



IDRC

DAVOS 2014

*"Integrative Risk Management -
The role of science, technology & practice"*

OUTCOMES REPORT

**PART I:
DAVOS REPORT ON SCIENCE AND
TECHNOLOGY, EDUCATION AND TRAINING,
AND IMPLEMENTATION FOR DISASTER RISK
REDUCTION (DRR)**

**PART II:
COMMENTS ON THE ZERO DRAFT OF THE
POST 2015 FRAMEWORK FOR DISASTER
RISK REDUCTION**

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GLOBAL RISK FORUM
GRF DAVOS

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IDRC DAVOS 2014 OUTCOMES REPORT

THE IDRC DAVOS OUTCOMES REPORT SERVES AS A CONTRIBUTION TO UNISDR'S PROPOSED ELEMENTS FOR CONSIDERATION IN THE POST-2015 FRAMEWORK FOR DRR (UN WCDRR SENDAI, 14-18 MARCH 2015)



IN CLOSE COOPERATION WITH THE
UNISDR SCIENTIFIC AND TECHNOLOGICAL ADVISORY GROUP (UNISDR STAG)



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IDRC DAVOS OUTCOMES REPORT PART I:

DAVOS REPORT ON SCIENCE AND TECHNOLOGY, EDUCATION AND TRAINING, AND IMPLEMENTATION FOR DRR

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Participants of the Expert Workshop

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¹. See Attachement 1: Post-Conference Expert Workshop Preparation of an Input Paper on Science and Technology, Education, Capacity Building, and Implementation. Agenda and Participants list

1. INTRODUCTION

1.1 INTEGRATIVE RISK MANAGEMENT – THE ROLE OF SCIENCE, TECHNOLOGY AND PRACTICE

*Integrative Risk Management
IRM: interconnection of
social, political, financial,
environmental, physical, and
technological risks*

The 5th International Disaster and Risk Conference IDRC Davos 2014 was held with the special focus on Integrative Risk Management – The Role of Science, Technology and Practice. Integrative risk management aims to reduce and mitigate risks throughout the whole cycle of risk management (cp. Figure 1). Focusing equally on all the phases of risk reduction and disaster management (prevention, preparedness, intervention and recovery), the IRM approach helps to identify risks, reduce, cope with and transfer risks as well as manage the residual risks. For such a risk reduction approach, it is not only mandatory to reduce the direct risks of natural and man-made disasters, risks having their roots in poverty, corruption and bad governance are equally important factors in need for sustainable management. Taking into account all different risk factors and reducing them to the most efficient and effective minimum results in a “human secure” society, resilient to resist the very large disasters of the future.

1.2 THE HYOGO FRAMEWORK FOR ACTION POST 2015

*Building upon the Hyogo
Framework for Action HFA1*

The adoption and implementation of the Hyogo Framework for Action 2005–2015 (HFA1), “Building the Resilience of Nations and Communities to Disasters,” has marked a milestone in catalysing national and local efforts to reduce disaster risk and in strengthening these. Considerable progress has been made, but there is still a long way to go to reduce the many different risks and limit the extent of disasters. The Hyogo Framework for Action therefore, shall be followed by another long-term period of intensive efforts to achieve resilient, sustainable societies.

*Input towards the post 2015
Framework for Disaster
Risk Reduction on Science &
Technology, Education & Training
and Implementation*

In support of providing input to the “Proposed Elements for Consideration in the Post 2015 Framework for DRR (HFA2)” by the UN SRSG for DRR, GRF Davos with its 5th IDRC Davos 2014 aimed to serve as a platform for intense discussions on the needs and gaps to be addressed in a post-2015 Framework for DRR from the perspective of science, technology, education and training, and implementation. Managing risks and disasters require a variety of instruments and initiatives at local, national, regional and global levels to enable more effective risk management. In cooperation with and under the auspices of the UNISDR Scientific and Technical Advisory Group (STAG), GRF Davos aims to feed this 5th IDRC Davos 2014 Outcomes Report into the 2nd UN Preparatory Conference for the WCDRR and therewith contribute to the Post-2015 Framework for DRR.

2. BACKGROUND

*Based on contributions towards
the 5th International Disaster
and Risk IDRC Davos 2014
Conference*

The input provided with this document is based on the analysis of various contributions requested from conference participants prior and during the 5th IDRC Davos 2014 conference, held 24 – 28 August 2014 in Davos with 750 registered participants from 80 countries. It is also based on a Plenary Session (Monday, 25 August 2014) which was particularly dedicated to outcomes of international conferences on DRR which have taken place in the first half of 2014, on a Special Session (Monday 25 August 2014) on the specific needs of the UNISDR Platforms and Networks, and finally on a specific Post-Conference Expert Workshop with some 30 international experts on 29 August 2014, held also in Davos, Switzerland. The goal of the expert workshop was to draft this report on science and technology, on education and training, and on implementation. All the various background documents² can be downloaded from the GRF Davos website: www.grforum.org.

2. IDRC Davos 2014 Special Issue of Planet@Risk eJournal (Vol. II, No.5); IDRC Davos 2014 Extended Abstract Collection; IDRC Davos 2014 Personal Statements; IDRC Davos 2014 Session Chair Summaries.



3. GAPS, WEAKNESSES AND OPTIONS – CONSIDERATIONS FOR THE POST 2015 FRAMEWORK FOR DRR

The following will list considerations for Science and Technology, Education and Training and for Implementation related to gaps, weaknesses and options. Before focussing on each sector, some general cross cutting issues are addressed that need a special focus within research, education and implementation within DRR.

3.1 CROSS CUTTING ISSUES

3.1.1 DISABILITY INCLUSIVE DISASTER RISK MANAGEMENT

People with disabilities, women, children and older persons are the most vulnerable in disaster situations and bear the heaviest burden of disasters' impact. Disaster managers ought to commit to devote better tools for people with disabilities to anticipate risks and to respond to disasters. The design of strategies and plans, as well as decision-making processes for disaster risk reduction should actively involve people with special needs at all the stages of the disaster management cycle in an inclusive, participatory manner. "To design measures WITH", and not "to design measures FOR" is crucial for disability inclusive DRR.

Strategies, plans and processes shall actively include people with disabilities. Acting WITH not just FOR people with disabilities

3.1.2 DISPLACEMENT AND MIGRATION

Human displacement and migration due to the negative impacts of slow- and sudden-onset disasters have huge impacts on local, regional, national and global vulnerabilities. Displaced people and migrants have to be included into disaster risk management frameworks. There are still major gaps in policy and implementation whilst addressing various issues of people on the move. For example, the lack of inclusion of community relocations in the disaster risk reduction framework. Currently, there is no institutional framework to guide communities, local, regional and national government agencies in the steps which must be taken to relocate an entire community in order to reduce the risk of a disaster. There are also no standards which identify the environmental signals which would warrant a community relocation in order to prevent disasters.

Inclusion of displaced people and migrants into DRR frameworks

3.1.3 HARMONIZING DRR AND CCA ACTIVITIES

Since first initiatives launched e.g. at the IDRC Harbin 2007 as the so called Harbin Initiative, progress has been made in harmonizing climate change adaptation strategies and disaster risk reduction and management strategies. However, a lot still has to be done, in particular on the implementation side. To link actors and measures in CCA and DRR remains key to achieve the SDGs.

Harmonizing CCA and DRR remains key

3.1.4 DRR AND HEALTH: ONE HEALTH

A risk based One Health Concept promotes an integrative approach to global health, which focuses on healthcare for humans, animals, and the environment, and which is able to ensure food safety and security through effective and efficient agriculture and to provide access to water (e.g. WASH). The approach helps to understand the interconnectedness of the different risks; supports the early detection of potential threats (e.g. Ebola outbreaks); and provides a basis for measuring the outcomes and evaluating the impacts of global, regional and local risk reduction measures.

A risk based One Health approach: Integrating human - animal - and environmental health



3.2 SCIENCE AND TECHNOLOGY

3.2.1 SOME INTRODUCTORY REMARKS ON THE CURRENT STATUS OF SCIENCE AND TECHNOLOGY

Most of today's deficiencies in DRR are due to a lack of governance and political will for implementation

Some areas of well-established research and knowledge in DRR are at a point where the marginal returns of continued efforts appear to be diminishing. Science in DRR has emerged over decades. Considerable knowledge and skills now exist for example regarding single hazards process analysis, forecasting, and efficient measures to cope with. Although the application and dissemination of this knowledge still remains geographically uneven. Most of the today's deficiencies in DRR are not due to a lack of science but are due to a lack in governance and political will for rigorous implementation.

Trans-disciplinary research is needed for increased vulnerability reduction and resilience increase

Redirection of efforts and resources to emerging areas of DRR is likely to yield greater marginal outputs. In particular, the analysis of complex and interrelated multi-hazards, critical infrastructures and services and their interdependencies, protection targets, the evaluation of effectiveness and efficiency of measures reducing vulnerability and increasing resilience, human agency aspects of risks, and interactions with ecological, social, and political systems remain challenging, and require further research. The growing interconnectedness of critical infrastructures and services means that even minor and superficially harmless disruptions can trigger chain reactions capable of causing damage to the entire system.

Applying existing skills and knowledge more effectively – Resources in science to be shifted from the "WHAT" to the "HOW"

Recognizing the gaps in implementation, the need to refocus research activities to new areas acknowledges that a transition in thinking is required, redirecting the "science of what" to a "science of how" and applying existing skills and knowledge more effectively. This includes addressing emerging problems in multidisciplinary, applied and justified ways. The innovation in DRR management due to technological progress should nevertheless be pursued even for issues of DRR where the scientific knowledge is deemed satisfactory. The vulnerability of our critical infrastructures and services continuously shows how important it is for business and society to be able to adapt in the face of major adverse events.

3.2.2 KNOWLEDGE CONNECTED TO IMPLEMENTATION: THE SCIENCE OF HOW

From research to practice – focussing on transformation science

Failures in DRR are not primarily due to lacking scientific knowledge but are a consequence of not knowing how to translate it into applicable know how at the "last mile". Emergent research using scientific approaches to the examination of knowledge application, deeper understandings of complex systems, and that integrate human and ecological systems, offer considerable possibilities for new approaches. Direct attention to knowledge translation as a valid and indeed necessary component of DRR suggests that physical science needs to work directly with social science in all its many facets. The emphasis should be on transformation science consisting of integrated and interdisciplinary systems understanding of hazard/risk – society interactions, and strengthening risk governance at all levels. Clear objectives of what should be accomplished in what time frame (orientation knowledge) are equally important. Transformation science should also integrate the implementation know-how of what types of interventions and instruments are effective, efficient and sustainable within the context in which they are applied.





3.2.3 IMPROVED SCIENTIFIC AND TECHNOLOGY KNOWLEDGE TRANSLATION AND MANAGEMENT

Future research should focus on the communication and translation of science and technology skills and knowledge into a format that is understood by the corporate sector (relating to monetary values), the political sector (relating to political goals and power), and the civil society sector (relating to their values and aspirations). This should be supported by the adoption and use of appropriate and more commonly used language for communicating to the media, the locally affected communities and the public at large. Providing information in ways that are valued by decision makers is of high importance.

Additionally, incentive systems should be better understood and put in place for businesses to increase their resilience. This will help to ensure that values and incentives for all users are aligned with DRR outcomes. These efforts should be supported by the establishment of key indicators which allow the evaluation progress in vulnerability reduction and resilience increase. Another focus should be set on metrics and analysis of failures and successes beyond immediate project completion, including an independent evaluation of the factors that have caused success or failure. Within these goals, the full integration of behavioural, economic, ecologic and political sciences into DRR is mandatory.

Information about prevailing risks is key for the awareness raising of particular stakeholders and society at large. Access to information at local level is important, but also the collection of local knowledge to be incorporated into decision making processes.

3.2.4 A PROBLEM-BASED APPROACH, AND APPLICATION VIA SCENARIO TESTING

While fundamental science approaches will continue to be valid, the nature of DRR now requires “flipped” demand and solution driven approaches dealing directly with identifying, assessing, and treating risk reduction problems in a holistic way. These research and technology approaches shall be inherently multidisciplinary, spanning natural, engineering, social and economic sciences, invoking a duty of care resulting in activities being effectively used and implemented. They shall be directly linked to implementation, including definition of protection targets, feasibility analysis, development of business cases, linking with decision makers, and including scenario testing. Also, research and technology approaches shall link methodology with development and the appraisal of DRR scenarios that include ecological and human concerns. This will help to invoke ex-ante responsibilities for decision makers.

Research and technology approaches should be deployed via improved organization and coordination of existing networks of researchers and practitioners that draw upon and build capacities of local and regional institutions and universities, tailored to regional needs. Business feasibility and cost benefit analysis should also be included to establish action interventions. This supports the understanding of the long-term values that resilience adds to businesses and to society.

3.2.5 LIVING LABS – A NOVEL COMMUNITY BASED RESEARCH AND EDUCATION APPROACH

Enhancing capabilities and capacities for DRR require collaboration between the researchers and various stakeholders. Living laboratories are novel approaches with a user-centred, demand driven research concept. Research therefore has to work closely with all different kinds of stakeholders and get direct access to DRR related problems to be solved in a territorial context (e.g. city, agglomeration, region, etc.). Living labs can support integrating concurrent research and innovation processes within a public-private-people partnership. Besides a regular and effective dialogue and feedback between stakeholders and researchers, a living lab can make research more effective and substantially contribute to the science of how.

Multidisciplinary knowledge translation and management are key

Indicator based evaluations with tools for event analysis including full integration of multidisciplinary sciences

Local level knowledge for advanced decision making

DRR Science: demand and solution driven to identify, assess and reduce risk

Make use of existent platforms and networks of researchers and practitioners

Living labs as demo cases for the science of how: multi-stakeholder collaboration, knowledge generation, and application



Connecting science with the end users

Stakeholder-driven research emphasizes research undertaken in partnership with stakeholders including marginalized population. The stakeholders' participation within the scientific research framework provides a stakeholder/end user centred solution process. Learning from practice and from being embedded in the socio-political context are essential benefits for the researcher, who will also be faced with multi-level governance approaches. Within the framework of living labs, researchers have the responsibility to explain research outcomes to the end users and to implement them directly into practice.

Education and training for successful capacity building

3.3 EDUCATION AND TRAINING

Education, training and capacity building programmes constitute a critical part for risk reduction and disaster management. There is an imperative need to improve the transfer of knowledge, technology and expertise and the sharing of successful practices and lessons learned that shall help to enhance capacity building.

All inclusive disaster risk reduction education and training through increased international cooperation and standardisation

3.3.1 ALL INCLUSIVE EDUCATION AND TRAINING

Education on DRR can be partially realized by social networks, including family and relatives, neighbourhood, distance learning, local NGO networks, the media, etc.. An all-inclusive approach with robust capacity building methods and sound and disaster-proven know how has to be established. A special focus should be given on people living in hazardous areas, or in heavily populated urban informal settlements characterized by substandard housing. To successfully raise awareness and educate the society at large ethical questions, religious concerns, gender issues, the integration of disabled and elderly people, pets, and livestock have to be addressed. In order to better share information and knowledge cooperation between local, national, and even international NGOs and international organizations has to be established and increased. Standard terminologies on DRR will also help the increase of common DRR understandings and behaviours.

Education programmes to support the resilience to disasters

3.3.2 SCHOOL BASED YOUTH EDUCATION FOR DISASTER RISK REDUCTION

Education on hazards and risk reduction should be provided mandatorily from pre-school to university level. These education activities should support children and students obtaining capabilities to increase their own resilience to disasters, and to support their schoolmates, relatives and neighbours. Both teaching staff and students should be involved in regular drilling exercises.

Development of extended multi-disciplinary curricula

3.3.3 INTER- AND TRANS-DISCIPLINARY UNIVERSITY BASED EDUCATION AND TRAININGS

Risk reduction and disaster management require many skills and professional backgrounds. High quality graduates already exist with a strong and specific background in one or the other sectors related to DRR. However, to cope with risks and disasters the demand for inter- and trans-disciplinary skills is increasing. Various academic disciplines from natural, social, medical, and engineering sciences have to develop extended curricula and offer close insights into other relevant disciplines by multi-disciplinary master courses for DRR, post-degree continuous education courses, or certified advanced study courses. For example, engineers may complement their academic background with specific insights and tools from social sciences, and the insurance sector.





3.3.4 OPEN ACCESS EDUCATION

It is of utmost importance that academic education in developing countries has free access to latest knowledge, skills, tools, and data. The access to existing and new technologies, e.g. with e-learning courses, the free access to software, staff "teachers without borders", or courses should be enabled.

Free access to the state of the art for developing countries

Comprehensive text-books on integrative DRR are missing and have to be elaborated, providing up-to-date knowledge on DRR, integrating the various disciplinary perspectives, and the various national and local experiences. These text-books might need country and risk specific adaptations.

Production of comprehensive DRR text books

3.3.5 EDUCATION AT PRACTITIONER'S LEVEL

Practitioners should periodically follow continuous education courses and get a chance to progress within their career. The establishment of a standardized, international certificate or a post graduate degree could represent the necessary incentives for further trainings. Continuous education is of particular importance for people who have responsibilities in early warning, or in disaster response and recovery phases.

Education at practitioner's level with the necessary incentives

3.3.6 EDUCATION AND TRAINING FOR THE MOST VULNERABLE

Alternative education approaches, e.g. unified symbols for not fully educated people, for minority groups, or for foreign-language groups should be considered. Education and training programmes should provide a special focus on disabled people, devising alternative involvement methodologies for them. In addition, handbooks for implementation of disaster risk reduction should be especially compiled and widely circulated considering the most vulnerable.

Revising existing methodologies and tools WITH (not just for) the most vulnerable

3.3.7 TRAININGS AND DRILLS FOR PROFESSIONALS AND COMMUNITIES

At local and community level, continuous education on hazards and risks combined with adequate training can substantially reduce losses and damages in case of a severe event. For example, raising awareness for hazard mapping and land-use planning, teaching house owners on how to build a house disaster proof, or providing practical trainings and drill exercises may substantially strengthen DRR activities. If possible, drills should involve all the relevant blue light organizations (police, fire-fighters, civil protection, ambulances, and technical services) but in particular also the public and the media. Lessons learned from such drills should be implemented without delay into the operational and organisational reality. For future drills it is also essential to incorporate lessons learnt from recent disasters and drill exercises. Technicians and relief workers should also be regularly trained for a better support in disaster relief. Rotating the lead in such drills might increase the flexibility and professionalism in decision making and rapid response, and improve cooperation. Emphasis should also be put on leadership built-up in local community to increase their organizational capacities.

Organize regular DRR drills and trainings with comprehensive assessment of success. Ensure immediate implementation of lessons learned into operational and organisational structures

Specific training programs should be designed and provided to governmental officials at all levels and to politicians to make them qualified in the processes of developing their risk reduction strategies, their policies and disaster management plans, and their decisions.





3.4 IMPLEMENTATION AND PRACTICE

3.4.1 REDUCE UNDERLYING RISK FACTORS

Underlying risk factors to be reduced and DRR implementation strengthened

The knowledge gained by science and technology; such as a better understanding of hazards and risks, of methodologies, tools, technologies created, and lessons learned from forensic disaster investigations, etc.; to reduce risks and vulnerabilities and increase resilience have to be further implemented into practice. Focus of activities should be put on transition and implementation approaches. The main aim of implementation has to be the reduction of risks, and the avoidance of new risks to be created. The primary goals are to protect and save lives, and to protect livelihoods and assets. While there is increased awareness on the benefits of engaging in risk reduction at all levels, progress is still required in reducing underlying risk factors that will in turn contribute to a significant reduction of risks.

Implementation of science and technology efforts will need to thoroughly focus on reducing underlying risk factors. The following key aspects should be emphasized.

3.4.2 HUMAN RIGHTS ARE CENTRAL

Establishment of legal frameworks, roles and responsibilities.

Every individual's basic human rights have to be fulfilled in a manner that their lives, livelihoods and assets are protected from adverse events³. However, disasters are of increasing concern for humankind, due to their frequency, complexity, or scope and destructive capacity. A main objective of a nation therefore shall be to ensure and regulate that its development guarantees safe access of its population to all necessary services such as education, jobs, healthcare, food, housing, or culture. These services are often also provided by the private sector. Most important is that all these services provided to the people are – as far as possible – protected from adverse events. If citizens are actively engaged in the implementation of disaster risk reduction approaches, they are also ready and capable – based on their self-responsibility – to contribute to reduce existing risks and to avoid to build-up new risks.

DRR is not only humanitarian aid- it is a powerful component of sustainable development and resilient livelihood.

A legal framework and clearly defined roles and responsibilities of all different stakeholders at local to national level are useful to protect the many services from adverse effects. Therefore, DRR and reducing vulnerabilities as a consequence are clearly beyond a purely humanitarian approach, and have to become unique focus of a sustainable development process and resilient livelihood approach. DRR is a cost-effective tool to reduce poverty and to make progress towards sustainable livelihoods.

3.4.3 DISASTER PROOF CONSUMER GOODS

Access to safe products and services

Ensure that the types and quality of services provided to people contribute to their resilience against adverse events. It is beneficial to push service providers to offer products labelled "safe from disasters". For this to be effective, there is a need for the private sector to be aware of the need for people to have access to safe products and services that will withstand disasters better, but also for companies to ensure that their lines of production or services are built in such a manner that they are protected from disasters. For example, in many parts of the world, people are now requesting safe houses, safe schools and safe hospitals. This in turn leads to the fact that construction companies are changing the nature of their practices to ensure that they stay in business. It is believed that the more companies will advertise their products and services as having benefits in reducing risks or being safe from natural hazards, the more people will get used to demand such features in all products and services.



³. Adverse events are disasters or change processes with devastating consequences that are the result of man-made, technological or natural causes



Based on the increased awareness of citizens to engage in risk reduction activities, a more proactive approach has to be stimulated and developed. Citizens have to play a more decisive role within the overall DRR strategies, asking for higher safety standards directly to service or goods providers, rather than simply expecting that governments or local authorities implement mitigation strategies. The more people are aware of the hazards and risks, the more they will ask for services and products which are not subject to threats.

Foster citizen empowerment and engagement and increase public-private partnerships for risk reduction

Within the private sector approach of supplying the demand of adverse events proven goods, the role of the government will remain crucial. On the one hand, governments have to regulate the relationship between the people/consumers and the private sector that is providing the various types of products and services to people to enable them to strive in their lives in the pursuit of happiness; on the other hand, the government must ensure a clear and comprehensive framework of information (e.g. hazard maps), in order to support people/ consumers to make healthy decisions based on scientific knowledge and at the same time preventing asymmetries in the new market for the safer goods.

Focus on public-private partnerships and establish financial instruments for the generation of innovations

Incentives should be created for socially critical businesses that were able to demonstrate an increase in their resilience, based on a standardized resilience monitoring system. It could also influence the behaviour of those businesses that failed to take measures, by e.g. penalising them with higher insurance premiums, or additional levies. That is in particular true for businesses which might cause environmental emergencies, i.e. sudden-onset disasters or accidents resulting from natural, technological or human-induced factors, causing a severe environmental damage as well as loss of human life and property. Ex-post forensic investigations and responsibilities of the business sector should be replaced by ex-ante responsibilities of all stakeholders. Also the government must ensure basic infrastructure for public safety which cannot be provided through market, such as hurricane forecasts and maintenance of dykes.

Incentives for resilience increase in critical business sectors

3.4.4 CONSIDER THE DYNAMICS OF RISKS – STRATEGIC MONITORING AND CONTROLLING

Hazards, the exposure of values and their vulnerabilities are not constant but changing factors. Whereas awareness has risen for climate change influencing the pattern of meteorological hazards in terms of frequency and intensity, little attention is paid to the increase of values exposed to hazards and of the vulnerability of societies and their critical infrastructures and services. Risks therefore have to be continuously monitored, and tools developed to enhance and harmonize the monitoring process. Knowing the characteristics and amount of risks will enable the decision makers to choose effective and efficient DRR measures. Integrative DRR should implement the most effective, cost-efficient measures, be they permanent risk reduction measures, preparedness measures for better response, risk transfer measures by insurances, etc. Similar tools are needed to measure progress in DRR. Indicators used should be consistent with the targets and indicators of the Sustainable Development Goals (SDGs).

Careful monitoring of values exposed to hazards and of the vulnerability of societies and systems is important.

3.4.5 THE ROLE OF SCIENCE AND TECHNOLOGY IN IMPLEMENTATION

A multi-stakeholder approach is needed for the successful implementation of risk reduction strategies and techniques at national levels. The scientific community in each country must provide easily understandable, evidence based information on risks and hazards to the private sector, the citizens and the government, so as to further raise awareness and to encourage proper choice of products and services. It is also important to provide knowledge for the drivers and incentives that push such implementation strategies and services forward. The "science of HOW" as described above has to provide support on how to raise awareness for DRR, on how to incentivise DRR, on how to prove evidence for DRR, etc.

Science in support of a multi-stakeholder and multi risk approach at the national level.



Improved coordination of existing platforms and networks

Existing international platforms and networks should be used for sharing knowledge, expertise and experiences. Such platforms and networks already exist within the UNISDR system and will continue to benefit from coordination and support by the ISDR Secretariat. They are complemented by existing international conferences and workshops, where science presents latest research findings, or where science meets practice.

4. CONCLUSIONS

Consolidation of the post 2015 global frameworks

Managing risks and disasters require a variety of instruments and initiatives at local, national, regional and global levels to enable more effective risk management. The post 2015 framework for disaster risk reduction will provide the global framework for disaster risk reduction. Nevertheless, the international community has to embark on an increased effort to connect the existing elements of Disaster Risk Reduction with those of the Sustainable Development Goals and the agendas of land degradation, global environmental change, health and climate change.

Focus on the provision of basic human rights to each individual

The considerations and recommendation on science and technology, education and training and implementation within the post 2015 Framework for Disaster Risk Reduction all centre on the individual which needs to be protected from adverse events. This protection is guaranteed if the basic human rights of each individual are provided. This is on the one hand the responsibility of the state but also of the respective service providers (compare Figure 1). Science and technology, education and training and implementation processes should all focus on the provision of these basic human rights towards the individual, and by the demands of the individual for these rights and services.

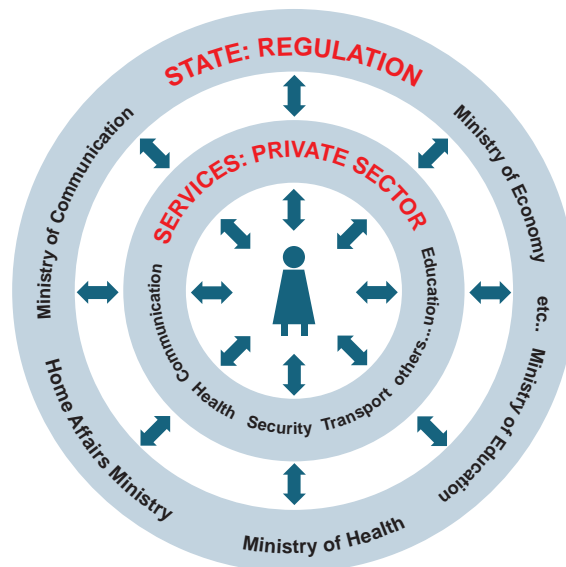


Figure 1: The individual in the context of public and private services

5. ATTACHMENTS

Attachment 1: Post Conference expert workshop: outline • programme • participants list

IDRC DAVOS OUTCOMES REPORT PART II:

COMMENTS ON THE ZERO DRAFT OF THE POST 2015 FRAMEWORK FOR DISASTER RISK REDUCTION

The present document is a compilation of comments and suggestions, provided by the Global Risk Forum GRF Davos on the zero draft of the post-2015 framework for disaster risk reduction*. This document refers to the latest draft of the Post 2015 Framework for Disaster Risk Reduction, as it has been made available by the Co-Chairs of the Preparatory Committee for the attention of the Second Session of the Preparatory Committee of the Third United Nations World Conference on Disaster Risk Reduction, to be held in Geneva from 17 to 18 November 2014. The following comments are based on various inputs drawn from the 5th International Disaster and Risk Conference IDRC Davos 2014. The sources which the above mentioned comments have been extracted from are the following:

- **GRF Davos Planet@Risk, Volume 2, Number 5, Special Issue for the Post-2015 Framework for DRR.** A Collection of conference outcomes from Disaster and Risk Management conferences. Online available at: <http://planet-risk.org/index.php/pr/issue/viewIssue/9/16>
- **IDRC Davos 2014 Personal statements On the Input of Science & Technology towards the Post-2015 Framework for Disaster Risk Reduction.** Online available at: <http://idrc.info/programme/conference-proceedings/>
- **IDRC Davos 2014 Conference Proceedings: Extended abstracts Oral presentations, Special Panels, Sessions and Workshops.** Online available at: <http://idrc.info/programme/conference-proceedings/>
- **IDRC Davos 2014 Conference outputs from IDRC 2014: Session presentations & session chair summaries.** Available upon request.
- **GRF Davos Report on Science and Technology, Education and Training, and Implementation for DRR.** Outcome paper of the IDRC Davos 2014 Post-Conference Expert Workshop, held 29 August 2014 in Davos, Switzerland

*The comments were originally collected for the pre-zero draft of the post-2015 framework for disaster risk reduction (as of 8 August 2014) and were then adapted to the text of the zero draft. Hence some comments from the pre-zero draft remain obsolete.

Chapter/ Paragraph/ Page	Post-2015 framework for disaster risk reduction Zero Draft Text	IDRC Comments	IDRC Reference
Chapter C/ Par.15b/ P. 6	b) Managing the risk of disasters should be aimed at protecting persons, their property, livelihoods and productive assets, while respecting their human rights.	Every individual's basic human rights have to be fulfilled in a manner that their lives, livelihoods and assets are protected from adverse events. However, disasters are of increasing concern for humankind, due to their frequency, complexity, or scope and destructive capacity. A main objective of a nation therefore shall be to ensure and regulate that its development guarantees safe access of its population to all necessary services such as education, jobs, healthcare, food, housing, or culture. These services are often also provided by the private sector. Most important is that all these services provided to the people are - as far as possible - protected from adverse events. If citizens are actively engaged in the implementation of disaster risk reduction approaches, they are also ready and capable – based on their self-responsibility – to contribute to reduce existing risks and to avoid to build-up new risks.	Outcome Expert Workshop
Chapter D/ Par.22b/ P. 8	b) Systematically survey, record and publicly account for all disaster losses and the economic, social and health impacts;	<p>A universal format can be proposed and adopted for the collection of Census data. This will help in a number of ways: i) providing efficient assessment of disaster risks and vulnerability; ii) making it possible to carry out reasonable and meaningful comparisons between different states/communities.</p> <p>More research on risks and impacts of critical dangerous goods transportation through major public areas and current safety measures, especially in developing countries where major chemical industries are shifted to.</p> <p>More research on specifics of existing storage improvements, and of underground flood capture and storage in various geographical, social and institutional settings</p> <p>Appropriate exposure databases, as well as hazard and risk models needs to be established</p>	<p>Personal Statement: Dr. Nirupama Niru</p> <p>Presentation: Chayadhana Chaimongkol [MON 5.2(4)]</p> <p>Presentation: Vladimir Smakhtin [MON 5.5(7)]</p> <p>Session Chair Summary: Georgios Marios KARAGIANNIS (MON 8.1)</p>
Chapter D/ Par.22c/ P. 8	c) Make non-sensitive risk, disasters and loss information free, openly available, and accessible, and ensure its dissemination, at all levels, taking into account the needs of	Guidance needs to be given for research in generating risk and vulnerability information and tools and methodologies to be shared, through open source and open access platforms. The Index for Risk Management (InfoRM) is an open source that measures the risk of humanitarian crises and helps prevent, mitigate and prepare for them through a common and shared way to help understand risks. It can be used for prioritisation, risk profiling, trend analysis and strategic evaluation.	Personal Statement: Khalikov Rashid

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	different categories of users. It is important to ensure real-time access to reliable data, and use ICT innovations to enhance collection, analysis and dissemination of data;	<p>Managing a National Register of Alerting Authorities; thus, nationally recognizing those individuals and departments mandated with authoring and originating alert and early warning messages. The interoperability requirements are not just with technology but also with the social, content components associated with an implementation. It requires bringing together multiple agencies with a stake in risk knowledge mobilization; especially emergency services and other communities of practice that can better coordinate with improved situational-awareness. The CAP (Common alerting protocol) “adoption” understands that one should consider cooperating with multiple stakeholders and it can become quite difficult given the organizational structures and their relationships. There is a need for more case studies to understand and, if necessary, overcome or harmonize with those social barriers, behavioral changes, and technological complexities resulting from CAP. HFA should emphasis investments for adopting an integrated functional approach to early warning system development that would better serve “interoperability”</p> <p>Call for research on empirical data, use of social media tools, target group specific communication (social and cultural milieus)</p> <p>Call for research on increasing technological sophistication in digitally automated emergency messaging, options to strategize messages increase. It is recommended to further research simultaneously capturing data which may be useful in accurately analysing effectiveness of messaging strategies.</p> <p>Call for training as to uses of channel redundancy during various phases of crisis</p> <p>Implementation & Training: Communication needs to be a featured focal area of crisis preparation</p>	<p>Conference Proceedings: 128, Research</p> <p>Presentation: Anna-Lena Koeng [TUE 7.3(4)]</p> <p>Presentation: Robert Chandler [WED 1.2(4)]</p> <p>Presentation: Robert Chandler [WED 1.2(4)]</p> <p>Presentation: Robert Chandler [WED 1.2(4)]</p>
Chapter D/ Par.22d/ P. 8	d) Build the capacity of local government officials, public servants, communities and volunteers through sharing of experience, training and learning programmes on disaster risk reduction, targeting specific sectors to ensure consistent collection, analysis and use of risk	<p>Infrastructure to support application of ICT tools on research and development for DRR is lacking grossly in developing countries. Capacity building for teachers to engage with relevant stakeholders also needs to be addressed. Access, Intellectual property, and ethics are necessary perquisites to sustain research in different contexts and societies.</p> <p>Education & Training: no scientific evaluation methodologies to capture and feedback disaster exercises; training and education of rescue staff shall be evaluated with scientific standards and methods. Guidelines and scientific methodologies are needed to evaluate exercises independently trained scenarios and concepts to ensure</p>	<p>Personal Statement: Otu Uwem Robert</p> <p>Presentation: Florian Brauner [MON 1.3(1)]</p>

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	assessment, and implementation of disaster-risk related policies and plans;	comparability and improve performance.	
Education & Training: training of staff for relocation processes, find innovative ideas to reach out to communities and make their voices heard		Presentation: Solène Dengler [Mon 7.4(6)]	
Training on new and improved methods of rescue and recovery of livestock during and reduction of loss of livestock after disasters		Session Chair Summary: Bernard Tarza TYUBEE Tue 1.4	
<p>It is important for aid teams (SAR) to take regular trainings in order to be prepared for response at all times. Besides aid teams in the countries, security personnel (military, police force and gendarme) to be assigned after disasters should at a minimum take search and rescue trainings, including the use of new related technologies.</p> <p>It is also important for such teams to take disaster psychology training and to increase the number of psychosocial support teams and prepare them for disasters psychologically.</p> <p>It may be crucial in minimizing threats to life to give periodical awareness raising trainings, using technology such as an earthquake simulator, to the public.</p>		Personal statement: Avci Hatice	
<p>At local and community level, continuous education on hazards and risks combined with adequate training can substantially reduce losses and damages in case of a severe event. For example, raising awareness for hazard mapping and land-use planning, teaching house owners on how to build a house disaster proof, or providing practical trainings and drill exercises may substantially strengthen DRR activities. If possible, drills should involve all the relevant blue light organizations (police, fire-fighters, civil protection, ambulances, and technical services) but in particular also the public and the media. Lessons learned from such drills should be implemented without delay into the operational and organisational reality. For future drills it is also essential to incorporate lessons learnt from recent disasters and drill exercises. Technicians and relief workers should also be regularly trained for a better support in disaster relief. Rotating the lead in such drills might increase the flexibility and professionalism in decision making and rapid response, and improve cooperation. Emphasis should also be put on leadership built-up in local community to increase their organizational capacities.</p>		Outcome Expert Workshop	
Specific training programs should be designed and provided to governmental officials at all levels and to politicians to make them qualified in the processes of developing their risk reduction strategies, their policies and disaster management plans, and their decisions.	Outcome Expert Workshop		

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Chapter D/ Par.22e/ P. 9	e) Promote and improve dialogue and cooperation among scientific communities, including social, health, economic and environmental sciences, practitioners, businesses, people at risk and policymakers;	Establishment of cross-disciplinary frameworks to bring together emergency management and disaster risk domains	Presentation: Brian Gray [Mon 1.2(4)]
Chapter D/ Par.22f/ P. 9	f) Ensure the use of traditional and local knowledge to complement, as relevant and appropriate, scientific knowledge in disaster risk assessment and the development and implementation of policies, plans and programs;	<p>The exercise experience illustrates good practice on the delivery of a virtual learning environment in the disaster management context. The evaluation framework also gives a new method to assess the effectiveness of the learning outcomes. It can be argued that the methodology could be applied to and used, in an economically sustainable way, for training and education purposes for the enhancement of disaster risk reduction and resilience capacity building.</p> <p>The methodology of designing, delivery and evaluation can be applied to the national, regional, local, and community levels, and could be successfully used in schools for disaster prevention education. With the capacity of the technology platform, it is also a mechanism to enhance multi-agency and or multi-national coordination and communication standards. A virtual platform also allows training (and awareness raising activities) to be conducted in a realistic environment without participants being exposed to real-world risks</p> <p>Research: “Integrative Risk Management” = an interdisciplinary topic; knowledge of end-users is necessary to overcome the gap between theoretical approaches and the application; iterative evaluation through an end-user advisory board should be ensured.</p> <p>To foster understanding of resilience at local level: context-specific learning from resilience programs and activities</p>	<p>Extended Abstract: Yung-Fang Chen</p> <p>Presentation: Florian Brauner [MON 1.3(1)]</p> <p>Presentation: Jeroen Jurriens [MON 7.2(2)]</p>
Chapter D/ Par.22g/ P. 9	g) Strengthen technical and scientific capacity to develop and apply methodologies, standards,	There is still very little uptake of ICTs in disaster management. Mobile phones are gaining wide spread use but not many applications beyond voice. However, there are communities of practice that do leverage ICTs. Research in understanding those	Conference Proceedings: 129, Research

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	metrics and models to assess vulnerabilities and exposure to all hazards, taking into account landscape and watershed level considerations and ecosystem functions and services to reduce disaster risk in risk assessment protocols;	segments of users and improving applications to better serve their disaster management informatics.	
Chapter D/ Par.22h/ P. 9	h) Invest in research, innovation and technology and promote a long-term multihazard approach and solution-driven research for disaster risk management to better address gaps, societal challenges and emerging risks and interdependencies;	<p>Business Continuity Management ISO certification, fostering organisations to acquire it through good practices already in place</p> <p>Accelerate the transition of economic growth patterns It has been recognized by most countries that fast economic development creates various risks. New economic development models have been studied to varying degrees by nations. It is important to encourage these countries to accelerate this transition process with a focus on structure adjustment supported by innovation and development in science and technology</p> <p>Redirection of efforts and resources to emerging areas of DRR is likely to yield greater marginal outputs. In particular, the analysis of complex and interrelated multi-hazards, critical infrastructures and services and their interdependencies, protection targets, the evaluation of effectiveness and efficiency of measures reducing vulnerability and increasing resilience, human agency aspects of risks, and interactions with ecological, social, and political systems remain challenging, and require further research. The growing interconnectedness of critical infrastructures and services means that even minor and superficially harmless disruptions can trigger chain reactions capable of causing damage to the entire system.</p> <p>Recognizing the gaps in implementation, the need to refocus research activities to new areas acknowledges that a transition in thinking is required, redirecting the “science of what” to a “science of how” and applying existing skills and knowledge more effectively. This includes addressing emerging problems in multidisciplinary, applied and justified ways. The innovation in DRR management due to technological</p>	<p>Session Chair Summary: John ZEPPOS, Hitoshi BABA (TUE7.2)</p> <p>Conference Proceedings: 130, Policy</p> <p>Outcomes Expert Workshop</p> <p>Outcomes Expert Workshop</p>

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		<p>progress should nevertheless be pursued even for issues of DRR where the scientific knowledge is deemed satisfactory. The vulnerability of our critical infrastructures and services continuously shows how important it is for business and society to be able to adapt in the face of major adverse events.</p> <p>The knowledge gained by science and technology; such as a better understanding of hazards and risks, of methodologies, tools, technologies created, and lessons learned from forensic disaster investigations, etc.; to reduce risks and vulnerabilities and increase resilience have to be further implemented into practice. Focus of activities should be put on transition and implementation approaches. The main aim of implementation has to be the reduction of risks, and the avoidance of new risks to be created. The primary goals are to protect and save lives, and to protect livelihoods and assets. While there is increased awareness on the benefits of engaging in risk reduction at all levels, progress is still required in reducing underlying risk factors that will in turn contribute to a significant reduction of risks.</p>	<p>Outcomes Expert Workshop</p>
Chapter D/ Par.22i/ P. 9	i) Promote the incorporation of disaster risk education, including preparedness, in educational curricula at all levels and in informal education systems, as well as in professional education;	<p>Education & Training: strong need of core-curriculum to educate and train geo-information officers, medical engineers and citizen scientists who can manage statistics and GIS</p> <p>Basic education and training of disaster medicine and public health in the health related schools are needed.</p> <p>Education on DRR can be partially realized by social networks, including family and relatives, neighbourhood, distance learning, local NGO networks, the media, etc.. An all-inclusive approach with robust capacity building methods and sound and disaster-proven know how has to be established. A special focus should be given on people living in hazardous areas, or in heavily populated urban informal settlements characterized by substandard housing. To successfully raise awareness and educate the society at large ethical questions, religious concerns, gender issues, the integration of disabled and elderly people, pets, and livestock have to be addressed. In order to better share information and knowledge cooperation between local, national, and even international NGOs and international organizations has to be established and increased. Standard terminologies on DRR will also help the increase of common DRR understandings and behaviours.</p>	<p>Presentation: Tomoyuki Furutani [MON 7.3(7)]</p> <p>Session Chair Summary: Shinichi EGAWA, Mohsen NADI Mon 8.2</p> <p>Outcome Expert Workshop</p>

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		Education on hazards and risk reduction should be provided mandatorily from pre-school to university level. These education activities should support children and students obtaining capabilities to increase their own resilience to disasters, and to support their schoolmates, relatives and neighbours. Both teaching staff and students should be involved in regular drilling exercises	Outcome Expert Workshop
		Risk reduction and disaster management require many skills and professional backgrounds. High quality graduates already exist with a strong and specific background in one or the other sectors related to DRR. However, to cope with risks and disasters the demand for inter- and trans-disciplinary skills is increasing. Various academic disciplines from natural, social, medical, and engineering sciences have to develop extended curricula and offer close insights into other relevant disciplines by multi-disciplinary master courses for DRR, post-degree continuous education courses, or certified advanced study courses. For example, engineers may complement their academic background with specific insights and tools from social sciences, and the insurance sector.	Outcome Expert Workshop
		Access to latest knowledge, skills, tools, and data. The access to existing and new technologies, e.g. with e-learning courses, the free access to software, staff “teachers without borders”, or courses should be enabled. Comprehensive text-books on integrative DRR are missing and have to be elaborated, providing up-to-date knowledge on DRR, integrating the various disciplinary perspectives, and the various national and local experiences. These text-books might need country and risk specific adaptations.	Outcome Expert Workshop
		Practitioners should periodically follow continuous education courses and get a chance to progress within their career. The establishment of a standardized, international certificate or a post graduate degree could represent the necessary incentives for further trainings. Continuous education is of particular importance for people who have responsibilities in early warning, or in disaster response and recovery phases.	Outcome Expert Workshop
		Alternative education approaches, e.g. unified symbols for not fully educated people, for minority groups, or for foreign-language groups should be considered. Education and training programmes should provide a special focus on disabled people, devising alternative involvement methodologies for them. In addition, handbooks for	Outcome Expert Workshop

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		implementation of disaster risk reduction should be especially compiled and widely circulated considering the most vulnerable.	
Chapter D/ Par.22j/ P. 9	j) Promote national strategies to strengthen public education and awareness of risk information and knowledge through campaigns, social media, community mobilization and other available means, taking into account specific audiences and their needs.	In addition to education regarding issues of cognitive functioning during crisis, it is important to know which communication channels are available and effective in various areas and which are changing. Within the social media channel, for example, options vary depending on demographics. Moreover, there should be training as to uses of channel redundancy during various phases of crisis.	Personal statement: Robert Chandler
		Facilitating exchange of information on good practices, lessons learned via the Wiki and social media channels (LinkedIn Group, Twitter, Google+, SlideShare, YouTube); providing training and educational materials targeted at specific sectors eg. local government and business; promoting engagement of social media to stimulate a culture of disaster resilience and strong community involvement in public education campaigns.	Extended abstract: Eileen Culleton
		Social media and mobile technologies ‘Traditional’ media still play a crucial role in information dissemination, but social media and mobile technologies can now aid with reaching out to a broader audience. Additionally, these technologies can help ensure the speedy dissemination of information and have the potential to involve citizens in adaptation planning and disaster risk reduction through their interactive approaches. The city of Bologna, Italy, for instance, has developed a smartphone application, called Blue AP(P), to inform citizens and stakeholders about adaptation and resilience and to actively engage them in the data collection process and future actions of the city.	Conference Proceedings: 134, Education
		Much of the focus of the papers and presentations were on the impact of social media that is gaining recognition in the absence of formal national systems for similar risk information sharing. Governments should consider policies that favour the integration of social media to engage the public in disaster management information sharing. There are several studies that indicate social media platforms to foster public forums for increasing public awareness during all aspects of the disaster management cycle.	Conference Proceedings: 129, Policy
		Effective disaster risk reduction requires effective community participation. The scope and depth of collaboration between public and municipal emergency actors and voluntary organizations differ a lot depending on population density, size of local community and geographical characteristics. These factors seem to have most impact on how formal the collaboration is between the professional and voluntary	Extended Abstract: Mikael Linnell et all

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		<p>organizations and issues related to resources of different kinds. Public-private collaboration are important for prevention, preparedness, operations and recovery. They can in turn improve the resilience of communities, though more empirical research on how to include the public in collaboration on crisis and emergency management in a European context is needed.</p> <p>Based on the increased awareness of citizens to engage in risk reduction activities, a more proactive approach has to be stimulated and developed. Citizens have to play a more decisive role within the overall DRR strategies, asking for higher safety standards directly to service or goods providers, rather than simply expecting that governments or local authorities implement mitigation strategies. The more people are aware of the hazards and risks, the more they will ask for services and products which are not subject to threats.</p>	<p>Outcome Expert Workshop</p>
Chapter D/ Par.23a/ P. 9	Share and cooperate on the development of science-based and common methodologies and standards for risk modelling and assessment, monitoring, early warning, disaster recording and statistics, and disaggregated data collection;	<p>National, international networks:</p> <ul style="list-style-type: none"> - There is an important role in guiding each other: through the development of a global peer support network in DRR, not just through research but from community to community (“sister” city, village), both nationally and internationally. - How do agents at local, national, and international levels communicate and coordinate during response and in sharing knowledge pre and post disaster? What is the role of informal relationships within these distributed networks? - In developing and establishing science advisory groups, we must identify existing examples of good practice for physical and social science integration and practice as a guide <p>Disaster-related studies use different languages and terminology; and conceptual approaches of disciplines involved in disaster mitigation vary. Such differences tend to weaken the effectiveness of efforts towards disaster mitigation. A common international terminology and interdisciplinary methodology should be developed for disaster mitigation.</p> <p>Promoting the establishment of a global paradigm and an alliance for large-scale disaster risk governance - The purpose of establishing a Global Alliance of Large-scale Disaster Risk Governance is to strengthen political will, to better use the power of leadership, and to improve and promote governance, accountability, transparency, and inclusiveness in disaster prevention and reduction. A further important aim is to intensify knowledge sharing and education in disaster prevention and reduction.</p> <p>There are many alternative viewpoints in Integrative Risk Management but what is</p>	<p>Conference Proceedings: 127, Policy</p> <p>Personal statement: Dr. Alarslan Ebru</p> <p>Conference Proceedings: 130, Policy</p> <p>Personal statement: Dr.</p>

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		urgently required is a multi-discipline global Thought Leadership Group that is able to operate 'above politics and with an ethos of finding solutions that ensure 'harmonious living' goals. The European Joint Research Centre could be one such platform.	Flude Royston
Chapter D/ Par.23b/ P. 9	Continue promoting the use, application and affordability of, and access to, information, communication and space-based technologies and related services, as well as maintaining and strengthening in-situ and remotely-sensed earth observations, to support disaster risk reduction at all levels, and strengthen the utilization of social media and mobile phone networks to support successful risk communication;	Education & Training: satellite Earth Observation is a powerful and compelling tool to train local decision-makers on risk assessment	Presentation: Andrew Eddy [MON 1.1(6)]
Chapter D/ Par.23f/ P. 10	Enhance the scientific and technical work on disaster risk reduction through the mobilization of existing networks of scientific and research institutions at national, regional and international levels in order to strengthen the evidence base in support of the implementation and monitoring of this framework, promote scientific research into risk patterns and trends and the causes and effects of short and long-term disaster risk in society, utilize available good practices and lessons learned, provide guidance on	<p>ESC welcomes the existence of a Scientific and Technical Advisory Group of UNISDR. This committee should be enabled to play a more active role during the forthcoming post-2015 DRR Era by facilitating the necessary coordination among scientific community working especially on DRR.</p> <p>A requirement for an International Science Advisory Mechanism for Disaster Risk Reduction to enhance resilience has been expressed.</p> <p>Research and technology approaches should be deployed via improved organization and coordination of already existing networks of researchers and practitioners that draw upon and build capacities of local and regional institutions and universities, tailored to regional needs. Business feasibility and cost benefit analysis should also be included to establish action interventions. This supports the understanding of the long-term values that resilience adds to businesses and to society.</p> <p>Failures in DRR are not primarily due to lacking scientific knowledge but are a consequence of not knowing how to best translate it into applicable know how at the "last mile". Emergent research using scientific approaches to the examination of knowledge application, deeper understandings of complex systems, and that</p>	<p>Conference Proceedings: 133, Research</p> <p>Presentation: Colin Armstrong UK [TUE 6.3(5)]</p> <p>Keynote: Nishikawa Session: MON 8.3 Outcome Expert Workshop</p> <p>Outcome Expert Workshop</p>

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	methodologies and standards for risk assessments, risk modelling and the use of data, identify research and technology gaps and set recommendations for research priority areas in disaster risk management, promote and support the availability and application of science to decision making, contribute and cooperate on the update of the 2009 Terminology on Disaster Risk Reduction, and use post-disaster reviews as opportunities to learn and enhance public policy.	<p>integrate human and ecological systems, offer considerable possibilities for new approaches. Direct attention to knowledge translation as a valid and indeed necessary component of DRR suggests that physical science needs to work directly with social science in all its many facets. The emphasis should be on transformation science consisting of integrated and interdisciplinary systems understanding of hazard/risk - society interactions, and strengthening risk governance at all levels. Clear objectives of what should be accomplished in what time frame (orientation knowledge) are equally important. Transformation science should also integrate the implementation know-how of what types of interventions and instruments are effective, efficient and sustainable within the context in which they are applied.</p> <p>A multi-stakeholder approach is needed for the successful implementation of risk reduction strategies and techniques at national levels. The scientific community in each country must provide easily understandable, evidence based information on risks and hazards to the private sector, the citizens and the government, so as to further raise awareness and to encourage proper choice of products and services. It is also important to provide knowledge for the drivers and incentives that push such implementation strategies and services forward. The “science of HOW” as described above has to provide support on how to raise awareness for DRR, on how to incentivise DRR, on how to prove evidence for DRR, etc</p> <p>Existing international platforms and networks should be used for sharing knowledge, expertise and experiences. Such platforms already exist within the UNISDR system but need improved coordination through the ISDR Secretariat. They are complemented by existing international conferences and workshops, where science presents latest research findings, or where science meets practice.</p>	<p></p> <p>Outcome Expert Workshop</p> <p>Outcome Expert Workshop</p>
Chapter D/ Par.25a/ P. 10	Promote the coherence of, and further develop as appropriate, national and local frameworks of law, regulation and public policy, including for development, poverty reduction, climate change adaptation and environmental management, which through defining roles and responsibilities guide the public sector in: (i)	<p>The SRA-Europe Istanbul 2014 Conference addressed “Analysis and Governance of Risks beyond Boundaries” as the main theme. Policies on risk reduction are strongly associated to governance system as it deals with the implementation processes of policies. Consequently, relevant policies, governance system and legislation should be coherent to support risk reduction rather than to raise obstacles. In other words, in the risk governance system, each sequence and inter-connectivity of sequences have to be endorsed with legal basis without causing gaps or overlays. On the other hand, there is an emergence to consider risk reduction policies not only at the local/national scale, but also linkages with cross-border relations should be established.</p> <p>Policy: development of dangerous goods transportation regulations and build up</p>	<p>Conference Proceedings: 136, Policy</p> <p>Presentation:</p>

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	addressing disaster risk in publically owned, managed or regulated services and infrastructure, and (ii) regulate and provide incentives for actions by persons, households, communities and businesses;	<p>emergency response capabilities of dangerous goods transportation in developing countries / regions.</p> <p>Policy: Ensuring that new storage projects adhere to strict social, environmental, livelihood support and health regulations</p> <p>Policy: adaptation of low-carbon development policies</p> <p>Implementation & Practice: there is a huge need for environment barriers reduction</p> <p>Integrated planning and cross-sectoral coordination: Despite attempts to facilitate coordination across sectors, siloed institutional arrangements are still prevalent in many cities. Institutionalizing a holistic approach by reintegrating city departments is therefore crucial for developing future-oriented policies in disaster risk management and climate adaptation. Instead of focusing on solving only one problem at a time, municipalities should encourage communication and institutional coordination in order to fundamentally redesign and optimize systems, which can then deal with unpredictable events.</p> <p>Creating synergies between disaster risk reduction and climate change adaptation. Currently, disaster risk reduction and climate change adaptation are typically managed as two separate processes, particularly at the intergovernmental level. Creating synergies between these two policy areas and acknowledging their interrelation in the Post 2015 Framework for Disaster Risk Reduction would help to overcome this artificial differentiation. A respective proposal in this direction has already been developed by numerous mayors and municipal leaders during the Mayors Adaptation Forum at Resilient Cities. This proposal suggests that the Durban Adaptation Charter, the global guideline for climate adaptation at the local level, should officially recognize disaster preparation as first step of any adaptation strategy. In return, the Making My Cities Resilient Campaign of UNISDR, the core tool to promote the HFA at the city-level, should suggest supplementing disaster risk reduction with ecosystem- and community-based adaptation to ensure additional development benefits.</p>	<p>Chayadhana Chaimongkol [MON 5.2(4)]</p> <p>Presentation: Vladimir Smakhtin [MON 5.5(7)]</p> <p>Presentation: Betül Kurada [MON 8.1(5)]</p> <p>Presentation: Carlos Kaiser [TUE 5.4(4)]</p> <p>Conference Proceedings: 134, Implementation</p> <p>Conference Proceedings: 134, Policy</p>
Chapter D/ Par.25b/	Adopt and implement national and local plans, across different	Accelerate the transition of economic growth patterns It has been recognized by most countries that fast economic development creates various risks. New economic	Conference Proceedings:

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P. 10	timescales aimed at addressing short, medium and long term disaster risk, with targets, indicators and timeframes;	<p>development models have been studied to varying degrees by nations. It is important to encourage these countries to accelerate this transition process with a focus on structure adjustment supported by innovation and development in science and technology. Establish a diversified energy security and supply chain system By increasing the use of renewable energy and other non-fossil fuels, new energy structures should be developed. Furthermore, a new clean energy partnership between developing and developed countries must be established under new international mechanisms. To prevent disruptions in production and supply chains, the World Trade Organization should develop global cooperative regulations to efficiently reduce the negative impacts of large-scale disaster risks.</p> <p>Research should strive to develop and encourage national and international cost-effectiveness and cost-benefit standards for health disaster risk, similar to those that presently exist for regular or ecological programs (Armantier and Treich, 2004)</p>	<p>130, Policy</p> <p>Extended abstract: H. Pasquini-Descomps et all</p>
Chapter D/ Par.25c/ P. 10	Strengthen mechanisms to monitor, periodically assess, ensure compliance, and publicly report on progress on national and local plans by all public and private stakeholders;	Science can contribute enhancing resilience through advanced methodologies developing hazard and risk monitoring, early warning and rapid response and early damage assessment systems. New strategy document must emphasize the importance of those systems and promote countries during the implementation of the new strategy.	Conference Proceedings: 133, Research
Chapter D/ Par.25e/ P. 10	Promote public scrutiny and institutional debates, including by parliamentarians and other elected officials, on progress reports of local and national plans;	<ul style="list-style-type: none"> - We can involve the media to help us highlight the political obligations for implementation of DRR. - There is a strong need for the translation of science and DRR into media language and message. - The media challenged the scientists: asking them to identify how we can make DRR enticing to the media at the mitigation and preparation stage, not just at the response and recovery phase. - We need to build trusted partnerships with the media prior to an event. - Strong science/media relations can be used to systematically build emergency preparedness. 	Conference Proceedings: 127, Implementation
Chapter D/ Par.25f/ P. 10	Establish or further strengthen all-stakeholder coordination mechanisms at national and local levels, such as national and local platforms for disaster risk	Policy is still somewhat reluctant to include the civic society actors into the preparedness plans so there is a need for guidelines on how to promote the partnership of authorities and the civic infrastructure for better resilience of the communities	Session Chair Summary: Hannu Rantanen (Tue6.1)

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	reduction It is necessary for such mechanisms to have a strong foundation in national institutional frameworks with clearly assigned responsibilities and authority to, inter alia, identify sectoral and multisectoral risk, build awareness and knowledge of risk through sharing and dissemination of risk information and data, contribute to and coordinate reports on local and national disaster risk, coordinate public awareness campaigns on disaster risk, facilitate and support local multisectoral cooperation (e.g. among local governments), contribute to the determination of and reporting on national and local disaster risk management plans. These responsibilities and authority should be established through laws, regulations, standards, and procedures, as appropriate;	<p>Policies should strive to operationalize a Multi-Agency Situational Awareness platform. The CAP standard, as a first step, recommends implementing a CAP Profile for the Country. Register of Alerting Authorities and Information Communication Technology are key ingredients of implementing CAP for improving National Situational Awareness for inter jurisdictional, intra jurisdictional, and cross-border risk information mobilization.</p> <p>Implementation & Practice: integrated registration systems by industry major bodies, comprehensive risk management audits by insurance companies</p> <p>Utilize common language and platforms to advance qualitative and quantitative measures of resilience to enable accountability, transparency, local knowledge empowerment</p> <p>Integrative Risk Management solutions should be more user oriented</p> <p>Implementation & Practice: designation of national agencies responsible for the management of relocation and coordination of various actors</p> <p>Focusing equally on all the phases of risk reduction and disaster management (prevention, preparedness, intervention and recovery) via the Integraive Risk Management approach. This helps to identify risks, reduce, cope with and transfer risks as well as manage the residual risks. For such a risk reduction approach, it is not only mandatory to reduce the direct risks of natural and man-made disasters, risks having their roots in poverty, corruption and bad governance are equally important factors in need for sustainable management. Taking into account all different risk factors and reducing them to the most efficient and effective minimum results in a “human secure” society, resilient to resist the very large disasters of the future.</p>	<p>Conference Proceedings: 128, Policy</p> <p>Presentation: Betul Sekendiz [MON 5.4(2)]</p> <p>Presentation: Sarah Henly-Shepard [TUE 7.3(1)]</p> <p>Session Chair Summary: Sebastian, MAYGRÜNDTER (MON 1.3)</p> <p>Presentation: Solène Dengler [MON 7.4(6)]</p> <p>Outcome Expert Workshop.</p>
Chapter D/ Par.25g/ P. 11	Empower, through regulatory and financial means, local action and leadership in disaster risk management by local authorities, communities and indigenous people;	<p>Public and private actors need to be incentivized to make risk informed decisions. Those incentives can rank from subsidies for eco-system protection and maintenance to tax reduction for those actors investing in prevention.</p> <p>If disaster insurance, particularly for property, is made mandatory, the government should enforce this requirement through a disciplined approach. At the same time provisions need to be made to facilitate development and public access to disaster risk information and private insurance products. Government subsidization of disaster</p>	<p>Extended abstract: N. Stolz et all</p> <p>Session Chair Summary: [implementation]</p>

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		insurance should not be dismissed without proper analysis. Well designed and targeted subsidization can improve the competitive market, making insurance more client-focused and affordable for all citizens, ultimately producing a much greater socioeconomic benefit to society than the original government inputs.	
		One of the great challenges for implementation of HFA, is creating demand in the public for safe construction and risk reduction. Earthquake insurance is an essential key for creating financial incentive among public, especially for the countries that people rely on government for recoveries and insurance penetration is very low.	Extended abstract: Mohsen et all
Chapter D/ Par.25h/ P. 11	Stimulate, in accordance with national practices, the development of quality standards and mechanisms, including certifications, for disaster risk management, with the participation of the private sector and professional associations and scientific organizations.	Usability of indexes and standardization of indicators Indexes detailing resilience have multiple benefits: they offer a holistic overview of a city's performance while enabling knowledge sharing and transparency. However, the index's indicators need to be standardized in order to allow for comparability between cities. Currently, this is often not the case, as cities use indicators which partly differ from those being used in other cities. This inconsistency impedes learning and development processes, as comparisons becomes more difficult. Additionally, there is a demand for more user-friendly and comprehensive indexes that are more accessible to a greater variety of actors (e.g. local government)	Conference Proceedings: 134, Research
		There is a need to scale up from locally specific research to developing broader operational guidelines and standards for incorporating ecosystems in DRR and adaptation	Session Chair Summary: Karen SUDMEIER-RIEUX (WED5.3)
		Development of best practice guidelines as well as examples of successful resilience and capacity building projects.	Personal Statement: Dr. Nirupama Niru
		Policy Dialogue: Involvement of social science communication research findings and expert researchers in the development and stipulation of policies, regulations, requirements and minimum standards of compliance/performance is essential to effective policy dialogue.	Presentation: Robert Chandler [WED 1.2(4)]
		Vulnerability-based methods and indices need to be complemented by indices looking at business environments for DRR and climate resilience	Presentation: Jean- Christophe Amado [MON 6.3(3)]
Chapter D/ Par.26a/ P. 11	Continue to guide action at the regional level through agreed regional and sub regional strategies for disaster risk reduction, adjusted, as	As an outcome of the consultation process to date, the need for appropriate governance has been highlighted as a critical issue for HFA2 and important matters such as the development of coherent (and eventually binding) frameworks and specific policies, the coordination of roles and clarification of responsibilities, and increased accountability have been raised by different stakeholders.	Extended Abstract: Veronica De Majo

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	appropriate, in light of the framework;		
Chapter D/ Par.26b/ P. 11	Foster collaboration and partnership across mechanisms and institutions for the implementation of instruments relevant to disaster risk, such as for climate change, sustainable development, environment, health and others, as appropriate;	<p>Incorporating economic development, life style, and ecosystem services to better adapt to the changing environment - Tackling climate change should be regarded as just one aspect of the more extensive goal of social economic development and global justice. Efficient adaptation and mitigation measures based on concordant efforts could generate massive benefits, including the reduction of health costs and economic and environmental costs, as well as the recovery of the ecosystem and rejuvenation of the ecosystem service industry. There is a need to establish a regional development mode for adaptation to climate change and comprehensive risk reduction. Furthermore, industrial restructuring needs to occur, and we must conserve resources, promote coordinated development between domestic and international markets and resources, and improve the efficiency and effectiveness in natural resource use. It is also necessary to incorporate economic development, life style, and ecosystem services to better adapt to our changing environment. By implementing these approaches, concrete measures should be combined with the strategy for disaster risk reduction, economic development and poverty alleviation, and regional, local, and sectoral development plans, so as to achieve effective concordance among all stakeholders.</p> <p>Better integrate DRR and CCA in sectoral policies, investment plans and development programmes in order to reduce emerging risks associated to extreme climate events.</p>	<p>Conference Proceedings: 130, Policy</p> <p>Session Chair Summary: Stephan BAAS, Markku T. HÄKKINEN Thu1.3</p>
Chapter D/ Par.26c/ P. 11	Continue to actively engage in the Global Platform for Disaster Risk Reduction, the regional and subregional platforms for disaster risk reduction and thematic platforms, which represent effective multi-stakeholder mechanisms to forge partnerships, periodically assess progress on implementation and share practice and knowledge on risk informed policies,	<p>Policy: Develop the Global Paradigm for Large-scale Disaster Risk Governance. Establish the Global Foundation for Large-scale Disaster Risk Establish the Global Network for Large-scale Disaster Response.</p> <p>Establishment of a global foundation for large-scale disaster risk - In light of the proposed consilience model of large-scale disaster risk governance, the establishment of the Global Foundation for Large-scale Disaster Risk (GFLDR) has been suggested. The GFLDR will represent the response strategy of “one for all, all for one”, similar to the support given by the World Bank and International Monetary Fund to world economic development. It would be appropriate for this foundation to be managed by the UN (and presently by UNISDR), and funds could be raised through multiple channels. The aims of the foundation include providing support to all countries to disseminate and apply diverse technologies to cope with disasters and to promote the</p>	<p>Presentation: Peijun Shi [THU3.1]</p> <p>Conference Proceedings: 130, Implementation</p>

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	programmes and investments, including on development and climate issues;	voluntary transfer of these achievements to all UN member countries. Further aims include to support the UN in establishing a disaster insurance program and to see the global transfer mechanism for disaster risks to its completion. In doing so, the disaster reduction strategy mechanism of the UN will be improved via the GFLDR. Thus, the third decennial plan of the UN disaster reduction actions can be initiated, and the disaster reduction coordination network of the UN will be complete.	
Chapter D/ Par.26f/ P. 11	Strengthen cooperation and call for contribution to the development of international monitoring mechanisms, such as the HFA Monitor, that are intended to support and complement national and local monitoring systems, and provide a practical understanding of overall regional and global efforts to manage disaster risk. Such information is of relevance in the consideration of progress on the sustainable development agenda and goals, and on climate change.	<p>Monitoring progress towards internationally-agreed targets for reducing disaster losses and building resilience to disasters.</p> <p>A major gap in Disaster Risk Management that needs to be addressed concerns the need for ongoing monitoring of areas of concern and the development of an understanding of the context of the risk both in terms of the geophysical but also the geopolitical.</p> <p>A legal framework and clearly defined roles and responsibilities of all different stakeholders at local to national level are useful to protect the many services from adverse effects. Therefore, DRR and reducing vulnerabilities as a consequence are clearly beyond a purely humanitarian approach, and have to become unique focus of a sustainable development process and resilient livelihood approach. DRR is a cost-effective tool to reduce poverty and to make progress towards sustainable livelihoods</p>	<p>Conference Proceedings:147, Implementation</p> <p>Personal statement: Haithcoat Timothy</p> <p>Outcome Expert Workshop</p>
Chapter D/ Par.28b/ P. 12	Strengthen public investments in critical facilities and physical infrastructures, particularly disaster prevention and reduction structural measures, schools, clinics, hospitals, water and power plants , communications and transport lifelines, disaster warning and management centres through proper design, including the Principles of Universal Design, building better from the start,	<p>Also, assessing the existing capacity of critical infrastructure is an area which requires further research. Much of European infrastructure (particularly road and rail) is old however accurately assessing its capacity is vital.</p> <p>Research: drinking water quality (analytical method); waste reduction (technology method), Together with scientists from the different countries will be able to find a solution to problems.</p> <p>Emphasizing capacity building of six infrastructure systems, i.e., civil, civic, social, educational, financial and environmental to expedite recovery</p> <p>Governments need to include investments in natural infrastructure in their scope of possible measures for reducing disaster risks as these are cost-effective over the long run as their benefits accrue over time as compared to grey infrastructure.</p>	<p>Personal statement: Dr. Tucker Mark</p> <p>Presentation: Jozsef Dobor [MON 1.3(2)]</p> <p>Presentation: Makarand Hastak [THU1.1(3)]</p> <p>Session Chair Summary: Karen SUDMEIER-RIEUX (WED5.3)</p>

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	retrofitting and re-building, taking into account economic, social, and environmental impact assessments.		
Chapter D/ Par.28d/ P. 12	Give land-use policy development and implementation, including urban planning, informal and non-permanent housing, special attention due to their direct impact on risk exposure;	Improving seismic hazard evaluation by new advanced methods of assessment and mapping, including systematic detailed microzonation analysis, to significantly reduce or overcome main uncertainties still affecting hazard studies in some regions. In addition, strong support should be given to more reliable vulnerability and risk assessments specially in developing regions.	Conference Proceedings: 133, research
Chapter D/ Par.28e/ P. 12	Promote the incorporation of disaster risk assessment into rural development planning and management, in particular with regard to mountain and coastal flood plain areas, including through the identification of land zones that are available and safe for human settlement;	As part of national disaster preparedness, government and commercial port operators (air, sea, land) should ensure port facilities are both structurally resilient and prepared to cope with potential large-scale inflows of humanitarian relief items and/or material for reconstruction. Nexus between agriculture, food security and nutrition and DRR needs to be incorporated into HFA2	Session Chair Summary: Daniel KULL (WED1.1) Session Chair Summary: Stephan BAAS, Markku T. HÄKKINEN Thu1.3
Chapter D/ Par.28f/ P. 12	Encourage the revision of existing or the development of new building codes, standards, rehabilitation and reconstruction practices at the national or local levels, as appropriate, with the aim of making them more applicable in the local context, particularly in informal human settlements, and reinforce the capacity to implement, monitor and enforce such codes, including through a consensus-based approach;	Updating building codes, and land use plans, emphasizing retrofitting of existing strategic buildings, like e.g. schools and hospitals, critical infrastructures and cultural heritage should be coordinated with new strategy on DRR. Information about prevailing risks is key for the awareness rising of particular stakeholders and society at large. Access to information at local level is important, but also the collection of local knowledge to be incorporated into decision making processes.	Conference Proceedings: 133, research Outcome Expert Workshop

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Chapter D/ Par.28h/ P. 12	Strengthen the implementation of social safety-net mechanisms to assist the poor and at-risk groups, such as older persons, persons with disabilities, displaced persons, migrants and other populations exposed to disaster risk and affected by disasters;	Education and training needs to increase its focus on the skills required to assess the social vulnerability component in risk assessments. At present, focus seems to be on simply assessing the physical hazard risks but these become important when those hazards involve people and livelihood systems which could result in hazard events becoming disasters. At present, the emphasis on models and computing technology is distracting from the need to address to the human and societal element of disasters. Without an effective assessment of social vulnerability, disaster risk management can only address the physical risks and is likely to miss opportunities for low cost coping and adaptation strategies that would be more appropriate for least and less developed countries.	Personal statement: Pardoe Joanna
		Special focus on strengthening the resilience of people living in informal settlements and those communities in fragile and conflict-affected situations. To be more effective, the post-HFA framework needs to find ways how to more closely co-operate with civil society and their representatives to address the major shortcomings of the current system and to lead to a more bottom-up approach.	Extended abstract: N. Stolz et all
		It's about people specially poor people in fragile ecosystem communities (e.g. Drylands which represent 41% of the globe and 2 billion people), they require better attention, few people are talking about "Oasis " they are under threat of nature hazards.	Presentation: Wadid Fawzy Erian [MON 7.3(6)]
		Establish mechanisms where children can engage local government authorities and community associations and access relevant information, as well as share their knowledge to community members to contribute to awareness raising on DRR.	Presentation: Billz Sumuan [TUE 1.5(3)]
		In the context of the Hyogo Framework for Action, the study highlights the importance of investing in socio-economic factors which can contribute to disaster preparedness. More specifically, income generation and income diversification initiatives should be given priority and socially equitable monetary risk-sharing mechanisms established.	Extended Abstract: Sylvia Szabo et all
		Lack of inclusion of community relocations in the disaster risk reduction framework (e.g. preventive relocation to reduce disaster risk)	Session Chair Summary: Robin BRONEN (MON7.4)
		Relocation / reconstruction / recovery: - Relocation, reconstruction and recovery can be agents for social change and opportunities for action, however they can also create new risks if not adopted in a DRR framework.	Conference Proceedings: 127, policy

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		<ul style="list-style-type: none"> - All recovery should be framed within a social context – history matters. - Socio-economic factors must be considered in relocation. - There are financial and social implications of short-term and long-term recovery and reconstruction, which must be better assessed and acknowledged in policy and practice. - What is the role and appropriateness of relocation as part of DRR policy? 	
		Research: internal displacement, collection of best practices for relocation, more evidence on the conditions for migration to be sustainable	Presentation: Solène Dengler [Mon 7.4(6)]
		One presentation that was different from the rest was a paper that discussed the need to assess the robustness of national and regional communications infrastructure. Given that there is no single technology that is 100% robust there is a need to consider complementary redundancy whereby a combination of satellite and terrestrial technologies are used for various communication needs during crises	Conference Proceedings: 129, Policy
		If 15% of the global population (estimated world rate of disabled people) are not part of policy dialogue a great gap will be built. Policy dialogue must follow participation and inclusion standards regarding to accessibility, to inclusive communication (sign language, close captions, materials adapted for visual impaired, materials adapted for people with physical disabilities). People with disabilities must participate policy dialogue because they are the most vulnerable population and the rule of law is a must, not a matter of will. Systematization of dialogues must be issued in full accessible formats and platforms. People with disabilities are important stakeholders and accountability is a principle to be followed through indicators.	Personal Statement: Kaiser Carlos
		Research: increased effort required to adapt technologies to user communities	Presentation: Andrew Eddy [Mon 1.1(6)]
		Call for research on the morbidity rate of people with disabilities due to Disasters. Is also needed to research relation of environment barriers and DRR for people with disabilities and elderly people.	Presentation: Carlos Kaiser [TUE 5.4(4)]
		The health status is a risk factor during emergencies and disasters. It is anticipated that further analyses and researches will show that access to basic health care and public health services improve health outcomes throughout the risk management cycle.	Conference Proceedings: 146, Research
		People with disabilities, women, children and older persons are the most vulnerable in disaster situations and bear the heaviest burden of disasters' impact. Disaster	Outcomes Expert Workshop

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		managers ought to commit to devote better tools for people with disabilities to anticipate risks and to respond to disasters. The design of strategies and plans, as well as decision-making processes for disaster risk reduction should actively involve people with special needs at all the stages of the disaster management cycle in an inclusive, participatory manner. “To design measures WITH”, and not “to design measures FOR” is crucial for disability inclusive DRR	
Chapter D/ Par.28j/ P. 12	Review existing financial and fiscal instruments in order to support risk sensitive public and private investments, and promote the integration of disaster risk reduction considerations and measures in economic valuations, investment tracking, cost benefit analyses, competitiveness strategies, investment decisions, debt ratings, risk analysis and growth forecasts, budgeting and accounting, and the determination of incentives;	Governments need to quantify their fiscal exposure to disasters and design risk financing and insurance strategies to manage their risk. Such strategies should combine, through a layered approach, a range of financial instruments to optimize efficiency and effectiveness	Session Chair Summary: Daniel KULL (WED1.1)
		Methodologies and tools exist to assess government fiscal risk due to disasters as well as individual business’ physical and process flow risks. Decision-makers and managers should be trained to effectively utilize the outputs from such tools to manage their risk.	Session Chair Summary: Daniel KULL (WED1.1)
		Incentive systems should be better understood and put in place for businesses to increase their resilience. This will help to ensure that values and incentives for all users are aligned with DRR outcomes. These efforts should be supported by the establishment of key indicators which allow the evaluation progress in vulnerability reduction and resilience increase. Another focus should be set on metrics and analysis of failures and successes beyond immediate project completion, including an independent evaluation of the factors that have caused success or failure. Within these goals, the full integration of behavioural, economic, ecologic and political sciences into DRR is mandatory.	Outcome Expert Workshop
		Within the private sector approach of supplying the demand of adverse events proven goods, the role of the government will remain crucial. On the one hand, governments have to regulate the relationship between the people/consumers and the private sector that is providing the various types of products and services to people to enable them to strive in their lives in the pursuit of happiness; on the other hand, the government must ensure a clear and comprehensive framework of information (e.g. hazard maps), in order to support people/ consumers to make healthy decisions based on scientific knowledge and at the same time preventing asymmetries in the new market for the safer goods	Outcome Expert Workshop
		Incentives should be created for socially critical businesses that were able to demonstrate an increase in their resilience, based on a standardized resilience	Outcome Expert Workshop

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		<p>monitoring system. It could also influence the behaviour of those businesses that failed to take measures, by e.g. penalising them with higher insurance premiums, or additional levies. That is in particular true for businesses which might cause environmental emergencies, i.e. sudden-onset disasters or accidents resulting from natural, technological or human-induced factors, causing a severe environmental damage as well as loss of human life and property. Ex-post forensic investigations and responsibilities of the business sector should be replaced by ex-ante responsibilities of all stakeholders. Also the government must ensure basic infrastructure for public safety which cannot be provided through market, such as hurricane forecasts and maintenance of dykes</p>	
<p>Chapter D/ Par.28k/ P. 12</p>	<p>Strengthen the sustainable use and management of ecosystems and implement integrated environmental and natural resource management approaches that incorporate disaster risk reduction.</p>	<p>Research: An action plan to change and adapt the land cover and its ecosystems to ones that reduce disasters and restore productivity and other benefits. Cultural evolution of society making people more aware of shared humanity. A large scale pilot programme in areas subject to environmental degradation and increased risk with projects that would develop disaster eradication action plans.</p> <p>Build a better linkage between research in climate science and natural hazards risks management for sectoral and cross-sectoral applications</p>	<p>Presentation: Charles Imeson [Mon 5.5(4)]</p> <p>Session Chair Summary: Stephan BAAS, Markku T. HÄKKINEN Thu1.3</p>
<p>Chapter D/ Par.29b,c/ P. 13</p>	<p>b)Recognizing the different multilateral processes, work through the United Nations and other relevant institutions and processes, as appropriate, to promote coherence at all levels and across sustainable development, climate change and disaster risk reduction policies, plans and programs; c) Promote the development and strengthening, as relevant, of financial, risk transfer and risk sharing mechanisms in close cooperation with business and international financial</p>	<p>Although the understanding of barriers, challenges and solutions related to financing resilience has been improved and respective networks and partnerships are being developed, there is still slow progress in terms of actual implementation on the ground. As local governments frequently rely on external financial sources, it has been argued that the lack of funding options impedes the implementation process. While this is partly true, local governments also need support in building sufficient institutional capacities to absorb available funds, and marketing their own projects. The latter could be done by varying the framing of projects depending on the different investors or by bundling projects (within cities and with other cities) in order to access larger funds. Additionally, cities can use existing assets, local revenue streams and financial mechanisms to leverage other funding sources.</p>	<p>Conference Proceedings: 134, Implementation</p>

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	institutions;		
Chapter D/ Par.31a P. 13	Prepare or review and periodically update disaster preparedness and contingency plans and policies at all levels, with a particular focus on preventing and responding to possible displacement, and ensuring the participation of all sectors and stakeholder groups, including the most vulnerable, in the design and planning;	In an increasingly globalized world, better understanding of the interconnected impacts of disasters across various economic sectors and actors is needed. This is particular true to strengthen business continuity management.	Session Chair Summary: Daniel KULL (WED1.1)
		Refer to specific role of Faith-Based Organisations	Presentation: Jeroen Jurriens [MON 7.2(2)]
		Implementation & Practice: Development of a feedback mechanism to make sure that decisions are taken based on past community based DRR experience	Presentation: Makarand Hastak [THU1.1(3)]
		Policy: Focus on the bottom up approach for first response in a disaster situation an in disaster prevention and mitigation	Presentation: Giuseppe Damiano [MON 5.2(3)]
		Some areas of well-established research and knowledge in DRR are at a point where the marginal returns of continued efforts appear to be diminishing. Science in DRR has emerged over decades. Considerable knowledge and skills now exist for example regarding single hazards process analysis, forecasting, and efficient measures to cope with. Although the application and dissemination of this knowledge still remains geographically uneven. Most of the today's deficiencies in DRR are not due to a lack of science but are due to a lack in governance and political will for rigorous implementation.	Outcome Expert Workshop
Chapter D/ Par.31b P. 13	Continue to further strengthen early warning systems and tailor them to the needs of users, including social and cultural requirements;	Sending the correct message at the right times, to the correct audiences and with the proper terminology is essential. Reducing vocabulary sophistication and volume of words is one aspect. Yet, this objective is no simple matter to achieve; it entails creating many separate, strategized messages, prepared differently for the type of crisis, audience and phase of the crisis. Certain crisis stages call for short, direct instruction. Others require more detailed messages	Personal Statement : Robert Chandler
Chapter D/ Par.31c P. 13	Promote regular disaster preparedness exercises, including evacuation drills, with a view to ensuring rapid and effective disaster response and access to essential food and non-food relief supplies, as appropriate, to local	Guidelines and scientific methodologies are needed to evaluate exercises in independently trained scenarios and concepts to ensure comparability	Personal statement: Brauner Florian
		Research: Training exercises is one of the important methods to facilitate learning and experience sharing in the emergency service. In additional to traditional paper based, table top exercises, there are many new types of applications for delivery, including Serious Games, virtual world environment and mobile applications. It is crucial to embed the methodology for delivery and evaluation in the training exercise. It	Presentation: Yung-Fang Chen [Mon 1.3(4)]

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	needs;	requires research on a standardised and holistic framework for evaluation for exercises. This can also be the guidelines for the operations in different countries. Policy: Focus on the bottom up approach for first response in a disaster situation an in disaster prevention and mitigation	Presentation: Giuseppe Damiano [MON 5.2(3)]
Chapter D/ Par.31h P. 13	Promote the incorporation of disaster risk management into post-disaster recovery and rehabilitation processes and use opportunities during the recovery phase to develop capacities that reduce disaster risk in the medium term, including through the sharing of expertise, knowledge and lessons learned.	This research aims at minimizing the lack of continuity between the loss assessments damage assessments and information available from site, the recovery plan and implementation of reconstruction. Through this research, decision makers will be able to improve the effectiveness of recovery that depends on smooth transitions from early response to recovery and reconstruction, and throughout reduction strategy implementation. Each phase will be built on the preceding one and decision makers will be able to use knowledge and information efficiently, avoid duplication of effort and save time and resources. Additionally, it will also increase the coordination and communication among different actors who are in charge of different stages of the recovery process. Research: build evidence base for livelihoods support in Disaster Risk Management and response Minimize the lack of continuity between the loss assessments, damage assessments and information available from site, the recovery plan and implementation of reconstruction	Extended abstract: Abhijeet Deshmukh et all Presentation: Cathy Watson [TUE 1.4(3)] Presentation: Makarand Hastak [THU1.1(3)]
Chapter D/ Par.32a P. 14	Strengthen and, when necessary, develop coordinated regional approaches, regional policies, operational mechanisms, making use of best technology and innovation, which may include the use of business facilities and services and military assets upon request, as well as plans and communication systems to prepare for and ensure rapid and effective disaster response in situations that exceed national coping capacities;	[Policy] Holistically improve national and regional risk governance capacity for large-scale disasters Accelerate the transition of economic growth patterns Establish diversified energy security and supply chain system. Comprehensively improving the catastrophe risk sharing capabilities of the nation and among regions.	Presentation: Peijun Shi [THU3.1]

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Chapter D/ Par.32b P. 14	Promote the further development of standards, codes and other guidance instruments to support preparedness and response, and contribute to the lessons learned for policy practice and reconstruction programmes;	A key reason for introducing Emergency Data Exchange Language standards in a curriculum would advocate “interoperability”. A system that adopts standards for improved interoperability is very likely to integrate with any other national or cross-boarder system. Given that hazards are unbounded by borders, it is important that training regimes consider advocating commonly practiced standards for enhancing inter jurisdictional (hub-spoke), intra jurisdictional (local and cross-boarder) situational awareness.	Conference Proceedings: 128, Implementation
Chapter E/ Par.34a P. 14	Business, professional associations, private sector financial institutions, including financial regulators and accounting bodies, and philanthropic foundations to integrate disaster risk management, including business continuity, in business models and practices, especially in micro, small and medium enterprises, engage in awareness-raising and training for their employees and customers, engage in and support research and innovation as well as the full use of technology in disaster risk management, share and disseminate knowledge, practices and data, actively engage with the public sector for the development of normative frameworks, quality standards, regulations, as well as policies and plans to incorporate disaster risk	Implementation & Practice: There is a need to integrate traditional knowledge in implementing disaster risk reduction. Community-based networks need to be enhanced on building resilient communities. Women could be a force in resilience building as they play a major role in natural resources management especially at the local level.	Presentation: Chizoba Chinweze [THU5.4]
		Enhancing capabilities and capacities for DRR require collaboration between the researchers and various stakeholders. Living laboratories are novel approaches with a user-centred, demand driven research concept. Research therefore has to work closely with all different kinds of stakeholders and get direct access to DRR related problems to be solved in a territorial context (e.g. city, agglomeration, region, etc.). Living labs can support integrating concurrent research and innovation processes within a public-private-people partnership. Besides a regular and effective dialogue and feedback between stakeholders and researchers, a living lab can make research more effective and substantially contribute to the science of how.	Outcome Expert Workshop
		Stakeholder-driven research emphasizes research undertaken in partnership with stakeholders including marginalized population. The stakeholders’ participation within the scientific research framework provides a stakeholder/end user centred solution process. Learning from practice and from being embedded in the socio-political context are essential benefits for the researcher, who will also be faced with multi-level governance approaches. Within the framework of living labs, researchers have the responsibility to explain research outcomes to the end users and to implement them directly into practice.	Outcome Expert Workshop
		Ensure that the types and quality of services provided to people contribute to their	Outcome Expert

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	reduction;	resilience against adverse events. It is beneficial to push service providers to offer products labelled "safe from disasters". For this to be effective, there is a need for the private sector to be aware of the need for people to have access to safe products and services that will withstand disasters better, but also for companies to ensure that their lines of production or services are built in such a manner that they are protected from disasters. For example, in many parts of the world, people are now requesting safe houses, safe schools and safe hospitals. This in turn leads to the fact that construction companies are changing the nature of their practices to ensure that they stay in business. It is believed that the more companies will advertise their products and services as having benefits in reducing risks or being safe from natural hazards, the more people will get used to demand such features in all products and services.	Workshop
Chapter F/ Par.40g P. 16	The UNISDR, in particular, is requested to support the implementation, monitoring and review of this framework including through: preparing periodic progress reports on implementation; supporting the development of coherent global and regional monitoring mechanisms in synergy, as appropriate, with other relevant mechanisms for sustainable development and climate change, and updating the existing web-based HFA Monitor accordingly; generating evidence-based and practical guidance for implementation in close collaboration with, and through mobilization of, experts; reinforcing a culture of prevention in all stakeholders, through support to standards	<p>A common international terminology and interdisciplinary methodology should be developed for disaster mitigation.</p> <p>Inter-agency and inter-sectional means of communication: Need for unified terms and language, thoroughly agreed & revised disaster plan and efficient and alternative system of Voice/Text/Alarm devices</p> <p>Focus on research which integrates human behaviour and the temporal aspects of hazard mitigation. Analysis of behaviourally informed policy.</p> <p>Hazards, the exposure of values and their vulnerabilities are not constant but changing factors. Whereas awareness has risen for climate change influencing the pattern of meteorological hazards in terms of frequency and intensity, little attention is paid to the increase of values exposed to hazards and of the vulnerability of societies and their critical infrastructures and services. Risks therefore have to be continuously monitored, and tools developed to enhance and harmonize the monitoring process. Knowing the characteristics and amount of risks will enable the decision makers to choose effective and efficient DRR measures. Integrative DRR should implement the most effective, cost-efficient measures, be they permanent risk reduction measures, preparedness measures for better response, risk transfer measures by insurances, etc. Similar tools are needed to measure progress in DRR. Indicators used should be consistent with the targets and indicators of the Sustainable Development Goals (SDGs)</p>	<p>Personal statement: Dr. Alarslan Ebru</p> <p>Personal statement: Al Farsi Mohammed Khamis</p> <p>Presentation: Jamie Kruse [WED 1.1(3)]</p> <p>Outcome Expert Workshop</p>

Chapter/ Paragraph/ Page	Post-2015 framework for disaster risk reduction Zero Draft Text	IDRC Comments	IDRC Reference
	<p>development by experts and technical organizations, advocacy initiatives, and dissemination of risk information, policies and practices; supporting countries, including through the national platforms or their equivalent, in developing national plans and monitoring trends and patterns in disaster risk, loss and impacts; convening the Global Platform for Disaster Risk Reduction and supporting the organization of regional platforms for disaster risk reduction; leading the revision of the United Nations Plan of Action on Disaster Risk Reduction for Resilience; facilitating the enhancement of, and continuing to service, the ISDR Scientific and Technical Advisory Group in mobilizing science and technical work on disaster risk reduction; leading and coordinating the update of 2009 Terminology on Disaster Risk Reduction; and maintaining the stakeholders' commitment registry</p>		

IDRC DAVOS OUTCOMES REPORT PART III:

ATTACHEMENT POST-CONFERENCE EXPERT WORKSHOP

- OUTLINE
- PROGRAMME
- PARTICIPANTS LIST



The United Nations Office for Disaster Risk Reduction

*UNISDR SCIENTIFIC AND
TECHNICAL ADVISORY GROUP STAG*



EXPERT WORKSHOP ON THE PREPARATION OF AN INPUT PAPER ON SCIENCE AND TECHNOLOGY, EDUCATION, CAPACITY BUILDING, AND IMPLEMENTATION FRIDAY, 29 AUGUST 2014 DAVOS • SWITZERLAND



WORKSHOP PARTICIPANTS

Outline

Goals for the Expert Workshop

Based on the preparatory documents (see next paragraph), the many presentations and discussions during the 5th IDRC Davos 2014 conference that was held from 24 – 28 August 2014, the expert workshop synthesized the conference outcomes and drafted a consensus paper on how to best provide support, from a science and technology perspective, for the strategic goals:

1. Risk prevention and the pursuit of development pathways that minimize disaster risk generation
2. Risk reduction (i.e. actions to address existing accumulation of disaster risk)
3. Strengthening resilience (i.e. actions that enable nations and communities to absorb loss and damage, minimize impacts and bounce back or move forward)

Preparatory Work

In preparing the expert workshop, GRF Davos has taken the following steps:

1. Invited the **organizers of International DRR conferences**, held in the first half of 2014, to prepare a conference summary to be published in a Special Volume of GRF Davos' Planet@Risk eJournal¹ (Vol. II, No 5 will be available at the beginning of IDRC Davos 2014 conference)
2. Asked the **authors of all the IDRC Davos 2014 Extended Conference Abstracts** to summarize, in one chapter of their extended abstract, the relevance of their presentation in view of the post-2015 FDRR (all the extended abstracts will be accessible on the GRF Davos conference website² at the beginning of the conference)
3. Encouraged all **IDRC Davos 2014 participants to provide a one page personal statement** with a commitment for the post-2015 FDRR (the personal statements are published on the conference website)
4. GRF Davos has made a compilation and prepared a **summary about all statements under items 1 – 3** (available at the expert workshop)
5. Invited the UN SRSG for DRR, **Ms. Margareta Wahlstrom, UNISDR Geneva, for a Keynote Lecture** on "Towards a post-2015 framework for disaster risk reduction"
6. Invited **Michael GERBER, Ambassador and Swiss Special Representative for Global Sustainable Development, Swiss Development and Cooperation Agency SDC Berne, for a Keynote Lecture** on "Towards a disaster resilient sustainable development – The importance of DRR in the Sustainable Development Goals post-2015"
7. Organized the first **Plenary Session I on Monday morning, 25 August 2014**, on "Outcomes of Recent International Disaster Risk Reduction/ Management Conferences (DRR/ M)," where 6 organizers will present their conference outcomes under the chairmanship of Dennis Wenger, the UNISDR STAG Chair, and two UNISDR STAG members as speakers
8. Requested the **chairs of each session to submit a brief summary of the session**, including the identification of gaps in research, education, training, implementation, practice and policy improvement that should be addressed in the Post-2015 Framework for Disaster Risk Reduction

¹ See <http://planet-risk.org/index.php/pr>

² See www.grforum.org, or directly on www.idrc.info

9. Organized a **workshop the evening of Monday 25 August for all UNISDR Platforms and Networks** to discuss how to create a network of networks to support and strengthen links and cooperation

In all the various conference formats listed above, GRF Davos has asked for:

1. Taking stock of Science and Technology's latest knowledge and advances for all phases of DRR/M
2. Showcasing how Science and Technology have been supporting the implementation of the HFA
3. Identifying gaps and needs for next steps and further research on DRR/M, education, training, implementation, practice and policy improvement that should be addressed in the Post-2015 Framework for Disaster Risk Reduction
4. Revealing personal/institutional commitments for the implementation of the Post-2015 Framework for DRR



Programme

<p>5th IDRC Davos 2014</p> <p>Post-Conference Expert Workshop</p> <p>Aimed at drafting an input paper on Science and Technology, Education, Training, and Implementation as a contribution to UNISDR's Proposed Elements for Consideration in the Post-2015 Framework for Disaster Risk Reduction</p>	
<p>Chairs</p> <p>Dennis Wenger, Chair of UNISDR Scientific and Technical Advisory Group STAG, Program Director Infrastructure Systems Management and Extreme Events, National Science Foundation (NSF) - Washington - USA</p> <p>Walter J. Ammann, Member UNISDR STAG, President Global Risk Forum GRF Davos, Davos, Switzerland</p>	
<p>Working Group Leaders</p> <p>Alan March, GRF Davos Research Fellow, Associate Professor and Dean in Urban Planning & Design, Faculty of Architecture, Building and Planning, University of Melbourne, Melbourne, Australia</p> <p>Ortwin Renn, Member UNISDR STAG, Prof. and Dean of the Economic and Social Science Department, University of Stuttgart, Stuttgart, Germany</p> <p>Haresh C. Shah, Obayashi Professor of Engineering, Emeritus, Stanford University, Founder and Senior Advisor Risk Management Solutions, Inc., Stanford, USA</p> <p>Peijun Shi, Member UNISDR STAG, Prof. and Vice President Beijing Normal University, Beijing, China</p>	
<p>Friday, 29 August 2014</p>	
08.00h	Registration
08.30h	<i>Welcome</i>
	<p>Walter J. Ammann, Member UNISDR STAG, President Global Risk Forum GRF Davos, Davos, Switzerland</p> <p>Margit Haberleiter, Head Solar Physics Group, Physikalisch-Meteorologisches Observatorium/ World Radiation Center PMOD/ WRC, Davos, Switzerland: Short presentation of the Institute PMOD/ WRC.</p> <p>Dennis Wenger, Chair of UNISDR Scientific and Technical Advisory Group STAG, Program Director Infrastructure Systems Management and Extreme Events, National Science Foundation (NSF) - Washington - USA</p> <p>Welcome and introduction to the workshop</p>
09.00h	<i>Session I: Outcomes of the 5th IDRC Davos 2014 and input for the workshop</i>

	<p>Chair: Dennis Wenger, Chair UNISDR STAG Presenter: Walter J. Ammann, Member UNISDR STAG, GRF Davos Presentation of a summary of all the various preparatory work and of additional input during the 5th IDRC Davos 2014.</p> <p>Presenter: Julie Calkins, DRR Research Consultant, UKCDS, London UK. Brief report on the content analysis of the Prep Con, Geneva July. Brief overview on case studies</p>
09.45h	Coffee Break
10:15	Group Discussion I
	<p>Participants will be split into 3 working groups. Each group will have a rapporteur. The three groups will discuss the strength and weaknesses of the HFA achievements in light of the three questions</p> <ol style="list-style-type: none"> 1. Taking stock of Science and Technology's latest knowledge and advances for all phases of DRR/M 2. Showcasing how Science and Technology have been supporting the implementation of the HFA 3. Identifying gaps and needs for next steps <p>From the perspective of the three working groups (i.e. science and technology, education and training, implementation/ policies).</p> <p>Working Group 1: Science and Technology Working Group Leader: Ortwin Renn/ Alan March</p> <p>Working Group 2: Education and Training Working Group Leader: Peijun Shi</p> <p>Working Group 3: Implementation Working Group Leader: Haresh C. Shaw</p>
11:45h	Presentation of the Group Discussion I
	<p>Chair: Dennis Wenger, Chair UNISDR STAG Presenters: Working Group Leaders</p>
12:45	Short Lunch Break
13.30h	Group Discussion II
	<p>Input to the post-2015 Framework for DRR based on the outcomes of the S&W discussion of the morning and according to question 3 above: Identifying gaps and needs for next steps and further research on DRR/M, education, training, implementation, practice and policy improvement that should be addressed in the Post-2015 Framework for Disaster Risk Reduction</p> <p>Working Group 1: Science and Technology Working Group Leader: Ortwin Renn/ Alan March</p> <p>Working Group 2: Education and Training Working Group Leader: Peijun Shi</p> <p>Working Group 3: Implementation Working Group Leader: Haresh C. Shaw</p>

14.45h	<i>Presentation of the Group Discussion II: Final results</i>
	<p>Chair: Walter J. Ammann, Member UNISDR STAG Presenters: Working Group Leaders</p> <p>Goal 3: Present and discuss the final results of the working groups. Get comments and input from the other working groups.</p>
16.00h	<p><i>Conclusions – the way forward</i> Dennis Wenger, Chair UNISDR STAG Walter Ammann, Member UNISDR STAG</p> <p>Goal 4: Agreement on the way forward.</p>
16:15h	End of Workshop

Working groups symbols

Working Group 1: Science and Technology



Working Group 2: Education and Training



Working Group 3: Implementation



PARTICIPANT LIST

Walter J. AMMANN

“CHAIR”



Dr Walter J. Ammann Founder and President of the Foundation Global Risk Forum GRF Davos and Chairman of the International Disaster and Risk Conference IDRC Davos, obtained his MSc in Civil Engineering and his PhD in structural dynamics and earthquake engineering both at ETH Zurich. He started his professional career in various consulting companies for geotechnics and foundation engineering, earthquake engineering and bridge construction. From 1986 - 1992 he was responsible for the R&D-department of a globally acting company in construction technologies. From 1992 to 2007, he was director of the Swiss Federal Institute for Snow and Avalanche Research in Davos and Deputy Director of the Swiss Federal Research Institute WSL in Birmensdorf. He is an expert in integrative risk management and its applications to all kinds of natural hazards and technical

risks, in particular by considering the entire risk cycle with prevention, preparedness, intervention and recovery, risk financing tools, but also emergency management and communication tools with a focus on early warning, crisis management, critical infrastructures, and resilience increase. Climate change related hazards and risks, their adaptation and mitigation and their harmonization with disaster and risk reduction is of particular concern for him. He is author and co-author of over 250 papers, books and scientific reports and is a member of various national and international professional associations and expert consulting groups like the UN-ISDR Science and Technology Council and is Visiting Professor at HIT in Harbin, China.

Colin ARMSTRONG



Colin is Head of Science and Policy Advice for SHED (Science in Humanitarian Emergencies and Disasters).

He works with and on behalf of UK Government Departments to implement the recommendations from the Government Office for Science report on the “Use of Science in Humanitarian Emergencies and Disasters”.

He is responsible for the co-ordination of two expert groups – a Risk and Horizon Scanning Expert Group (RHEG) and a Humanitarian Emergency Expert Group (HEEG) – designed to inform Ministerial decisions on emerging international risk and emergencies. These groups, chaired by the Government’s Chief Scientific Adviser (GCSA), aim to make a real difference to the way that the UK prepares for and predicts humanitarian emergencies and disasters. Colin also manages relations and flows of information with multiple stakeholders (government, research, private sector and non-government organisations) in the UK and internationally to increase capacity to anticipate disasters and reduce disaster impacts. In addition, he provides oversight to the UKCDS Disaster Research Group.

Colin previously work at the Department of Health where he was responsible for the development of a £2million research programme for pandemic influenza. During the 2009 ‘swine flu’ pandemic, Colin supported the Scientific Advisory Group for Emergencies, which provided scientific and technical advice to UK Government. He also project managed the development of a national policy document outlining the UK strategy for pandemic influenza preparedness. Prior to working in the Department of Health, Colin worked on fire and resilience research at the Department for Communities and Local Government. He has an MSc in Biosystems and Informatics from the University of Liverpool, and a BSc (Hons) in Genetics from the University of Nottingham.

Hachim BADJI



Hachim is 49 years old and is from a Senegalese - Finnish mixed origin. He graduated as a civil engineer first, and has a master degree in Mathematics, both from the Montreal University (Canada). He holds an MBA from Edinburgh Business School (UK).

Hachim spent most of his professional carrier in humanitarian and development fields with the Finnish Red Cross (1990-1993), the International Committee of the Red Cross (ICRC) during 1993-1997 and 1999-2009, and during 1997-1999 With the International Federation of Red Cross & Red Crescent Societies (IFRC). During his Red Cross 20 years field carrier, he was posted in Rwanda, DRC, Chechnya, Bosnia, Madagascar, Cote d'Ivoire (covering 16 countries), India (covering 4 countries), Kenya (covering 3 countries), Serbia (covering 4 countries), Sri Lanka, and has occupied many regional positions. He joined UNDP in 2010 as the Senior Coordinator of CADRI (Capacity for Disaster Reduction Initiative), a joint UNDP, OCHA, UNICEF, WFP, FAO, WHO, GFDRR, WMO, UNITAR, UNOPS and IFRC initiative and still holds this position.

Hachim's carrier with the Red Cross has mainly been in coordinating large scale humanitarian operations, and supporting 44 national Red Cross Societies develop their capacities for humanitarian as well as development work. As head of CADRI he has led since 2010 an inter-agency team in supporting governments and UN agencies develop their capacities in disaster risk reduction in over 40 countries.

Pedro BASABE



Pedro Basabe, geologist and Dr. ès Sc. in hydrogeology, has vast expertise in applied geology, natural hazard identification, mapping, monitoring systems, research and project management since 1979. During the nineties, he formulated and implemented several international projects on disaster risk management in Latin America for the Swiss Agency for Development and Cooperation, Humanitarian Aid (SHA) in coordination with the UN. He is also UNDAC and SHA member since 1995 participating in number of disaster preparedness, evaluation and coordination missions. He joined

the UN Office for Disaster Risk Reduction (UNISDR) in November 2001, where has have increased responsibilities, contributing to DRR knowledge and capacity development, publications, partnership development, drought risk reduction practices and linkages with humanitarian sector to promote holistic and integrated disaster risk management. The last five years he has been heading the UNISDR Regional Office for Africa in Nairobi, actively developing collaboration with the Africa Union Commission, Regional Economic Communities, 38 countries, UN partners, donors and scientific-technical community. As result, Africa has a continental Programme for Disaster Risk Reduction, mechanisms for coordination, Sub-regional policies and/or programmes, some of them implemented in several countries. Mr. Basabe is currently back at the UNISDR headquarters, in charge of science, technology and expertise for disaster risk management, water and disasters and partnership development to translate policies into practices.

John BIRCHAM



Dr John Bircham is the principal of Bircham-Global, an Australasian consultancy that specializes in the resolving of wicked problems; the researching, formulating and developing of strategies and products for government and business as they confront the ongoing demands of society for greater performance - "more for less." A former research scientist and modeller, he holistically integrates into his consultancy, teaching, writing and speaking activities: his life-long study of the effects of pressure on complex adaptive systems; his interest in ecology, psychology and neurophysiology; and his knowledge and hands-on experience of leadership, culture, strategy, organizational behaviour, risk and resilience in the workplace, and the management and governance suites.

Joern BIRKMANN



Joern holds a PhD in Spatial Planning from the Dortmund University and a post-doctoral degree in Geography (Habilitation) from the University of Bonn, Department of Geography. Furthermore, he holds a licence as urban planner. He has broad expertise in the field of vulnerability, sustainable development and environmental assessment. He is specialized in the area of the development of assessment methodologies and indicators to estimate and evaluate different socio-economic trends and environmental degradation at sub-national, local and household scale. He is currently IPCC Lead-Author in the IPCC Special Report "Managing the Risk of Extreme Events and Disasters to Advance Climate Change Adaptation". He is also Lead-Author in the Fifth Assessment Report of the IPCC in the chapter "Emergent Risks and Key-Vulnerabilities". His work experience also encompasses research activities and lectures, for example in London and Mexico. Besides research and training activities at UNU-EHS, Joern also teaches at the Institute for Geography at the University of Bonn. He is currently involved in vulnerability assessment in coastal and flood-prone communities in Indonesia and Vietnam and also coordinates the development and testing of indicators to measure vulnerability to floods, heatwaves and droughts, as well as sea level rise in Germany, Egypt and Indonesia.

Deborah M. BROSNAN



Deborah M. Brosnan is Professor of Biology (adj) at Virginia Tech USA, environment and policy scientist at University of California Davis One Health Institute and President of the Brosnan Center. She received her Ph.D in marine ecology from Oregon State University. She works on the interface of ecosystem science and its application to disaster risk reduction and environmental decision-making. She uses a multi-disciplinary approach. She is translational scientist, convening scientific teams, to work with governments and stakeholders find science-based solutions to complex environmental challenges. Her research focuses on evaluating coupled ecological and human risks to extreme events, and solutions that often include designing and implementing coastal and marine ecosystem restoration for future conditions and risks. Her work has included SE Asia tsunami, volcanic eruptions, hurricane events, major floods, and human-induced disasters. She is Board member of the U. C Davis One Health Institute SeaDoc Society, Chair of the International Irish Scientists Network, Science Board member for St Barths Dept, of Environment, and editor of the Journal of Marine Biology and Oceanography.

Julie CALKINS



Julie is currently a research consultant with UKCDS, evaluating the current supply and demand of scientific knowledge and technology for disaster risk reduction. She is an applied interdisciplinary scientist specializing in the health impacts of natural hazards and has been involved in projects that aim to reduce disaster risk and exposure in hazard settings by using interdisciplinary methods. Previously Julie completed a PhD at the University of York examining risk of exposure to volcanic fluoride in Nicaragua, Vanuatu and Iceland, and went on to be a post-doctoral research fellow at the University of Leeds working with global collaborators on Saharan desert dust and climate science knowledge exchange. In a prior role at Public Health England, she focused on providing technical support for DRR and climate change adaptation mainstreaming across the health sector, while also coordinating case studies for the UNISDR STAG.



Ioana



CREITARU

Ioana Creitaru is capacity development specialist at the Capacity for Disaster Reduction Initiative (CADRI), an inter-agency initiative of UNDP, OCHA, UNICEF, WFP, FAO, WHO, WMO, UNITAR, UNOPS, GFDRR and IFRC. In her capacity, Ioana provides country level advisory services in capacity development for disaster risk reduction to Governments, UN Country Teams and other national stakeholders. This entails supporting national partners in undertaking capacity assessments, and in developing national plans of action for capacity development in disaster risk reduction.

Ioana's areas of work also include developing training and learning modules and packages, and delivering workshops at national, regional and global levels, primarily on topics related to disaster risk reduction, disaster preparedness for emergency response, climate risk management and mainstreaming risk reduction into development planning.

Ioana's geographical coverage includes English, French and Spanish-speaking countries in Africa, South-Eastern Europe and the CIS, Central Asia and the Caucasus, South-East Asia, Central America and the Caribbean.

A Romanian national, Ioana holds a Master's degree from the University of Geneva, and is a PhD candidate at the Graduate Institute for International and Development Studies, Geneva.



Carmelo Di Mauro



Carmelo Di Mauro is an environmental engineer with more than twenty years experience in the applied science, in particular in the field of risk-based decision-making processes. He worked at TNO (TNO Institute of Environmental Sciences, Energy Research and Process Innovation, The Netherlands) and in 2001 he joined the Joint Research Centre (JRC) of the European Commission where he remained until 2009. At the moment he is working for RGS S.r.l (Risk Governance Solutions), a consultancy company that he founded in 2009.

During his career he worked in collaboration with many environment ministries and regional authorities. He managed several projects to implement and develop national and international program related to environmental protection and disaster management.

He contributed to define the EC Council Directive 114/2008 on "Identification and Designation of European Critical Infrastructures and the assessment of the need to improve their Protection" and the 15 of December 2008 I received a "JRC Excellence Award" for the Support to EU Policy.

He is teaching Risk Management and Business Continuity at the University of Applied Sciences and Arts of Southern Switzerland (SUPSI).

Mechthilde FUHRER



Mechthilde Fuhrer has been active in the field of educational, cultural and environmental issues and holds a Doctorate in Human Sciences and a Master degree in Social and Cultural Anthropology. She has worked since 1996 in the Council of Europe as Deputy Executive Director at the European Centre for Modern Languages, then as administrator in the field of Citizenship and human rights education, Education Policies and European Dimension, Higher Education and History Teaching, Democratic Governance, Culture and Diversity. At present she acts as Deputy Executive Secretary of the European

and Mediterranean Major Hazards Agreement (EUR-OPA). This 1987 International Agreement is a platform of cooperation between European and Southern Mediterranean states in major natural and technological hazards. Within her functions she is working amongst others on promotion through appropriate common initiatives with other organisations in the field of major hazard prevention and organisation of relief.

Carl GIBSON



Carl originally undertook research into infectious diseases of the brain within the UK and was subsequently involved in leadership roles in a number of State and national emergency responses to emerging and exotic diseases within Australia. He has also previously served with the British Army and was a sworn officer with the London Metropolitan Police.

He has worked on a range of programmes in biosecurity, protective security, risk management, crisis and emergency response in the Asia-Pacific region, Africa, North America and Europe. This has included senior positions in government, corporate and not for profit sectors.

Carl is currently the Director, Risk Management at La Trobe University where he has applied research interests in emergency response performance, organisational and community resilience and organisational catastrophic failure. He also holds the position of Incident Controller with responsibility for incident and emergency response at eight locations across the State of Victoria.

In 2013 he was awarded an Emergency Services Foundation Scholarship, with which he undertook a study in the USA into the neuroscience of decision making of first responders under stress and risk in non-routine

environments. Some of the outcomes of this research have been incorporated into the new approach for assessment of risk, criticality and vulnerability as part of the Victorian State Government's all hazards arrangements for critical infrastructure. He is currently providing training to police, fire, State Emergency Services, a range of government portfolios, special taskforces and NGO volunteers in an application of this work to improve front line safety and performance effectiveness in emergency and disaster response.

Carl is also active as part of the leadership team for one of the Country Fire Authority's volunteer brigades as a frontline operational firefighter and training officer. He has served in a number of major bushfire emergencies, including the 2009 Black Saturday fires, one of Australia's largest natural disasters.

Bernhard M. HÄMMERLI



Dr df Bernhard M. Hämmerli is a Swiss computer scientist in the fields of communications, networks and information security, specifically critical infrastructure protection in the European Union. He is teaching internationally as a professor at both the Lucerne University of Applied Sciences and Gjovik University College. He was on the Press Editorial Board of the IEEE Computer Society from 2007 to 2012, has been president of the Swiss Informatics Society from 2009 and chair of the platform ICT Security of the Swiss Academy of Engineering Science since 2012.

Rebecca LORDAN



Rebecca Lordan is a third year PhD Student at the Harris School of Public Policy at the University of Chicago and a visiting researcher at the Paul Scherrer Institute. As an undergraduate student, Rebecca studied Chemistry. Bringing this background to bare, her current areas of interest include energy and environmental policy, science and technology policy, and decision-making under risk and uncertainty. As a part of the collaboration between the University of Chicago and the Paul Scherrer Institute, Rebecca is working with the Technology Assessment Group on comparative risk and threat assessments for various energy systems including nuclear power, fossil fuels and hydro power.

Kai LIU



Kai Liu is an Associated Professor at the Academy of Disaster Reduction and Emergency Management Ministry of Civil Affairs & Ministry of Education (Beijing Normal University). She is currently involved in research of Risk Analysis of Infrastructure and Buildings Subjected to Natural Hazards as well as Seismic retrofitting techniques for rural structures. She has been involved in various research projects co-authored numerous publications in her field of expertise.

Alexandros MAKARIGAKIS



Mr. Makarigakis has a total of more than 18 years of progressively responsible experience in the field of environmental sciences, 12 of which on the international platform on issues of development in developing and developed countries with focus on natural resources management (water and environment). Eleven years working at an International Organization (UNESCO), eight years of experience in the field of bioremediation of hazardous chemicals and three years in municipal water and wastewater purification. Experience includes representing UNESCO's Natural Science sector at Windhoek Cluster Office, at Addis Ababa Liaison Office and Chief of the Cross Cutting Thematic Unit on Disaster Risk Reduction (DRR), university lecturing, the design and execution of innovative bench-scale treatment systems and mathematical model developments for further scale-up purposes as well as in-situ testing for verification, groundwater remediation and waste management. Mr. Makarigakis is currently the chair of the Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GAD3RES) and member of the High Level Committee on Programme / Senior Management Group of the United Nations on DRR.

Alan MARCH



Dr Alan March is Associate Professor in Urban Planning & Design. He is Associate Dean (Undergraduate) in the Faculty of Architecture, Building and Planning and is Director of the Bachelor of Environments at the University of Melbourne.

Alan has a Bachelor degree (Dist.) in Urban and Regional Planning, a Masters of Town and Country Planning and a PhD (Urban Planning). He is a Certified Practicing Planner with full membership of the Planning Institute of Australia. He has practiced since 1991 in a broad range of private sector and government settings and has had roles in statutory and strategic planning, advocacy, and urban design. He has also worked as a planner in Western Australia, the UK, New South Wales and Victoria.

Alan's recent publications and research include examination of the practical governance mechanisms of planning and urban design, in particular the ways that planning systems can successfully manage change and transition as circumstances change to incorporate risk among a range of wider concerns. Alan's 2012 book *The Democratic Plan* examines planning systems and the challenges they face in making decisions in complex institutional and democratic settings. He is particularly interested in the ways that strategic planning can modify outcomes, and undertakes research into urban design and governance. His current work considers the ways that urban planning is seeking to establish new ways to spatialise urban management. He has a number of recent publications that deal with urban planning and disaster risk reduction and has a particular focus on wildfire. Alan recently established a number of new university qualifications that incorporate risk management into built environment professional education.

Satoru NISHIKAWA



Joined Japanese Government service in 1982. In 1988, appointed visiting research scholar at MIT. In 1992, took the position of Senior Disaster Relief Coordination Officer at UN Department of Humanitarian Affairs where he coordinated international assistance to numerous disaster stricken countries. In 2001, was appointed as the Executive Director of Asian Disaster Reduction Center. After resuming Japanese government service in 2004, held senior positions in the Cabinet Office and Ministry of Land, Infrastructure, Transport and Tourism. At the wake of the Indian Ocean Tsunami in December 2004, coordinated the Japanese Government technical assistance to the affected countries. Hosted and coordinated the 2005 UN World Conference on Disaster Reduction where the Hyogo Framework for Action was adopted. Proposed the Japanese BCP guideline in 2005. Initiated the long term regional recovery planning for Tohoku after the Great East Japan Earthquake in March 2011.

Presently, Vice-President of Japan Water Agency.

Academic board member of the Institute of Social Safety Science. Board member of Business Continuity Advancement Organization. Previous Chair of the World Economic Forum Global Agenda Council on Catastrophic Risk. Member of the Advisory Group on the Post-2015 Framework for Disaster Risk Reduction and the Global Platform.

Francesco PISANO



Francesco Pisano leads the Department of Research at UNITAR, where he oversees policies and programmes to translate learning and other technologies into actionable tools to support and enhance the action of the United Nations. He is an expert in international affairs and geopolitics with a professional background in humanitarian affairs and risk management. He studied international relations with a specialisation in conflict resolution, and law with a specialisation in international and constitutional law. He joined the United Nations in 1993 where he worked initially with the UN Department of Humanitarian Affairs. He was then a leading senior expert with the ISDR Secretariat in the early 2000 and later the Manager of UNOSAT, the Operational

Satellite Applications Programme of the UN.

Armin PREIS



Armin Preis is an Austrian management researcher and consultant. His work at the Vienna University of Technology deals with integrated control systems for risk-, crisis- and continuity-management. He is an expert in cybernetic modelling of complex, viable systems. Previously, he worked as computer scientist for e-health at the Austrian Institute of Technology, as project manager for sustainable computer supported facility management, as crisis counselor and leader of an Austrian startup for trusted e-commerce. His current working focus lies on the organizational development of the Austrian Railway Infrastructure Corporation.

Sergey PULINETS



Prof. Sergey Pulinets is a Principal Research Scientist in the Space Research Institute of the Russian Academy of Sciences, Moscow, Russia. He has more than 35 years of experience in Space Plasma Physics, Physics of the Ionosphere, and Geophysics. Dr. Pulinets is a leader of an international team of scientists proposing the Lithosphere-Atmosphere-Ionosphere coupling concept related to seismo-tectonics, active faulting and earthquake processes. Dr. Pulinets is a co-convenor of the American Geophysical Union, fellow of IUGG Inter Association Working Group on Electromagnetic Studies of Earthquakes and Volcanoes (EMSEV), correspondent member of International Radio Science Union (URSI), International Committee of Space Research (COSPAR), fellow of URSI/COSPAR International Reference Ionosphere (IRI) Working Group, fellow of United Physical Society of Russia, member of editorial board of Geomagnetism and Aeronomy journal.

Ortwin RENN



Ortwin Renn serves as full professor for Environmental Sociology and Technology Assessment and as Dean of the Economic and Social Science Department at the University of Stuttgart, Germany. He directs the Stuttgart Research Center for Interdisciplinary Risk and Innovation Studies at the University of Stuttgart (ZIRIUS) and the non-profit company DIALOGIK, a research institute for the investigation of communication and participation processes in environmental policy making. Renn also serves as Adjunct Professor for “Integrated Risk Analysis” at Stavanger University, Norway and as Affiliate Professor for “Risk Governance” at Beijing Normal University. He co-directs the German Helmholtz-Alliance, “Future infrastructures for meeting energy demands towards sustainability and social compatibility,” with Armin Grunwald.

Ortwin Renn has a doctoral degree in social psychology from the University of Cologne. His career has included teaching and research positions at the Juelich Nuclear Research Center, Clark University (Worcester, USA), the Swiss Institute of Technology (Zurich) and the Center of Technology Assessment (Stuttgart). He is a member of the Scientific Advisory Board of EU President Barroso, the Scientific and Technical Council of the International Risk Governance Council (IRGC) in Lausanne, the National Academy of Disaster Reduction and Emergency Management of the People’s Republic of China and several national and international Academies of Science. In 2012, he was elected president of the International Society for Risk Analysis (SRA).

Renn's honours include an honorary doctorate from the Swiss Institute of Technology (ETH Zurich), an honorary affiliate professorship at the Technical University Munich, the “Distinguished Achievement Award” of the Society for Risk Analysis (SRA) and several best publication awards. In 2012, the German Federal Government awarded him the National Cross of Merit Order in recognition of his outstanding academic performance. Renn is primarily interested in risk governance, political participation, as well as technical and social change towards sustainability. Renn has published more than 30 books and 250 articles, most prominently the monograph “Risk Governance” (Earthscan: London 2008).

Andreas RECHKEMMER



Andreas Rechkemmer is chief science and policy advisor of the Global Risk Forum, Davos, Switzerland and has recently been appointed American Humane Endowed Chair at the University of Denver. Rechkemmer is a scholar and practitioner of international relations and political science. He has a background in United Nations diplomacy and science-to-practice management, particularly in the areas of global environmental change and climate change, sustainability, human development, and the human and societal dimensions of risk and security. His scholarship also focuses on One Health, a multidisciplinary effort to attain optimal health for people, animals and the environment. He is a professor of human dimensions of natural resources (affiliate faculty) at Colorado State University, a guest professor at Beijing Normal University in China and an adjunct professor at the University of Cologne in Germany.

Chen REIS



Chen Reis, JD MPH, is a Clinical Associate Professor and Director of the Humanitarian Assistance Program at the Josef Korbel School of International Studies at the University of Denver. She was previously with the World Health Organization focusing on humanitarian policy issues and on sexual violence prevention and response in humanitarian settings. Prof. Reis has published extensively on sexual violence in settings affected by crises, and on ethical and safety issues related to collection and use of data on sexual violence in humanitarian settings. Her current research focuses on humanitarian governance and accountability.

Badaoui Rouhban



Badaoui Rouhban is a specialist in disaster risk management. He advises public services, civil societies and non-governmental organizations on capacity-building for disaster resilience. He served for several years at UNESCO, Paris, in the Programmes on natural hazards and the environment and is the former Director of UNESCO's Unit for Disaster Reduction. He is a Global Risk Forum GRF Davos Senior Research Fellow. Dr Rouhban holds a Doctor of Engineering degree from the University Paris VI and has carried out post-doctoral research in engineering seismology at the Tokyo Institute of Technology.

Haresh SHAH



Professor Haresh Shah has been a pioneer in the fields of risk analysis, earthquake engineering, and probabilistic methods for over 35 years. He has served Stanford University in many capacities, including Chairman of the Department of Civil Engineering and Founding Director of the John A. Blume Earthquake Engineering Center.

Haresh Shah is the author of one book, has contributed to chapters in many books and has been an author or co-author of more than 350 technical papers and reports. He has been keynote speaker at many national, international conferences and has been a regular keynote invited speaker for many corporations. He is a member of many Editorial Boards of Professional Journals and Professional Societies.

Prof Shah received a B. E. degree (1959) from Poona University, India, and degrees of M. S. (1960) and Ph. D. (1963) from Stanford University. Prof. Shah has received many awards, including the John S. Bickley Gold Medal for Excellence Award from the International Insurance Society for his sustained and outstanding

contributions to the insurance industry. Prof Shah was named as the “Top Seismic Engineer of the 20th Century” by the Applied Technology Council/Engineering News Record of USA in 2006. Prof. Shah was recently awarded the Alfred Alquist Medal from the Earthquake Engineering Research Institute of America for his contributions and service for earthquake safety to global community. Prof Shah was awarded the most prestigious EERI award, the 2013 Housner Medal for his extraordinary and lasting contributions to earthquake safety worldwide through the development and application of earthquake hazard reduction practices and policies. Most recently, Prof Shah was given “Bharat Gaurav” award by the India International Friendship Society (IIFS) in January 9, 2014 and awarded at the National Day Awards 2014 in Singapore with the Public Service Medal (PINGAT BAKTI MASYARAKAT) for his contributions in the Ministry of Education (FOS) on August 9, 2014.

Peijun SHI



Peijun Shi is the executive vice-president of Beijing Normal University. He received his Ph.D in palaeogeography at Beijing Normal University and gained postdoctoral experience at the College of Natural Resources at the University of California in Berkeley, USA. He is a member of the Expert Committee under the National Disaster Reduction Committee, which belongs to the Ministry of Civil Affairs of China. He is also a member of OECD’s High Level Advisory Board on Financial Management of Large-Scale Catastrophes. His research focuses on natural disaster theories and risk management. Shi has been charged with many relative national or ministerial programs and has numerous publications. He established the system of “regional natural disaster system” which consists of environment, hazard and society.

Furthermore, he put forward the technological system of regional agricultural natural disaster assessment. Peijun Shi is currently co-chairing the IRG-Project.

Marc STAL



Marc Stal (Dipl. Geo) is Senior Project Officer at the Global Risk Forum GRF Davos. At GRF Davos his work focuses on risk, vulnerability and resilience assessment and analysis, harmonising climate change adaptation with disaster risk management and teaching integrative and multidisciplinary disaster and risk science. Moreover, he is the Disaster Risk Reduction focal point and scientific programme coordinator of the International Disaster and Risk Conference IDRC and other conferences and workshops organised by GRF Davos.

Akhilesh SURJAN



Dr. Akhilesh Surjan is an Associate Professor at Kyoto University’s Inter-Graduate School Program for Sustainable Development and Survivable Societies (GSS Program). In addition, he also serves as ‘Visiting Associate Professor’ at United Nations University’s Institute for Sustainability and Peace (UNU-ISP). Since last 15 years, he has successfully engaged with issues of climate and disaster risk reduction and urban environmental management. Currently, he is serving as a Lead Author for the Fifth Assessment Report of the IPCC and also served as Contributing Author for the UN’s Global Assessment Report on Disaster Risk Reduction (2011). While mainly associating with UN agencies, Dr Surjan has also successfully worked in academic, civil society and government institutions in Asia. Dr Surjan has presented his research in international forums, edited newsletters, project reports, and contributed papers in international journals, peer-reviewed books and global seminars.

He is regularly invited to lecture in universities, International, Governmental/ Non-Governmental forums & conventions, city-networks and other relevant training institutions. While working with UNU-ISP (2008-2012), Dr Surjan coordinated 'Global Change and Sustainability' module in UNU International Courses and an Advanced Seminar Course on Disaster Management and Humanitarian Assistance. Dr Surjan has been successfully generating competitive funding from both intergovernmental and corporate sectors, and is currently acting as the Project Leader for multi-country projects in Asia-Pacific Region. Dr Surjan is also a trained architect-planner – an interest zone that keeps him enthused when free.

Annibale VECERE



Annibale Vecere holds a Master's degree in Civil-Structural Engineering at University of Padova (Italy). After graduation he worked as a consultant for Department of Structural and Transportation Engineering of University of Padova on railway bridge design. Then he moved to NetEngineering S.p.A. where he joined the Geotechnics and Structural Department and dealt with infrastructures and offshore wind turbine structures design. In 2013 he joined the Risk and Emergency Management Master course held by UMEschool in Pavia (IUSS) for specializing in assessment, mitigation and management of extreme events.

The 18 months programme call for a 6 months internship which he's currently carrying at GRF and during which he will develop a project on emergency shelters needs assessment and calculation in the aftermath of disasters.

Dennis WENGER

"CHAIR"



Dennis Wenger is the Program Director for program element 1638, Infrastructure Systems Management and Extreme Events, at the National Science Foundation (NSF). He is also the Acting Program Director for the Civil Infrastructure Systems program. He had previously been at NSF from 2001-2005. Dr. Wenger was a Professor from Texas A&M University from 1989-2007. At Texas A&M, Dr. Wenger was a Professor of Urban and Regional Science and an Adjunct Professor of Sociology. He was also the Founding Director and Senior Scholar of the Hazard Reduction & Recovery Center. Prior to his arrival at Texas A&M in 1989, Dr. Wenger was on the faculty of the University of Delaware where he served as Co-Director of the Disaster Research Center from 1984-1989. Dr. Wenger has been engaged in research on hazards and disasters for over 40 years. His research has focused upon the social and multidisciplinary aspects of natural, technological, and human-induced disasters. Specifically, he has studied such

topics as local emergency management capabilities and response, police and fire planning and response to disasters, search and rescue and the delivery of emergency medical services, mass media coverage of disasters, warning systems and public response, factors related to local community recovery success, and disaster beliefs and emergency planning. He undertook the only empirical study of the evacuation of the World Trade Center towers after the first terrorist attack in 1993 and served as the principal investigator for the first project to Enable the Future Generation of Hazard Researchers. He is the author of numerous books, research monographs, articles and papers. Dr. Wenger currently serves as one of the nine members of the United Nations Scientific and Technical Committee to the International Strategy for Disaster Reduction. At NSF Dr. Wenger serves as the foundation's representative to the Roundtable on Disasters of the National Academy of Science. He also represents NSF on the Subcommittee on Disasters (SDR) which is associated with the Office of Science and Technology Policy. Dr. Wenger serves as the Co-Chair for Science of the SDR.



James Herbert WILLIAMS













Professor James Herbert Williams, PhD., is Dean and Milton Morris Endowed Chair at the Graduate School of Social Work at the University of Denver. He holds his MSW from Smith College, MPA from the University of Colorado and PhD in Social Welfare from the University of Washington-Seattle. Dr. Williams' research and training has been funded by grants from several federal and state agencies and private foundations. Dr. Williams' publications and community engagement focus on health promotion and disease prevention, health disparities, economic sustainability, human security, conflict resolution, delinquency and violence, mental health services for African American children in urban schools, disproportionate minority confinement of African American youth in the criminal justice system, community strategies for positive youth development, and social issues of the African American community. His scholarship has been published in several prominent health and social science journals. Dr. Williams has 30 plus years of experience as a scholar/educator and social work practitioner. He has served on two commissions for the Council on Social Work Education and as a member of the Society for Social Work and Research (SSWR) Board of Directors. He is the current President of the Board of Directors for the National Association of Deans and Directors of Schools of Social Work.













Participants summary table (in alphabetical order)

<i>First name</i>	<i>Last name</i>	<i>Title</i>	<i>Organization</i>	<i>Position</i>	<i>Working group</i>
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Pedro	BASABE	Ph.D	United Nations International Strategy for Disaster Risk Reduction (UNISDR) CH, Switzerland	Senior programme officer UN Office for Disaster Risk Reduction	

John	BIRCHAM	Ph.D	Bircham-Global Ltd NZ, New Zealand	Principal of Bircham-Global	
Joern	BIRKMANN	Ph.D	United Nations University Institute for Environment and Human Security DE, Germany	Head of Section and Academic Officer	
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Julie	CALKINS	Ph.D.	UKCDS UK, United Kingdom	Research Fellow	
Ioana	CREITARU	MSc	UNDP CH, Switzerland	Programme Specialist for the Capacity for Disaster Reduction Initiative (CADRI)	

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Bernhard	M. HÄMMERLI	Prof.	University of Lucerne CH, Switzerland Gjovik University College	Professor at Lucerne University of Applied Sciences and Arts and Gjovik University College	
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Alan	MARCH	Prof.	University of Melbourne AU, Australia	Associate Professor in Urban Planning & Design	
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Armin	PREIS	Ph.D	Vienna University of Technology AT, Austria	Management researcher and consultant	
Sergey	PULINETS	Ph.D	Space Research Institute, Russian Academy of Sciences RU, Russian Federation	Principal Research Scientist in the Space Research Institute of the Russian Academy of Sciences	
Ortwin	RENN	Ph.D	ZIRIUS, the Stuttgart Research Center for Interdisciplinary Risk and Innovation Studies DE, Germany	Full professor for Environmental Sociology and Technology Assessment Dean of the Economic and Social Science Department at the University of Stuttgart Director of the Stuttgart Research Center for Interdisciplinary Risk and Innovation Studies Chief of non-profit company DIALOGIK	
Chen	REIS	Prof.	Josef Korbel School of Int'l Studies, University of Denver US, United States of America	Director, Humanitarian Assistance Program	
Andreas	RECHKEMMER	Prof.	University of Denver US, United States of America	American Humane Endowed Chair Chief Science and Policy Advisor	

Badaoui	ROUHBAN	Ph.D	Global Risk Forum GRF Davos CH, Switzerland	Global Risk Forum GRF Davos Senior Research Fellow	
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Ortwin	RENN	Ph.D	Chair
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Pedro	BASABE	Ph.D	Participant
Joern	BIRKMANN	Ph.D	Participant
Deborah	M. BROSNAN	Prof.	Participant
Bernhard	M. HÄMMERLI	Prof.	Participant
Rebecca	LORDAN	MSc	Participant
Alexandros	MAKARIGAKIS	Ph.D	Participant
Armin	PREIS	Ph.D	Participant
Sergey	PULINETS	Ph.D	Participant
Akhilesh	SURJAN	Prof.	Participant
Yang	ZHANG	Ph.D	Participant



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Mechthilde	FUHRER	Ph.D	Participant
Carl	GIBSON	Ph.D	Participant
Kai	LIU	Prof.	Participant
Francesco	PISANO	MSc	Participant
Andreas	RECHKEMMER	Prof.	Participant
Chen	REIS	Prof.	Participant
James Herbert	WILLIAMS	Prof.	Participant



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Julie	CALKINS	Ph.D.	Participant
Carmelo	DI MAURO	MSc	Participant
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