jrc.it/starc/index.html>

Project: Governing the opportunities and risks of bioenergy

IRGC has begun work on a project focusing on the governance of bioenergy production and trade.

Biofuel (such as biomass used for producing liquid fuel, mainly for transport) has been actively promoted in recent months and its increasing use is encouraged through several policy initiatives within the EU, US and elsewhere. Nonetheless, an ongoing debate is taking place between the proponents of biofuels and those who have identified some risks associated with its increased production and use. This debate amply demonstrates some governance gaps associated with bioenergy. Opportunities and risks have not been sufficiently assessed and policymakers may not have in their hands the necessary tools for properly analysing, understanding and managing the issue.

It is possible that biomass used for other sorts of energy, such as electricity, could involve other opportunities and challenges. Also, experience suggests that technological developments (new energy-dedicated crops, genetic engineering, thermochemical processes) could solve some of the problems. IRGC believes this needs to be assessed carefully, as investments in the energy sector are both highly capital intensive and very long term.

IRGC's project intends to provide guidelines for policy makers as they develop appropriate bioenergy policies in different contexts. The guidelines will be arranged around a list of practical elements (questions and options) that policy makers should consider; the intention is that it is very practical: "guidelines for the governance of bioenergy". For example, it would start (at the level of problem framing) with questions such as "How much land is available (or could be made available) for energy crops? What is the level of food sufficiency in the country? What is the current energy mix? What is the current climate? How is the climate projected to change? Is the bioenergy to be used in small towns (supporting bioenergy microgrids) or large cities? Is the country a likely importer or exporter? What infrastructure exists to support transport? What is the investment climate? What is the life-cycle assessment (including global CO2 contribution) for local biomass production and use?"

An expert workshop was held in Divonne-les-Bains, France, in September 2007. IRGC is now drafting the guidelines which will be discussed at a second workshop in early 2008 prior to their publication as an IRGC Policy Brief.

International Risk Governance Council (IRGC)
9 Chemin de Balaxert
CH-1219 Châtelaine
Geneva
Switzerland

web: www.irgc.org
email: info@irgc.org
phone: +41 22 795 17 30
fax: +41 22 795 17 39

3. Natural Disasters 2007

The reinsurance group Munich Re has reviewed the worldwide natural disasters which occurred during 2007.

The insurance industry had to cope with far higher natural catastrophe losses in 2007 than in 2006 which had unusually low loss figures. Despite the general absence of extreme events, overall economic losses had reached US\$ 75bn by the end of December – an increase of 50% on 2006 (US\$ 50bn). However, the loss figures were well short of 2005's record US\$ 220bn. At just under US\$ 30bn, insured losses were almost double those of 2006 (US\$ 15bn). The number of natural catastrophes recorded in 2007 was 950 (compared with 850 in 2006), the highest figure since 1974, when Munich Re began keeping systematic records in its NatCatService database.

These figures confirmed the company's expectations and endorsed its insistence that risks be consistently written at adequate prices, despite years with comparatively low losses as in 2006. The trend in respect of weather extremes showed that climate change is already taking effect and that more such extremes are to be expected in the future. We should not be misled by the absence of megacatastrophes in 2007.

The worst human catastrophes of 2007 occurred, as so often the case, in developing and emerging countries. Storms, floods and landslides in various parts of Asia caused more than 11,000 deaths, around 3,300 attributable to Cyclone Sidr alone, which struck Bangladesh in November.

The most severe events in terms of insured losses occurred in Europe. The insurance industry's costliest natural catastrophe was Winter Storm Kyrill, the climax of an above-average winter storm season, which developed on 17 January from a low-pressure system over the mid-Atlantic. With wind speeds far exceeding 100 km/h – and peak gusts of over 200 km/h – it wrought havoc across Europe as far as Poland, the Czech Republic and Austria on 18 and 19 January.

Kyrill caused overall economic losses of some US\$ 10bn, with insured losses of around US\$ 5.8bn. It was the second most expensive such event in Europe after Winter Storm Lothar (December 1999), which had higher wind speeds but at the same time involved a much more limited geographical area. A noticeable feature of Kyrill was that widespread areas of Europe experienced sustained high wind speeds.

Among the countries worst hit was Germany, with more than half the insured losses. Over 1.5 million individual losses were reported – many relatively small in scale, such as roof damage. The east of Germany suffered particularly heavy losses in the area where hailstorms and tornadoes formed along the cold front associated with the storm.

The insurance industry faced an even greater aggregate loss – albeit from consecutive events – as a result of two floods in England during the summer. From June to August, precipitation levels in England and Wales were the highest since records began in 1914. Central and northeast England experienced twice the normal rainfall. Losses from the events in June were comparable to those sustained three weeks later in July, some counties being affected on both occasions. Overall economic losses were around US\$ 4bn for each event, of which US\$ 3bn were insured in each case.

Peter Höppe, Head of Munich Re's Geo Risks Research Department said: "These events cannot, of course, be attributed solely to climate change, but they are in line with the pattern that we can expect in the long term: severe storms, more heavy rainfall and a greater tendency towards flooding, including in Germany." In view of the steadily rising losses, Munich Re has, for some considerable time, been calling for firm action to address the causes of climate change and adapt to changes that cannot be avoided. Professor Höppe noted that "the Bali Roadmap, which launched negotiations to

find a successor to the Kyoto Protocol by 2009 and also indirectly established the corresponding parameter data, is a welcome and positive step".

The year 2007 also numbers among the warmest years since routine measurements began. According to data published by the Hadley Centre in the UK for the period up to December, 2007 was the seventh warmest year on record world-wide and the second warmest in the northern hemisphere. This means that the 11 warmest years worldwide have been recorded during the last 13 years.

Losses due to the North Atlantic hurricane season were relatively low, although the general situation had initially indicated the likelihood of a more severe course of events. Despite 15 named storms in all, in keeping with the average for the current warm phase that goes back to 1995, the number of hurricane-force storms (five) was below the average (eight). This is due to lower-than-expected water surface temperatures in the tropical Atlantic and the counteracting effects of air-current conditions in the upper layers of the atmosphere.

The relatively low losses can be explained by the tracks of the hurricanes, no major hurricanes reaching the US mainland, as in 2006. The most severe, Hurricane Dean, made landfall as a Category 5 hurricane (the highest category) on Mexico's Yucatan peninsula. With wind speeds of up to 270 km/h, it was comparable to Hurricanes Rita and Wilma in 2005. Dean caused severe damage in Yucatan and on the islands of the Caribbean, although the main tourist areas were not as seriously affected.

All the facts indicated that losses caused by weather-related natural catastrophes would continue to rise. Leading reinsurers, such as Munich Re, were ready to deal with this. Ultimately, however, it was society as a whole which bore the cost – in the form of higher insurance premiums or infrastructure repairs financed by taxes. That is why speedy international action is needed. In addition, climate protection could bring huge economic opportunities, thanks to new technologies and increased energy efficiency.

In terms of overall economic losses, the most expensive event was the earthquake that struck the Niigata prefecture in Japan on 16 July. Insured losses from the medium-strength (magnitude 6.6) quake were not significant, but economic losses were in the order of US\$ 12.5bn. The heavy losses show the economy's susceptibility when natural catastrophes strike. The world's largest nuclear power plant, close to the city of Kashiwazaki, was damaged, small quantities of radioactive material escaping into the environment. The earthquake also affected a major automotive component supplier, resulting in a production shortfall of 120,000 vehicles for car manufacturers.

The ten largest natural catastrophes in 2007:

Date	Country/Region	Event	Fatalities	Overall losses US\$m	Insured Losses US\$m
16 th July	Japan	Earthquake	11	12,500	300
18 th -20 th July	Europe	Winter storm Kyrill	49	10,000	5,600
June-August	China	Floods	650	6,800	
June	United Kingdom	Floods	4	4,000	3,000
July	United Kingdom	Floods	1	4,000	3,000
4 th -8 th June	Oman	Cyclone Gonu	70	3,900	650
28 th October – 6 th November	Mexico	Floods	22	3,000	700
October	USA	Wildfires	8	2,500	1,900
15 th -17 th November	Bangladesh, India	Cyclone Sidr	3,300	2,300	
13 th -17 th April	USA	Winter storm	23	2,000	1,566

4. Hazards Forum Annual General Meeting

The Annual General meeting of the Hazards Forum was held on 11 March 2008 at the Institution of Civil Engineers, One Great George Street, London SW1P. The Annual Report was presented and members had an opportunity to raise any matters with the Executive.

5. Hazards Forum Evening Events

As is current Hazards Forum practice an evening event took place immediately after the AGM on 11 March. This year it was on *'Risk in the leisure industry: Lessons learned from the loss of the yacht Ouzo'*. Speakers were from the Marine Accident Investigation Branch of the Department of Transport, the UK Protection & Indemnity Club, and the Royal Yachting Association. The chairman for the event was Dougal Goodman, Chief Executive, The Foundation for Science and Technology.

A further three evening events are being planned for this year. In addition an afternoon event is being planned for May, which will be co-sponsored by the Hazards Forum. The proposed date is 21st May and more details will be available later.

Another event which the Hazards Forum is co-sponsoring is the Fourth International Conference on Forensic Engineering being held in London in December this year – details for which can be seen at www.forensicengineering2008.com

6. New Hazards Forum Website

The Hazards Forum has been developing a new website during the past few months. This will be at a new address which is seen to be more appropriate for the Forum. The extension of .co.uk will be replaced by .org.uk. The old website address is planned to remain for a while and will be used to redirect people to the new site at the new address. The availability of the new site will be announced when it is launched.

In advance of the new website coming on line, however, new dedicated e-mail addresses have been created for key Hazards Forum personnel, with the same extension as the new site. As an example the newsletter editor is now available at newslettereditor@hazardsforum.org.uk. There are other addresses for other functions, such as admin@hazardsforum.org.uk for the secretariat at the ICE in Great George Street. Other addresses will be brought into use during the coming weeks and a full list of them will be provided in the next newsletter.

7. 'Science in Parliament'

As a member of the Parliamentary and Scientific Committee the Hazards Forum receives a copy of the Committee's journal '*Science in Parliament*', which is published quarterly. As it is not feasible to circulate our copy of the journal widely, the contents of each issue are shown in the Hazards Forum Newsletter. Any member who wishes to see any of the articles should contact the Editor at newslettereditor@hazardsforum.org.uk

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8. Disaster Resilient Communities

a letter from John Twigg

Dear Colleagues,

We are writing to you today as an organisation, institute or agency which is actively engaged in reducing the impact of disasters within communities at grassroots level. Whether you are an academic, donor or practitioner, you are likely to have asked yourself the question “what does a disaster resilient community look like?”

This was the exact question which we, as a group of agencies, asked ourselves this time last year when we were discussing how to effectively monitor and evaluate our DFID funded disaster risk reduction (DRR) projects. As a result of this debate we commissioned John Twigg and a team of academics to design a resource tool to support us in this work.

The outcome has been the desk-based development of “The Characteristics of a Disaster Resilient Community” (see link below). Based on literature from all over the world (including Spanish), the characteristics are multi-hazard and subsequently highly comprehensive to cover different village settings and scenarios. The organisation of the characteristics is in synergy with the Hyogo Framework for Action (HFA), which is especially relevant for those who are keen advocates to ensure that the HFA targets the most vulnerable at the community level.

http://www.benfiel.dhrc.org/disaster_studies/projects/communitydrrindicators/community_drr_indicators_index.htm

The aim of these characteristics is that they serve as a multi functional tool which can be used at any stage of the project cycle. First and foremost they provide vision to give project direction. Secondly, project indicators can be developed against set characteristics, and gaps analyses can be undertaken with a community to identify their strengths and weaknesses in resilience. These can then serve as baseline surveys or supporting information for comprehensive evaluations. The characteristics

MONITORING RISKS - PEOPLE, PLANT AND PROCESS

The London Branch and the S&LP Subject Group held a joint meeting on the 21 November at Portland Place. Speakers from two major hazards industries were invited to see how they managed the risks involved in their industries.

David Wright of the Civil Aviation Industry outlined the work that was being done in the civil aviation field on large body aircraft. Data was collected not only for the Black box recorder but also to monitor the whole flight. This included monitoring the operations of the crew, the equipment/air frame and the flight conditions. The data is analysed after each flight by software and any operations outside the Standard Operating Procedure can be identified and acted upon as appropriate. By monitoring the operations carried out by the crew, any operational irregularities that foreshadow incidents can be identified and acted upon at an early stage. Irregularities by crew members is discussed with the pilot's union and appropriate action, usually retraining carried out. This monitoring system is combined with a Just Culture approach and a complete sharing of information by all companies. The result has been a considerable improvement in flight safety as a result of knowing the exact level of risk for all of the hazards identified for the flight. The Civil Aviation Authority has been at the forefront in developing this approach.

Niel Farley of Springfield Fuels Ltd gave an account of their approach to human factors in a nuclear fuel operation. He said that humans were fallible but a lot of their errors were predictable. Organisations affected behaviour and by understanding how mistakes occur we can learn lessons from past accidents prevent them occurring again. Leadership was very important as people watch you all the time and see any weaknesses. Safe behaviour results from good leadership and awareness of the operation.

could even be used to assess your own organisations strengths and weaknesses in the skills and knowledge required to facilitate the characteristics.

Today is International Day for Disaster Reduction and in recognition of that we would like to invite you to join us field test the characteristics. The document in the above web link is only the first edition. As agencies we are committed to field test them in 20 countries (minimum) during the course of the next 18 months (see attached

summary). At the end of that time we will commission John Twigg to produce a second edition which will be verified by field usage.

your organisation feel that you are interested in supporting this venture, please reply to the owner of the email. We are aiming to have a workshop in London within 4-6 weeks to coordinate all interested parties, and will name the venue once we have an approximate idea of numbers. At minimum, we encourage you to take a look at the weblink, as we are encouraged and excited at the opportunities this resource could bring. But most of all, we hope you can join us so we look forward to hearing from you.

Signed: Action Aid Christian Aid Plan UK Practical Action British Red Cross Tearfund

Oenone Chadburn
DRR International Project Manager
Disaster Management Team
Tearfund, UK
Email: oenone.chadburn@tearfund.org
Tel: +44 208 977 9144x7679

John Twigg
Development Know How
17 Penryn Street
London NW1 1RL

9. Intute – a New Search Engine

The Intute database makes it possible to discover the best and most relevant resources in an easily accessible place, with all information evaluated for its quality and relevance.

Intute is a consortium of seven universities working with a large number of partners, to bring together the expertise of people and processes. There are several Executive and Subjects Groups working in partnership to deliver Intute as a whole across a distributed network of partner institutions. The Groups are

- Intute: Executive, MIMAS, University of Manchester
- Intute: Arts and Humanities. led by the University of Oxford in partnership with Manchester Metropolitan University
- Intute: Health and Life Sciences, led by the University of Nottingham
- Intute: Science, Engineering and Technology, led by the University of Manchester in partnership with Heriot Watt University
- Intute: Social Sciences, led by the University of Bristol in partnership with the University of Birmingham

In addition the University of Bristol manages Intute training services.

Intute and its subject groups are funded by the Joint Information Systems committee (JISC) and the Arts and Humanities Research council (AHRC).

Further information is available at www.intute.ac.uk

9. Calendar of Events

Date	Event	Venue	Contact/further information
2008			
MARCH			
11	Hazards Forum AGM, followed by an Evening Event	Institution of Civil Engineers One Great George St London SW1P 3AA	Alison Brown T: 0207 665 2230 e: admin@hazardsforum.org.uk
11	Hazards Forum Evening Event: 'Risk in the Leisure Industry: Lessons learned from the loss of the yacht Ouzo'	Institution of Civil Engineers One Great George St London SW1P 3AA 17.30 for 18.00	Alison Brown T: 0207 665 2230 e: hazardsforum@ice.org.uk
13	'Urban Flood Risk and PPS 25', by the Institution of Civil Engineers	One Great George St London SW1P 3AA	Helen Procter t: 01372 756478 e: helen.procter@atkinsglobal.com
20	'Railway Law for Engineers; how Legislation, Liability and Legal Issues affect you', conference organised by the Institution of Engineering and Technology.	Savoy Place London WC2R 0BL	www.theiet.org/railwaylaw t: 01438 765657
26	'Impact of Climate change and Sustainable Development on Asset Management'; organised by the Institution of Engineering and Technology	Savoy Place London WC2R 0BL	t: 01438 7765647 e: eventsa3@theiet.org
APRIL			
15-17	'Hazards XX – Process Safety and Environmental Protection' Symposium by the Institution of Chemical Engineers	University of Manchester	e: mike.adams@rawgreen.fsworld.co.uk
MAY			
21	'The storage and disposal of radioactive waste', a joint afternoon meeting	TBC	Alison Brown T: 0207 665 2230 e: admin@hazardsforum.org.uk
JUNE			
11	'Flooding Issues in the Thames Gateway', by the Institution of Civil Engineers	Thames Barrier London E16 2HP	Helen Procter t: 01372 756478 e: helen.procter@atkinsglobal.com
19	'Improving the resilience of infrastructure to climate change - lessons from the Summer 2007 Floods'	London TBC	Alison Brown T: 0207 665 2230 e: admin@hazardsforum.org.uk
SEPTEMBER			
15 - 17	'Sustainable Hydrology for the 21 st Century', by the Institution of Chemical Engineers	Exeter University	Alix Slater, University of Exeter e: bhs..symposium-2008@ex.ac.uk

Membership of the Hazards Forum 2008

Distinguished Members

Professor P A Bennett, FREng

Professor Sir Bernard Crossland, CBE FRS FREng

Dr S N Mustow, CBE FREng

Dr A C Patterson, CBE FREng

Professor Sir Frederick Warner, FRS FREng

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British Computer Society

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Safety and Reliability Society

Society of Industrial Emergency Service Officers

University of Nottingham

University of York

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Corus Group

CSE International Ltd

DSTL

Health and Safety Executive

Lloyd's Register

NEBOSH

Shell UK Ltd

United Utilities

Dr John Bond

Mrs Patricia Bond

Mr Iain Carter

Mr Nigel Cheetham

Mr Frank Crawley

Mr Graham Dalzell

Dr Chris Elliott

Mr David Eves CB

Mr Robert Foster

Mr Robert Gilchrist

Mr Peter Graham

Mr Frank Groszmann

Dr Ian Lawrenson OBE

Mr Peter Livock

Mr Brian Neale

Dr J McQuaid CB

Mr Mark Paradies

Mr Fred Pell

Mr Brian Rofe

Mr Michael Self

Mr Ed Spence

Mr Brian Thompson

Mr Simon Turner

Professor John Uff CBE QC