

CRN REPORT

Focal Report 3

Risk Analysis

Risk Communication in the Public Sector

Zurich, September 2009

Crisis and Risk Network (CRN)
Center for Security Studies (CSS), ETH Zürich

Commissioned by the Federal Office for Civil Protection (FOCP)

Purpose: As part of a larger mandate, the Swiss Federal Office for Civil Protection (FOCP) has tasked the Center for Security Studies (CSS) at ETH Zurich with compiling “focal reports” (Fokusberichte) on critical infrastructure protection and on risk analysis to promote discussion and provide information about new trends and insights.

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INTRODUCTION

The analysis and evaluation of risks and threats relevant to the civil protection system is among the key responsibilities of the Swiss Federal Office for Civil Protection (FOCP). As part of a larger mandate, the FOCP has tasked the Center for Security Studies (CSS) at ETH Zurich with producing ‘focal reports’ (*Fokusberichte*) on risk and vulnerability analysis.

The focal reports are compiled using the following method: First, a ‘scan’ of the environment is performed with the aim of searching actively for information that helps to expand and deepen the knowledge and understanding of the issue under scrutiny. This is a continuous process that uses the following sources:

- ◆ *Internet Monitoring*: New and/or relevant publications and documents with a focus on risk and vulnerability analysis are identified and collected.
- ◆ *Science Monitoring*: Relevant journals and articles are identified, screened, and evaluated.
- ◆ *Government Monitoring*: Policy documents with relevance to Switzerland from various countries and from international inter- and nongovernmental organizations are identified.

Second, the material thus collected is filtered, analyzed, and summarized in the focal reports.¹

This focal report looks at risk communication (RC), which is an essential part of the risk management cycle: RC contributes to the transparency of intra-governmental risk analysis processes, informs target groups and the wider population about the existence and possible effects of risks, and promotes broader intra-governmental and public understanding and acceptance of risk management decisions.

This focal report draws a) on the relatively recent academic literature on risk communication to define and differentiate the concept and b) on official risk communication strategy papers (in particular strategies developed by the governments of Canada, the United Kingdom, and the United States) to examine how risk communication is conducted today and to identify practical challenges and possible solutions to overcome these challenges. It is structured as follows:

1. In the first part, risk communication is defined, and a distinction is made between risk communication on the one hand and crisis communication on the other hand. The various public policy functions of RC are discussed and caveats of risk communication are identified.
2. In the second part, a best-practice RC model is presented. Two important aspects are distinguished: a) formulation (internal and external construction) of risk messages and b) dispersion to the target audience. At the end of the section, contemporary risk communication instruments – ranging from print media to television and internet services – are highlighted to illustrate the diversity of possible risk communication strategies.
3. In the third part, implications for Switzerland, and in particular for the national hazard analysis “Risk Switzerland” (Risiken Schweiz) are identified.
4. In the fourth part, an annotated bibliography summarises central academic articles, government reports, policy documents and websites related to risk communication.

¹ Previous focal reports can be downloaded from the website of the Crisis and Risk Network CRN at <http://www.crn.ethz.ch>.

1 RISK COMMUNICATION IN THE PUBLIC SECTOR

This chapter defines the concept of risk communication (RC), looking both at the variety of participants in risk communication and the different kinds of advisory functions that risk communication may fulfil. It differentiates risk communication from crisis communication and recapitulates the inherently unpredictable nature of its object: risks. The chapter then explains why RC is warranted and what its public policy functions are. It also identifies possible pitfalls of RC that policy-makers should be aware of.

1.1 Defining Risk Communication

Risk communication is an essential part of risk management. Risk management can be seen as a four-step cycle involving the identification of risks, the assessment/measurement of their possible effects, the preparation for the practical handling of risks, and the evaluation of these tools' effectiveness. For every step, communication plays a crucial role (see Figure 1). Risk communication aims to discuss these various management steps with different kinds of public and private interlocutors, and to make its findings and decisions accessible to the public. RC is thus directly supportive of risk management.

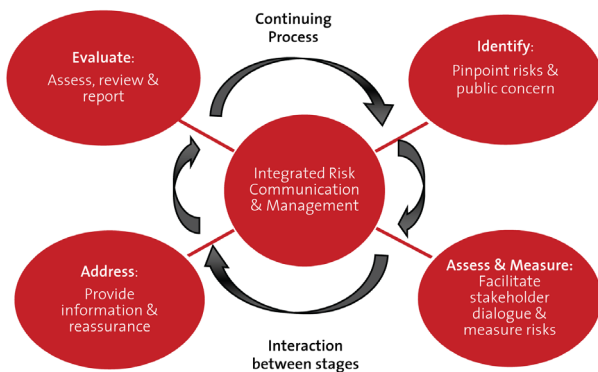


Figure 1: Integrated Risk Communication and Management Process²

² Based on United Kingdom. *UK Resilience: Communicating Risk*, p. 26.

In a very general sense, therefore, risk communication refers to the exchange of information about the existence and nature of specific risks amongst different interlocutors. Existing narrower definitions of RC either a) emphasise the different collaborators of RC frameworks (actor perspective), or b) focus more closely on the practical informative effects of RC upon the public (effects perspective). An example for the actor perspective is the definition proposed by risk communication expert William Leiss, who depicts RC as ‘the flow of information and risk evaluations back and forth between academic experts, regulatory practitioners, interest groups and the general public’.³ The United States Department of Homeland Security, by contrast, gives more emphasis to the effects perspective, defining RC as ‘the exchange of information with the goal of improving risk understanding, affecting risk perception and/or equipping people or groups to act appropriately in response to an identified risk’.⁴ Notwithstanding different emphases, in a public policy perspective, RC includes a variety of governmental and non-governmental interlocutors and audiences, just as it includes a variety of kinds of RC purposes, ranging from the simple statement that a risk exists to giving practical advice on appropriate individual behaviour.

It is also important to distinguish risk communication from crisis communication. While crisis communication is geared towards overcoming challenges posed to a company/public agency by an event that occurs rather unexpectedly, that is outside an organization’s control, and that usually also has the po-

³ Leiss, W. 1996. Challenges in Risk Assessment and Risk Management. *Annals of the American Academy of Political and Social Science* 545: p. 86.

⁴ United States Department of Homeland Security 2008. *DHS Risk Lexicon* Washington, D.C., p. 26. Similarly: French, S. et al. 2005. Soft Modelling in Risk Communication and Management: Examples in Handling Food Risk. *The Journal of the Operational Research Society* 56(8): pp. 879-888.

tential to cause harm to the agency’s reputation (in case of mishandling of the crisis), RC deals with long-term, strategic messages about possible threats or hazards and their likely adverse effects before they occur. Thus, the very object of RC is characterised by a special logic: since risks are always future potentials, neither their exact occurrence nor their individual impacts may be clearly forecasted, even in the case of risks where the probability of occurrence can be extrapolated statistically from their historical track records. It is the defining characteristic of a risk that it is uncertain and relatively unpredictable. In addition, future courses of actions taken by public authorities themselves may directly affect the existence, occurrence, and impact of risks as well.⁵ Seen this way, RC is always about the transmission of information about hazard potentials that are difficult to assess or even elusive. Consequently, risk communication is much vaguer and more difficult to justify than crisis communication. As a matter of fact, however, the crucial task of government is to deal with risks – before they become manifest threats or hazards. The following chapters will show that this fundamental nature of RC’s object poses particular challenges to the ways in which governmental risk communicators can, may, and should inform the public, and to what behavioural changes RC may effectively lead.

1.2 The Need, Evolution, and Usefulness of Public Risk Communication

RC is a relatively recent government practice. Its advent largely reflects the popularisation of the risk concept both in the social sciences and in public policy in the late 1970s. At that time, the risk concept emerged in parallel to an increasing preoccupation with hazards such as hurricanes, industrial pollution, environmental degradation, or food contamination.

⁵ Luhmann, N. 1991. *Soziologie des Risikos*. Berlin: de Gruyter.

What these hazards have in common is that their effects are often delayed, complex, and, therefore, difficult to predict. In many cases, these hazards have furthermore come to be recognised as products of human industrial activity and development.⁶ In Switzerland, too, this awareness was fostered by a series of domestic and international events. In 1986, for instance, the city of Basel only very narrowly escaped an industrial catastrophe when a fire set chemical depots ablaze in Schweizerhalle. In the 1990s, the appearance of Bovine Spongiform Encephalopathy (BSE, or colloquial mad-cow disease) together with the increase of Creutzfeldt–Jakob disease and the ensuing uproar again underlined how far-reaching, complex, but also difficult to forecast the effects of modern risks are. Currently, the most prominently discussed risk is a global pandemic (in the form of avian or swine influenza – or a hitherto unknown virus).

Today, there is not only a widespread understanding that challenging complex risks exist – there is also a broad understanding that public authorities must preventively inform vulnerable groups about them, providing solutions and recommendations for appropriate risk-minimising individual behaviour (‘risk literacy’), if possible. The risk literacy concept can also be applied to organizations (including public agencies) that need to handle internal or external risks. For example, schools, businesses, etc. develop their own contingency plans for the event of an influenza pandemic. In the realm of public risks, a number of governments, such as those of Canada or the United Kingdom, but also international organisations, such as the World Health Organisation (WHO), have now developed comprehensive RC plans.⁷ Especially the

⁶ Beck, U. 1992. *Risk Society: Towards a New Modernity*. London: Sage.

⁷ Public Health Agency of Canada 2006. [The Strategic Risk Communication Framework](#).

spread of avian influenza in 2005 stimulated the development of new national and international RC strategies.⁸

Compared to the 1970s, the ways in which risk information can or should be communicated to the respective audiences have evolved significantly. Back then, RC primarily stressed the scientific expression of risk estimates. In other words, RC was chiefly about conveying technical knowledge to the public, and thus about directing governmental regulatory actions to what, from a scientific point of view, were the most urgent risks. In the 1980s and mid-1990s, however, recognising the limits of technical expertise transmission, the practice of Western governmental risk communication shifted to evaluations of successful communication. Subsequently, attention turned to the credibility and persuasiveness of speakers, broader public risk perception problems, and the analytical targeting of ‘groups at risk’. Since the mid-1990s, RC has come to focus even more strongly on the socio-cultural contexts of audience groups. Moving away from the simple transmission of technical expert knowledge about risks, the efficiency of RC today is enhanced through a back-and-forth dialogue with message recipients. In this way, contemporary RC strategies acknowledge the own inter-subjective information processing schemes of the audience.⁹

United Kingdom. *UK Resilience: Communicating Risk*, op.cit. Dora, Carlos 2006. *Health, Hazards and Public Debate: Lessons for Risk Communication from the BSE CJD Saga*. World Health Organization.

8 *Ottawa 2005. Global Pandemic Influenza Readiness: An International Meeting of Health Ministers*. Communiqué. 25 October, p. 2.

RAND. 2009. *Risk Communication in the Early Stages of the H1N1 (Swine Flu) Alert: How Effective Were State and Local Public Health Departments?* RAND Factsheet, p. 1.

9 Zimmerman, R. 1984. A Process Framework for Risk Communication. *Science, Technology, and Human Values* 12(3/4): pp. 131-137.

Leiss 1996, op. cit., pp. 87-91.

Drottz-Sjöberg, B.-M. 2003. *Current Trends in Risk Communica-*

Public risk communication has a variety of functions. The UK government’s risk communication strategy, for example, sets out the utilities of RC in detail. In this view, RC has five broader functions:

- ◆ RC helps to prevent crises (preventive function),
- ◆ RC empowers the public to make better decisions about risks in daily life (risk literacy function),
- ◆ RC ensures smoother implementation of policies designed to tackle risks (policy legitimisation function),
- ◆ RC reassures the public (panic reduction function), and
- ◆ RC serves to build trust in the risk management authorities and the information they provide (trust-building function).¹⁰

Considering these five functions, RC is a helpful tool for the mitigation of the likely impact of risks. By informing vulnerable groups about the existence of risks and about ways to protect oneself, public authorities may improve the population’s level of safety. By transparently exposing the existence of risks, authorities can also use RC to address preventively those anxieties and fears that may flare up in times of actual crisis. This may both heighten the risk literacy and the risk resilience of societies and improve the speed of return to normality after a crisis. Risk communication, differently put, also serves awareness-building more generally.

So far, risk communication has mainly been applied in cases of natural/environmental or technical hazards and not in cases of “national security” (understood here as risks that go beyond day-to-day poli-

tion: Theory and Practice. Oslo, Directorate for Civil Defence and Emergency Planning.

10 United Kingdom. *UK Resilience: Communicating Risk*, op. cit., p. 7 ff.

tics in terms of effects and resources needed), where there is a focus on crisis communication. The challenge in the case of security risks is that their nature diverges in some respects from the kinds of public risks discussed before: Individuals have much less influence over whether or not to engage with a security risk – such as terrorism or an international diplomatic crisis – in their everyday life. Individuals may avoid crowded places and ‘dangerous’ travel destinations, but they cannot actually decide whether they become the target of terrorism or not - whereas they can decide as to whether they want to build houses close to water. But even if individual risk literacy may not be achievable in the realm of security, risk communication can contribute to security politics nonetheless. RC can advance societal resilience (for example, in case of a terror attack), and it may help to overcome crises faster. In addition, RC can ensure that actions during the crisis are legitimized and find greater acceptance. In the absence of communication, it is more likely that the public will not accept or understand political decisions, or that they will be perceived as ill-planned panic reactions. This makes it likely that public support will be withdrawn and the strategic options of political actors will be reduced significantly.

1.3 Risk Communication Caveats

There are numerous potential problems when engaging in RC. The UK Resilience: Communicating Risk-report identifies six (communication technical) pitfalls that need to be avoided:¹¹

- ◆ Causing concern, alarm, or even panic through being (too) open and frank.
- ◆ Giving over-categorical assurances.
- ◆ Leaving information gaps.

- ◆ Providing the public or the media with highly technical or complicated material.
- ◆ Ignoring the issues of greatest concern to the public.
- ◆ Appearing to have all the answers in a situation of uncertainty.

However, there is another danger. In providing RC, public authorities may ‘overdo’ it. When risk assessments are particularly uncertain, authorities have the tendency to warn too often, too long, and on too high a level – according to the credo that one is ‘better prepared than sorry’. A case in point is the swine influenza of 2009 (and the avian flu before that). By September 2009 that influenza virus had proliferated broadly but it not proven to be of highest lethality. Yet that virus could mutate at any point in time, becoming the origin of an unseen deadly super-virus. Such a risk is difficult to share with the broader population, and as such, some organisations (such as the WHO) have been quick, at times also based on pre-defined criteria, to raise the alert to the highest level. For a long time, a similar overreaction had been observed in the case of US terrorism alerts, where the national alert remained almost constantly set to ‘level orange’ i.e. the second highest national alert level. This will involuntarily lead to the “cry wolf” syndrome: because of these (seemingly exaggerated) warnings, subsequent warnings will likely be questioned by the public and may not be taken seriously anymore.

Considering these examples, RC resembles a balancing act: When there is no risk communication, the population might be unprepared for dangers, or it might fail to support official responses to them. However, when there are too intensive alerts and a risk fails to materialize, public authorities may substantially lose credibility and trustworthiness, rendering RC more difficult in the future. This problematique is

¹¹ *Idem*, p. 61.

all the more challenging given that the effectiveness of RC is difficult to measure in actual cases. To what extent exactly RC serves to prepare the population against dangers, and to what extent RC can improve the return to normalcy once a risk has materialized is difficult to assess. In a system with political accountability, however, open dialogue about the most important current risks is indispensable. Considering the limits inherent to RC, it is thus necessary for risk communicators to address the limits of knowledge and preparation directly.

2 RISK COMMUNICATION IN ACTION

This section will delve deeper into examining the process of risk communication, first calling attention to a best-practice RC model built on the basis of the reviewed literature, which will inform the following discussion on formulation (internal and external construction) of risk messages and dispersion. Tools used in risk communication are presented at the end of the section. In reviewing government efforts in the field of RC, significant attention is placed on constructing risk communication strategies that possess three significant characteristics: Internal cohesion on terms and identified risks, engagement and exchange with target audience, and information-sharing throughout the relevant sectors. As will be highlighted in the following, in the government documents surveyed, Canada and the United States, notably, have made varying efforts to develop an internal (within government departments) understanding of risk and reach a consensus on the definition of key terms (such as risk, risk communication, risk management, etc.).

However, in order to create an RC strategy that will be embraced and useful for the target audience, risk communicators need to engage in and facilitate an exchange with concerned individuals. Section 2.2.2 delves more deeply into the necessity of this exchange so that communicators deliver risk messages that address real hazards as well as those risks that are perceived within the community.

2.1 Best Practice Risk Communication Model

Risk managers continue to rely on a basic communication model (see Figure 2), which was initially developed in the 1940s by Shannon and Weaver.¹² Within

this model, there are three main actors – sources, transmitters, and receivers – all of whom maintain different roles, yet increasingly interact with each other (for examples for each category, refer to Table 1). In a traditional sense, sources typically alert transmitters to risks through various publishing outlets (such as reports, press releases, books, or personal interaction). In turn, transmitters rely on a wide array of tools (such as websites, newspapers, brochures, billboards, television, and radio) to communicate identified risks to the targeted audience and broader public in the hope of creating behavioural response. Today, interaction between the roles is high and increasingly dynamic in a world that is equipped with more information exchange opportunities.

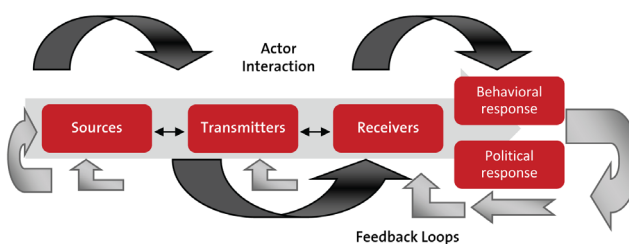


Figure 2: Communication Model¹³

Interestingly, while this model has remained popular amongst risk communicators, the practices of risk communication have gone through 3 significant phases over the years.¹⁴ These phases represent notable shifts in communication strategy that have taken the process from a one-way delivery pathway (i.e., message from transmitter to receiver) to a three-way exchange between the sources, transmitters, and target audience (also see Figure 2). During the late 1970s, phase 1 was mainly preoccupied with transmitting probabilistic scenarios and risk comparisons

¹² Renn, O. 2008. *Risk Governance: Coping with Uncertainty in a Complex World*. Earthscan Publications Ltd, p. 208. This model continues to be the most popular framework that risk managers use. Cf. Shannon, C. and Weaver, W. 1949. *The Mathematical Theory*

of Communication. Urbana: University of Illinois Press.

¹³ Adapted from Renn 2008, p.209

¹⁴ Leiss 1996, *op. cit.*

to a targeted community. This was largely unsuccessful, as “people were unwilling to abstract from the context of risk-taking and the corresponding social conditions and they also rejected the reliance on expected values as the only benchmarks for evaluating risk.”¹⁵ In other words, people were not able to relate to and embrace the messages being communicated to them.

| Sources | Transmitters | Receivers |
|----------------------|----------------------|-----------------------|
| Public Agencies | Public Institutions | Targeted Audience |
| Science Communities | Media | General Public |
| Think Tanks | Opinion Leaders | General Public |
| Interest Groups | Interest Groups | Group Members |
| Individuals (public) | Individuals (public) | Individuals (exposed) |

Table 1: Ideal-typical categories within the risk communication model¹⁶

Phase 2 emerged in the late 1980s and was known as a strategy of persuasion. The anti-smoking campaign, for example, sought to convince the broader public that smoking was ultimately poor for the health and not socially acceptable. Both phases were characterised by the one-way delivery pathway mentioned above. Unique to the current third phase is that it encourages an exchange between the transmitter of risk messages and the receiver. It is recognized that an open dialogue in order to achieve a public consensus on an acceptable level of risk is an essential component to effective dispersion of risk messages and implementation of risk mitigation protocol. Moreover, such all-actor risk identification activities reinforce efforts to raise public awareness of risks and their local impacts.

A number of factors must be considered when developing a risk communication strategy. These factors include: identifying actors within the risk communication process, formulating risk messages, communicating the said messages to the targeted audience and selecting the tools available to facilitate that process. In the next chapter, we focus on the process of formulation of messages and their dispersion. This

process is at the heart of every risk communication strategy.

2.2 The Process of Formulation and Dispersion

Before risk messages can be communicated to a broader audience (“dispersed”), the specific audiences must be identified.

Figure 3 identifies the three-step RC process to be discussed in this section, while preceding Table 1 suggests ideal-typical combinations of sources, transmitters and target audiences of RC. Within the formulation phase, internal and external risk message construction involves facilitating information exchange amongst risk professionals and then developing the messages to be externally communicated. In each step, risk communicators must reach a general consensus on the risks to be addressed and communicated, which comes with considerable challenges, as highlighted in the following.

15 Renn 2008, *op. cit.*, p. 201.

16 *Idem*, p. 210.

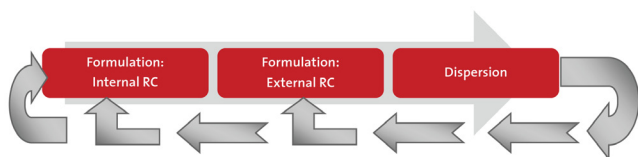


Figure 3: 3-step RC process with feedback loops

2.2.1 Internal Formulation – or Finding a Consensus

In formulating an RC plan, risk professionals must first identify all relevant stakeholders within their own organisation (‘internal space’). In addition to policy-makers and government officials, scientists, technical, and legal staff, this includes risk assessors and managers.¹⁷ Within these areas, communication must be able to flow to encourage the identification of risk and internal consistency around the risk messages that are to be communicated to a broader, external audience. In this regard, creating Information Sharing Plans (ISP) can aid in the process of identifying stakeholders and devising a strategic risk communication strategy. For example, the US Department of Homeland Security (DHS) established the information-sharing network to enhance the protection of critical infrastructure and key resources (CIKR).¹⁸ This effort is a part of the Federal Information Sharing Environment (ISE), which is dedicated to “improving information sharing between and among Federal, State, and local government and the private sector”.¹⁹ This effort is grounded in a plan that identified relevant actors and created a strategy around communicating risks and sharing information.

Second, devising an internal RC plan can also encourage the process of developing a common ‘risk’ lexicon, so that internal stakeholders are operating

from a collectively agreed-upon set of definitions, understandings, and shared concepts within the risk domain. For example, Canada’s Public Health Agency and the DHS, respectively, have identified key definitions of common, agreed-upon terms used in risk management and risk communications.²⁰ However, identifying and agreeing upon a set of terms, especially across multiple agencies, can be difficult. The DHS achieved this by creating a Risk Lexicon Working Group (RLWG) and followed the following procedure:²¹

1. Collection: Terms were collected from across DHS and the risk community.
2. Taxonomy Development: Terms were organized according to the concepts they represent, facilitating consistent definitions for related terms.
3. Harmonization: Multiple, often conflicting, definitions were harmonized to produce a single meaning for each term.
4. Validation, Review, and Normalization: Harmonized definitions were validated against a number of non-DHS sources to ensure that the definitions produced for use in DHS are consistent with those used by the larger risk community. Proposed definitions were provided to the entire RLWG for comment. Comments were adjudicated and definitions standardized for grammar and format.

Finally, with an internal communication plan and a shared understanding of concepts in place, risk professionals should aim to further develop relationships with those identified within the broader risk community so as to improve trust and positively reinforce relationship-building. For example, in creating a strategy to communicate the potentially unpredict-

17 *Idem*, p. 202.

18 United States Department of Homeland Security. *National Infrastructure Protection Plan: Information Sharing*.

19 *Idem*, p. 1.

20 Public Health Agency of Canada 2006, *op. cit.*, pp.18ff.; United States Department of Homeland Security 2008, *op. cit.*

21 *Idem*, p. 3.

able effects of climate change to a small community (such as flash flooding from heavy bouts of rain), risk managers and assessors can refer to the science community for information on the issue while also working closely with internal staff and policy-makers to further articulate the issue to be transmitted to a broader audience. After the internal environment has reached a consensus on the identified risks and respective roles, professionals can then turn to step 2, which concerns the external environment.

2.2.2 External Formulation – or Overcoming Different Perceptions

Having established strong internal communication and shared understanding, risk managers can begin formulating an external risk communication plan that identifies messages to be delivered. This task, however, brings with it significant challenges due to the differing risk perceptions. Risk perception is commonly regarded as a fusion between actual hazards and the individual and social perceptions of risks, which are influenced by “psychological, social, institutional, and cultural” processes and experiences.²² Peter Sandman further explains that the risk dynamic is actually a combination of hazard and outrage views, where “experts respond to hazard and the public responds to outrage”²³. Sandman uses the example of the public ‘outrage’ that people had when Coca-Cola changed its formula or the criticism that emerged regarding genetically modified foods; noting that while nobody was in danger (i.e., there was no apparent immediate risk), public and private agencies still needed to respond to these concerns.²⁴

22 Renn 2008, *op. cit.*, pp. 214f.

23 Reeves, C. 2007. *Managing Outrage and Crises: Dealing with risk by understanding your audience*. Guelph Food Technology Centre (GFTC), p. 49.

24 *Ibidem*.

This interaction between perception and actual hazards is not only highlighted in the academic literature surveyed for this report, but also found in government documents. For example, the United Kingdom Environment Agency Risk Team’s guide on risk communication notes that “[i]ndividuals can have very different perspectives on risks,” which can differ from the messages being delivered by the risk communicator.²⁵ Canada’s Strategic Risk Communications Framework and Handbook also identifies the influence that perception has on the risk management milieu.²⁶ Hence, when crafting messages, they should not only be specifically tailored to the targeted audience, but also be tested on a small group in order to measure receptiveness and effectiveness. For example, to learn about individual views, Canadian health officials assess stakeholder (external) perceptions of risks by drawing upon formal and informal research methods²⁷ that aim to determine needs, issues, interests, and priorities²⁸. In particular, the following factors are measured:

- ◆ Assumptions and values of targeted community.
- ◆ Views about risks (people differ in terms of the risks they are willing to accept).
- ◆ Level of community trust with risk communicator/s and sources of risk information.

As the last point highlights, trust plays a significant role: Risk communicators must have the trust of the

25 United Kingdom Environment Agency Risk Team. *Understanding risk and risk Communication*, p. 3.

26 In this document, ‘risk perception’ is defined as “People’s understanding of the risks and benefits associated with an event or alternative courses of action. This may include their assessment of the limits of their understanding of the risks and benefits.” Public Health Agency of Canada 2006, *op. cit.*, p. 19.

27 Formal research methods involve focused interviews, whereas informal methods are semi-structured conversations.

28 *Ibidem*, pp. 12f.

targeted community in order for their messages to be received positively. Globally, due to the increase of constant information flows through the rise of 24-hour television, amplification of risk by the media,²⁹ and the internet, the public is presented with more dispersed information about risks that may influence perceptions and, in some cases, contradict risk messages being communicated by public agencies. Regulatory scandals, such as the aforementioned UK and European BSE crises, can also taint public trust and influence perception. Thus, risk communicators must carefully identify and assess the respective target groups, they must cautiously design informative and reassuring messages, and they must wisely choose different channels and strategies for information-sharing. At the same time, given that RC is not crisis communication, risk communicators must neither create panic amongst their audiences, nor should they create a sense of fatigue with public warnings altogether.³⁰ Taking into account the aforementioned elements will help officials determine the type of audience (e.g., small farming community, suburb, etc.), levels of trust, and general perceptions about risks, and ultimately inform the risk messages to be communicated from both a governmental and community perspective.

2.2.3 Dispersion

It is conventional wisdom today that governmental RC does not automatically transform popular risk perception: Subjective impressions can be strong, authoritative claims may be regarded with scepticism,

and individuals may place greater trust in their own experience, or that of friends and neighbours, than in official RC messages. Public authorities have recognised that rather than brushing such public concerns aside as ‘uninformed’, ‘ideological’, ‘irrational’, or ‘unscientific’, it is better to address the differentiated socio-cultural contexts upon which different target audiences are actually basing their decisions.³¹ As the effectiveness of RC depends on its echo with recipients and not on its authoritative formal scientific components, risk messages have to be dispersed according to individual target groups and designed according to the rationality of the respective socio-cultural milieu. The effective dispersion of RC messages is thus understood to rely on four sub-components, namely the differentiation and stratification of RC target groups, the analysis of target group meanings and logics, the selection and seizure of communication intermediaries, and the establishment and use of feedback mechanisms.

First, the dispersion of risk messages relies on the clear differentiation and stratification of RC target groups.³² The United Kingdom government, for instance, proposes a distinction between

- ◆ those which are directly exposed to a risk;
- ◆ those to whom vulnerable people will turn for advice (e.g., medical professionals following a health scare);
- ◆ people who need to be informed of issues in advance of wider publicity (e.g., relatives of accident victims);

29 Giddens, A. 1990. *The Consequences of Modernity*. Cambridge: Polity Press.

30 Freedman, Lawrence 2005. The Politics of Warning: Terrorism and Risk Communication. *Intelligence and National Security* 20(3): pp. 379-418; Handmer, J. and James, P. 2007. Trust Us and Be Scared: The Changing Nature of Contemporary Risk. *Global Society* 21(1): pp. 119-130.

31 Garland, D. 2003. *The Rise of Risk*. In: Risk and Morality. Ericson, R. and Doyle, A. Toronto: Toronto University Press, pp. 48-86.

32 Blake, E. 1995. Understanding Outrage: How Scientists Can Help Bridge the Risk Perception Gap. *Environmental Health Perspectives* 103(6): pp. 123ff.; Crisis and Risk Network (CRN) 2003. *Risk and Crisis Communication - CRN-Workshop Report Oslo, Norway, 2003*. Zurich, Center for Security Studies (CSS).

- ♦ those who are not directly involved, but might be deeply affected (e.g., tourist organisations during the foot and mouth crisis in the United Kingdom);
- ♦ the staff in all organisations affected;
- ♦ the media, who may be vital allies in disseminating information quickly.³³

Second, effective RC dispersion is grounded in detailed analyses of target group milieu meanings and logics. Governmental RC messages should ‘make sense’ to each target group individually. In order to do so, messages should not only be designed to provide the kind of information required by each target group as such – they should also be brought in tune with their respective cultural beliefs, folk wisdoms, and organisational logics.³⁴ Such adaptation notwithstanding, messages must always be kept coherent.

Third, RC dispersion usually also relies on communication intermediaries. Since risk communicators are often unable to reach target groups themselves, they must make use of ‘transmitters’ to leverage the information dispersion process. To be effective in doing so, the choice of transmitters should correspond to the target groups’ socio-cultural preferences. Three aspects have to be recognised in this selection: 1) risk communicators have to respect the differentiated receptiveness of target groupings to the diversity of available communication channels; 2) in order to avoid alarming the broader public audience, risk communicators should carefully mix active with passive forms of communication; 3) when working through communication intermediaries, risk communicators must recognise both the diversity of the

media landscape (local/national, print/radio/television, weeklies/dailies, etc.) itself and its respective business logics and formats (boulevard/mainstream media, etc.). The last aspect in particular may alter the public receptiveness to risk communication, as the various types of media outlets may add another important layer of information filters to the RC dispersion process.³⁵

The *fourth* component of the RC dispersion process includes feedback loops such as public meetings, telephone hotlines, or internet chat-rooms. Feedback loops serve three broader purposes: 1) They serve to provide the public with communication channels through which to voice their concerns; 2) they allow risk communicators better to understand the contextual concerns of respective target groups; and 3) they help to assess the actual effectiveness of the original RC messages.³⁶ With this, RC itself can be monitored and if necessary adapted.

During the dispersion stage, tools that can be used to communicate risk messages should be identified. A survey of government efforts on dispersion activities reveals that current RC efforts are dominated by initiatives to provide risk guidelines for state and non-state actors (individuals, businesses, etc.). Some states and organizations are using more interactive, modern technology tools to engage with stakeholders, but at a minimum, most have produced written materials³⁷ and/or constructed topical websites.³⁸

33 United Kingdom. UK Resilience: Communicating Risk, *op. cit.*, p. 48.

34 Drottz-Sjöberg 2003, *op. cit.*; Baker, F. 1990. Risk Communication about Environmental Hazards. *Journal of Public Health Policy* 11(3): pp. 353.

35 Renn 2008, *op. cit.*, pp. 205-222.

36 *Idem*, pp. 242-271.

37 E.g. Italy: Dipartimento Della Protezione Civile. 2008. *The Civil Protection Handbook for Families*; Germany: Bundesamt für Bevölkerungsschutz und Katastrophenhilfe. 2007. *Für den Notfall vorgesorgt – Vorsorge und Eigenhilfe in Notsituationen*.

38 E.g. Austria: <http://www.sicherheitsinformationszentrum.at>; Canada: <http://www.getprepared.gc.ca>; France: <http://www.prim.net>; UK: <http://www.preparingforemergencies.gov.uk>.

Austria, France, Germany, Italy, the United Kingdom, and the United States, for instance, have all outlined possible emergencies and specific preparation and response measures for stakeholders to follow. This move to share, and increasingly exchange, risk information ultimately establishes a long-term strategic risk communication process that encourages public discourse on risks and their consequences. Such public outreach can also positively feed into community empowerment and resilience-building. As an example, international organizations like the World Health Organization (WHO) are utilizing innovative dispersion techniques, many of which encourage the interaction between the three RC players identified in Table 1. The Global Outbreak Alert and Response Network (GOARN), for instance, gathers information on potential health emergencies from formal sources (public health agencies, scientists, etc.), but also relies on feedback from informal sources (individuals) who are typically the receivers of risk messages.³⁹ The following section probes more deeply into the tools that can be used to communicate risk.

2.3 Tools for Communicating Risk

Tools for communicating risk toggle between traditional and more modern forms; both of which are effective and when used together create a more comprehensive approach. More traditional tools available to risk communicators include: radio, print (newspapers and magazines), television, and community meetings where attendees can receive fliers, brochures, and other information materials. Modern tools refer to the advances made in information communication technology (ICT), where the internet and the interactive tools available within this domain offer a new space in which to reach people. Furthermore, these tools encourage not only the delivery

of information, but also the exchange between the communicator and the audience.

2.3.1 Traditional Channels

Radio, television (TV), public events, and written material constitute the traditional channels that risk communicators can use to reach out receivers. To address the H1N1 influenza, for example, the Swiss Federal Health Office (BAG) created the “Together Against the Flu” information campaign, which included television ads featuring comedian and popular national figure Beat Schlatter.⁴⁰ In the TV segments, Mr. Schlatter calls on the public to wash their hands and stay at home when experiencing a fever or other flu symptoms. This was only one element in a multi-faceted, multi-lingual risk communication strategy to combat influenza infection, whose effects were at the time still awaited to materialise in Switzerland.



Figure 4: Beat Schlatter in TV commercial for “Together Against the Flu” campaign

Public meetings and lectures are another way of bringing people together to become more informed, discuss, and raise questions to risk communicators. Such gatherings can also be an effective way for officials to measure community response to risk messages as well as get a sense of other risks that the community perceives to be significant. At such events, officials can distribute written communica-

³⁹ <http://www.who.int/csr/outbreaknetwork/en>

⁴⁰ *Kampf gegen die Schweinegrippe: Bund schickt Komiker Schlatter vor.* Tages-Anzeiger, 27.07.2009.

tion in the form of fliers, brochures, and other similar items. While in-person dispersion is one option, written materials can be delivered to homes, circulated during a meeting or posted in popular venues, such as the local food market. Billboards are also a form of written communication that can call attention to a risk. For example, the campaign to raise awareness of the adverse effects of smoking cigarettes and ultimately decrease the number of cigarette smokers has resulted in numerous billboards (both fixed and mobile) being featured in highly frequented areas (see Figure 5).



Figure 5: From Left to Right: Cigarette package with warning; mobile billboard; H1N1 flier; CDC H1N1 poster.

2.3.2 Modern Information Communication Technology (ICT)

ICT refers to technology that can record, broadcast, and communicate information. Traditional ICTs include television and radio, while modern ICTs consist of mobile phones and computers, which have opened the gateway to the internet and e-mail. All these tools can be used in RC activities and, in fact, expand the opportunities for exchange and dialogue; the goal being to spread information before a risk manifests itself as a crisis.

Websites, for instance, offer a platform to provide visitors with, typically, static information, whereas more dynamic social media tools, commonly referred to as Web 2.0 features, enhance the opportunity for interaction between sources, transmitters, and receivers. Social media include the following: blogs (web logs)

and micro-blogs (e.g. Twitter), and online photo (e.g. Flickr) and video-sharing (e.g. YouTube) sites. Networking sites such as Facebook and MySpace have become increasingly popular as they allow users to switch between the role of audience and content providers.

The Reuters AlertNet⁴¹ service is an excellent example of how the internet can be used to communicate emerging risks in the health, food, and conflict domains. While its target audience consists of relief professionals, the site is open to the public and attracts more than three million visitors a year, many of whom subscribe to a weekly e-mail newsletter. Government-sponsored websites designed to communicate risks have become increasingly popular. The “Together Against the Flu”⁴² website, for instance, offers information on symptoms and prevention. Similarly, the “UK Resilience” website features health information, in addition to other risks and provides visitors useful resources. During the United States-based 2008/09 outbreak of salmonella in peanut butter, the Health and Human Services Department and the Center for Disease Control (CDC) used ICT, with emphasis on social media, to warn the public about infection. Authorities credit the broad communication and outreach strategy with the fact that the number of infections was limited to 500 people.⁴³



Figure 6: Online tools with interactive functions.

41 <http://www.alertnet.org>

42 <http://www.pandemia.ch>

43 Nagesh, G. 2009. *Agencies used social media to manage salmonella outbreak*. Nextgov. 9 February.

3 IMPLICATIONS FOR SWITZERLAND

Risk communication is among the aims of the national hazard analysis “Risk Switzerland” (*Risiken Schweiz*) coordinated by the FOCP: Apart from documenting the risks to the population and thus empowering sectoral risk management strategies, *Risiken Schweiz* also aims to a) promote dialogue about risk between public authorities, many of which engage in risk management activities themselves and b) inform and sensitize the population. These two aims are promoted by several of the aspects discussed in this focal report.

- ◆ *Promote dialogue about risk between public authorities:* Ultimately, the goal is to establish a broad practice of information exchange in the framework of an expert network and to foster consistent understandings of risks, which in itself serves as basis for further public planning and preparation activities. This is partly congruent with what was discussed above in Section 2.2.1 on Internal Formulation. However, there is also a dispersion aspect involved in this: risks may be communicated to public agencies not directly involved in the management of risks – or RC may be necessary to familiarize public authorities with risks they do not normally deal with. *Risiken Schweiz* has been engaged in ‘internal formation’ for a while now, mainly through its working group. With the Forum *Risiken Schweiz* where representatives from Cantons, private sector and academia meet the FOCP has created a platform to also engage in external RC.
- ◆ *Inform and sensitize the population:* Efforts in this area are directed towards sponsoring of discussions about ‘acceptable risks’, or rather what level of safety can be reached at what price. This most closely fits what was discussed under the heading of ‘dispersion’. *Risiken Schweiz* has not yet reached

the stage of official dispersion, given that it is still in the internal formulation stage.

In order for the FOCP to be successful in these endeavours, the following points should be considered:

First, *Risiken Schweiz* looks at a great variety of very different risks, ranging from technical to environmental to national security risks. An overarching RC strategy would have to take into account that RC aims differ depending on the type of risk that is communicated: variance in audience, type of risk, goals and communication channels should be factored in.

Second, existing RC activities in Switzerland are not centralized, but fragmented and compartmentalized throughout the cantonal and federal administration. Among other things, this is due to the necessity of managing risks at the most appropriate and, preferably, at the lowest possible level of authority. The question is whether these RC activities can and should be centralized to some degree through *Risiken Schweiz*, because clear responsibilities as well as generally accepted RC strategies help in the RC process. The answer to this question depends to a large degree on the final product of *Risiken Schweiz* (a national risk and vulnerability analysis). Such an analysis should definitely be an element of a national security and safety dialogue. In keeping its coordinating role, the FOCP could issue guidelines and general recommendations to those who take part in *Risiken Schweiz* and are already engaged in RC. Furthermore, it could provide educational measures for those interested and engage in the preparation of specific RC exercises with the help of external experts or other partners within the federal administration. It could also foster research into various underexplored aspects of RC. Finally, it could also ensure that other agencies can learn from those efforts in the area of risk dialogue

that are already underway – such as PLANAT (National Platform for Natural Hazards)⁴⁴ and Pandemia.ch.

Third, within the federal and cantonal administration, there is much more awareness of crisis communication, which is also reflected in the manpower or resources allocated, as well as in the number of exercises or trainings conducted. As mentioned, RC is far more difficult to justify than crisis communication. In connection with the national risk and vulnerability analysis, the FOCP could become an advocate of the need for more and better RC throughout the federal administration – and could strengthen the preventive aspect of RC, complementary to already existing crisis management structures in the cantons, as well.

44 <http://www.planat.ch>

4 ANNOTATED BIBLIOGRAPHY

This annotated bibliography contains a number of academic articles, government reports, policy documents, and related websites from the scan described in the introduction to this focal report.

4.1 Academic Literature

Baker, F. (1990). *“Risk Communication about Environmental Hazards.”* *Journal of Public Health Policy* 11(3): 341-359.

This article briefly describes the development of the new field of risk communication of environmental hazards, defining the term ‘risk communication’. Subsequently, eight basic steps in risk communication are discussed, including: 1) risk assessments; 2) the setting of goals; 3) the assessment of target audiences; 4) the assessment of respective socio-cultural contexts; 5) the selection of communication approaches; 6) the construction of communications as such; 7) the implementation of risk programs; and 8) the evaluation of risk communication effects. In describing each step, the relevant literature concerning risk communication is reviewed.

Beck, Ulrich (1992). *Risk Society: Towards a New Modernity.* London Sage.

Arguing that societies are facing a new kind of modernity typified by reflexivity, Beck provides a coherent and detailed picture of current directions of global social change. Underpinning the analysis is the notion of the ‘risk society’. The changing nature of society’s relation to production and distribution, it is argued, is related to the environmental impact as a totalizing, globalizing economy based on scientific and technical knowledge becomes more central to social organization and social conflict. Within this framework, Beck develops an overview of other key elements of current social development; the centrality of the political economy of knowledge; the chang-

ing roles of class and gender in a new work environment; and the politics (both personal and public) of the risk society.

Blake, Elinor R. (1995). *“Understanding Outrage: How Scientists Can Help Bridge the Risk Perception Gap.”* *Environmental Health Perspectives* 103(6): 123ff.

The popular press often portrays environmental health risks as being more alarming than most scientists would portray them – it tends to present these risks from the general public’s perspective. This article describes how the views of scientists and those of the public differ, giving an example of how the gap between these views can be bridged.

Crisis and Risk Network (CRN) (2003). *Risk and Crisis Communication - CRN Workshop Report, Oslo 2003.* Zurich, Center for Security Studies (CSS).

One of the main intentions in holding this expert workshop was to focus on the many challenges when it comes to active use of risk communication and crisis communication. Good and well-developed communication skills are necessary to deliver a message that will be noticed and understood. For the sender of information about a risk or a crisis situation, the challenge lies in communicating an image, which hopefully the recipient of the information will also ‘see’ and perceive in the same way as the sender. This CRN Report collects the statements and presentations made by workshop participants on these risk communication challenges.

Drottz-Sjöberg, Britt-Marie. (2003). Current Trends in Risk Communication: Theory and Practice. Oslo, Directorate for Civil Defence and Emergency Planning

This comprehensive report highlights theoretical perspectives and implications of risk communication studies and relates the findings to the different levels of action or influence, e.g., local, national, and global. It distinguishes between a) manifest accidents and catastrophes, b) events with potentially harmful or catastrophic effects, c) harmful effects that belong to the area of ‘normal accidents’, d) harmful and catastrophic events due to intended harm, and e) developments undermining or erasing the positive valuation of safety and safety standards.

Freedman, Lawrence (2005). The Politics of Warning: Terrorism and Risk Communication. Intelligence and National Security 20(3): 379-418.

This article examines the problem of risk communication in the context of imperfect intelligence regarding a prospective, rather than actual, terrorist attack in order to assess recommendations for precise guidance for the public. Particular problems discussed include the iterative quality of risk communications about terrorism, as they allow the terrorists to change their behaviour; the difficulty of offering tactical warning without a prior strategic analysis; and the tendency to focus on the vulnerabilities of a society rather than on the intent of the terrorists. These issues are assessed through a case study of the Bali attacks of 2002, followed by an analysis of the experience in the United States following the attacks of 11 September 2001. In the author’s view, this experience confirms the difficulties of attempting to convey risks to the public by changing public alert levels.

*French, Simon, A.J. Maule, and Gabe Mythen (2005). Soft Modeling in Risk Communication and Management: Examples in Handling Food Risk. *The Journal of the Operational Research Society* 56(8): 879-888.*

The aim of this paper is to explore the use of soft modelling in an integrated risk communication and management process for managing uncertainties and ‘scares’ in the public domain, particularly in the area of food risk and safety. Much has been written in the past 20 years on the issues relating to the management and communication of food risks and safety issues to the public. Most of this research has been based upon post hoc studies of what went wrong – or, occasionally, right. In this article, the authors survey those findings briefly and draw them into a general framework for risk management and communication. By integrating these findings into a coherent common framework, the authors argue that public authorities, food producers, and the industry may develop more effective strategies for managing and communicating risks which, in turn, will enable the public to make more informed decisions on their diet.

*Garland, D. (2003). The Rise of Risk. In: *Risk and Morality*. R. Ericson, and Aaron Doyle. Toronto, Toronto University Press: 48-86.*

This work examines how decisions about risk and uncertainty relate to moral principles and ethical conduct. The 15 papers collected in this edited volume analyse the broader social, political, economic, and cultural dimensions of risk and morality. The contributors’ respective research projects on risk and morality in politics, business, legal regulation, crime prevention, insurance, extreme sports, and biotechnology provide original empirical evidence to substantiate their theories and address the ideological and policy

relevance of their work. Collectively, the authors explain why risk has become a key concept to Western societies, demonstrating how this new conceptual regime has transformed social integration, value-based reasoning, and morality. They illustrate how this new regime does not necessarily foster more responsible conduct or greater accountability in institutions.

Handmer, John and Paul James (2007). *Trust Us and Be Scared: The Changing Nature of Contemporary Risk*. *Global Society* 21(1): 119-130.

The two authors argue that a fundamental shift in the communication of risk has emerged, particularly in the context of recent efforts to combat political violence. Contrary to earlier practices, governments in the United States, the United Kingdom, Australia, and elsewhere stress the novelty and radical emergence of terrorism-as-risk, in part by ignoring history and concentrating on the symptoms to maintain a continuing sense of danger. In the same time, the earlier emphasis on experts and expert systems for generating risk assessment is being actively undermined by ideologues. These changes represent a problematic shift from the dominance of the Enlightenment idea of trusting in science and knowledge to accepting a post-Enlightenment idea that authority and ideology are all that can ever underpin the assessment of abstract risk.

Leiss, William (1996). *Challenges in Risk Assessment and Risk Management*. *Annals of the American Academy of Political and Social Science* 545: 85-94.

Effective communication between interested parties is widely held to be a vital element in health and environmental risk management decision making. There have been three phases in the evolution of risk communication during the last 20 years. Phase I

emphasized risk: In a modern industrial economy, we must have the capacity to manage risks in every of its details. Phase II stresses communication: Statements about risk situations are best regarded as acts of persuasive communication, that is, as messages intended to persuade a listener of the correctness of a point of view. Currently, in Phase III, public and private sector institutions increasingly are recognizing their responsibility to deal adequately with both dimensions and to carry out sound risk communication as a matter of good business practice.

Plough, Alonzo and Sheldon Krimsky (1987). *The Emergence of Risk Communication Studies: Social and Political Context*. *Science, Technology, and Human Values* 12(3/4): 4-10.

Why has the concept of risk communication suddenly become a widely discussed framework for public policy in the environmental and health areas? Prior to 1986, only a few essays in the scholarly and policy literature dealt explicitly with 'risk communication'. Since that year, however, scores of titles including the term have appeared along with conferences, special sessions in scientific meetings, agency-sponsored workshops, and grants. The emergence of risk communication as a research topic cannot be fully appreciated or accounted for without understanding its link to a set of issues that symbolize the discord between scientific experts and the public when it comes to the issue of risk. These tensions are played out in disputes between different research traditions on fundamental questions regarding the perception of risk and the essential nature of human rationality. This classic essay analyses the emergence of risk communication as a significant new organizing theme for a set of diverse, but conceptually related problems concerning the political management of public risk perceptions and individual behavioural responses to risks. It concludes with the argument

that the research activities centred on risk communication have precipitated new debates over technical and cultural meanings of rationality.

Renn, Ortwin (1998). *“Three Decades of Risk Research: Accomplishments and New Challenges.”* *Journal of Risk Research* 1(1): 49-71.

Risk research over the last three decades has been focused on the development of methods and procedures for risk analysis and risk management. As a consequence of this research, risk management agencies have been trying to make risk assessments a routine operation for evaluating different hazards, chemical agents, or technologies. The problem with the worldwide adoption of the risk assessment methodology is, however, that formal analysis may obscure the conceptual foundations and limitations of this method and may induce a false degree of certainty when dealing with the potential side-effects of human actions and interventions. One of the main tasks of the risk community should be to emphasize the necessity of integrated risk assessment and the development of innovative risk management strategies that build upon the insights of the natural, technical, and social sciences. In order to integrate risk assessment and risk perception, the article analyses the strengths and weaknesses of each approach to risk analysis and highlights the potential contributions that the technical sciences and the social sciences can offer to risk management. Technical assessments provide the best estimate for judging the average probability of an adverse effect linked to an object or activity. Public perception should govern the selection of criteria on which acceptability or tolerability are to be judged. In addition, public input is needed to determine the trade-offs between criteria. Finally, public preferences are needed to design resilient strategies for coping with remaining uncertainties.

Renn, Ortwin. (2008). *Risk Governance: Coping with Uncertainty in a Complex World.* Earthscan Publications Ltd.

This collection of essays by Ortwin Renn begins with a discussion of risk handling and covers the core topics of assessment, evaluation, perception, management, and communication, culminating in a look at the transition from risk management to risk governance and a glimpse at a new understanding of risk in (post-) modern societies. The focus is on systemic risks, such as genetically modified organisms, that are high on complexity, uncertainty, and ambiguity and have major repercussions on financial, economic, and social issues beyond the physical world. This is essential reading for all researchers, academics, and professionals across the social sciences, the natural sciences, and the medical, engineering, and financial sectors.

Ringel, Jeanne S., Elizabeth Trentacost, and Nicole Lurie. (2009). *How Well Did Health Departments Communicate About Risk at the Start of the Swine Flu Epidemic in 2009?* *Health Affairs*, 28,(4): w743–w750.

On Sunday, 26 April 2009, the secretary of the US Department of Health and Human Services declared a public health emergency in response to the outbreak of H1N1 influenza (known as swine flu) in the United States. Through an analysis of state and local health department websites, the authors determined whether departments were able to provide online information to their constituents within 24 hours of the announcement. The overwhelming majority of state health departments, and more than half of health departments participating in the Cities Readiness Initiative – but only a quarter of smaller, local health departments – were successful in doing so.

Zimmerman, Rae (1984). A Process Framework for Risk Communication. Science, Technology, and Human Values 12(3/4): 131-137.

A major function of a risk communication process is to provide information on risks and their uncertainties and ways of balancing competing interests with regard to the distribution of those risks. Society places a high value on the communication of health, safety, and environmental risks to the lay public, as reflected in the wide variety of risk communication programs. Despite the apparent unanimity of interest in and high value placed on risk communication, considerable disagreement occurs with respect to its goals or purposes. A goal-oriented framework is therefore not the most fruitful approach for evaluating and improving risk communication. A focus on process is a better means of evaluating and identifying problems in risk communication. The process in question encompasses both the risk communication process itself and other agency processes (such as regulation, standard setting, and planning) that provide inputs to risk communication programs. Viewing communication from a process perspective, one immediately recognizes a polarization in the perceptions of two groups with respect to the value, relevance, and place of both the risk communication process and governmental decision processes in general. The first group, the lay public, sees itself as not being rule- or process-bound in the negotiation of settlements and in fact is sceptical of such processes. The second group, which consists of regulators, project sponsors or advocates, and experts from the scientific community, tends to be rule- or process-bound in its perceptions of risk communication and decision-making processes. The discrepancies between these perceptions of process are at the heart of many of the problems with risk communication today. A number of promising directions are suggested to overcome these problems.

4.2 Government and Policy Documents

Dora, Carlos (2006). Health, Hazards and Public Debate: Lessons for Risk Communication from the BSE/CJD Saga. World Health Organization.

Communicating about health hazards is a central function of every public health institution. The BSE (Bovine Spongiform Encephalopathy, or mad-cow disease) crisis highlighted the problems that emerge when communication is treated as a one-way street: In this type of situation, information about health risks is channelled to the public after critical policy decisions have already been made. This book is the product of research into risk communication aspects of the BSE saga. It offers new insights into how actors in policy, science, and mass media communicated about BSE and CJD (Creutzfeldt Jakob Disease) between 1985 and 2000 in the United Kingdom, Germany, Italy, and Finland, and at the level of the European Union authorities. The book presents a framework for integrating risk communication into all stages of policymaking, serving as a tool to support effective communication strategies that take public opinion into account.

Meredith, Lisa S. et al. (2008). Analysis of Risk Communication Strategies and Approaches with At-Risk Populations to Enhance Emergency Preparedness, Response, and Recovery. RAND Corporation Working Paper.

Communication is a critical component of helping individuals prepare for, respond to, and recover from emergencies. However, there is limited knowledge about how to best communicate with populations at risk in emergencies. To inform this gap, RAND researchers, under contract by the US Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation (ASPE) (Task

Order 07EASPE000074), sought to understand the communication needs and to identify strategies with the potential for improving risk communication with at-risk populations. This one-year study presents the results of an assessment that involved a review of the literature on emergency preparedness risk communication and public health messaging strategies; the compilation of educational and outreach materials for emergency preparedness communication with at-risk populations; and site visits in three states and the Washington, D.C. area to identify gaps in the practice of risk communication with at-risk populations.

Public Health Agency of Canada (2006). *The Strategic Risk Communication Framework*. Ottawa, Canada.

Health Canada developed the Strategic Risk Communications Framework to support the work of public health professionals who are responsible for formulating and implementing effective risk communications. The Framework emphasizes a strategic, systematic approach to formulating and implementing effective risk communications. It comprises five Guiding Principles as well as Guidelines for Implementation and a detailed process for strategic risk communications.

United Kingdom. *UK Resilience: Communicating Risk*.

This is a user-friendly guide that aims to provide readers with a background briefing on understanding risk, the importance of communication, and how the public and the media view risk. Its sections are designed as a tool kit to help individuals and small businesses with planning and designing a communication strategy.

United Kingdom. *Understanding Risk and Risk Communication*. Environment Agency Risk Team.

Similar to the “UK Resilience: Communicating Risk” document, this guide explains some basic principles about risks and the way that the public and media react to them. It also gives general advice on how to understand what the public and media are interested in and how readers can get messages across to them effectively.

United States Department of Homeland Security (2008). *DHS Risk Lexicon*. Washington, D.C.

The Department of Homeland Security (DHS) Risk Steering Committee (RSC), chaired by the Under Secretary of the National Protection and Programs Directorate and administered by the Office of Risk Management and Analysis, has produced a DHS Risk Lexicon with definitions for 73 terms that are fundamental to the practice of homeland security risk management. The RSC is the risk governance structure for the DHS, with membership from across the Department, formed to leverage the risk management capabilities of the DHS Components and to advance the Integrated Risk Management Framework (IRMF) for the DHS. The DHS Risk Lexicon makes available a common, unambiguous set of official terms and definitions to ease and improve the communication of risk-related issues for the DHS and its partners. It facilitates the clear exchange of structured and unstructured data that is essential to the exchange of ideas and information amongst risk practitioners by fostering consistency and uniformity in the usage of risk-related terminology for the Department.

Venette, Stephen J. (2007). *Best Practices in Risk and Crisis Communication: Advice for Food Scientists and Technologists*. IUFOST Scientific Information Bulletin.

This document provides a list of best practices in risk and crisis communications for the areas of food and technology. These include: plan pre-event; collaborate and coordinate with credible sources; accept uncertainty and ambiguity; form partnerships with the public; listen to public concerns and understand the audience; be open and honest; meet the needs of the media and remain accessible; communicate with compassion, concern, and empathy; provide messages of self-efficacy; and continuously evaluate and update plans.

4.3 Websites

Center for Risk Communication:
<http://www.centerforriskcommunication.com/>

The Center for Risk Communication is an organization that offers resources, information, and expertise in the area of risk communication. The website provides access to publications and other resources produced by the center.

Crisisnavigator (Krisennavigator):
<http://www.crisisnavigator.org/>
(<http://www.krisennavigator.de/>)

This international internet guide to crisis management, crisis communications, issues management, risk management, and disaster management is an open platform for researchers, executives, journalists, and other people searching for information about these topics.

The Peter Sandman Risk Communication Web Site:
<http://www.psandman.com/>

Dr. Peter M. Sandman is a risk communication expert and this website provides RC information and access to his articles and the work he has done on the “Hazard + Outrage” formula for risk communication.



The **Center for Security Studies (CSS) at ETH Zurich** specializes in research, teaching, and information services in the fields of international relations and security policy. The CSS also acts as a consultant to various political bodies and the general public. The Center is engaged in research projects with a number of Swiss and international partners, focusing on new risks, European and transatlantic security, strategy and doctrine, state failure and state building, and Swiss foreign and security policy.

The **Crisis and Risk Network (CRN)** is an Internet and workshop initiative for international dialog on national-level security risks and vulnerabilities, critical infrastructure protection (CIP) and emergency preparedness.

As a complementary service to the International Relations and Security Network (ISN), the CRN is coordinated and developed by the Center for Security Studies at the Swiss Federal Institute of Technology (ETH) Zurich, Switzerland. (www.crn.ethz.ch)