

CRN-Roundtable Report

Zurich, Switzerland, 2005

1st Zurich Roundtable on Comprehensive Risk Analysis and Management National Approaches to Risk Profiling

9 December 2005

organized by
the Comprehensive Risk Analysis
and Management Network (CRN)



ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

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1 The Zurich Roundtables on Comprehensive Risk Analysis and Management: Background and Objectives

The 1st Zurich Roundtable took place on 9 December 2005 at ETH Zurich. It launched a new format of discussion and exchange within the Comprehensive Risk Analysis and Management Network (CRN), a Swiss-Swedish internet and workshop initiative for international dialog on national-level security risks and vulnerabilities.

The CRN today consists of several partner organizations in Switzerland and other European countries. It will expand its international circle of partners in the coming months. Also, a new online platform will allow an intensified and more focused international exchange. The CRN research team, being part of the Center for Security Studies at ETH Zurich, a renowned academic institute in the field of international and national security policy, guarantees top-quality organizational and academic support for the CRN initiative.

The newly started CRN Roundtables are intended as a platform for bringing together a select group of experts exploring the character and dynamics of the contemporary risk environment. By establishing a collaborative relationship and exchange among likeminded experts, they foster the permanent international risk dialog and contribute to a better understanding of the complex challenges confronting the risk analysis community today. The CRN Roundtable will take place twice a year, logistically and academically supported by the CRN research team.

More information about the CRN (www.isn.ethz.ch/crn) and the Center for Security Studies (www.css.ethz.ch) can be found on the internet.

2 Roundtable Sessions

The 1st Zurich Roundtable on Comprehensive Risk Analysis and Management was divided into three sessions covering the following topics:

- **Session 1:** Assessing the Contemporary Risk Environment: National Perspectives
- **Session 2:** Conceptual Approaches to Risk Analysis: National Perspectives
- **Session 3:** Establishing an International Risk Dialog: Key Factors of Success

For each topic, a short outline of the goals and a sample of key questions was formulated by the CRN team and distributed to the participants in advance.

Each participant (or small group of participants) was invited to give a short presentation of approximately 10 to 15 minutes. Participants

were allowed to choose which of the three sessions they wanted to contribute to. The presentations aimed at giving all participants an opportunity to present their personal ideas, opinions, or specific approaches to risk analysis and management. Moreover, they contributed concrete input to the subsequent informal discussions and exchange of experiences among the convened practitioners and experts of risk analysis.

On the following pages, the outcome of the three sessions is reviewed in brief. The goals and key questions are outlined for each session. Then the participants' presentations are summarized. Some of the most important points and aspects of the discussions across all three sessions are recapitulated in a concluding chapter.

2.1 Session I:

Assessing the Contemporary Risk Environment: National Perspectives

2.1.1 Goals

The contemporary risk environment is complex, dynamic, and constantly changing. The emergence of new risks and the increased vulnerabilities of modern societies pose immense challenges for political analysts and decision-makers. However, the real or perceived threats differ from country to country, at least in part due to the diversity of political, cultural, social, or other traditions. Therefore, understanding the character and dynamics of the new risks and vulnerabilities is crucial for the implemen-

tation of effective risk management. Only if potentially hazardous developments are identified at an early stage can effective countermeasures be undertaken. Government officials use a broad variety of techniques and methods for assessing risks according to their specific needs. The goal of the first roundtable session is to engage in a cross-national dialog by exchanging views on how to identify the most pressing issues in the contemporary risk environment.

2.1.2 Sample of Key Questions

- What are the characteristics of the so-called «new risks»?
- What risks will presumably gain more prominence in the future?
- What risks are particularly important for our national security environment?
- What are the driving factors changing the security / risk environment?
- Why is it crucial to identify risks at an early stage, and how can this be achieved?
- ...

2.1.3 Presentations

The session started with a presentation by *Stein Henriksen* of the Norwegian Directorate for Civil Protection and Emergency Planning. Speaking on the topic «A Norwegian Perspective on Present and Emerging Challenges to Societal Security», he first gave an overview of the recent work in the domain of critical infrastructure protection, before focusing on some global trends in risk. He laid out the various challenges facing our societies, in particular technological risks, the interdependency and complexity of information and communication technology in infrastructures, climate and natural risks, and the directly human-induced risks such as epidemics or terrorism. He pointed to the main obstacles of risk analysis today, and to the lamentably ad-hoc and short-term character of analyses as well as the lack of imagination of risk analysts. He warned of the dangers of building security considerations only on historical experience and probability calculations, and encouraged the risk community to be more creative and imaginative.

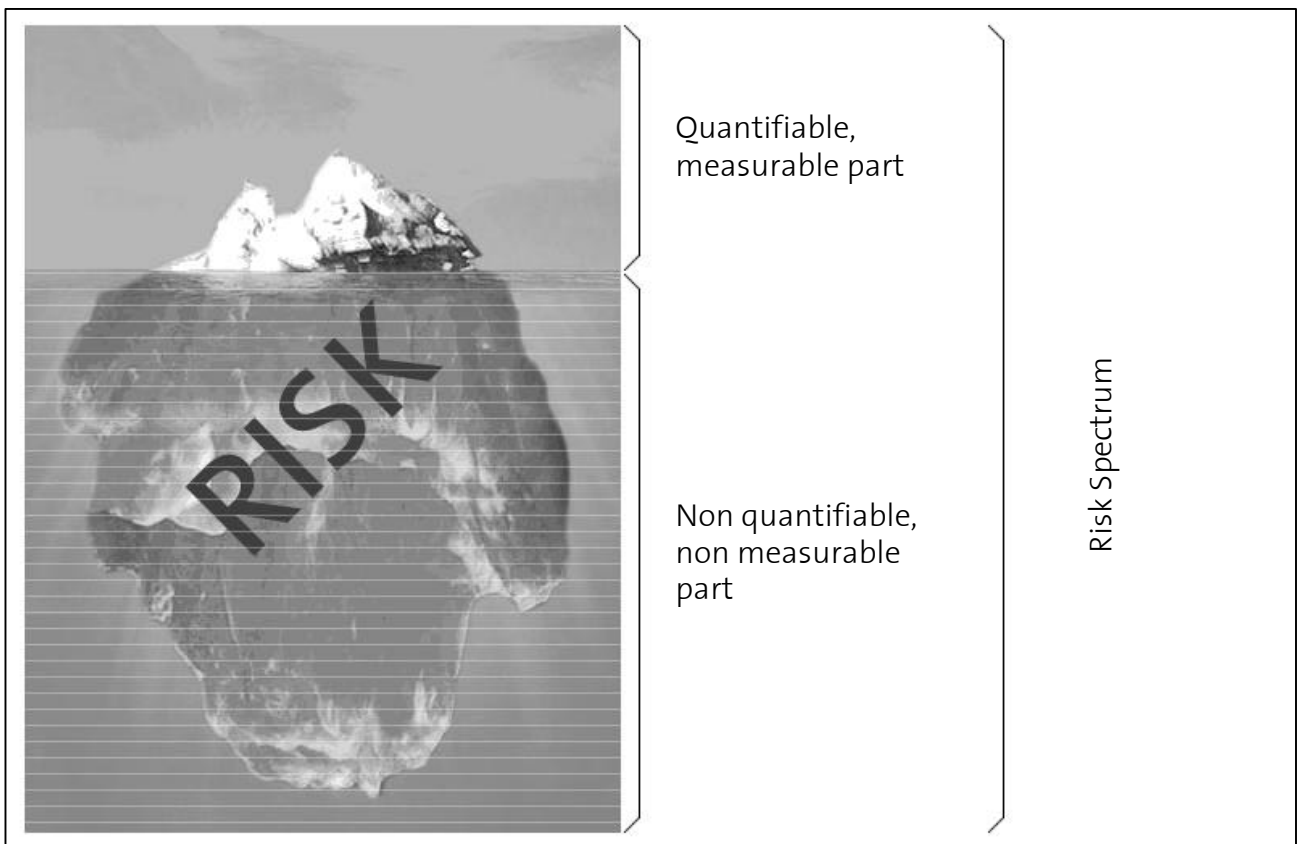
The second speaker was *Fritz Heiniger* of the Swiss Armed Forces Planning Staff. He shared his knowledge of a computer-based scenario cluster analysis, stating that in his opinion, this was the best forecasting tool currently available. He explained the scenarios for the possible deployment of Swiss Armed Forces staff in distant regions of the world. During the Tsunami crisis at the end of 2004, when Swiss army personnel assisted in disaster relief on Sumatra, these scenarios were tested in reality much sooner than expected. He also pointed to the obvious differences in crisis preparedness when looking at the reaction of state authorities to the terrorist attack in Madrid in March 2004, and in New Orleans during the flood in the summer of 2005. In his view, whether a crisis situation will be mastered by the state authorities in an efficient way or not depends largely on the use of reliable scenarios and the subsequent development of realistic «screen plays». However, he did not deny that scenario cluster analyses are quite complex, and it is not always evident for what kind of risks such analyses should be employed.

Beat Habegger of the Center for Security Studies gave a short introduction to session 1. He started with the conventional definition of risk as the product of damage potential and the probability of occurrence, before moving on to the overarching condition of risk – uncertainty. Uncertainty has many facets and may indeed be increasing in an ever more interdependent and complex world; the same is true for risk. In order to illustrate the «hidden side» of risk, he referred to the analogy between the risk spectrum and an iceberg. The visible section of an iceberg is only a very small part of it;

about 90 per cent is beneath the water surface. Similarly, what we can describe, quantify, and measure is often only a fraction of the entire risk spectrum.

Due to the broad variety of issues that might be considered as risk, there is an obvious need for risk classification. Risk may be categorized in many different ways, for example

along statistical, geographical, temporal, or policy dimensions, leading to a variety of classifications. However, regardless of how it is achieved, the essential duty of risk analysts is to identify risks at an early stage. The earlier potential risks are identified, the greater the opportunities to act in a timely, resource-efficient, and strategically adequate manner.



Source: adapted from Bieta/Kirchhoff/Milde/ Siebe, Risikomanagement und Spieltheorie, Bonn 2002, p. 295.

2.2 Session II: Conceptual Approaches to Risk Analysis: National Perspectives

2.2.1 Goals

During the Cold War, the threats to international security were easy to describe in terms of concrete actors, hostile intentions, and military potentials. Today, threats are often neither intended nor sure, but unintended or uncertain. The fuzziness of the contemporary risk environment has made the whole process of risk analysis even more difficult than it already was. Furthermore, it is now widely acknowledged that «technical» approaches to risk analysis, based on quantifiable data and probabilistic models, cannot capture the entire «risk reality». They must be complemented by other approaches, bringing in aspects of risk perception or the «social construction» of risk realities. To complicate matters even more, a broad variety of meanings is often attributed to the concept of risk analysis by scholars or practitioners. The goal of the second roundtable session is to engage in a cross-national dialog by exchanging views on conceptual approaches to risk analysis in order to find adequate analytical responses within a changed risk environment.

2.2.2 Sample of Key Questions

- What do we mean by «risk analysis»?
- What is our conceptual approach to risk analysis?
- How do we acknowledge the plurality of risk realities in our analysis?
- How do we integrate aspects of risk perception?

- How do we deal with risks that are not quantifiable?
- What do political decision-makers expect of risk analysis practitioners?
- ...

2.2.3 Presentations

The first speaker of the second session was *Paolo Donzelli* of the Department of Innovation and Technologies in the Italian Prime Minister's Office. He spoke about «Risk Analysis in Italy» and started his presentation with an overview on the work Italy has done in the area of critical infrastructure protection. Then he distinguished between natural threats (earthquakes, floods), intentional threats (terrorism, crime), and threats to virtual and critical infrastructures, and argued that depending on the nature of the threats, different approaches to risk analysis must be used. However, the problem is that while quite robust classical methods are available for tackling the well-known «old risks», comparable tools are lacking for dealing with «new risks», when widespread soft goals and assets of the society (stability, growth, well-being, etc.) are dependent on highly interconnected and complex socio-technical systems that are exposed to volatile and ill-defined sets of threats. He suggested that in the future, risk analysis be approached more from a «top-down»-perspective by first asking «what are the goals or values that really matter to us?», before moving on to the ques-

tion of «what risks are threatening those goals and values?».

The next speaker was *Fred Burkhalter* of the Swiss Federal Office for National Economic Supply. In his introductory remarks, he explained that this office ensures the continuing supply of essential goods and services to the Swiss population in case of massive disruption of the market economy due to political or economic crises, technical failures, natural disasters, or terrorist attacks. A few years ago, it was recognized that the five institutional units analyzed the risk situation completely independently of one another. This led to diffuse results and tremendous difficulties in communicating them on the political level. Following this evaluation, a project was initiated that aimed at developing a common and comprehensive risk analysis for the entire Office for National Economic Supply. With the help of external experts, a common understanding of the term «risk» was elaborated. Then, potential risks were identified, assessed, and positioned on a «threat scale». As a result, 18 concrete scenarios have been defined and the awareness of risk analysis in general has remarkably increased.

Guilio Gullotta of the German Federal Office of Civil Protection and Disaster Assistance informed the participants about the situation in Germany and, in particular, of the problems risk analysis faces in a federalist country. In recent years, a common initiative of the federal and the sub-national («Länder», states of the federation) levels was set up for developing a shared understanding of risk, standardized structures for risk analyses, and a joint identification of threats. The duties are divided insofar

as the Länder are responsible for «regional hazards», whereas the federal agencies are in charge of «nationwide threats». He stressed the necessity of taking into account the plurality of risk realities, leading to an «all-hazards-approach» (natural, technological, and human-induced risks), the necessity of employing different methodologies for different risks, and the essentiality of a permanent review of the results. He emphasized the special need for confidentiality vis-à-vis the Länder governments. Furthermore, one must be aware that methodologies for risk analysis cannot be imposed on the Länder; the latter must be convinced by positive experiences of other sub-national entities and by good examples shown by federal agencies.

In analogy to the first session, *Beat Habegger* of the Center for Security Studies again provided a short introduction to the topic. He started by referring to two fundamentally different perspectives on risk, and therefore on risk analysis. On the one hand, risk may be seen as a physical attribute, as an objective fact with clearly defined quantifiable and measurable material consequences. On the other hand, risk may not be more than the result of a social construction, shaped in an individual and collective process according to perceptions, identities, or values. In view of these perspectives, technical approaches to risk analysis employing determinist-probabilistic methodologies, or psychological approaches at the individual as well as sociological approaches at the societal level, shed light on different aspects of the risk universe and remind us of the necessity of a comprehensive risk approach. The concrete risk analysis process usu-

ally consists of three different phases that can be summarized in three questions. The first question is «what are the risks?» and points to the importance of an early identification of possible threats. The second question is «what characterizes the identified risks?», leading to the need for assessment and prioritization. The

third question is «how to manage our risk exposure?», emphasizing risk prevention or damage precaution strategies. The element of risk perception is pervasive throughout the entire risk governance process and reminds us that different risks are perceived differently by different people.

2.3 Session III:

Establishing an International Risk Dialog: Key Factors of Success

2.3.1 Goals

A broad range of comparable political, technological, social, and ecological risks, mostly interdependent within and across national borders, is found on the agenda of all OECD countries. Confronted with similar demands by their constituents, political decision-makers all over the world are looking for reliable conceptual approaches to risk analysis. A systematic and continuous international dialog can prevent the constant «reinventing of the wheel» and allows a fruitful exchange of «best practices» among likeminded experts. The goal of the third roundtable session is to engage in a cross-national dialog by exchanging views on the key factors of success for establishing an international risk dialog.

2.3.2 Sample of Key Questions

- What are the characteristics of a successful risk dialog?
- What is the «value-added» of an international exchange for risk analysts and practitioners?
- What topics must be on the agenda of an institutionalized international dialog?

- What factors are crucial for keeping the dialog in constant motion?
- How can the CRN Initiative contribute to a risk dialog?
- ...

2.3.3 Presentations

The third session started with a presentation by *Dorte J. Munch* from the Danish Emergency Management Agency. She focused on the difficulties of placing risk or vulnerability analyses on the political agenda. One of the main reasons for this problem is that each administrative sector employs its own analysis, which raises the question of the extent to which binding regulations on how to conduct risk analyses are desirable or even necessary. Should the applied methodology be the same for all government agencies, or are individual solutions more adequate? Is there even an opportunity to work out an internationally agreed-upon method? Should all information be publicly accessible, or is confidentiality essential? Another important reason for the absence of risk analyses on the political agenda is the very low priority it has in the eyes of politi-

cal decision-makers. It is very difficult to explain to them the usefulness and importance of a reliable risk analysis process. New ways are therefore much needed for bringing this subject closer to politicians and into the centre of political debate.

François Maridor of the Swiss Federal Office for Civil Protection concentrated his presentation on the chances and the «value-added» of an international risk dialog. He emphasized the knowledge transfer between government

agencies through a process of comparing and understanding different approaches to risk analysis. The agenda of such a dialog should especially include methodological issues and an exchange of experiences for defining «best practices». An open-minded dialog can create a variety of opportunities for enabling a permanent learning process, leading to refined and improved risk analyses.

2.4 Conclusions

These conclusions briefly summarize the most important issues discussed in the three sessions. They are grouped in three categories: a) process of risk analysis, b) methodological issues, and c) problems of risk governance.

2.4.1 Process of risk analysis

- The process of risk analysis could gain from a shift of perspective: Instead of asking what risks we are facing, we would do better to start asking what values and interests we want to protect. In such a «goal-driven approach», a vulnerability analysis first determines the values and interests important to our society, before a risk analysis asks specifically what kinds of risks are likely to threaten them.
- One of the limiting factors in this context is the lack of historical evidence. What has not yet happened is difficult to imagine. Creativity and imagination may help to think beyond the limits of the already known. «Thinking the unthinkable» was the catchphrase used in the sessions, and it could indeed be valuable to look for methods in futurology or to ask unconventional thinkers when trying to identify new or emerging risks.
- A crucial task in risk analysis is to set priorities right. An effective risk management must be able to determine what risks are above a certain «resilience level» in order to take specific actions. This is an extremely difficult but inevitable task.
- No matter how many risks are identified or how many scenarios mapped, it is always possible that a decisive risk has not been recognized or that a crucial scenario has never been elaborated. Therefore, risk analysis must be a permanent process, accompanied by a constant search for ways to improve it.

2.4.2 Methodological issues

- Many of the traditional methodologies for risk analysis are no longer able to cope with the interdependencies and complexities inherent in our societies. For «old risks» (such as earthquakes or technological hazards), there are a variety of proven and tested approaches. But these conventional tools do not suffice when dealing with «new risks», for which adequate tools are still lacking.
- One important method of risk analysis is scenario modeling. When working with scenarios, a certain standardization of the methodology employed is necessary. It is equally important to interview carefully selected experts with a wide range of backgrounds and experiences. Nonetheless, scenario analysis is not adequate for all problems, and the question of how best to deal with high degrees of complexity remains one of the most challenging methodological problems.
- The adequate training of staff for conducting risk analyses is a key factor of success. «Centralized training» is required in order to establish an ongoing review process as well as a government-wide methodological approach.

2.4.3 Problems of risk governance

- The process of risk analysis (identification, assessment and management of risks) is always embedded in a (country-) specific bureaucratic framework. Each displays several limiting institutional and political fac-

tors. We ask for example, how many risks can we afford or how we should divide competencies between different levels of government (national, regional, local). The second question is particularly complex, especially in, but not restricted to, federalist countries. The same problems apply to cross-section governance on the same level of authority, i.e. to coordination between different national government agencies involved in risk analysis. Consequently, we must keep in mind that risk analysis always takes place within a larger public-policy context.

- One of the difficult issues is to decide whether risk analyses across different levels of government should follow a top-down or a bottom-up logic. Does it make sense and is it actually possible for national authorities to make binding provisions on how to conduct risk analyses on the regional level? Conversely, does self-evaluation by regional authorities – perhaps combined with compilation of data on the national level – lead to adequate risk governance?
- The problem of compatibility of risk analyses is essential. Risk analyses conducted by different governmental agencies often use different methodological approaches, so that even if data is available, interpretation remains difficult. A certain standardization in terms of issues considered, questions asked, or tools used might be helpful or even inevitable. Another solution is to follow a «best-practice-approach»: Govern-

ment agencies are easier to persuade of a certain (standard) approach when they are not forced to accept it, but realize themselves that it is helping others to do a better job.

- Another issue frequently raised in the sessions was the transfer of risk knowledge

from the expert level to the political level. Political decision-makers usually grant risk analyses only a very low priority on the political agenda. Consequently, risk experts should ask themselves how they can better communicate their findings in order to convince politicians of the use and necessity of risk analysis.

3 Roundtable Conclusions and Outlook

The main contribution of the CRN Roundtables is to facilitate the international dialog on risk analysis by offering a platform for sharing experiences and exchanging views, opinions, methodological approaches, innovative solutions, etc. The problems of risk analysis are often quite similar in different countries, so that risk practitioners and experts can learn a lot from each other and motivate one another.

The participants agreed that the format of the 1st Zurich Roundtable on Comprehensive Risk Analysis and Management, with its sensible mix of presentations and discussions, as one of the participants stated it, was an original and successful one. Accordingly, they

commended the distribution of a short statement on the goals and key questions in advance of the roundtable. This gives all participants the chance to prepare themselves and offers an excellent starting point for profound discussions.

In order to tackle the issues and problems in an even more focused manner, the practitioners of risk analysis will be consulted by the CRN research team on possible topics and questions for upcoming CRN Roundtables. The presentations and discussions of the first CRN Roundtable have shown the great variety of risk issues that are of interest to risk experts from all participating countries.

4 Roundtable Program and Participant List

4.1 Agenda of the day

09:00	Arrival of participants / Coffee & Tea
09:30 – 09:45	Opening of the 1ST Zurich Roundtable <i>Victor Mauer</i> , Deputy Director and Head of Research CSS
09:45 – 10:00	CRN Introduction <i>Myriam Dunn</i> , CRN Coordinator
10:00 – 11:30	Session 1: Assessing the Contemporary Risk Environment: National Perspectives Presentations and Discussion
11:45 – 13:15	Lunch Break Dozentenfoyer, ETH Zentrum Hauptgebäude
13:30 – 15:00	Session 2: Conceptual Approaches to Risk Analysis: National Perspectives Presentations and Discussion
15:00 – 15:30	Coffee break
15:30 – 17:00	Session 3: Establishing an International Risk Dialog: Key Factors of Success Presentations and Discussion
17:00 – 17:15	Conclusions / Final Remarks

4.2 List of Participants

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The 1st Zurich Roundtable took place on 9 December 2005 at ETH Zurich. It launched a new format of discussion and exchange within the Comprehensive Risk Analysis and Management Network (CRN), a Swiss-Swedish internet and workshop initiative for international dialog on national-level security risks and vulnerabilities.

The Center for Security Studies of the ETH Zurich

The Center for Security Studies of the ETH Zurich (Swiss Federal Institute of Technology) was founded in 1986 and specializes in the fields of international relations and security policy. The Center for Security Studies is a member of the Center for Comparative and International Studies (CIS), which is a joint initiative between the ETH Zurich and the University of Zurich that specializes in the fields of comparative politics and international relations.

The Comprehensive Risk Analysis and Management Network (CRN)

The Comprehensive Risk Analysis and Management 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. Originally launched as a Swiss-Swedish Initiative, the partner network today consists of partners from three different countries: the Swedish Emergency Management Agency (SEMA), Sweden; the Directorate for Civil Protection and Emergency Planning (DSB), Norway; the Federal Office for National Economic Supply (NES), Federal Department of Economic Affairs, Switzerland and the Swiss Federal Department of Defense, Civil Protection and Sports (DDPS), Switzerland.

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.isn.ethz.ch/crn)