

Lessons Learned in Dealing with Large-Scale Disasters

Daniel Hutchison

Volume 73, Number 1, 2005

URI: <https://id.erudit.org/iderudit/1107007ar>

DOI: <https://doi.org/10.7202/1107007ar>

[See table of contents](#)

Publisher(s)

Faculté des sciences de l'administration, Université Laval

ISSN

1705-7299 (print)

2371-4913 (digital)

[Explore this journal](#)

Cite this document

Hutchison, D. (2005). Lessons Learned in Dealing with Large-Scale Disasters. *Assurances et gestion des risques / Insurance and Risk Management*, 73(1), 79–88. <https://doi.org/10.7202/1107007ar>

Article abstract

Many OECD countries have been affected by major harmful events in recent years. The considerable human and economic costs of such events and the repercussion they might have for the global economy have become recurring causes for concern.

Given its intergovernmental and multidisciplinary nature, and its experience in risk and disaster management in a variety of fields, the OECD is well positioned to analyse the impact of major disasters on societies and economies, and to identify optimal practices in response and recovery phases. To this end, the OECD's International Futures Programme supervised a team of specialists from eight OECD directorates, and a team of Turkish specialists who provided the material for chapter 3. The report was prepared between May and July 2003.

This report analyses the economic and social impacts of recent large-scale disasters, and draws some initial lessons for the monitoring and the management of future disasters. The report primarily focuses on restoring trust and securing recovery after a major harmful event has occurred.

The events reviewed are as diverse as the Chernobyl nuclear accident, the Kobe and Marmara earthquakes, Hurricane Andrew, and the 11th September terrorist attacks on New York and Washington. Disasters such as these have in common massive effects on large concentrations of people, activity and wealth. They disrupt multiple vital Systems such as energy supplies, transport and communications. Their effects spread beyond the region originally affected and generate widespread anxiety. In some cases, the public expresses distrust of the ability of governments to protect citizens.

Assurances et gestion des risques, vol. 73(1), avril 2005, 79-88
Insurance and Risk Management, vol. 73(1), April 2005, 79-88

Lessons Learned in Dealing with Large-Scale Disasters

by Daniel Hutchison

ABSTRACT

Many OECD countries have been affected by major harmful events in recent years. The considerable human and economic costs of such events and the repercussion they might have for the global economy have become recurring causes for concern.

Given its intergovernmental and multidisciplinary nature, and its experience in risk and disaster management in a variety of fields, the OECD is well positioned to analyse the impact of major disasters on societies and economies, and to identify optimal practices in response and recovery phases. To this end, the OECD's International Futures Programme supervised a team of specialists from eight OECD directorates, and a team of Turkish specialists who provided the material for chapter 3. The report was prepared between May and July 2003.

This report analyses the economic and social impacts of recent large-scale disasters, and draws some initial lessons for the monitoring and the management of future disasters. The report primarily focuses on restoring trust and securing recovery after a major harmful event has occurred.

The events reviewed are as diverse as the Chernobyl nuclear accident, the Kobe and Marmara earthquakes, Hurricane Andrew, and the 11th September terrorist attacks on New York and Washington. Disasters such as these have in common massive effects on large concentrations of people, activity and wealth. They disrupt multiple vital systems such as energy supplies, transport and communications. Their effects spread beyond the region originally affected and generate widespread anxiety. In some cases, the public expresses distrust of the ability of governments to protect citizens.

De nombreux pays membres de l'Organisation de coopération et de développement économiques (OCDE) ont été sévèrement affectés par les catastrophes des dernières années. Les coûts liés à ces événements ont été considérables, tant sur les plans humanitaire qu'économique et les répercussions financières qui s'en suivirent à l'échelle mondiale sont devenues une source récurrente de préoccupation.

Vu la nature multidisciplinaire de ses activités et ses liens avec plusieurs gouvernements et vu son expérience en matière de gestion des risques catastrophiques, l'OCDE est bien placée pour analyser l'impact des risques majeurs sur les sociétés et les économies et pour identifier les pratiques optimales dans les phases de reconstruction. Dans ce cadre, un programme spécial de l'OCDE (International Futures Programme) comprend une équipe de spécialistes provenant de huit directorats de l'OCDE ainsi qu'une équipe de spécialistes turques qui ont formulé des réflexions présentées au chapitre 3 du rapport ci-dessous.

Ce rapport, préparé entre les mois de mai et de juillet 2003, analyse les impacts économiques et sociaux des récents désastres majeurs et apporte des premiers enseignements sur la surveillance et la gestion des désastres dans le futur. Il vise essentiellement à restaurer la confiance et la sécurité dans les moments qui suivent l'arrivée des catastrophes. Les grands désastres sont très diversifiés, tel l'accident nucléaire de Tchernobyl, les tremblements de terre de Kobé et de Marmara, l'ouragan Andrew et les attaques terroristes du 11 septembre 2001 à New York et Washington. Ils ont en commun des impacts importants sur les concentrations de personnes, de biens et d'activités. Ils interrompent brutalement de nombreux systèmes publics essentiels, tels l'énergie, les transports et les communications. Leurs effets vont au-delà des seules régions directement touchées et génèrent des larges courants d'anxiété et d'angoisse. Dans certains cas, des manifestations publiques sont empreintes de méfiance envers les gouvernements et sur leur capacité de protéger adéquatement les citoyens.

I. THE OCDE REPORT

The text begins with an overview of the important commonalities among these different disaster events (chapter 1). It is followed by a series of more specialized texts which look carefully at specific sectorial impacts (chapter 2). The 1999 earthquakes in the Marmara region of Turkey are the subject of a case study (chapter 3). An annotated bibliography closes the report.

The overview section of Chapter 1 focuses on the following policy messages, which have been drawn from extensive OECD work on disaster related issues:

- governments can – and must – be better prepared to mitigate the economic and social impact of disasters by better planning and coordination across governmental responsibilities;
- public trust, as well as consumer and investor confidence, are key elements to ensure rapid and systemic recovery; these elements need to be strengthened through credible;
- governments need to work on more closely in partnership with the private sector, which has key roles to play in disaster prevention, preparedness, response and recovery;
- major disasters and harmful events can have multiple international dimensions, and these call for more systematic international co-operation.

The sectorial notes in chapter 2 provide insights into recent OECD work on risk and disaster impact by analyzing eight specific issues:

- measuring the impact of large-scale disasters;
- economic recovery from past disasters;
- impacts on public finances;
- the consequences for financial and insurance markets;
- disaster management through insurance;
- compensation issues;
- housing and community reconstruction;
- lessons learned from nuclear accidents.

Chapter 3 of the report deals with the Turkish response to the Marmara earthquake disaster. An annotated bibliography of recent OECD publications related to disaster management is included to guide the reader toward recent economic literature in this field.

The issues raised in this report concern the welfare of citizens, and at the same time provide further reflection on the ways in which individuals, acting both through the private and public sectors, can influence and shape new ideas on risk management. As risk is a multi-sectorial, multidisciplinary set of issues, it must increasingly be addressed across traditional administrative divides and government responsibilities.

2. LESSONS LEARNED

Building on the past work of the OECD on risk and disaster management, and on the in-depth studies of the particular chapters of the publication, the chapter entitled “Lessons Learned” proposes a set of policy lessons learned from the impact and management of major harmful events in various parts of the world. A brief synthesis of this chapter, then, reveals the heart of the publication, and provides the best lens through which it can be viewed summarily.

Though the events considered differ largely, e.g., the extent of damage incurred, the context in which they occurred and the governmental response to them, they also have similarities. It is through their similarities, e.g., the rate at which they spread and how they affected our societies and economies that enable lessons to be drawn. Useful lessons from the past can therefore be drawn, although as the publication shows, such lessons mustn't be taken as foolproof recipes for handling future events; but rather, for providing and improving disaster response and recovery framework.

Lesson 1. Governments can and must be better prepared to mitigate the economic and social impact of disasters.

Large-scale disasters can cause considerable economic damage, in the order of one percentage point of total wealth or even several percentage points of GDP. Today, such disasters often affect large conurbations with high concentrations of population, economic activity and wealth. Critical infrastructures can be damaged, and the systems upon which society and the economy depend (telecommunication, transport, energy supply, etc.) severely disrupted.

The negative economic consequences can be substantial, especially if there is a threat of repetition of the disaster (radiological contamination, earthquakes, etc.). Such harmful events can have a short-term destabilising effect on the economy because of their impact on consumer and business confidence, the liquidity needs they may create in the financial sector, and other sectorial imbalances they may engender.

In order to mitigate the impact of such disasters, governments must implement flexible and responsive decision-making capacities and preserve a substantial margin for action in their budgetary and, perhaps even, monetary areas.

Because harmful events can be unpredictable, and often call for immediate decision based on incomplete information, disaster management cannot depend on a detailed framework for action. Rather,

it must rely on a responsive, flexible decision-making structure. Decision analysis models using probabilistic methods, such as triggering mechanisms, can be an indispensable tool for defining levels at which government interventions should be activated.

In the aftermath of disasters, governments face overwhelming pressure to intervene (compensating victims, repairing damaged areas, preventing liquidity crises, etc.). However, since ill-timed government intervention can generate adverse affects, both at the macro and microeconomic levels, governments must preserve substantial margins in their budgetary and monetary areas. At the macroeconomic level, for instance, poorly timed intervention can increase public indebtedness and fuel inflation and, at the microeconomic level, it can create distortionary effects and generate disincentives.

Through the implementation of decision-making structures and the preservation of substantial margins in the above areas, governments can indeed better prepare themselves to deal with unexpected, disastrous events.

Lesson 2. The public's trust and consumer and investor confidence are key ingredients of recovery; they need to be strengthened through credible communication and effective action.

In the aftermath of a harmful event, there is a strong demand for information. Independent media often interpret and present data to the public in real time, with little governmental say on how the information is presented or on how the public will receive it. And, at the same time, governments ability to communicate with the public are often hindered by the need to withhold critical information, e.g., protecting potential targets from future acts of terrorism. This tension between the public demand for information on the one hand, and the government's responsibility to convey reliable and open information on the other can give rise to widespread panic or ordered, collective recovery. For instance, lack of information to exposed populations and their non-involvement are part of the reason why, fifteen years after the Chernobyl catastrophe, public distrust of the government and psychosomatic illnesses still impose considerable cost on the Ukraine and Belarus governments.

The public's confidence in risk management authorities, therefore, is key to disaster control and recovery.

Restoring public trust after a disaster requires transparency in communication, and the involvement of stakeholders over a long period of time, two elements that have received little attention in the past. In particular, stakeholders should aid in the assessment of such

questions as “how have living conditions and social relations been affected” and “how likely are such conditions to recover thanks to local and private initiatives”.

Though in the past stakeholders have not always been consulted, large-scale disasters affect and heighten the awareness of all stakeholders. The appropriate course of action, therefore, is to involve them in designing better risk management through co-operation and better economic incentives. This entails providing answers to questions such as “did the occurrence of a hazard correspond to earlier assessments” and “were there effective incentives to avoid and mitigate risk”?

Investigating the sources of a disaster with a broader domain of interested parties (i.e., all stakeholders) and then engaging adequate corrective actions increase public trust in the government’s capacity to handle future risks, and consequently facilitates recovery.

Lesson 3. Governments need to work in partnership with the private sector, which has key roles to play in disaster prevention, preparedness, response and recovery.

Large-scale disasters affect local and national economies through various channels. At the national level, the effects can be limited. For example, the damage incurred during the Kobe earthquake is estimated at USD 130 Billion, which is equivalent to only 10 % of the country’s annual capital formation. At the local level, however, the effects can be overwhelming. Yet, studies have shown that local economies rebound rather quickly (see Key Issue 1, Chapter 2). It is here that the private sector factors significantly.

The private sector plays a crucial role in rebuilding the areas affected by a disaster and restoring economic dynamism – provided that it has adequate economic incentives (treated in Key Issue 1, Chapter 2). The importance of such incentives on local economies is witnessed, for example, by the blossoming of Slavutyck, a city built shortly after 1986 to resettle people living near Chernobyl. The unemployment rate is lower than the national average and new business creation is growing. This is partly due to the status of the city as a special economic zone, and particularly the medium-term tax exemption granted to new businesses.

Public measures – especially systematic, long-term ones – aimed at supporting affected industries or regions can distort competition and hamper trade. Likewise, public interventions aimed at providing victim compensation can even entail moral hazard problems (treated in Key Issue 1, Chapter 2). Studies have shown that systematic

compensation – often undertaken to show national solidarity – can actually have an adverse moral and economic effect, resulting in the outcome of a “victim mentality”. Beyond the repair of public infrastructure and short-term humanitarian assistance, therefore, governments are well advised to encourage proactive behaviour and gradually phase out public compensation measures.

The respective roles and responsibilities of public and private sectors in risk management have undergone significant transformation in OECD countries in recent decades. Consequently, recent accidents have revealed large gaps in the way risks are handled. Countries need to clarify the responsibilities of the respective actors and to adapt legal frameworks – liability laws in particular – to this rapidly changing environment.

Public and private partnerships can be instrumental in reducing vulnerability to future disasters through the implementation of “soft regulations”. For example, in the aftermath of 11 September it appeared that the business continuity of certain banks had been hampered by the close proximity of backup facilities to primary sites, and insufficient attention to updated and operational backup procedures. “Soft” regulatory procedures between the public and private sectors could have prevented, in principle, the occurrence of such phenomena.

The recurrence of mega-risks such as the 11 September terrorist attacks place considerable, and in some cases, irrevocable pressure on the insurance and re-insurance industries. In fact, available evidence in the insurance markets indicates that the global insurance and re-insurance industry may not be able to withstand another attack such as 11 September. The existence of this phenomenon reveals the constraints of traditional risk-sharing mechanisms, and illustrates the need for cooperation between governments, (re)insurance industries, and capital markets.

Efficient cooperation between public and private sectors, then, can aid substantially in reinvigorating local economies, improving resilience towards future disasters, and can aid the (re)insurance industries in the management of risk.

Lesson 4. Major disasters or harmful events can have global implication and call for international cooperation.

The scale of a single or multiple disasters can easily overwhelm the capacities of any single nation to prevent the global spread of a threat. In fact, various hazards can be global in nature, such as infectious diseases. In many cases, nation-based risk management

strategies need to be complemented by international co-operation. Increased international co-operation may include :

- information and knowledge sharing;
- co-ordination of national initiatives;
- design of international tools for disaster management;
- binding agreements.

Specific cases of disasters, e.g., those involving biological, chemical, or radiological contamination will be of interest to governments beyond the affected country – even if the disaster affects a restricted geographic area (treated in Key Issue 7, Chapter 2). However, global tracking and transmission of information are still in their infancy for most major hazards and, in some cases, the requisite technology is lacking in certain countries. Even where comprehensive international surveillance and monitoring structures have been developed, these consist of networked regional and national systems. As recently demonstrated by the SARS epidemic, effective global tracking of hazards greatly depends not only on the surveillance capacity of individual countries but also on their willingness to co-operate. Technology and knowledge transfers and capacity building in developing countries are therefore a necessary – though not sufficient – tool for any global disaster containment strategy.

The international community must also create international co-operative platforms to share the burden of risk management and facilitate financial support.

3. FOR THE DETAILED FINDINGS

A full analysis of the lessons learned in dealing with large-scale disasters, as well as the in-depth sectorial studies on specific aspects of responding to disasters can be found in the full publication *Lessons Learned in Dealing with Large-Scale Disasters*, published by the OECD (2004), ISBN 92-64-02018-7.

4. FOREWORD

The security industry is a large and expanding area of economic activity. Spurred on by the perception of rising crime, the threat of

terrorist attacks and increasingly free movements of goods, capital and people, there has been a swell in government, corporate and consumers' budgets for security goods and services in recent years. This development promises to have far-reaching economic and societal implications over the longer term. The challenge for policy makers is how to meet the apparent need for greater security without unduly impeding economic efficiency and citizens' rights in liberal societies.

In mid-2004, I spoke with a number of senior officials of OECD member countries about exploring the phenomenon of the "new security economy". It was clear to me that the overall concept was not fully understood, as it was really a convergence of new trends in our societies. Ever higher performance technologies are providing tools for new goods and services in our economies, including the monitoring, storing and instant retrieval of large data and information sets. Larger relational databases linked to computational capacity are creating new possibilities for the tracking and control of information about goods and services – and about people and the global environment itself. Equally clearly, national security issues were likely to prove an important factor in focusing the interest of governments and the private sector. What we wanted to do in the International Futures Programme was to offer a platform to discuss the future of the security economy, its components and its drivers, both in the private and in the public sector.

A first step was to develop a framework for the concept itself. To provide the necessary input at an early stage, we produced a scoping document defining and outlining the type of issues that were emerging from this convergence of technologies and new security needs. We then proceeded with the design of the Forum meeting itself, on the basis of which we invited the presentations and papers. We held the Forum on December 8, 2003 in the Paris Headquarters of the OECD.

The meeting consisted of four sessions. The first reviewed the *social, economic and institutional drivers behind the rising demand for security* and sketched out the trends and developments likely to determine its future scale and direction. The second session looked at the supply side, outlining the state of the art in several key technologies in identification, authentication and surveillance and exploring their likely development over the next ten years or so. The third examined the longer-term economic implications of the emerging security economy. It addressed key trade-offs in the coming years between greater security on the one hand and economic efficiency on the other, and explored the roles that governments and the private

sector might play in helping to resolve these trade-offs. The fourth and final session considered the mid-to long-term implications for society of the growing use of security technologies. More specifically, it was about the future of the “surveillance society” and what can be done to guide the development and utilisation of identification and monitoring technologies along avenues that society regards, on balance, as generally most beneficial.

Barrie Stevens designed and organised the meeting, and contributed the report’s first two chapters. Jack Radisch conducted the initial scoping of the concept and issues. Research assistance was provided by Marit Undseth, and logistical support by Concetta Miano. Randall Holden edited this volume.

The book is published under the responsibility of the Secretary-General of the OECD.