Natural Hazards and Disaster Risk Reduction Policies

Loredana Antronico - Fausto Marincioni Editors







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Loredana Antronico Fausto Marincioni *Editors*





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Cover: A woman shovels mud from her driveway in the aftermath of the October 2010 debris flow that affected the Province of Vibo Valentia (Calabria, southern Italy).

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Introduction

Loredana Antronico¹, Fausto Marincioni²

Natural hazard is a term widely used by scientists, authorities and practitioners to indicate extreme environmental processes that may produce damaging impacts on exposed territorial system. A large number of human communities have settled in areas where extreme processes such as landslides, earthquakes, hurricanes, tsunamis, floods, volcanic eruptions or droughts, occur recurrently causing casualties and widespread economic and environmental losses. Although considerable progress has been made in clarifying the causes and the processes related to natural hazards, further efforts are required to reduce disaster risk; e.g. reducing people's exposure and vulnerability. As a matter of fact, recent scientific data show an increase in disasters, which cannot only be attributed to an increased frequency of extreme physical phenomena (e.g. climate change), but often determined by economic, social, cultural, institutional and political factors. Consequently, promoting disaster risk reduction means activating a series of actions, strategies or policies that involve, at different scales, various social actors, including policy makers, professional and members of the academic community. In particular, it is necessary to share the challenge among citizens and institutions, public and private sectors to: a) reduce the vulnerability and exposure to hazards of people and infrastructures, b) promote sustainable land and environmental management, and c) improve preparedness and early warning to extreme events; etc.

The purpose of this Book is to document a number of case studies from different regions of the World pursuing disaster risk reduction through preparedness, mitigation, emergency response, and recovery activities. The volume contains 14 chapters divided into three sections: 1) disaster risk perception, 2) disaster planning and management, and 3) disaster mitigation and preparedness. The first section, Disaster risk perception, includes five essays. Cruz-Bello and Alfie-Cohen present two case studies in Mexico where the population was directly involved in risk assessment. For this study two different participatory methodologies were applied and their effects reported. Authors also describe participatory processes (workshops)

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through which the local communities have been empowered to develop strategies to mitigate vulnerabilities (strategies the feasibility of which were directly evaluated by the local Civil Protection authority). The experiments proved how participatory methodologies could help to raise awareness about the delicate human-environment relationship. Salami, von Meding and Giggins adopt the lens of political ecology to study flood risk and vulnerability in the traditional urban settlement of Bere, within the Ibadan Metropolis in Nigeria. Their research highlights the social construction of vulnerability, as the inhabitants most at risk were also those with higher exposure and susceptibility, given their socio-economic characteristics. Consequently, the authors encourage a more comprehensive approach to risk mitigation, moving beyond structural strategies, and considering various activities to strengthen awareness, preparedness and planning at the community level. The volcanic archipelago of the Azores is the case studied by Rego, Pereira and Pacheco. The question addressed in this essay concerns risk perception, and in particular, how local communities negotiate risks and benefits of living near a volcano. Finding shows that local communities are aware, more than expected, of the actual risks, yet it seems that they tend to neglect such risk in the face of the advantages provided by such unique landscape. These benefits includes a strong sense of belonging and connectedness within the community, and specific economic activities developed around and on the volcano. Also the case studied by Cannizzaro concerns a volcano, Mount Etna in Sicily, Italy. Here too, the author tackles the apparent irrationality of acknowledging, and yet seemingly dismiss, the tangible risk posed by living in direct contact with such a natural threat. It emerges that the strong feeling of belonging to that specific place develops a fatalistic attitude on the part of the local community; residents accept that Etna volcano can be both a source of life and economic prosperity as well as death and destruction. Lugeri and Farabollini shed light on the long-standing neglect of human accountability in the course of events that lead to disasters. Underlining human involvement in the creation of disasters. authors suggest participative and educative processes to promote sounder land use and human-environment interaction.

The second section, entitled Disaster Planning and Management, includes four essays. Gugg analyzes the Vesuvius emergency plan for Naples, Italy. Indeed, the very existence of such emergency management tool, besides acknowledging the tangible volcanic hazard, serves also the purpose of helping local communities to clarify their exposure and vulnerability and how prepare for the next eruption. In addition, the Vesuvius emergency plan is a great opportunity to build a dialogue among the various stakeholders broadening the number of individuals and groups involved in the emergency

planning process. Lastly, the author highlights the need to construct a shared vision for the future use of the Vesuvius hinterland. Gatto, Balducci and Marincioni address the inclusion of people with disabilities, access and functional needs in disaster planning and management. The authors solicit a new approach to directly involve such individuals, as well as their families. since the decision-making processes. Certainly, they acknowledge the need of a strong political engagement to foster and achieve such an inclusive emergency management approach. Annesi, Rizzo and Scamporrino focus on the physical, social and institutional components of a city. Their work concerns the recovery processes following an earthquake. Three Italian case studies are analyzed: Fucino area, Belice valley, and L'Aquila. Beside discussing the lessons derived from past mistakes, the authors recommend the Italian "National Strategy for Inner Areas" as an effective tool for seismic risk reduction. Appiotti, Bertin and Musco also discuss the recovery processes after an earthquake in the Municipality of Cascia in central Italy. The project provides insights on how fruitful a public and private collaboration can be in actively involving the local communities. At the same time, this essay discusses possible trade-offs between bottom-up solutions proposed by the citizens, and top-down processes coming from established institutions.

The third section, entitled Disaster Mitigation and Preparedness, includes five chapters. The study carried out by Fassoulas et al. focuses on a UNESCO program called Global Geoparks. The authors suggest taking advantage of the sought links between that geological heritage and all other natural, cultural and intangible legacy of sites to induce environmental education for both locals and tourists. This would also help meeting international agreements such as the Sendai Framework for Disaster Risk Reduction. The stated goal of Cadierno Gutierrez and Losada Gómez is to question the use of the term "natural disaster" in common narratives. Their research is rooted in the very definition of risks and disasters as social constructions. From this perspective, natural hazards are seen as natural features of the environment, towards which humans are required to become resilient. The authors also discuss the role of mass media in impacting individual and collective behavior, boosting or undermining adaptive capacity. Cerase too discusses disaster communication, considering how this social function could be used to delivery timely and comprehensive information to advice the choice of life-saving actions. The author also discusses the implementation of several strategies to reach members of the community. The work of Grimalt and Geli focuses on the island of Mallorca, discussing dry-stone walls as traditional means of flood mitigation. While such structures used to provide protection and foster agricultural development, they are currently losing their importance (and function) due to the recent expansion of tertiary activities and cutback in farming. The authors suggest that these dry walls should be restores also for their cultural-heritage value substantiating the distinctive humanenvironment relation that shaped the island landscape. The work of Kumar draws from the paradigm shift of disasters from acts of God to acts of humans, showing how disaster response measures evolved over time from resistance to resilience to extreme events. The Author reports how in India disaster management begun by focusing on the specific risk of famine to subsequently evolve into a more comprehensive approach aimed at enhancing the overall resilience of local communities.

These above-mentioned essays, constituting the book chapters, contribute to the current scientific debate on disaster ecology, exploring strategies and ability of local communities to adjust to hazard and disasters. Common thread among the different case studies is the need for Homo sapiens to define its rights and responsibilities in environmental dynamics, including extreme events and disasters. In the end, the choice of how to deal with hazard, vulnerability and disasters, highlights the ethical nature of disaster risk reduction; control of nature or adaptation to its cycles? Natural Hazards and Disaster Risk Reduction Policies collects 14 original essays, of authors from all around the World, exploring strategies and ability of local communities to adjust to natural hazard and disasters. The volume, fostering the current scientific debate on disaster ecology, muses about the need for Homo sapiens to define its rights and responsibilities in environmental dynamics, including extreme events and disasters. In the end, the reflections about how to deal with hazard, vulnerability and disasters, highlights the ethical nature of disaster risk reduction; control of nature or adaptation to its cycles?

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