AJEM BOOK REVIEW

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Dilley Maxx, Chen, Robert S., Deichmann, Uwe, Lerner-Lam, Arthur L., Arnold, Margaret (2005)

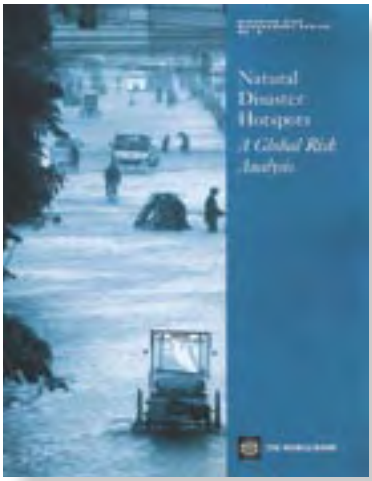
Natural Disaster Hotspots : A Global Risk Analysis, The World Bank, Hazard Management Unit (HMU).

ISBN: 0-8213-5930-4

For those fascinated by disaster statistics and risk management this book is an interesting read. It presents the collation and analysis of selected natural hazard data from around the globe and uses it to identify and categorise 'Hotspots'. These are areas where the risk of mortality and economic loss from multiple hazards is the highest.

This is 'publication five' in the Disaster Risk Management series and was published after the tsunami disaster but did not include an analysis of tsunami events as there was insufficient data at the time of research. Having said that, it does effectively cover the six biggest geophysical and hydro-meteorological hazards such as floods, earthquakes, volcanoes, landslides, cyclones and drought.

The aim of the project was to provide information and methods to inform priorities for reducing disaster risk and making decisions on development investment. This publication is a thorough attempt to achieve that aim and stimulate detailed analysis at the local level. This will enhance the understanding of risk and the need to integrate risk management into development planning decisions.



Methodology

In order to capture, collate, analyse and present data from around the globe the project team decided to grid the globe into a series of cells to allow data managing at the sub-national level. In these grid cells they are able to display data in a series of global maps and tables for a variety of uses. The team admits that a global analysis is affected by the availability and quality of data because a number of hazards only had 15 – 25 years of scientific event recording and relatively crude spatial information for locating these events.

Data on historical losses is in some cases limited, especially pertaining to economic losses. However, on a global scale the accumulated data, which may not be adequate for understanding absolute levels of specific risk at a local level, were adequate for identifying areas that are at high risk from single and multiple hazards. Consequences have been expressed in terms of mortality and economic loss relative to GDP. Areas of very low population density and non-agricultural in value were masked and the rest of the gridded cells classified into ten classes (deciles) of roughly equal numbers of cells. The cells falling into the highest three deciles for either mortality or economic losses are considered disaster risk hotspots.

Key findings

The maps and tables generated as outputs of the research made fascinating viewing and certainly highlighted the vulnerable areas. A range of legends and headings were used to this effect. Other key findings include:

- Approximately 20 per cent of the Earth's land surface is exposed to at least one of the natural hazards evaluated;
- 160 countries have more than one quarter of their population in areas of high mortality risk from one or more hazards;
- 96 countries have more than 10 per cent of their population in areas of high mortality risk from two or more hazards;
- In 35 countries, more than 1 in 20 residents lives at relatively high mortality risk from 3 or more hazards;
- Three quarters of the world's population are subject to a relatively high risk of mortality from one or more hazards;
- Seven per cent of the world's population lives in areas at high mortality risk from three or more hazards;
- More than 80 per cent of global GDP is located in areas of relatively high economic risk subject to one or more hazards;
- More than 50 per cent of global GDP is located in areas of relatively high economic risk subject to two or more hazards;
- Taiwan may be the place on Earth most vulnerable to natural hazards, with 73 per cent of its

land and population exposed to three or more hazards;

- More than 90 per cent of the populations of Bangladesh, Nepal, the Dominican Republic, Burundi, Haiti, Taiwan, Malawi, El Salvador, and Honduras live in areas at high relative risk of death from two or more hazards; and
- Poorer countries in the developing world are more likely to have difficulty absorbing repeated disaster-related losses and costs associated with disaster relief, recovery, rehabilitation and reconstruction.

Layout and content

The executive summary was very useful in providing an overall and concise picture of the project approach, key findings and the way forward. It is a good reference document and it is not necessary to read it from cover to cover to be useful.

The content covers the project objectives and approach, hazard exposure analysis, multi-hazard risk assessments, case studies and concluding observations about the implications for decision-making and disaster risk management. The tabulation and geospatial rendering of this data highlights the hazards by category, country and type of loss. The culmination of all this data produces a series of world maps depicting the global distribution of disaster risk hotspots by single hazard and for all hazards combined. These maps are presented in three main categories: mortality, total economic loss and economic loss as a proportion of GDP density.

The limitations of this study include a low level of local participation based on incomplete data. Therefore the results here should not provide the sole basis for designing risk management activities. The approach does, however, provide a scientific basis for understanding where risks are highest and why, as well as a methodological framework for regional and local-scale analysis.

Conclusion

The costs of disaster risks — If we consider that disasters are very expensive in human and economic terms we realise that effective disaster management is not just a humanitarian imperative but certainly an economic issue as well. Response, relief and recovery activities have high associated costs over and above the initial direct financial losses. Therefore sustainable development and investment in mitigation strategies are essential components to strategic planning.

Implications for decision-making — The hotspots analysis gives focus to development planning and disaster preparedness in areas that are at high risk to human and economic losses. This type of research provides a scientific basis for prioritising risk reduction efforts and highlights areas where risk management is most needed. The analysis may be used to develop assistance strategies, encourage risk management by project planners and the strengthening of infrastructure and community resilience in hotspot areas.

Improved information for Disaster Risk Management — The Hotspots project is a risk management tool which can be useful in risk identification and analysis and can be applied on different scales using the same methodology. It is also a useful approach to weave disaster risk management into development efforts and further refining of this methodology would be of great value. Lastly, it was highlighted that longer-term trends in hazard frequency coupled with human development and settlement patterns need to be further explored, and global climate change impacts are an example.

Overall, this publication is a worthwhile reference book for researchers, emergency management practitioners, risk management facilitators and students. While it has an international context it is still relevant as Australia is not isolated from international disasters and has strong interests in countries within the region. It also covers many disaster management concepts which are relevant all over the globe. The recent Indian Ocean tsunami proved that our future emergency management practice is not limited to our shores and the international context is very important.

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