

CRN ROUNDTABLE REPORT

5th Zurich Roundtable on Comprehensive Risk Analysis and Management

Strategic Foresight and Scenario Planning

5 December 2008

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1 ZURICH ROUNDTABLES ON COMPREHENSIVE RISK ANALYSIS AND MANAGEMENT

The 5th Roundtable organized by the Crisis and Risk Network (CRN) took place on 5 December 2008 at ETH Zurich as part of the Zurich Roundtable series on Comprehensive Risk Analysis and Management. This conference series was successfully launched in December 2005 as a new framework for discussion and exchange within the CRN and is aimed at contributing to the international dialog on security risks and vulnerabilities, risk analysis and management, emergency preparedness, and crisis management.

The Roundtables are intended to bring together a select group of experts to explore the character and dynamics of the contemporary risk environment. By establishing a collaborative relationship and promoting intensified exchange among like-minded experts, these Roundtables foster a continuous dialog on international risk and contribute to a better understanding of the complex challenges facing the risk community today.

Topics of previous Roundtables include:

- Crisis Management in the Case of Critical Infrastructure Breakdowns (4th CRN Roundtable, 30 November 2007)
- How to Detect Emerging Risks (3rd CRN Roundtable, 24 November 2006)
- Risk Communication in Turbulent Times (2nd CRN Roundtable, 12 May 2006)
- National Approaches to Risk Profiling (1st CRN Roundtable, 9 December 2005).

The CRN reaches out to professional communities in public policy, corporate management, academia, and civil society. Its core partner organizations are civil protection and disaster management agencies in Switzerland and other European countries, including the Swiss Federal Office for Civil Protection, the Swedish Emergency Management Agency, the Norwegian Directorate for Civil Protection and Emergency Planning, the German Federal Office of Civil Protection and Disaster Assistance, and the Ministry of Interior and Kingdom Relations of the Netherlands. The CRN is actively promoting its services to additional organizations in order to expand its international circle of partners further.

The CRN initiative is supported academically and logistically by the “New Risks” research team, which is part of the Center for Security Studies at ETH Zurich, a renowned academic institute in the field of international and national security policy, guaranteeing top-quality organizational and academic support for the CRN initiative. More information about the CRN (www.crn.ethz.ch) and the Center for Security Studies (www.css.ethz.ch) can be found on the internet.

2 OPENING AND INTRODUCTION

Beat Habegger welcomed the participants of the 5th CRN Roundtable on Comprehensive Risk Analysis and Management and expressed his hope that it would be an inspiring and rewarding day. He thanked the participants for their interest in attending this event on Strategic Foresight and Scenario Planning and pointed out the high relevance and timeliness of the topic, as attested by the large number of people present as well as the many requests to attend the event.

The complex challenges that the world is currently confronted with – a severe financial crisis, political violence in Mumbai and elsewhere, or the looming threat of a global pandemic disease – remind decision-makers in public policy and corporate management of the necessity to explore new strategic, conceptual, and methodical approaches for dealing with such pressing problems.

A great deal of information is available today, and it is better accessible than ever before in history. At the same time, an overload of information complicates the whole picture and makes political, economic, or social environments hardly controllable. Probably, the most fundamental task of decision-makers is to acquire reliable facts and data and to develop ways of thinking ahead and planning strategically so as to better cope with uncertain future threats and opportunities.

This task essentially requires developing long-term, focused, and sustainable policies: They must have a long-term perspective – to make them commensurate to the long-term nature of many risks; they must be focused – suitable for ranking and prioritizing the issues that are most relevant to our societies and organizations in a sensible manner and spending scarce resources in the most effective way; and they must be sustainable – avoiding quick fixes and conducive to decisions based on facts that adequately balance between (conflicting) objectives.

In this regard, risk management and related approaches such as futures studies or foresight provide strategies and tools to tackle the challenging task in an innovative way. They cut across conventionally separated issue areas and fields of specialization, and furthermore, imply the need to integrate traditionally separated government or corporate departments.

The Roundtable on Strategic Foresight and Scenario Planning aimed to provide opportunities to discuss and appraise strategic and methodical approaches that support the emergence of such future-oriented policies.

3 PRESENTATIONS AND DISCUSSIONS

The first part of the day was devoted to the question of how strategic foresight can be designed and used in corporate management and public policy. *Jan Oliver Schwarz* (Berlin University of the Arts) provided insights into the concept, rationale, and potential pitfalls of strategic issue management in corporations. *Jack Radisch* (OECD International Futures Programme) and *Beat Habegger* (Center of Security Studies ETH Zurich) presented some preliminary results of new studies on country risk management and horizon scanning, respectively.

The second part of the day focused on two particular methodical approaches that are often used to support the development of future-oriented policies. *Olivier da Costa* (European Commission) spoke about roadmapping in science and technology policy and connected it to the tools and methods in risk analysis and management. *Kristel Van der Elst* (World Economic Forum) explained how scenarios can be used to develop a long-term view on the challenges an organization faces and what mistakes should be avoided in doing so.

3.1 Strategic Issue Management in Corporations: Approaches, Concepts, and Pitfalls

The first speaker, *Jan Oliver Schwarz* from the Berlin University of the Arts, started by defining strategic issue management as a systematic process for early identification and rapid response to important issues and trends both inside and outside of an organization. The basic assumption is that discontinuities to current trends do not emerge without warning: instead, trends and issues can be perceived as weak signals in an organization's environment, and strategic issue management seeks to receive these weak signals and detect trends before they turn into issues.

The process of strategic issue management consists of three phases: The first step consists of information-gathering and scanning of environments for weak signals by using media, experts, and a variety of other sources. The second step is the diagnosis and interpretation of the collected information by foresight teams in order to identify the relevant trends and issues that need to be closely monitored. The final step is to connect the findings and formulate a corporate reaction strategy. There are several approaches to strategic issue management: The process can be formalized (ongoing process), ad-hoc (carried out on an irregular basis without standardized procedures), or a one-time exercise (e.g., a scenario planning exercise). Overall, there is no clear empirical evidence of what works best.

In a single case study, Jan Oliver Schwarz was able to show that the process of strategic issue management is often assigned to a single process manager

without close interactions with senior management or experts from other company departments. Following up on his case study, he developed several recommendations of how to avoid some common pitfalls:

- If the process of strategic issue management begins with a scenario exercise, the scenarios must cover an alternative future rather than the issues that are already well known;
- Interaction is crucial – a “lonely manager” cannot succeed;
- If quantitative forecasting is overemphasized, significant trends tend to be overlooked;
- An organization needs to be open to discussions and willing to challenge mental models while addressing “organizational dissonance” (avoiding negative weak signals that run counter to the company's strategy);
- It is crucial to define what exactly a strategic issue management process is scanning for, and what sort of trends are of interest for an organization.

Jan Oliver Schwarz concluded by highlighting the relevance of the concept of “trends”. Trend research must be understood as innovation research, or as the science of the “new”, because innovations deviate from familiar patterns and stand out due to their in-

novative character. He suggested that the aims and purposes of a strategic management system must be clearly defined in order for the system to become successful; an experienced and open-minded

process manager must be selected; the top levels of management must be involved in the process; and a wide variety of sources should be considered.

Jan Oliver Schwarz is a researcher in the field of strategic foresight and business wargaming and is the author of several articles on strategic foresight and co-author of the book "Business Wargaming: Securing Corporate Value" (Aldershot: Gower Publishing, 2008). He holds an M.A. in General Management from the University of Witten/Herdecke, and an M.Phil. in Futures Studies from the Graduate School of Business, University of Stellenbosch. He has also been a visiting scholar at the School of Management, University of St Andrews, Scotland, and has been trained in scenario planning at the University of Strathclyde Business School, Glasgow, Scotland.

3.2 Country Risk Management and Horizon Scanning in Government: New Studies

Risk management and the associated strategies and methods have become important concepts in public policy. Many governments have started to use them to improve management of uncertain future threats and challenges. At the same time, much is still unclear in terms of how risk management in public policy should be designed to make it more effective. Consequently, further research is needed to explore best practices and the key factors that determine success or failure.

The Roundtable provided an opportunity for two think-tanks to present some results of recent, but not yet published studies. Beat Habegger from the Center for Security Studies at ETH Zurich presented a study on "Horizon Scanning in Government: Concept, Country Experiences, and Models for Switzerland", which was commissioned by the Swiss Federal Office for Civil Protection and will be published in February 2009. Jack Radisch from the OECD International Futures Programme presented some findings of a study on "Innovations in Country Risk Management", which will presumably be published in March 2009.

Beat Habegger started his presentation with some guiding questions: What is horizon scanning, what purposes does it serve, and what are the key success factors? – The concept of horizon scanning is ill-defined and used differently by various actors. In a narrow sense, it refers to a policy tool that systematically gathers information about emerging issues and trends in an organization's political, economic, social, technological, or ecological environment.

More broadly, it is used as a synonym for a variety of so-called foresight activities that aim to develop the capabilities of organizations to better deal with an uncertain and complex future. Two key functions for policymaking emerge:

- *Information function:* Horizon scanning informs policy-makers about emerging trends and developments in an organization's external environments. Its main products are strategic scans that cover a broad range of issues and are disseminated in the form of policy briefs, reports, or scenarios.
- *Policy development function:* Horizon scanning refers to a process that supports the envisioning of desired futures and emphasizes the creation of networks and knowledge flows between people and organizations. Intensified interactions across professional communities stimulate the emergence of shared understandings and thus facilitate the development of innovative policies.

Horizon scanning that deliberately cuts across government departments and policy areas is a quite recent phenomenon. Traditionally, such activities were predominantly focused on a particular policy field – science and technology policy, public health, national security, or the environment – and institutionally attached to the respective government departments. Only recently have governments started to experiment with cross-cutting horizon scanning

to respond to the requirements of an increasingly interconnected world.

The report concentrates on three countries that have been at the forefront of this trend: the United Kingdom Foresight Programme (started in 2004), the Singapore Risk Assessment and Horizon Scanning system (initiated in 2005), and the Netherlands Horizon Scan Project that began the same year. The presentation did not outline the program's design and characteristics; instead, it highlighted some common ideas and principles:

- Although the programs grew out of different policy areas and are institutionally attached to different governmental bodies, they all aim to be wide in scope and to mainstream horizon scanning throughout all policy areas and government departments.
- The programs support different government agencies in establishing their own horizon scanning activities and provide a higher-level strategic context to all respective government initiatives.
- The programs build networks across professional communities and are dedicated to extending their activities toward other professional communities, particularly companies or think-tanks.
- The programs want to connect and closely collaborate with the academic world in order to guarantee that their activities are informed by real expert knowledge and to safeguard their credibility and longer-term reputation.
- The programs need broad political support, because horizon scanning is directed at generating new ideas, which are often found at the margin of current thinking and may challenge conventional wisdom. Without strong backing from senior policy-makers, new insights will not trickle down into novel policies.
- The programs should ensure that their results and recommendations have an impact on decisionmaking processes, because otherwise, not only the government, but also all other involved stakeholders would soon lose any interest.
- The programs should be regularly repeated and stand on a solid (institutional) footing, since understanding the purposes and methods of horizon scanning not only takes time, but is by definition an activity that only pays off in the longer term.

The presentation was concluded with an invitation to all participants to download the full report from the CRN website in February 2009 and to provide critical feedbacks and remarks.

Jack Radisch from the OECD International Futures Programme disclosed some preliminary results from a study on "Innovation in Country Risk Management" that covers six countries (the US, the UK, the Netherlands, Canada, Singapore, and Japan). The main objective was to find out which new measures are being taken by countries to better identify, assess, and mitigate large-scale and complex risks. For this purpose, the policy and legal frameworks for all-hazards disaster risk management in the selected countries were compared and central government bodies responsible in the field of all-hazards risk management analyzed.

Although there are a variety of models, some similarities could be detected. First, they all intend to coordinate the central, regional, and local government bodies in their efforts to implement national policy goals related to public safety and security. Second, they all provide guidance to these bodies on how to conduct risk assessments. And third, all of them aim to streamline and standardize reporting requirements for risk assessment and emergency management plans through a common information-sharing mechanism.

Four of the six countries investigated employ capabilities-based planning to help set specific preparedness goals and priorities, compare the costs and benefits of investment choices, and evaluate preparedness results. Jack Radisch pointed out that the strength of this systematic approach lies in its ability to categorize the specific means (capabilities) that are required to respond to a wide range of potential disruptive challenges, as well as identifying the current level of capacity to deliver these response missions. Moreover, it serves decision-makers to allocate resources in a way that closes the gap between the current and targeted capacities.

Jack Radisch stressed that converting disaster risk management systems into all-hazard approaches is an iterative process that is still in its early stages. Nevertheless, it is generally acknowledged that risk management needs to be reinforced at the pre-disaster mitigation stage, yet often too much emphasis is placed on protection and not enough on prevention. Structural measures require constant maintenance in addition to incurring high up-front costs; there-

fore, policy-makers should compare the net value of savings from non-structural measures that prevent the interaction of natural hazards with the built environment to the capital costs of structural measures that reduce the probability of disaster. Furthermore, metrics to evaluate the effectiveness of mitigation investments are frequently lacking, although these measures are admittedly difficult to compile in the absence of events they are designed to curtail.

Jack Radisch is a policy analyst in the OECD's International Futures Programme, where his current research focuses on risk management policies in OECD member countries. Prior to his current position, he worked for several OECD committees on risk-related issues such as biosecurity, IT security and consumer protection, and liability regimes for nuclear energy. He is a graduate of the University of California, School of Law and the University of Toulouse, Faculty of Social Sciences.

3.3 Foresight for Policymaking: The Specific Case of S&T Roadmapping

Olivier Da Costa started his presentation by explaining the concept of “foresight”, which he defined as a holistic approach looking at interactions between technologies, economy, and society in the field of futures studies. Foresight as a concept is based upon three main pillars:

- It is open as it explores various possible futures – rather than trying to predict a pre-determined future;
- It is collaborative as it mobilizes joint actions through the involvement of the relevant stakeholders and the discussion of results among a wide audience;
- It supports actors in actively shaping the future by taking decisions today.

Risk analysis and foresight overlap in terms of the targeted issues. Risk analysis can be regarded as part of foresight, but foresight comes before risk management and much before emergency preparedness and crisis management.

One of the classical foresight tools is roadmapping because it helps to define a desirable future (normative method). At the same time, it can be deployed as a planning tool to set the goals, identify the paths,

and anticipate what might happen on the path to the desirable future (exploratory method).

After giving an overview of foresight methodologies and tools, Olivier Da Costa explained how roadmapping is applied in public policy. First developed and used in industry and technology to improve decisions on research and development (R&D) and for strategic planning of new product development, roadmapping has only been used in the public sector since the late 1990s. It is most widely applied in the area of science and technology, where it is part of a “problem-driven” approach to provide the intelligence needed to optimize public R&D investments.

The perspectives of policy-makers often differ from those of representatives of the corporate sector. Due to the fact that policy-makers cultivate a rather generalist perspective, a “policy-intelligence roadmap” must focus and prioritize the issues, instead of trying to be exhaustive. It must be centered on major issues facing society, rather than being driven exclusively by technology and technology developers.

In an environment that is characterized by severe time pressure, information overload, higher speed of change, uncertainty, and an increasing complexity of most issues, the main advantage of the roadmapping approach is to simplify complex systems. In this

way, roadmapping permits policy-makers to reduce the complexity and to focus on relevant issues in the decisionmaking process.

In conclusion, Da Costa pointed out some benefits of roadmapping for policy-makers:

- Due to the systemic scanning involved, it provides anticipatory intelligence on expected S&T developments and their interactions with markets and society;
- It helps to prepare sound decisionmaking on R&D, including the setting of research priorities;

- It permits conceptualization of outcomes as a reservoir of possible policy options that can be adopted by different actors at different times;
- The roadmapping process itself creates value by sharing knowledge and enabling the construction of common visions among different actors.

Nevertheless, there are also limits to the usefulness of roadmapping. First, it is costly in terms of the human resources, skills, and expertise needed to perform a roadmapping process. Second, it is difficult to scan and integrate qualitative human, social (e.g., acceptability of risks), economic, and political factors and their interrelationship in a structured and systematic process due to the human tendency to underestimate factors that cannot easily be framed (i.e., quantified).

Olivier Da Costa is a project officer in the European Commission's "Information Society and Media" Directorate General. From 2002 to 2008, he was in the European Commission's Institute for Prospective Technological Studies (IPTS). He contributed to the construction of the FORLEARN online guide (<http://forlearn.jrc.ec.europa.eu>) and to various studies on S&T roadmapping, online social networks, and the convergence between nano, bio, info technologies and cognitive science. He received his PhD in Physics and his Master's degree from Ecole Polytechnique in Paris.

3.4 Scenario Planning

The last session was devoted to scenario planning as it has been used by the World Economic Forum since 2004 to improve the strategic decisionmaking of its partner organizations. *Kristel Van der Elst*, head of scenario planning, stated that the world has become more complex, but many organizations are apparently not prepared to handle this new complexity. She claimed that scenario thinking supports decision-makers in exploring complex issues in innovative ways and prepares them for a range of possible alternative futures. She particularly underscored the

fact that scenario-building allows people to express themselves on "safe ground", as they are asked to talk about future developments rather than the situation immediately at hand; consequently, they may feel less constrained and are not only able to discuss conflicting worldviews with other stakeholders, but also to start establishing a common language.

There are at least four different approaches to scenario development as illustrated on the following page:

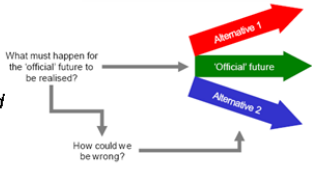

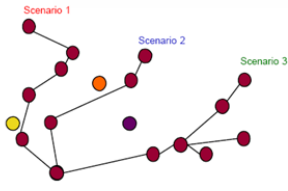
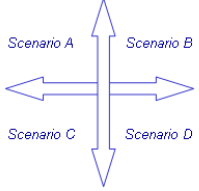
<p style="text-align: center;">Incremental approach</p> <p>□ <i>Assumes the official future can be described easily</i></p> 	<p style="text-align: center;">Normative approach</p> <p>□ <i>Normative scenarios describe preferred visionary futures</i> □ <i>'Should be' scenarios</i></p> 
<p style="text-align: center;">Inductive approach</p> <p>□ <i>Derived (induced) from the study of a limited set of observations of recurring phenomenal patterns</i></p> 	<p style="text-align: center;">Deductive approach</p> <p>□ <i>Exploratory in nature</i> □ <i>Uses an integrated logical process</i> □ <i>Approach used by the World Economic Forum</i></p> 

Table 1: Scenario Approaches (Source: World Economic Forum)

Kristel Van der Elst continued to explain key steps that lead to the emergence of plausible, relevant, divergent, internally consistent, and challenging scenarios. The core idea is to identify and prioritize all issues that are relevant to answer a central question and moreover, to derive among these issues the “critical uncertainties” – those issues that are highly uncertain and have high impact on the question at hand. The set of critical uncertainties is used to circumscribe a scenario framework that then enables the development of four different scenarios for which “scenario stories” are to be written. Kristel Van der Elst strongly emphasized that computer modeling is not appropriate for this scenario process, and that assigning probabilities to the individual scenarios should be avoided.

Scenarios are developed by conducting open-ended interviews and discussions to gather a broad range of perspectives and by convening leaders in business, society, government and academia in multi-stakeholder workshops. It is important to allocate suffi-

cient time and resources to the whole process. At the Forum, a scenario process lasts about one year and includes a series of at least five to six workshops. A fundamental challenge is always to stretch the mental maps of the participants, as it is hard to think at a high level of abstraction about how the future will unfold in 10 or 20 years’ time.

Kristel Van der Elst said that it is the process of scenario development that matters most, and that the “strategic conversation” among participants should continue even after the workshop series has ended. Therefore, it is important to integrate decision-makers into the process in order to challenge their assumptions about the future and make them acknowledge alternative business or policy strategies. It is crucial to design the link between scenario development and decisionmaking in such a way as to ensure that the scenarios will have an impact on an organization’s choice of strategic options.

Kristel Van der Elst is Associate Director and Head of the Scenario Planning Team at the World Economic Forum in Geneva.

4 BUILDING A “CRISIS AND RISK COMMUNITY” – A JOINT CSS/ISN-PROJECT

In 2009, the Center for Security Studies at ETH Zurich will launch a community for experts and researchers in the field of crisis and risk management. Other communities relevant to professionals in other expertise areas, such as Swiss security policy or conflict mediation, may follow later.

The community’s objective is to foster increased cooperation between subject-matter experts. It reaches out to both academics and practitioners in public policy and corporate management. The communities want to create working environments that lead to concrete products such as policy briefs or documents, joint workshop preparations and reviews, or handbooks and bibliographies.

The Crisis and Risk Community will offer three services:

- Members can register their profile (affiliation, publications, and other web profiles) and make their expertise available to other members.

- Members can review draft documents that were posted by other users, or they may upload their own papers and invite others to review them. Furthermore, it will be possible to discuss topics for future workshops or joint projects.
- Members can tell the community about ongoing and future projects and events, while staying informed themselves about the latest developments in crisis and risk management

The community is supported by an online workspace where experts meet and work on joint projects. This workspace is complementary to the current CRN website, which will continue to exist, but the new workspace will give a more dynamic element to the CRN, as it allows everybody to actively get involved. More information about this project and further services that are linked to it will be communicated in the course of 2009.

5 CRN OUTLOOK 2009

The Crisis and Risk Network as it stands today will be transformed into a Crisis and Risk Community in the course of next year, open to individual experts and practitioners from the field of security risks and vulnerabilities, risk analysis and management, emergency preparedness, and crisis management.

On 24 April 2009, the MAS ETH SPCM Forum 2009 (www.spcm.ethz.ch), will be held at ETH Zurich on the topic of “Preparing for and Mitigating Against Crises”. Please contact us should you wish to participate.

To guarantee fruitful dialog in the non-virtual realm, we will also continue with the successful roundtable format. The 6th CRN Roundtable is scheduled to take place in November/December 2009. Other conferences/events (a two-day workshop is planned for spring 2010) will be communicated in due time. Please subscribe to the CRN Newsletter or to the RSS feed at www.crn.ethz.ch if you want to be kept up to date about CRN publications, news, and events.

6 ROUNDTABLE PROGRAM AND PARTICIPANT LIST

6.1 Agenda of the Day

08:45	Arrival of Participants / Coffee and Tea
09:15 – 09:30	Opening and Introduction to the Day Beat Habegger <i>Center for Security Studies</i>
09:30 – 10:30	Session I – Strategic Issue Management in Corporations: Approaches, Concepts, and Pitfalls Jan Oliver Schwarz <i>Berlin University of the Arts</i>
10:30 – 11:00	Coffee Break
11:00 – 12:15	Session II – Risk Management and Horizon Scanning in Public Policy Jack Radisch <i>OECD International Futures Programme</i> “Innovation in Country Risk Management: A Cross–National Analysis” Beat Habegger <i>Center for Security Studies</i> “Horizon Scanning in Government: Concepts and Country Experiences”
12:30 – 14:00	Lunch Break Dozentenfoyer, ETH Zentrum Hauptgebäude
14:00 – 14:30	Session III – Building a Crisis and Risk Community Introduction to a joint project of the Center for Security Studies and the International Relations and Security Network (www.isn.ethz.ch), including software demonstration
14:30 – 15:30	Session IV – Foresight for Policy-Making: The Specific Case of S&T Roadmapping Olivier Da Costa <i>European Commission</i>
15:30 – 16:30	Session V – Scenario Planning Kristel Van der Elst <i>World Economic Forum</i>
16:30	Snacks and Drinks
17:30	Roundtable Ends

6.2 List of Participants

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The 5th Zurich Roundtable took place on 5 December 2008 at ETH Zurich. It continued the Roundtable series of the Crisis and Risk Network (CRN), a Swiss-Swedish initiative for international dialog on national-level security risks and vulnerabilities.

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 initiative for international dialog on national-level security risks and vulnerabilities, critical infrastructure protection (CIP) and emergency preparedness. The network today consists of partners from six countries: the Federal Office for Civil Protection and Disaster Assistance (BBK), Germany; the Danish Emergency Management Agency (DEMA), Denmark; the Directorate for Civil Protection and Emergency Planning (DSB), Norway; the Federal Office for Civil Protection (FOCP) at the Swiss Federal Department of Defense, Civil Protection and Sports, Switzerland; the Federal Office for National Economic Supply (NES) at the Federal Department of Economic Affairs, Switzerland; the Ministry of Interior and Kingdom Relations, Netherlands; and the Swedish Emergency Management Agency (SEMA), Sweden. 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.