

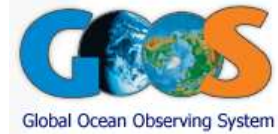
Working together toward an
*Intergovernmental Panel/Platform
on Disaster Risk Assessment*

Alik Ismail-Zadeh

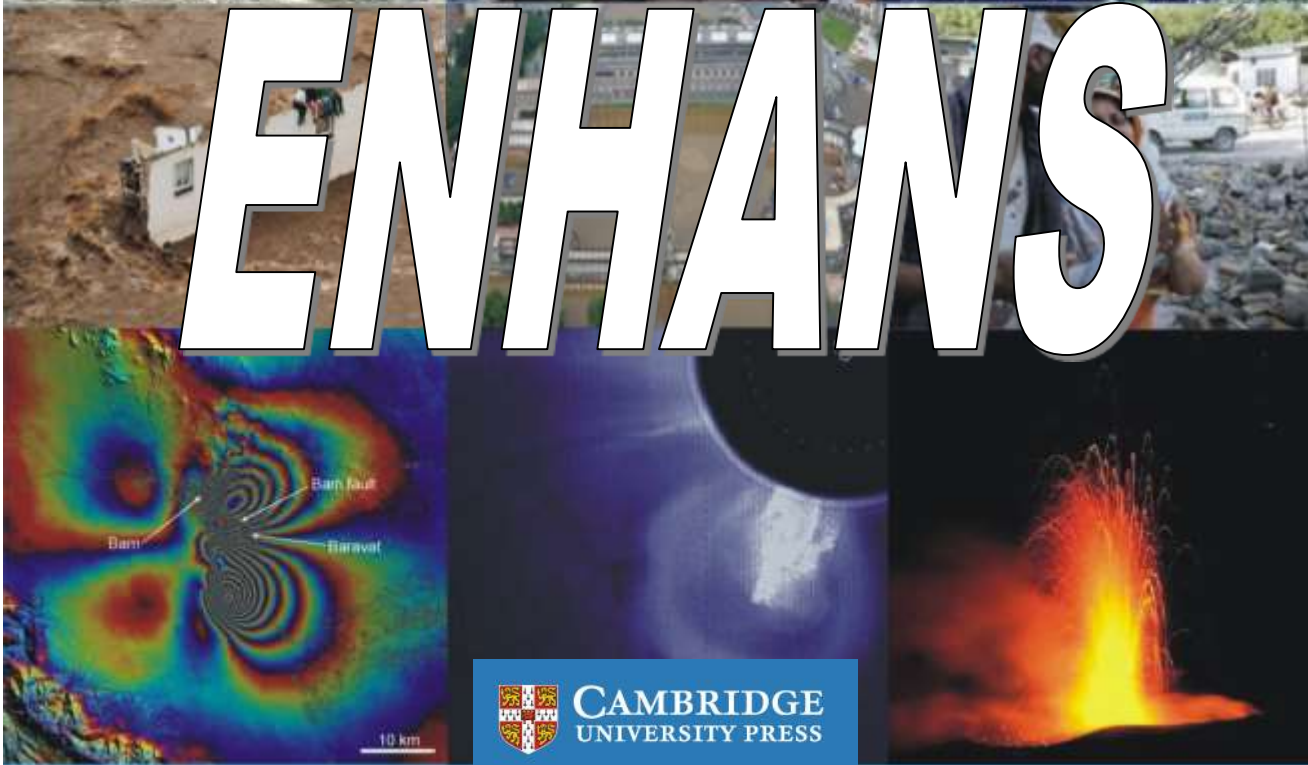
IUGG Secretary General



ENHANS



Intergovernmental
Oceanographic
Commission



ENHANS Events



Latin America and the Caribbean (Iguassu, Brazil, 2010)

North Africa (Cairo, Egypt, 2010)

North America and Europe (San Francisco, USA, 2010&2011)

Sub-Saharan Africa (Pretoria, South Africa, 2011)

Middle East (Antalya, Turkey, 2011)

Asia and the Pacific region (Melbourne, Australia, 2011)

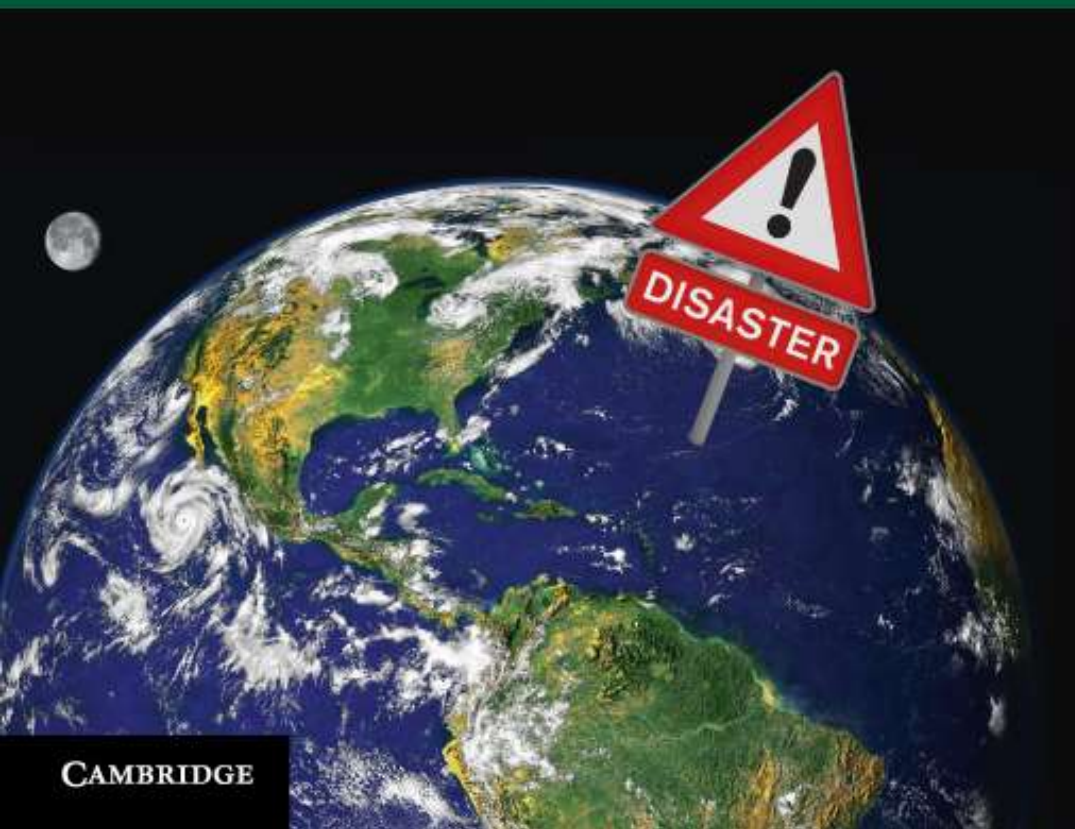
Europe (Trieste, Italy, 2011)

Extreme Natural Hazards, Disaster Risks and Societal Implications

Edited by Alik Ismail-Zadeh, Jaime Urrutia-Fucugauchi,
Andrzej Kijko, Kuniyoshi Takeuchi and Ilya Zaliapin

This book presents a unique, interdisciplinary approach to disaster risk research, combining cutting-edge natural science and social science methodologies. Bringing together leading scientists, policy makers and practitioners from around the world, it presents the risks of global hazards such as volcanoes, seismic events, landslides, hurricanes, precipitation floods and space weather, and provides real-world hazard case studies from Latin America, the Caribbean, Africa, the Middle East, Asia and the Pacific region.

Avoiding complex mathematics, the authors provide insight into topics such as the vulnerability of society, disaster risk reduction policy, relations between disaster policy and climate change, adaptation to hazards, and (re)insurance approaches to extreme events. This is a key resource for academic researchers and graduate students in a wide range of disciplines linked to hazard and risk studies, including geophysics, volcanology, hydrology, atmospheric science, geomorphology, oceanography and remote sensing, and for professionals and policy makers working in disaster prevention and mitigation.



Part I. Introduction

1. Extreme natural hazards and societal implications – ENHANS project *Alik Ismail-Zadeh*
2. The grand challenges of integrated research on disaster risk *Gordon McBean*

Part II. Extreme Hazards and Disaster Risks

3. Extreme volcanism: disaster risks and societal implications *Amy Donovan and Clive Oppenheimer*
4. Extreme seismic events: from basic science to disaster risk mitigation *Alik Ismail-Zadeh*
5. The spatial-temporal dimensions of landslide disasters *Irasema Alcántara-Ayala*
6. Global climate model and projected hydro-meteorological extremes in the future *Akio Kitoh*
7. Physically-based hurricane risk analysis *Ning Lin, Kerry Emanuel and Erik Vanmarcke*
8. Satellite-based remote sensing estimation of precipitation for early warning systems *Soroosh Sorooshian et al.*
9. Predicting and mitigating socio-economic impacts of extreme space weather: benefits of improved forecasts *Daniel N. Baker et al.*
10. Predictability of extreme events in a branching diffusion model *Andrei Gabrielov et al.*

Part III. Case Studies: Latin America and the Caribbean Region

11. Earthquakes, tsunamis, and the related vulnerability in South America and the Caribbean – an overview *Omar J. Pérez et al.*
12. Magnetic studies of active volcanoes in Mexico: implications for volcanic hazards and volcano monitoring *Jaime Urrutia-Fucugauchi*

Part IV. Case Studies: Africa

13. Volcanism in Africa: geological perspectives, hazards and societal implications *Nils Lenhardt and Clive Oppenheimer*
14. Recent volcanic eruptions in the Afar rift, north-eastern Africa, and implications for volcanic risk management in the region *Gezahegn Yirgu et al.*
15. Large recorded earthquakes in Sub-Saharan Africa *Vunganai Midzi and Brassnavy Manzunzu*
16. Tsunami impact on the African continent: historical cases and hazard evaluation *Vyacheslav K. Gusiakov*
17. Advancing disaster risk governance in Madagascar: the role of higher education institutions *Mahefasoa T. Randrianalijaona and Ailsa Holloway*

Part V. Case Studies: Middle East

18. Natural hazards in Saudi Arabia *Abdulaziz M. Al-Bassam et al.*

19. Large earthquakes and tsunamis in the Mediterranean region and its connected seas
Gerassimos A. *Papadopoulos and Antonia Papageorgiou*

20. Earthquake risk and risk reduction capacity building in Iran *Mohsen Ghafory-Ashtiany*

Part VI. Case Studies: Asia and the Pacific Region

21. The Chao Phraya floods 2011 *Sucharit Koontanakulvong*

22. Environmental risk management in Australia: natural hazards *Tom Beer*

23. The 2008 Wenchuan, China, earthquake
Zhongliang Wu and Tengfei Ma

24. The 2011 Tohoku, Japan, earthquake and tsunami *Kenji Satake*

25. India's tsunami warning system *T. Srinivasa Kumar et al.*

Part VII. Disaster Risks and Societal Implications

26. The International Strategy for Disaster Reduction and the Hyogo Framework for Action (2005–15): essential tools for meeting the challenges of extreme events *Sálvano Briceño*

27. Disaster policy and climate change: how much more of the same? *Stephen Dovers and John Handmer*

28. Vulnerability, impacts and adaptation to sea level related hazards taking an ecosystem based approach *Keith Alverson*

29. Extreme geohazards: risk management from a (re)insurance perspective *Anselm Smolka*

30. Hitting the poor: public-private partnership as an option. Impact of natural catastrophes on economies at various stages of development
Angelika Wirtz et al.

ENHANS Declaration

Disaster Risk Reduction Through Research and Assessments

The Declaration, made by Partners of the Project EXTREME NATURAL HAZARDS AND SOCIETAL IMPLICATION (ENHANS), aims to reinforce the vital link between the scientific community, national governments and the public to mitigate disasters caused by extreme natural events and to contribute to sustainable development of society, and

...

Calls for a reduction of disaster risk through scientific research on disaster risks and through risk assessments; namely, ...

3. a negotiation on setting up a process of assessing and synthesizing the policy-relevant results of peer-reviewed published research on (i) the understanding of the natural phenomena and the social vulnerability associated with disasters; (ii) the capability of predictive systems to disseminate timely and accurate information needed for policy and decision making; (iii) methodologies and approaches for reducing vulnerability and increasing resilience of societies; and (iv) the overall ability of societies to reduce risk (prevent, mitigate and prepare for the increasing impact of natural events). The assessment would contribute to enhance the knowledge of disaster risk at global, regional, and local levels and the awareness of the people living with risk. *A high-level intergovernmental body comprising of experts on natural hazards and disaster risk analysis should be the set up and undertake the assessment.*

Potential Partners

Potential Intergovernmental Partners in this development could be:

- U.N. International Strategy on Disaster Reduction (UNISDR)
- U.N. Educational, Scientific and Cultural Organizations (UNESCO)
- U.N. Development Program (UNDP)
- U.N. Office for Outer Space Affairs (UNOOSA) and its Agency Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)
- World Bank
- World Meteorological Organization (WMO)

and NGO Partners:

- IRDR
- ICSU and its relevant International Scientific Unions (e.g., GeoUnions, IUPsyS)
- ISSC

Actions undertaken

The idea was discussed during the presentation of the ENHANS project at the IRDR meeting at ICSU in Paris in 2010.

The idea was further discussed and refined during interaction with many experts including Members of IRDR Scientific Committee.

The idea of the ICSU resolution was discussed at the GeoUnions meeting in Rome before the ICSU General Assembly in 2011 and supported by GeoUnions (at least it was no objections). The former Chair of IRDR and (a candidate for) the ICSU President-Elect G. McBean attended the GeoUnions meeting and knew about the intention to submit the resolution.

During the ICSU General Assembly J. Rovins (IRDR Executive Director), S. Briceno (Chair of IRDR SC), G. McBean, H. Gupta (IUGG President), and A. Ismail-Zadeh (IUGG Secretary General) worked several hours together to prepare a short resolution to be tabled at the ICSU GA. H. Gupta, IUGG President, submitted this resolution to the ICSU Resolution Committee in due time. During 10-min discussion after the presentation by J. Rovins at the ICSU General Assembly, IUGG (H. Gupta and A. Ismail-Zadeh) raised the problem of disaster risk assessment.

Actions undertaken

Initially the resolution was simply rejected as the subject of the resolution was not discussed intensively at the General Assmebly. However, several delegates opposed this decision of the ICSU President, and IUGG (A.Ismail-Zadeh) was asked to present the resolution. After very short discussion, the (past) ICSU President C. Brechignac decided to forward the draft resolution for consideration by the new Executive Board of ICSU.

Now after more than 2 years, IUGG did not hear formally about the decision of the ICSU Executive Board, although IRDR was involved in discussion for all this time.

During the ICSU General Assembly A.Ismail-Zadeh met Dr. Gretchen Kalonji, UNESCO Assistant Director General for Natural Sciences, and discussed a potential interest of UNESCO in involvements into setting up the panel. She invited A. Ismail-Zadeh to the UNESCO Headquarters in Paris for discussions.

Actions undertaken

In July 2012, A. Ismail-Zadeh met G. Kalonji and the (former) Director of the UNESCO Unit for Natural Disasters B. Rouhban in Paris. During the meeting,

- It was mentioned that IUGG and IRDR proposed a resolution at the ICSU General Assembly, but not accepted due to regulations related to resolutions submission
- IRDR should be a primary international scientific body in this development (and should perhaps play a role similar to WCRP for IPCC) and hence be indeed one of the essential Partners in this development.
- It was also discussed that IRDR initiates a new program AIRDR related to assessment of disaster risks, and definitely the Scientific Committee of IRDR comprised of high-level experts in the field of disaster risk research could significantly contribute to the research and assessment of disaster risks.

Meanwhile I expressed a concern that opinion of independent experts/scientists is not much appreciated by governments. The case of IPCC shows clearly that only an inter-governmental body with a relevant mandate can influence governmental decisions, and at least a part of the IPCC recommendations are or to be implemented.

Actions undertaken

Both Kalonji and Rouhban expressed their interest to the initiative. Rouhban mentioned that the initiative should be supported by several nations. Also it was mentioned that it would be also important to present the initiative at the *Third United Nations World Conference on Disaster Reduction* in 2015. Also Rouhban mentioned that he will retire from UNESCO by fall 2012 but would be interested in cooperation on this project.

In February 2013, A. Ismail-Zadeh met Alex Makarigakis, Chief of Unit a.i., Cross-Cutting Thematic Unit on Disaster Risk Reduction to introduce him the initiative. In April 2013 J. Rovin met A. Makarigakis as well.

Next actions

To publicize the idea via most readable Newsletters: EOS (about 60,000 geoscientists), Nature, Science, etc

To contact U.N. Stakeholders

To search for governmental support (very important! assistance is required)

To present the proposal at the UNISDR Conference on Disaster Risk in 2014.

To get a support of ICSU (as a resolution of the 2014 ICSU GA not only a decision of the Executive Board)

To present the proposal at the *Third United Nations World Conference on Disaster Reduction* in March 2015, Sendai, Japan.

WE HAVE 1.5 YEAR and NEED TO BE MORE ACTIVE

Next actions: ICSU EB decision

While the Board recognized that the creation of an intergovernmental structure of the type originally proposed would require political and material support at the highest level, it considered that an integrated, interdisciplinary scientific synthesis across all hazards of the state of knowledge and response, hazards' occurrence and impacts and priorities for research in the decades to come would be important to the HFA2, the International Council for Science Members and relevant UN bodies and all governments. The preparation of such a synthesis should be carried out through scientific processes involving the IRDR, the ICSU GeoUnions and other like-minded bodies of scientists. The ICSU Regional Offices could play a role in to ensuring the global coverage of such a synthesis. An ad-hoc funding group including members of the Board would be established to render this process effective.

To commission, through IRDR and the GeoUnions, the preparation of an integrated, interdisciplinary scientific synthesis across all hazards of the state of knowledge and response, hazard occurrence and impacts and priorities for research, and that this synthesis report be completed in order to provide input to the 2015 HFA negotiations.