GLOBAL RISK GOVERNANCE

International Risk Governance Council (IRGC)
Book Series on Global Risk Governance

Series Editor

Christopher Bunting
Secretary General
IRGC, Geneva

Aim and Scope of this Series

The aim of this series is to provide a forum for work by academics and practitioners of risk assessment and risk management from varied disciplines and sectors on the identification, evaluation and governance of emerging global risks.

The work presented in the series draws on projects undertaken by the International Risk Governance Council and, particularly, projects undertaken conducted the leadership of members of the IRGC's Scientific and Technical Council.

Books published in the series will be of interest to policy and decision makers around the world in government, industry, and civil society, as well as to academics and students working in this field.

About IRGC

The IRGC is an independent organisation based in Geneva, Switzerland, whose purpose is to help the understanding and management of emerging global risks that have impacts on human health and safety, the environment, the economy and society at large. IRGC's work includes developing concepts of risk governance, anticipating major risk issues and providing risk governance policy recommendations for key decision makers.

IRGC's goal is to bring the principles of integrated risk governance of important emerging, systemic risks to the highest levels of decision making. It believes that by combining forces, governments, industry, academia and international and large non-governmental organisations can together develop and implement the best options for governing global risks as well as maximise public trust in the process. Coordinated and coherent policy making, regulation, research agendas and communication will be required.

The IRGC's priorities and project work are identified and led by our Board and Scientific & Technical Council. Both groups are composed of renowned business people, policy makers and academic leaders representing countries throughout the world; the membership of both bodies may be found on the adjacent pages.

Further information on IRGC, our current and past projects, and our sources of income, may be obtained from our website www.irgc.org.

Global Risk Governance

Concept and Practice Using the IRGC Framework

Edited by

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Springer

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Foreword by Peter Sutherland

A Business Perspective on IRGC's Risk Governance Framework

I first learned of the work of IRGC in early 2005 when I was made aware of a different kind of risk management conference. My interest grew when I learned that the conference was to be held in Beijing, China. Insurance Australia Group (IAG), where I work, has business interests in China, and is committed to expanding its presence in the Chinese market, one of the most exciting and fastest-growing markets in the world.

Having signed up for the conference, I was then invited by IRGC's General Secretary Chris Bunting to give an insurance perspective on new technologies. And now, some 18 months on, Chris has kindly asked me to offer a business perspective on IRGC's risk governance framework. I am of course delighted and privileged to do so. And so to the task at hand ...

Why does risk governance matter to IAG? Risk management is core business for insurance companies. In order to be there when a claim is made by a customer, the company must understand and price risk appropriately. One of the pillars of IAG's purpose is appropriately pricing the risk associated with future events. This is crucial to the Group's long-term sustainability. In addition, the market makes a working assumption that risks will be properly managed by the company and that there will be no major surprises.

The broader community, too, expects that insurance companies will adapt to the changing nature of risk. A sustainable insurance business seeks to reduce risk in the community – through advocacy and engagement with government; financial and non-financial contributions to community initiatives that seek to address causal factors giving rise to insurable risk; and targeted involvement in customer education programs that support and reward sustainable practices or product choices.

As IAG grows in scale and complexity, so too does the complexity of the risk governance issues faced by the company. In this context, IRGC's risk governance methodology provides important insight and tools to help us manage a changing and more complex risk profile.

My work at IAG involves continually adapting the company's risk management framework to the changing internal and external environment. Perhaps the biggest

learning for me from this experience is this: any system of risk management that ignores or underestimates the 'socio-cultural' dimension of risk cannot in my view call itself 'integrated'.

More broadly, we have all observed the evolution of risk management frameworks from the traditional or statistical models common to financial services to the current focus on 'Enterprise Risk Management', or ERM. This development represents a logical and natural response to growing complexity, uncertainty and ambiguity associated with 21st century corporate life.

Hence my particular interest in IRGC's contribution to this topic, *Risk Governance – Towards an Integrative Approach*. The first thing that struck me about the IRGC approach was the language used. The title 'risk governance' sets the framework apart from other risk frameworks I have seen by framing IRGC's approach broadly and inclusively. Second, the categorisation of 'risk-related knowledge' along the spectrum of 'simple', 'complex', 'uncertain' and 'ambiguous' is an important contribution. On reflection, I am surprised that such a logical idea had not, to my knowledge, been introduced previously. This characterisation should greatly assist risk management professionals in their consideration of new risks and patterns of risk faced by global businesses.

The more I delved into IRGC's second White Paper *Nanotechnology Risk Governance*, the more I sensed I was travelling in unknown territory. This was not just because of the topic itself (regarding which I confess to be a curious novice!) but rather because the White Paper reflected a risk management discourse operating at a plane beyond my normal experience in business. The concepts require we 'mere mortals' to stretch our thinking and engage in issues involving multiple frames of reference. I do not propose to comment on the actual nanotechnology risks and proposed mitigation strategies contained in IRGC's second White Paper (one of the test applications in this volume is based on IRGC's work in the field of nanotechnology risk governance) other than to observe that they look very sensible to the lay observer!

IRGC's White Paper on risk governance brings fresh, insightful and challenging perspectives to those engaged in transboundary risk management. Moreover, there would appear to be a real appetite on the part of IRGC to tackle some of the truly 'big' global inter-generational issues, using the dispassionate lens of risk governance. The real challenge for IRGC seems to me to be taking others such as governments, NGOs and multinationals on this complex journey. This won't be an impossible task – the risk issues tackled by IRGC will invariably demand coordinated action by national governments.

In closing, I would like to offer some musings on the future. The role of the 'Chief Risk Officer' is now seen as a necessity in large, multi-jurisdiction companies, particularly those engaged in financial services. The role brings together seemingly disparate risk disciplines to better equip the enterprise to see risk coming.

It is interesting to speculate whether this kind of role may gain traction beyond the business realm. Will we see 'Country Risk Officers' being employed by national governments and/or NGOs to bring more unified and consistent approaches to dealing with risks, particularly transboundary risks? I think this is a distinct pos-

sibility. Moreover, IRGC's framework could be applied to manage risk at political and transboundary levels. At the very least, it is suggestive of the need for more systematic risk management at the higher levels of government. In the event of, for example, a pandemic outbreak globally, one wonders whether traditional/corporate risk frameworks would cope with the scale of risk issues that would proliferate.

A further observation concerns the evolution of transboundary risk governance structures. The UN Security Council, for example, was established in an environment where the dominant global risk was the threat of war and nuclear weapons. Since that time, transboundary risks have multiplied and arguably represent larger risks than the risk of war. Will we see new global structures addressing this new risk complexity? Will we see the emergence of a UN 'Risk Management Council' that seeks to bring a common risk governance framework to the work of all groups engaged in dealing with global risk issues?

There are, of course, no clear answers to these kinds of questions. However, the IRGC framework represents a new and important contribution to the broad body of work on risk management and sheds light on the kind of risk framework necessary to address 21st century global risk issues. It challenges the sustainability and scalability of generally accepted approaches adopted by the commercial sector. I look forward to road-testing some of IRGC's concepts within my company!

Peter Sutherland
Head of Group Risk & Compliance
Insurance Australia Group
Sydney, Australia

Foreword by Jan Mattingly
Fresh Thinking for Risk Management Practitioners

If you're like me, you are always on the lookout for new knowledge in the risk management field, ideas that will help to inspire and propel you forward in your day to day work in managing risk. I first came across the work of IRGC as a result of a recommendation by noted risk management iconoclast Felix Kloman, Former Publisher, Risk Management Reports. In 2005, Felix had identified the work of the group as internationally noteworthy. I made a mental note to find and read the White Paper, 'Risk Governance – Towards an Integrative Approach'.

A few weeks later, I recall reading the document with the usual rapid scan. It was one document of the usual weekly onslaught that I wanted to review as new and possibly useful risk information. Several key concepts and figures caught my eye and prompted me to read and re-read it in greater detail.

I had not expected what I found: original and fresh thinking, and concepts which carefully and coherently expressed the range of complexity and nuances involved in risk assessment in a new and succinct way. In developing this thought piece, IRGC provided leadership to the risk community in the approach used to research, engage and collaborate with others.

The paper spoke to the influence of risk perception in characterising risk assessment in a way that was crisper and more cogent that other publications I (and perhaps you) have read.

There were several other concepts expressed in the work of IRGC relating to risk governance which are important to the risk profession and to those who wish to de-mystify the management of risk in a way that adds value to organisational performance and indeed, our society.

As a Canadian participant on the work of the ISO 31000 Standard for Managing Risk in Organisation with a corporate risk management and non-science background, my committee colleagues and I have been interested and motivated by the work of IRGC when looking to create original and fresh input to the new Standard.

For example, some of the inspiration for the risk assessment guidance in the new standard has its root in the work of IRGC and contributors like Peter Graham. In particular, the paper shed light on the complex yet simple notion of scaleable risk

assessment. How many organisations use one type of risk assessment method for all types of risks? Our working group used IRGC findings as input for lively discussion and debate on the topic, surely a climate for innovation and creativity.

In my daily work as a practitioner working with organisations to modify and strengthen their risk management activities enterprise-wide, I have found good value in the work of IRGC in the key concepts of risk governance and scaleable risk assessment: these concepts resonate with senior executives and business leaders alike, moving us all a little closer to de-mystifying the art and science of enterprise-wide risk management.

For the community of risk management professionals worldwide, the work of IRGC should be a permanent part of your risk library if only for the breadth of perspectives and worldwide collaboration that it represents on a spectrum of key topics for our profession, such as the Risk Governance Framework.

Surely the best way to inspire inspiration in others is to be inspiring and for this reason I wish to recognise the work of IRGC and express my appreciation to its members for inspiring me. I suggest that you have made a noteworthy contribution to the community at large through careful, clear and cogent thinking on time-worn topics of our profession. I trust that readers will be similarly inspired by the pages that follow.

Jan Mattingly, BA, CRM, RF, CIP, ABCP
Risk Management Practitioner, Canada and
ISO 31000 Working Group Member

Foreword by David E. Slavin
A Better Platform for Global Risk Debates

Today there is a growing public fascination with risk. Politicians, protesters, and pundits use the term and its supporting data, in loose and diverging ways. Often these data are used creatively by people who wish to take opposing positions about a technology, its uses or social and environmental impact. This battle of ideology can make it very hard for sections of the general public to gauge the merits of a proposed technology.

And technology based industries are required to develop new technologies on behalf of investors for a profit. That is part of our society's cycle for training and rewarding highly skilled employees, growing investment and pension funds, and of course generating tax revenues. Funding can be either internal (shareholders/society) or external venture capital (investors/society) and, in some sectors, it is mostly government funding (taxpayer/society) or variations thereof. In all of these cases a return on investment is always required. So in order to optimise these investments as far as possible – commercial marketing strategies can be deployed as they are very effective. Here, pure or clean scientific arguments about a technology are clouded in commercial or political fog at best, deliberate smokescreen at worst. This does nothing for public trust of industry and further complicates the picture.

Where a technology has, or more importantly is perceived to have, potential safety hazards, there is generally a system of regulatory approval prior to public exposure. Although this differs between and amongst industries and countries, the essential elements are a series of ongoing presentations by industry to an expert government regulator with a varied degree of public consultation and appeal. This so called risk assessment process typically concerns only public safety but increasingly, arguments concerning social utility and cost from part of the approval process. Here decision making is hugely affected by the trust triangle between industry sectors, expert government regulators and society and complicated by social amplification factors, etc. Traditional bodies such as the professions, politicians and businesses have become less trusted by society. This distrust is often fuelled by actions of 'trusted' NGOs.

When policy decisions occur in the public sphere, the three domains (the ideological, the commercial and public safety) discussed in the previous paragraphs all come together. Risk communication initiatives can do much to help, but in many cases groups within society remain unconvinced or even strongly opposed to the very intent behind an activity or technology. No amount of risk management process will square the circle of even a legally mandated technology without social license. The fate of the nuclear industry in the UK provides the best example – nanotechnology may not be far behind!

I think this is where a lack of an agreed and trusted, understandable and explicit framework for risk discussion and decision causes us the greatest problems today. Those problems are manifest for industry by gross imbalances of risk mitigation efforts between different industrial sectors. Often this is achieved by the misuse of the Precautionary Principle to seduce society to aspire to a zero risk situation. This approach imposes duties and burdens from which no commercial enterprise can prosper. Rather living by the old adage 'better safe than sorry', we may live in a 'safe and sorry' society.

So what might be the answer for us to most properly use the innovations and opportunities that present themselves to us?

I think that we need to address the 'social-license' element of our decision making. This is why I am attracted to the IRGC approach as it is a unique platform for global debate and addresses societal concerns head-on. Could IRGC become that independent, trusted third party we sorely need to set risk tolerability frameworks to place decisions in context? It could reflect different views and practices, broker the different interests, and provide balanced risk governance strategies. With the IRGC's innovative inclusion of pre-assessment and an explicit concern assessment in addition to more usual risk assessment, it may very well have developed a tool kit to achieve success.

Industry, as part of our society, needs this sort of approach and guidance in order to make the huge investments in future technology a success for all stakeholders in society.

David E. Slavin
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Introduction

Japanese government planners set out in the 1960s to build a barrage on the Nagara River, one of the last major freeflowing rivers in Japan. Conceived during a period of rapid growth in the Japanese economy, the barrage was part of a national effort to ensure adequate water supplies for future economic development as well as to reduce flooding risks to downstream communities. A string of lawsuits brought by groups concerned about the impact of the dam on ecological and fisheries resources resulted in costly delays: the dam was not completed for more than 25 years.

The 1990s witnessed the start of a kind of biotech gold rush toward the use of genetic modification (GM) as tool to develop more productive crops through the introduction of herbicide, insect and disease resistance to feed a growing world. Opponents of the rapid deployment of GM crops have raised concerns about the safety of the technology and about its socio-economic, cultural, and ethical implications. The debate over this issue divided the world – for example, the US allowed the development of GM crops to move forward and now accounts for over half the GM crops grown worldwide whereas the European Union only recently lifted a de facto moratorium imposed in 1998 and now authorises products on a case by case basis. Worldwide, the development and use of GM crops is still barely covered by a patchwork of regulations and guidelines, ranging from strict prohibition to none at all, and creating its own sets of disparities and risks.

What went wrong?

These two examples illustrate just some of the potential breakdowns in *risk governance*, the complex process by which risks are identified, assessed, communicated, and managed. The Japanese authorities, by focusing on one set of risks, failed to consider the broader set of risks created by the Nagara River Estuary barrage. In the GM crop case, differences in regulatory approaches, disparities in the influence of various stakeholders, and the role of the media are pointed to as some the problems – or as the successes, depending on one's point of view. Whereas the authorities

in Japan could begin to address the governance deficit in their own country by instituting a process for involving the views of different stakeholders in large scale technological projects like the Nagara River Estuary Barrage, solutions to the risk governance challenges posed by GM crops will require a more global perspective.

Global risks, global opportunities, global risk governance challenges. The International Risk Governance Council (IRGC) was established because of widespread concern within the public sector, the corporate world, academia, the media, and society at large that the increasing complexity and interdependence of the world we live in and the risks we face would make the development and implementation of adequate risk governance strategies ever more difficult.

How does one organisation begin to tackle this enormous issue? IRGC began by asking what could be learned from existing risk governance approaches around the world. What has worked well? How, where and when do problems arise? A team of social and natural scientists, engineers, and lawyers undertook a thorough examination of the fundamental principles and structures that guide the way emerging risks have been identified, assessed, managed, and communicated. From this process, IRGC developed and proposed a framework for risk governance that was then subjected to rigorous peer review prior to its publication in September 2005.[1] IRGC next invited formal comments from several experts and from the public, examined the framework carefully in the context of a series of diverse case studies, and documented carefully what lessons this input offered. The result is this volume, *Global Risk Governance: Concept and Practice Using the IRGC Framework*, the first in a series to be published in association with Springer, Dordrecht, the Netherlands. The volume has four parts:

Part 1: The IRGC White Paper on Risk Governance

The first chapter presents the risk governance framework as described in IRGC's 2005 White Paper, *Risk Governance – Towards an Integrative Approach*. The framework was the culmination of a major effort involving numerous individuals, both members of IRGC's Scientific and Technical Council and other leading authorities from around the world. Its purpose is to support IRGC's investigation of risk issues, the governance processes and structures pertaining to them, and the development of policy recommendations for addressing important deficits in risk governance.

What are the innovative features of the framework and how does it differ from those that were analysed in the examination described above?

- *A better definition of risk governance*. A significant part of IRGC's early work was a study of the principles of good *governance* – how the many different groups in society, from governments to individuals – collectively make decisions. These principles underpin IRGC's view that *risk governance* includes the actors, rules, conventions, processes, and mechanisms concerned with how relevant risk information is collected, analysed and communicated

[1] IRGC White Paper No. 1, *Risk Governance – Towards an Integrative Approach*, IRGC, Geneva, 2005.

and management decisions are taken. Risk governance thus extends beyond the three conventionally recognised elements of *risk analysis* (risk assessment, risk management and risk communication)[2] and thus includes matters of institutional design and role, organisational capacity, stakeholder involvement, collaborative decision making and political accountability on the part of public bodies and corporate responsibility on the part of private enterprises. It also includes the requirement on the part of government, commercial and civil society actors for the development and use of scientific knowledge within the risk governance process.

- *A simple, but comprehensive framework*. The framework's process for dealing with risk comprises five phases: *pre-assessment*; *risk appraisal*, *risk characterisation/evaluation*; *risk management*; and *risk communication*. We also distinguish between a management sphere (containing decision making and implementation) and an assessment sphere (containing risk appraisal). The pre-assessment, characterisation/evaluation and communication phases are in both spheres because, although we strongly endorse the separation of risk appraisal and management, these three other phases need the combined efforts of the people responsible for both. We position risk communication at the centre of the framework to reflect its crucial role throughout – rather than at a particular point of – the entire process. The IRGC framework is, therefore, deliberately open, interlinked and iterative.
- *A truly interdisciplinary approach*. The framework urges risk governance institutions, in their *appraisal* of risks, to consider input from a broader base of scientific knowledge. Not only knowledge about the physical impacts of technologies, natural events or human activities that is the typical basis for *risk assessment* but also knowledge about the concerns that people associate with these sources of risk. This *concern assessment* is a social science activity aimed at providing a comprehensive diagnosis of concerns, expectations and worries that individuals, groups or different cultures may link to the hazards which, in turn, are a key input to assessing a risk's acceptability and to designing appropriate risk management strategies.
- *An idea of inclusive governance*. Inclusive governance is seen as a necessary, although not sufficient, prerequisite for tackling risks and, consequently, requires the productive and meaningful involvement of all stakeholders, in particular, civil society. It is based on the assumption that all stakeholders have something positive to contribute to the process of risk governance.

[2] National Research Council, 1996, *Understanding Risk: Informing Decisions in a Democratic Society*, National Academy Press, Washington DC; Codex Alimentarius Commission, 2005, *Procedural Manual*, Fifteenth edition, Joint FAO/WHO Food Standards Programme, Rome, World Health Organisation/Food and Agriculture Organisation of the United Nations, 2005; Regulation (EC) No 178/2002 (OJ 2002, L31/1) as amended by Regulation (EC) No 1642/2003 (OJ 2003, L 245/4).

Part 2: Critical Comments

When IRGC published the White Paper on Risk Governance in 2005, it envisioned the document with its underlying framework as a work-in-progress, a focus for comment and debate. IRGC clearly recognised that no framework can emerge fully formed to deal with the broad array of risk problems facing society today. The organisation expected the need for refinement and revision and therefore welcomed the process of thoughtful and critical review.

Since that time, the IRGC risk governance framework has received considerable attention from the risk assessment and risk management communities. It has been presented at numerous conferences and symposia in Europe, North America and Asia. The original White Paper has been reprinted twice and many hundreds of people have accessed and downloaded the document from our website. The feedback obtained from many of these people has been invaluable to IRGC's understanding of the framework's strengths and weaknesses.

The critical reviews discussed in this section of the book encompass both formal and informal comments received by IRGC following its presentations. The first four chapters present the formal written comments commissioned from four individuals with extensive experience in risk assessment and/or management:

- Ragnar Lofstedt, Professor of Risk Management and Director of the King's Centre for Risk Management International Policy Institute;
- Eugene A. Rosa, Professor of Sociology, Edward R. Meyer Professor of Natural Resource and Environmental Policy, Washington State University;
- Robin Cantor, Managing Director, Navigant Consulting, Inc. and Past President of the Society for Risk Analysis;
- Warner North, President and Principal Scientist, Northworks, Inc., Adjunct Professor, Stanford University.

The final chapter provides a synopsis of the numerous informal comments IRGC has received from respected individuals and institutions in the field of risk governance. The commentators represent a diverse mix of stakeholder groups: the international academic community, international and national regulatory institutions, industry, risk research and environmental NGOs.

This section of the book does not provide the authors' or IRGC's response to these comments but, rather, provides an opportunity to acknowledge them and to honour those individuals who have taken time and effort to compose thoughtful and constructive statements about the IRGC framework.

Part 3: Case Studies

A small but diverse set of case studies were commissioned to assess how well the IRGC risk governance framework both supports the comprehensive understanding of a risk and facilitates the development of policy options. While most of the studies were retrospective, each provided several important insights into how risk governance might have been improved or could still be improved:

- *Listeria in raw milk soft cheese* (Andrew Knight et al., Food Safety Policy Center, Michigan University, USA). This case study illustrates how important framing of a risk issue is to both how the risk is managed and how successfully the chosen risk management strategy is implemented. While one framing – 'illness prevention' – informed the decision to ban the use of unpasteurised milk in making soft cheese in the US, the 'consumer sovereignty' framing lies behind a minority whose behaviour knowingly disregards the law.
- *Genetically modified (GM) crops* (Joyce Tait, University of Edinburgh, Scotland). Tait raises several important issues for emerging technologies, among them the role that framing has in determining the regulatory path and even ultimate commercial success of a new technology. She emphasises the importance of defining processes for the responsible involvement of stakeholders and the introduction of evidence to the governance process.
- *Nagara River Estuary Barrage conflict* (Norio Okada et al., Disaster Prevention Research Institute, University of Kyoto, Japan). This case study provides relevant lessons for governments today about the dangers of failing to consider other stakeholder concerns (environment, fisheries, etc.) in the planning stages of large-scale projects. It illustrates the need for stakeholder feedback systems during project development that allow for changes to occur.
- *Nature-based tourism* (Caroline Kuenzi, IRGC, Switzerland and Jeff McNeely, World Conservation Union). This case study presents a complex problem for risk governance in which the risks and benefits of nature-based tourism and responsibilities for managing them span a diverse group of individuals, private enterprises, government agencies, non-governmental agencies, countries and intergovernmental organisations. Multi-faceted strategies for risk management will be required.
- *Acrylamide in food* (Sabine Bonneck, Cologne, Germany). Bonneck traces the crisis that erupted across Europe when acrylamide was discovered in food products. It provides important insights for improvements in risk communication and the involvement of stakeholders in the risk management process.
- *Energy security for the Baltic Region* (Warner North, Northworks Inc. and Stanford University, USA). In his preliminary 'pre-assessment' of the complex problem of energy security in the Baltic region, North lays out the difficult risk tradeoffs that must be considered and the challenges of balancing the interests of the different governments and political and civil society actors.
- *Nanotechnology* (Mihail Roco, National Science Foundation, USA; Ortwin Renn, University of Stuttgart and DIALOGIK gGmbH, Germany and Alexander Jäger, Interdisciplinary Research Unit on Risk Governance and Sustainable Technology Development (ZIRN), Stuttgart, Germany). Unlike the other case studies, the chapter on nanotechnology is not retrospective, but also offers insights using the IRGC framework for risk governance of the still emerging, newer generations of nanotechnology and their applications.

IRGC recognises that such retrospective analysis is only one tool for evaluating the IRGC framework and that it has its own limitations. Ultimately, a true test of any model is how well it performs when used proactively and IRGC will continue

to use its framework to support its work in understanding emerging risks and the development of risk governance recommendations for policy makers.

Part 4: Lessons Learned

In the final chapter, IRGC has carefully considered the many constructive, critical comments received (Part 2), the experiences from the case studies (Part 3) and has laid out the lessons learned. There are many. IRGC's goal in this chapter is not to respond in detail to every comment but to acknowledge the common themes that have emerged regarding both broad conceptual issues as well as the practical aspects of each phase of the framework. The authors hope that these 'lessons learned' will both guide IRGC's ongoing refinement of the framework and assist others who may be encountering the framework for the first time.

Although work remains to be done, IRGC has accomplished the task of creating a broad conceptual framework that incorporates key principles for sound risk governance. It provides a structure, within or around which particular risks may be investigated, discussed by stakeholders, communicated, and managed. By laying a clear rationale for taking into account not only scientific evidence, economic considerations, but also risk perceptions, social concerns and societal values, the IRGC framework attempts to provide a more comprehensive and integrated view of risk governance than other approaches have in the past.

The IRGC risk governance framework is not a manual; ultimately experts with specialised training will be needed to carry out the tasks necessary for the governance of particular risks. However, IRGC does hope that this more comprehensive framework will assist decision makers in asking the right questions, questions that will help them avoid the pitfalls of the past and to develop more effective risk governance strategies for the increasingly complex risks – and opportunities – we face in the world.

Ortwin Renn
University of Stuttgart and DIALOGIK gGmbH, and
Member of the IRGC Scientific and Technical Council

and

Katherine Walker
IRGC, Geneva, Switzerland

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Part 1. A Framework for Risk Governance

Chapter 1
White Paper on Risk Governance: Toward an Integrative Framework[1]

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Purpose and Objectives of This White Paper

This document aims to guide the work of the International Risk Governance Council and its various bodies in devising comprehensive and transparent approaches to 'govern' a variety of globally relevant risks. Globally relevant risks include *transboundary* risks, i.e. those that originate in one country and affect other countries (such as air pollution), *international* risks, i.e. those that originate in many countries simultaneously and lead to global impacts (such as carbon dioxide emissions for climate change) and ubiquitous risks, i.e. those that occur in each country in similar forms and may necessitate a co-ordinated international response (such as car accidents or airline safety). To this end the document and the framework it describes provide a common *analytic structure for investigating and supporting the treatment of risk issues* by the relevant actors in society. In doing so, the focus is not restricted to how governmental or supranational authorities deal with risk but equal importance is given to the roles of the corporate sector, science, other stakeholders as well as civil society – and their interplay. The analytic structure will, it is hoped, facilitate terminological and conceptual clarity, consistency and transparency in the daily operations of IRGC and assure the feasibility of comparative approaches in the governance of risks across a broad range of hazardous events and activities. In particular, this document is meant to assist members of IRGC in their tasks to provide scientifically sound, economically feasible, legally and ethically justifiable and politically acceptable advice to IRGC's targeted audiences. It is also to support IRGC in its effort to combine the best available expertise in the respective field with practical guidance for both risk managers and stakeholders.

[1] This chapter is the main body of a complete work with the same title published by IRGC in 2005. The IRGC document contains in addition three brief case studies and a series of appendices detailing other risk governance schemes. It can be downloaded from our website: http://www.irgc.org/spip/IMG/pdf/IRGC_WP_No_1_Risk_Governance_(reprinted_version).pdf

O. Renn and K. Walker (eds.), Global Risk Governance: Concept and Practice Using the IRGC Framework, 3–73.