Geophysical Research Abstracts
Vol. 14, EGU2012-14091, 2012
EGU General Assembly 2012
© Author(s) 2012

The value of knowing better - Losses from natural hazards

J. Mysiak (1), I, Galarraga (5), A. Garrido (6), E. Interwies (3), C. van Bers (2), V. Vandenberghe (4), F. Farinosi (1), S. Foudi (5), S. Görlitz (3), N. Hernández-Mora (6), M. Gil (6), and C. Grambow (2)

(1) Fondazione Eni Enrico Mattei and Euro-Mediterranean Center for Climate Change, Venice, Italy (jaroslav.mysiak@feem.it), (2) Seeconsult GmbH, Germany, (3) InterSus, Germany, (4) Antea Group, Belgium, (5) Basque Centre For Climate Change, Spain, (6) Universidad Politécnica de Madrid, Spain

In a highly emotional speech delivered last year after a series of strikes, Julia Gilbert, the Australian PM, noted that Australia has watched in horror as day after day a new chapter in natural disaster history has been written. And so did the whole world. 2011 went on to become the costliest year in terms of natural hazard losses in the recent history, with the total costs topping 380 billion US dollars. Almost a half of the insured losses were caused by a single event - the Fukushima Dai'ichi nuclear power plant accident triggered by a tsunami that followed an earthquake of MW 6.6 (Richer 9.0) magnitude. The Fukushima disaster has taught a costly lesson, once again: What you least expect, happens.

The estimates of losses inflicted by natural hazards are, to put it mildly, incomplete and hardly representative of the ripple effects on regional and global economy, and the wider effects on social fabric, wellbeing and ecosystems that are notoriously difficult to monetise. The knowledge of the full magnitude of losses is not an end in itself. The economics of disasters is an emerging academic field, struggling to uncover the patterns of vulnerability to natural hazards, and provide insights useful for designing effective disaster risk reduction measures and policies. Yet the costly lessons learned are often neglected.

In this paper we analyse selected significantly damaging events caused by hydrometeorological and climatologic events (floods and droughts) in four river basins/countries: Ebro/Spain, Po/Italy, Weser/Germany and Scheldt/Flanders-Belgium. Our analysis is focussed on identifying the gaps in reported damage estimates, and conducting additional original research and assessment that contribute to filling those gaps. In the case of drought, all the reference cases except the Ebro refer to the exceptionally hot and dry summer 2003. The drought event examined in the Ebro river basin is the prolonged period of deficient precipitation between 2004 and 2008. The flood reference cases are more uniformly distributed both intra- and interannually. They include Jan-Feb 2003 and Mar-Apr 2007 flood in the Ebro basin, the Oct 2000 flood in Po basin, Jul 2002 flood in Weser basin and Nov 2010 flood in the Scheldt.

We have identified significant knowledge gaps in the current accounts of the impacts inflicted by the above disaster strikes. Almost no information is available about intangible, indirect and environmental costs. The structural damage is only partly examined. The existing assessment studies are based either on self-reported losses of the affected subjects and methodologies yielding divergent results about the extent (or even order of magnitude) of the losses suffered. The studies are rarely subjected to a critical analysis and quality check. Uncertainty surrounding the damage estimates is either omitted or reported only as a range of the likely magnitude of the disaster costs.

Our analysis offers a systematic review of the damage across the affected sectors and communities. A number of assessment techniques were applied and their, pros and cons discussed. The paper highlights the value of an in-depth assessment of significantly damaging events for a better understanding of vulnerability, that is likely to be amplified as a result of anthropogenic climate change and economic development in the hazard-prone areas.