INPUT PAPER

Prepared for the Global Assessment Report on Disaster Risk Reduction 2015

RISK GOVERNANCE: AN OVERVIEW OF DRIVERS AND SUCCESS FACTORS

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12 January 2014

Introduction

This paper from the International Risk Governance Council proposes a broad review of what risk governance is about and the main deficits that often hinder effective governance of complex, uncertain or systemic risks. Working to overcome identified roadblocks to effective disaster risk management is a first way to go. However, rather than proposing specific measures to improve disaster risk reduction such as particular national institutional and legal frameworks, this paper aims to propose and discuss some of the drivers and hallmarks of success, focusing on how countries and organisations organise internally to deal with risk. For example, the paper will not recommend specific policy options, but recommend the creation of appropriate internal cultures for risk governance. Adequate mind-sets, relevant incentives and other endogenous factors are key in setting the ground for the design of effective policies and strategies, the development of internal standards and institutional culture, as well as effective practices, habits, customs and sensitivities towards disaster risk reduction. In times of budget constraints and lack of dedicated and adequate resources, dealing with the challenges ahead requires innovation and creativity, for example in how to harness the potential of community engagement, sharing information and learning from experience in other sectors or countries and designing shared objectives.

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1.1 Risk

The IRGC defines risk as the uncertain negative consequence of an event or an activity with regard to something that humans value (IRGC, 2005). This definition highlights two aspects:
• The reference to *uncertainty* and its consequences, to provide the context for a definition of risk that is broader than a function of the likelihood of occurrence of a hazard (and quantified probability) and the severity of impact (which depends on exposure and vulnerability).
• Focusing on what has a *value,* to provide a goal and force stakeholders to define what is of value to them, in order to direct risk management effort to protecting what provides valuable services.

Risk may not be only negative, in many cases, it is an indespensible part of our lives and it is in fact important that societies and individuals can take risks. Decision makers may defensibly choose to take risks to obtain the associated benefits. Indeed, risk taking may be crucial to achieving technological change, economic development and social welfare. Furthermore, strategic risk managers, as well as social or political entities or movements, can frame an issue as a risk so as to push it forward on the public agenda or transform the way the issue was previously handled. Politically, this can serve the goal of setting the agenda for a given problem and drawing public attention to it. It can also suggest that the problems, defined as risk, can be controlled, at certain conditions, and that risk management processes and instruments can be useful for that purpose (Borraz, 2007).

1.2 Risk governance

Policymaking for disaster risk reduction can be a highly contentious and difficult process, due to the multiple uncertainties that often characterize both scientific information and policy interests and constraints. Most problems on the agenda of governments, international organizations, multinational firms and large non-governmental organizations reveal complexity and interdependencies, gaps in the available and needed data. Furthermore, policymaking relies on information that may be open to multiple viewpoints (ambiguity and controversy), and limited due to the difficulty in anticipating the future.
Decision making about risk nowadays needs to take a holistic approach for the management of uncertainty. Covering a wide range of instruments, tools and concepts, risk governance can provide such an approach, as it revolves around a central process: the production, evaluation and use of knowledge for decision making, especially when evidence-based knowledge is initially lacking, incomplete, open to debate, or dependent on alternative futures. The use of the term "governance" highlights the political nature of decision making on uncertain issues and a process that is broader than risk management.
Risk governance is a multi-stakeholder process toward creating more efficient, cost-effective, fair and equitable management of risk. It is particularly valuable for risks in which there is

some disconnect between the risk source and the risk bearer and for complex risks with uncertainty and ambiguity.
Risk governance includes the identification, assessment, management and communication of risks in a broad context. It includes the totality of actors, rules, conventions, processes and mechanisms concerned with how relevant risk information is collected, analysed and communicated, and how and by whom management decisions are taken.

1.3 The IRGC risk governance framework

The IRGC has developed a "framework" for risk governance that proposes a broad and comprehensive while flexible and adaptable set of guidelines for risk governance.

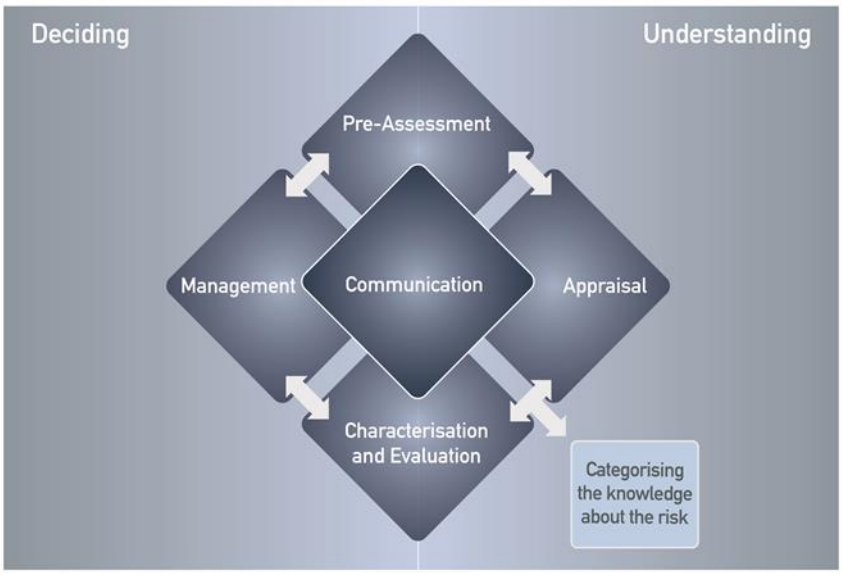

Figure 1: IRGC risk governance framework

• The first step, called ***Pre-assessment includes the determination of the context, the goal and the purpose, as well as the boundaries of the analysis.*** It is a framing exercise. It also relies on early warning, and preparations for handling it. Pre-assessment involves relevant stakeholder groups, so as to capture the various perspectives on the risk, its associated opportunities, and potential strategies for addressing it. In the case of natural hazards, stakeholders whose behaviour can trigger the materialisation of the hazard or can be affected by the risk because they are exposed and vulnerable to it, can together define the boundaries of the risk analysis that will follow.
• ***Risk appraisal goes beyond the conventional scientific risk assessment***, which usually aims to identify and describe the possibility of occurrence or a probability distribution over a range of negative consequences (frequency x severity). IRGC's proposal for risk appraisal also involves an assessment of different stakeholders' potential concerns about the risk. The concern assessment is a key feature of the IRGC framework, and aims to incorporate the values and emotions that may be associated with the risk. It explicitly recognises that people's decisions about how to handle a risk are governed by their perceptions of the risk as well as their perhaps more emotional and value-laden concerns.

Both the risk assessment and the concern assessments involve state-of-the-art scientific methodologies. They involve natural sciences as well as social sciences (such as sociology, psychology, political sciences, anthropological behavioural sciences).
Other features of risk appraisal thus include: data collection and sharing, interdisciplinary scientific and concern assessment and capability assessment.
A number of cognitive and organisational biases are often present in natural hazard and risk assessment. It is often "surprising" how possibly affected people can live with and accept a risk without doing much for their mitigation, although they are fully aware of their possibility of occurrence and potential for damage. The search for associated benefit is often the main reason. But in disaster risk prevention and assessment, the role of culture, tradition and in general the "human factor" can have a large effect on the effectiveness of science-based risk management measures.

• Risk evaluation is a judgment about the overall severity of the risk and the need to take management measures.

Managing risk requires a prior and careful judgment of whether or not a risk is *acceptable* and if not, whether risk reduction is considered necessary to make it more *tolerable*. The evidence based on the scientific and concern assessment of a risk must be combined with a thorough evaluation of other factors such as societal values, economic interests and political considerations. Risk is judged tolerable when it can be pursued because of its benefits, but subject to appropriate risk reduction measures. Risk *evaluation* concludes with the design of a *portfolio* of risk management options before making decisions on those that will be implemented.

• Risk management involves the development, decision and evaluation of the actions required to avoid, reduce, transfer or retain the risks.

All tolerable risks need appropriate and adequate risk management, with the view that the residual risk is acceptable, given the risk tolerance level of the affected organisation, system or population. Based on the development of a range of options and a consideration of the most appropriate of them, risk management decisions are taken and put into practice. Risk management includes the generation, assessment, evaluation and selection of appropriate risk-reduction options as well as implementing the selected measures, monitoring their effectiveness and reviewing the decision if necessary.

• Communication is of utmost importance in effective risk governance. First, it enables risk assessors and risk managers to develop a common understanding of their tasks and responsibilities (internal communication) and second, it empowers stakeholders and civil society to understand the risk and the rationale for risk management (external communication). It also allows them to make informed contributions to risk governance, recognises their role in the risk governance process and gives them a voice by creating a deliberate two-way process. Once the risk management decision is made, communication should explain the rationale for the policy decisions and allow people to make informed choices about the risk and its management, including their own responsibilities. Effective two-way communication, thus dialogue, is the key to creating trust in risk management.

1.4 Importance of framing the risk governance context

Risk managers need to define the boundaries of their analysis, in consideration of all causes and consequences of the risk. Direct as well as indirect consequences (secondary or ancillary risks) need to be taken into account, especially if the risk can affect populations far away from its source, or when moral hazard develops, as a result of disconnect between risk takers and risk bearers. However some limits, or boundaries, must be drawn in order to focus on an achievable goal. Thus, framing the context in which the governance of a risk must be improved is critically important for successful outcome. It helps define the goal and will also create the rationale and legitimacy for involving stakeholders.

Effective governance of most systemic risk requires that the broader social, institutional, political and economic contexts must be taken into account in risk-related decision making. It is important to recognise the *organisational capacity*, which refers to the capability of key actors in the risk governance process to fulfil their roles, and the *network of actors.* Also important are the *political and regulatory culture* and, in general, the *social climate,* which determines the risk culture. Developing appropriate *risk cultures* in a given context impacts on the level of risk tolerance (or risk aversion), and the degree of trust in the institutions responsible for risk governance.

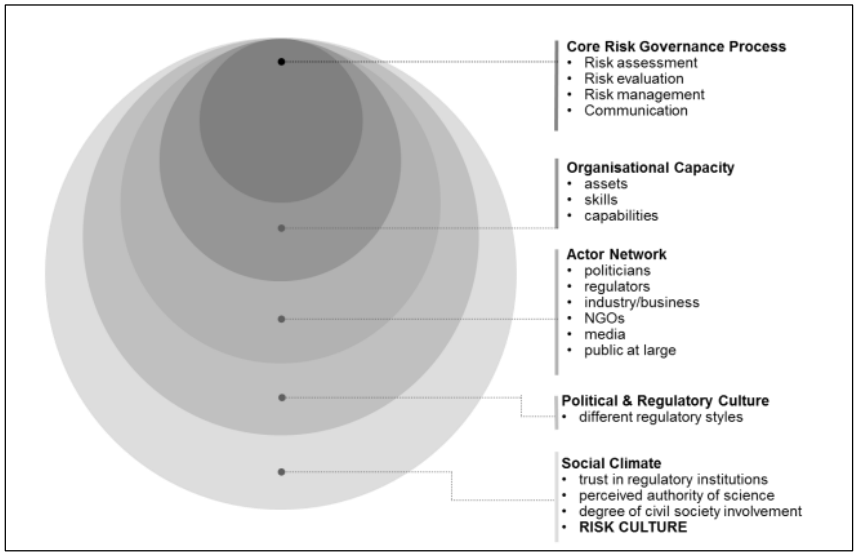

Figure 2: Risk governance - the role of context

1.5 Options for dealing with systemic risk

The term "systemic risk" was used and defined by the OECD (OECD, 2003) and denotes the embeddedness of any risk to human health and the environment in a larger context of social, financial and economic consequences and increased interdependencies both across risks and between their various backgrounds. Systemic risks are at the crossroads between natural events (partially altered and amplified by human action such as the emission of greenhouse gases), economic, social and technological developments and policy-driven actions, both at the domestic and the international level. These interrelated and interdependent risk fields

also require a specific form of handling risk, in which data from different risk sources are either geographically or functionally integrated into one analytical perspective. Handling systemic risks requires a holistic approach to hazard identification, risk assessment, concern assessment, tolerability/acceptability judgements and risk management (IRGC, 2005).

Systemic risks are characterised by complexity and uncertainty. Their potential damage is not limited to an economic sector or a geographical area. As challenges such as those posed by scientific understanding of natural hazards, of climate change and of consequences of technological developments become frequent, policy making under uncertainty and ambiguity is becoming the norm and international and national institutions alike are working to improve their ability to deal with uncertainty and ambiguity.

Risk characterisation

It is useful to characterise systemic risks according to the type of knowledge about them, considering that most potentially large scale systemic risks are complex, with scientific uncertainties and often controversies about their assessment and management.

• *Complexity* refers to difficulties in identifying and quantifying the causes of specific adverse effects. Examples of complex risks include the risks of disruption of interconnected infrastructures, such as large electricity grids, as consequences of natural disaster risk. Complex issues can normally be handled by scientific and empirical research and expert technical work.
• *Uncertainty* refers to a lack of scientific or technical data, or a lack of clarity or quality of the data. Uncertainty describes the level of confidence that analysts associate with a qualitative or quantitative assessment of a specific risk. Uncertain risks include the effect of climate change on the frequency and severity of natural hazards.
• *Ambiguity* results from divergent perspectives on the risk, including the likelihood and severity of potential adverse outcomes. Risks that are subject to high levels of ambiguity include issues for which economic or ethical issues matter, such as in the case of environmental migrations or entire displacement of population due to their land becoming inhospitable. People's values and interests can differ widely and create conditions for contestation or conflict.

Distinguishing between simple, complex, uncertain and ambiguous risks can help in designing a risk management strategy.
• *Simple risk* problems can be managed using a 'routine-based' strategy, such as introducing a law or regulation.
• *Complex risks* can be addressed on the basis of accessing and acting on the best available scientific expertise, aiming for a 'risk-informed' and 'robustness-focused' strategy. Robustness refers to the degree of reliability of the risk-reduction measures to withstand threatening events or processes that have not been fully understood or anticipated.
• *Uncertain risks* are better managed using 'precaution-based' and 'resilience-focused' strategies, with the intention being to apply a precautionary approach to ensure the

reversibility of critical decisions and to increase a system's coping capacity to the point where it can withstand surprises.

• Finally, for *ambiguous risk* problems the appropriate approach comprises a 'discourse-based' strategy that seeks to create tolerance and mutual understanding of conflicting views and values with a view to eventually reconciling them.

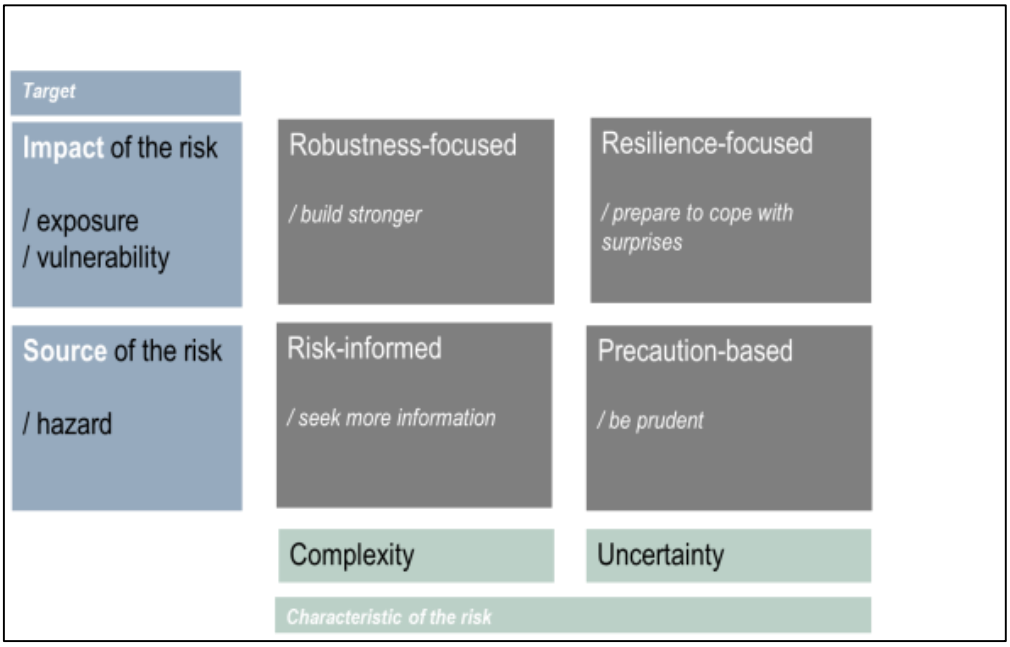

Figure 3: Risk governance strategies (adapted from: IRGC risk governance framework, 2005)

Example: flood performance of new buildings

• Flood avoidance: Constructing a building and its surrounds (at site level) in such a way to avoid it being flooded, e.g. by raising it above flood level, re-siting outside flood risk area.

• Flood resistance: Constructing a building in such a way to prevent floodwater entering the building and damaging its fabric (water exclusion strategies to build resistance).

• Flood resilience: Constructing a building in such a way that although flood water may enter the building its impact is reduced, i.e. no permanent damage is caused, structural integrity is maintained and drying and cleaning are facilitated (water entry strategies to build resilience).

• Flood reparability: Constructing a building in such a way that although flood water enters a building, elements that are damaged by flood water can be easily repaired or replaced. This is also a form of flood resilience.

(RIBA, 2007)

Box 1: Flood performance of new buildings

2 Challenges in risk governance

2.1 Risk governance deficits

A risk governance deficit is a failure in the identification, framing, assessment, management and communication of a risk issue or of how it is being addressed. As such, it can also be understood as a risk governance challenge. Governance deficits are common and may be found throughout the risk handling process. They are actual and potential shortcomings and can be remedied or mitigated.

Risk governance deficits operate at various stages of the risk governance process, from the early warnings of possible risk to the formal stages of assessment, management and communication. IRGC has identified and analysed some of these deficits which, for conceptual clarity, have been divided into two categories: those in the risk assessment (cluster A, see Figure 4 below) and those in the risk management (cluster B, see Figure 5) (IRGC, 2009)

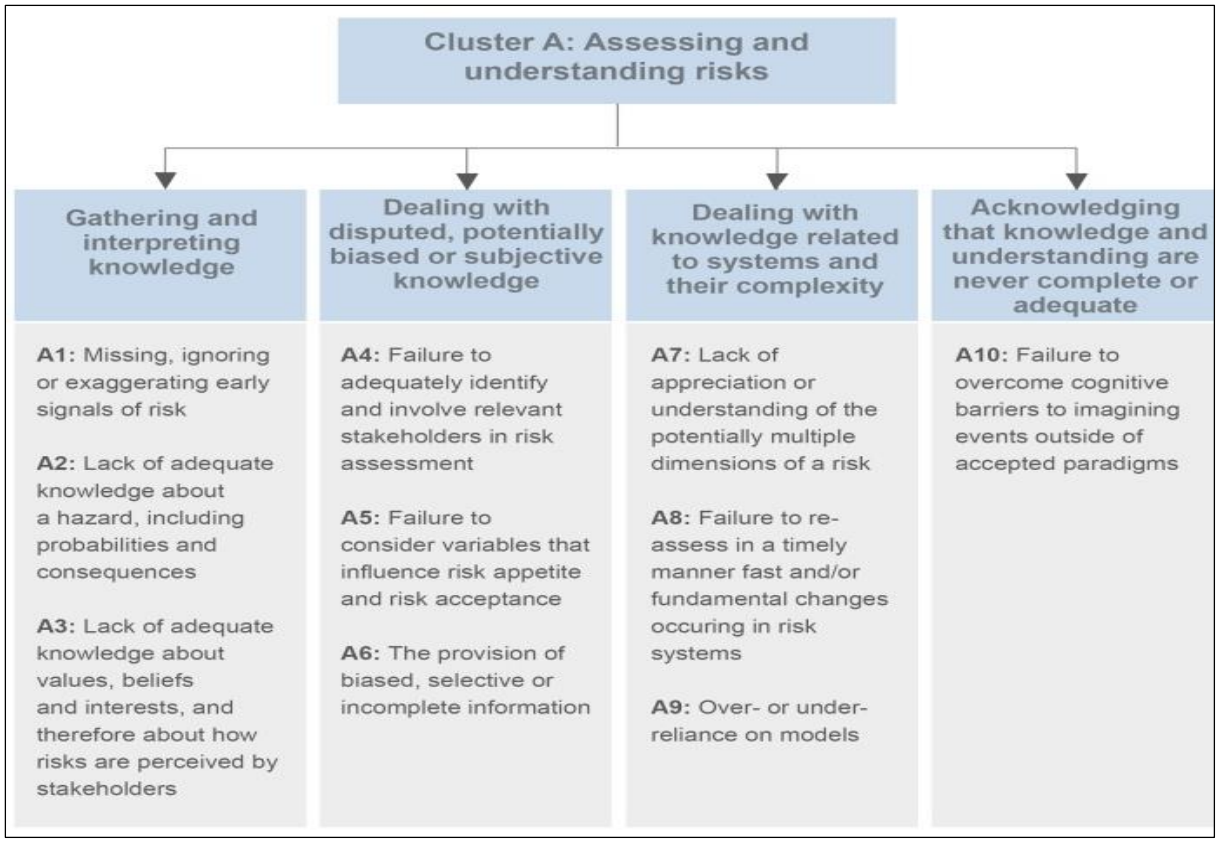

Figure 4: Deficits in assessing and understanding risks (IRGC, 2009)

Possible deficits concerning responsibilities and actions in order to reduce, mitigate or avoid the risk:

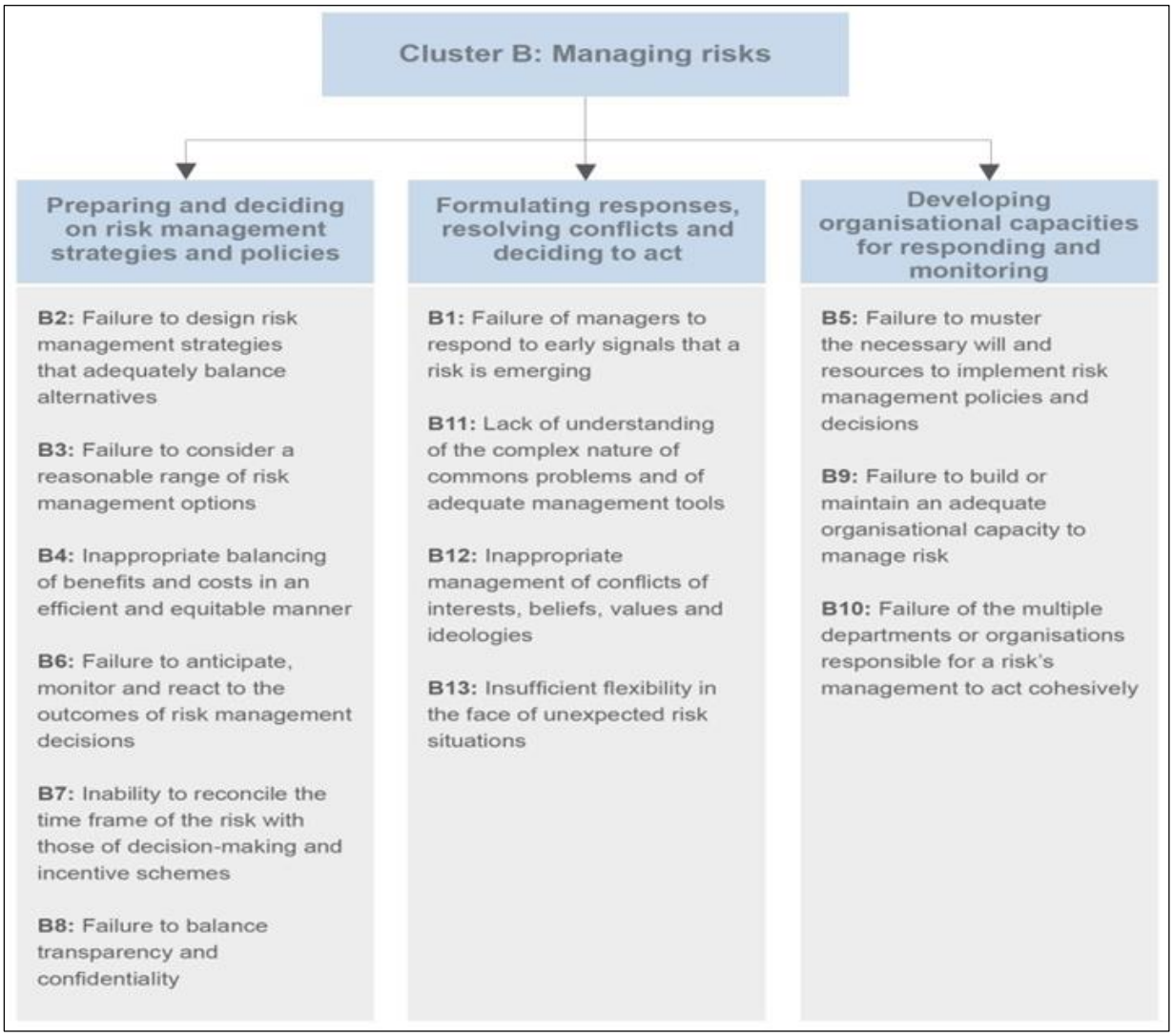

Figure 5: Deficits in managing risks (IRGC, 2009)

2.2 Vulnerability is increasing, hence the need to consider resilience building

A side effect of "successful" risk management is that populations at risk may increase their exposure, as a result of deliberate or unintentional decisions. This is often the case in natural hazard-risk prone areas, where improvement in early-warning, prevention and risk mitigation can lead to a feeling of safety that overall increases the exposure to the risk and the assets at risks. A report of the Integrated Research on Disaster Risk (IRDR) FORIN project summarises *"Responsibility for the continued growth in vulnerability and exposure is locally specific and diffuse over individuals, organizations, jurisdictions, and over time. This diffuse responsibility is not something planned or methodically organized but has simply evolved or grown up in this way."* (IRDR, 2011).

As proposed in section 1.5, resilience is one of the risk management strategies that is relevant, and must be pursued in case of lack of knowledge or evidence about the risk source and its impact. It is mainly a **protective strategy** to build in defenses to the whole system against the impact of the realization of an unknown or highly uncertain risk. Instruments for resilience include designing systems with flexible response options, or also improving emergency management (IRGC, 2005). However, strategies to build robustness, especially of critical infrastructures, should be pursued as well, as long as knowledge exists and can be used or can be developed.

Many organisations, both in the public and the private sectors are now interested in developing and applying the concept of resilience, to involve others in preparing to cope with unexpected risk consequences. For example, PwC suggests: *"Organisational resilience springs from two practical forms of responsiveness. The first of these is the "buffer", which provides the breathing-space to absorb shocks and mount a considered response. The second is the "adaptive capacity", which combines strategic flexibility and organizational agility with a culture that supports learning and renewal. If buffers are pre-requisites for survival or "bouncing back" in a turbulent and uncertain world, then adaptive capacity provides the momentum for "springing forward" to exploit opportunities to avert crisis or transform during it* (PwC, 2012).

2.3 When there are controversies about risk knowledge

It is acknowledged that to manage risk issues, decision makers, whether in policy or in business, need to rely on robust expertise and sound science. This suggests that science is a neutral and disinterested activity, clearly delineated from the politics of the policy process. However, the scientific process itself may be subject to influence from various political, economic, social or geopolitical interests, and important and constant efforts are needed to make sure that science and politics are distinct activities. But once science and policy have resolved their own and distinct uncertainties, ambiguities and trade-offs, they can and need to communicate, in order to develop *evidence-based policies*.
As seen in section 1.1, risk issues are *framed* or *constructed* by organisations and risk managers. There may therefore be some ambiguity or controversy about them. The controversy often starts with varying interpretation of the scientific knowledge, but may also involve different forms of knowledge, different ways to address and assess the available knowledge, and different sets of values and ethical principles applied to the issue at hand. Hence, controversies may be quite productive; especially if they can challenge existing ineffective strategies or policies that create lock-ins and provide perverse incentives (Borraz, 2007).

What are the possible risk governance strategies to deal with controversies, when those hinder the effective deployment of risk management options? If and when public or private authorities do not put in place measures to adapt to, for example, sea level rise (and the increased risk of flooding) on the motive that scientists do not agree on anticipated level of rise and extent of damage, are there effective processes and instruments to resolve the conflicts and the resulting trade-offs?

Progress in disaster risk reduction in the Peruvian National System for Public Investment (NSIP)
The standardised use of pre-investment disaster risk and cost/benefit and cost efficiency analysis within the Peruvian National System for Public Investment (NSIP) is now being updated to promote the use of cost benefit analysis and other relevant approaches to public decision making as regards climate change adaptation, despite the level of controversies about actual consequences of climate change (UN ISDR, 2013).

Box 2: Disaster risk reduction in Peru

2.4 Challenges for public institutions

In their responsibility to effectively address threats and uncertainties, governments face a number of challenges. *Managing* existing risk is a normal task of all governments, and many have developed or are developing structures and processes for elaborating comprehensive all-hazard national risk assessment but there are two specific challenges for governments:
• communicating about risks and new threats,
• establishing processes for government agencies to deal with uncertainty and emerging, ignored or neglected risks in a proactive manner.

The challenge of effectiveness of risk management policy norms, procedures, guidelines and practices by governments also lies beyond the establishment of norms and procedures. It is about setting the right conditions that allow for the "right thinking" in an institution, in such a way that risk management is not a separate issue, but is intrinsically connected with decision-making across agencies.

Risk governance must be a joint, collaborative effort between technical experts and policymakers. The former may have some knowledge about issues of concern and thus they can provide recommendations to be addressed by the latter. Policymakers on their side, who have immediate short-term preoccupations, are seeking advice about how to deal with longer term issues.

Questions that technical experts face in their task of preparing policymakers to deal with complex and uncertain risks include:
• How to communicate complexity, uncertainty and ambiguity in such a way that policymakers will be able to act on the information provided?
• How to engage at the policy level on threats that, in their view, require more attention because their potential severity is higher than the tolerable level?
• How to overcome budget constraints?
• How to motivate investments in prevention and proactive risk management?

For policymakers, questions of immediate concern include:
• How to know which advice should be followed?
• How to deal with issues that may only materialise in the long term?

• How to act on the basis of uncertain knowledge?
• How to allocate scarce resources?
• How to satisfy various, possibly conflicting, interests?

3 Hallmarks and drivers of effective risk governance

This section will consider drivers of good or bad practices in uncertainty and risk management. In particular, what are the main factors of successful handling of the following aspects:
• Use of evidence-based information into recommendations and into policy decisions and actions
• Political priorities and the need to address short-term, often pressing, issues (between preventive disaster risk reduction and youth employment or health care, what is the priority?)
• Budget constraints, allocation of scarce resources and risk prioritisation (how can governments assign economic trade-offs?)
• Trade-offs between the need for inclusive participation and the need for leadership.

We propose several factors that are important for effective public sector risk governance, as *hallmarks and drivers of governance practices* or also *success factors*. Those responsible for disaster risk reduction are advised to consider them in order to address the objectives and challenges they face and identify what might be *missing* in the work done by teams of technical experts.

Successful risk governance relies on a number of factors related to the capability to assess and manage exogenous risks (risk "from the outside"), typically risks from natural hazards. But endogenous risks (risks "from the inside"), typically those that act to increase exposure and vulnerability also exist. Those are related to how institutions and individuals are organised in order to tackle risk from the outside. Thus "external" as well "internal" risks can threaten affected organisations and populations.

The eleven factors proposed in this section have been drawn from IRGC's report on Risk Governance Deficits (IRGC, 2009), that list obstacles to be overcome; IRGC's report on Contributing Factors to Risk Governance (IRGC, 2010), that discusses drivers and governance issues related to risk development; and project work about pro-active public sector governance of emerging risks, that makes suggestions for how to foster the development of appropriate attitudes and mindset toward effective risk management. We propose these factors as enabling conditions for effective risk governance structures and processes and some of the hallmarks and drivers of improved disaster risk management. The list is not intended to be comprehensive and encompass all conditions for improving disaster risk management, but each of the factors should be considered. We hope that, by providing an overview of some of the challenges that governments must overcome and how their risk governance, awareness, assessment, prevention, preparedness and management could be improved, practitioners at the international, national and regional/local level will find

suggestions for how to support and improve decision making for effective disaster risk reduction, and encourage a constructive and prospective tone nurturing positive evolution in risk governance.

Factors that prove to be critical for effective and successful evaluation of risks related to natural hazards and management of disaster risks include:

1. Communicating risk and mobilising the creation of an appropriate risk culture
2. Involving stakeholders, including public authorities, private sector and local communities
3. Developing transparency in goal setting and means to deal with uncertainty and conflicts
4. Designing and implementing schemes for ascertaining accountability
5. Learning how to make decisions under uncertainty: Introducing flexibility and adaptability
6. Removing perverse incentives and providing positive incentives to motivate positive action
7. Building into the systems appropriate safety margins to reduce vulnerability and increase resilience
8. Designing and implementing integrated risk management
9. Setting priorities, including for resource allocation
10. Budgeting risk management and public investment decisions
11. Preparing for the possibility that the "worst-case" scenarios may happen.

Box 3: Critical factors for successful disaster risk reduction

3.1 Communicating risk and mobilising the creation of an appropriate risk culture

Effective communication not only helps share information and foster dialogue but is also recognised for its capacity to trigger change in institutional and individual behaviours. Risk communication can support behavioural change and help individuals, institutions, organisations to adopt more risk-conscious behaviour, which help develop a risk culture in which risk taking, risk perception and risk management capabilities align. Risk culture is understood as the set of values, perceptions, norms, regulations, behaviours and attitudes in which risk taking and risk avoidance can develop in a viable, sustainable and fair manner.

Communication is a normal business for any government, but communication of risk is "risky" for governments. First because as authorities are responsible for providing safety and security, communicating about risk may be understood as a proof of failure, so some resistance or even denial may be expected. For example, communicating uncertainty or the unavoidability of a damage can create credibility issues for public authorities, and therefore result in inaction. This is even more the case when those authorities know that they don't have either the power or the means to deal with the risk. Then, as various actors have differing expectations and interpretations, it is difficult to design a unique communication message and the dialogue is complicated.

It is critical to establish that communication about natural hazards and disaster risk is one important component of successful risk management strategy. This implies, initially, recognition by governing bodies of a problem of national significance that needs to be addressed. Whether a government is dealing with an existing threat such as risk of flooding in current low-lying areas or a concern about future potential but yet unclear impacts of climate change such recognition is crucial to moving forward.

New Zealand

"The National Hazardscape Report (2007) provides an overview of the 17 most common types of hazard in New Zealand and the principal means for managing them. Information on hazards associated with a particular parcel of land or property may be linked to its legal title documents. This Land Information Memoranda (LIM) or Project Information Memoranda (PIM) is available from the local council to any party. This information may have a bearing on people's decisions to purchase a property, and indicate restrictions on further development or changes in use. Public information campaigns (leaflets, media) are based on the steps that citizens should take to help protect themselves from nationally generic and locally specific hazards and risks". (HFA New Zealand, 2012)

Box 4: Communicating hazards and risks in New Zealand

3.2 Involving stakeholders, including public authorities, private sector and local communities

It has often been observed that bringing together all actors who have a stake in a risk issue, i.e. an interest in its management, supports the development of decisions which are more robust in the long term. When emerging threats are new or not well known and it is necessary to make decisions in the absence of sufficient knowledge, it is useful to engage collectively in their analysis, evaluation and management. Inclusive and multi-stakeholder governance is a factor of effective risk governance.

The UN ISDR has stated again in the 2013 Global Assessment Report that engagement and partnership between public authorities, non-governmental actors, civil society and the private sector is a key driver of progress. Making information on disasters available to all stakeholders (through networks and the development of information sharing systems) is a core indicator toward the building of a culture of safety and resilience at all levels (UN ISDR, 2013).

3.3 Developing transparency in goal setting and means to deal with uncertainty and conflicts

Transparency is a quality that can help that strategic goals are met. Lack of transparency may lead to lack of resilience because of inappropriate behaviours. If there are gaps between the values of an institution and its official statements and principles on the one

hand and its practice on the other hand, it will be more difficult to deal with conflicts. A lack of transparency is a contributing factor to risk emergence and amplification.
Developing transparency implies, for example, sharing assessment and management efforts with stakeholders and the public as much as possible. Being open and transparent can help create a climate of trust which is necessary for dealing with the inevitable trade-offs that need to be made. Creating transparency is closely associated with creating accountability, which it helps to foster.

Developing transparency and accountability in Indonesia

"One big challenge […] is the absence of clear regulations that govern disaster budget at the national and local levels. This has made it difficult for decision makers at the local level to allocate disaster budget. The government needs to formulate clear regulations related to disaster budget and make funds disbursement more responsive and easier, while still maintaining transparency and accountability. Regions need to be encouraged to formulate contingency plans and allocate contingency budgets. Risk transfer mechanisms and instruments need to be further explored and developed in cooperation with international development partners". (HFA Indonesia, 2012)

Box 5: Transparency and accountability in Indonesia

3.4 Designing and implementing schemes for ascertaining accountability (in order to create a shared responsibility)

It is only when institutions and individuals are made accountable that risks can eventually be managed, especially when the risk is not sufficiently familiar or developed. Ascertaining accountability can lead to the establishment of risk ownership, and risk managers can be rewarded for their effective actions.

Because it is difficult to establish who is accountable for a problem or a risk which has not yet materialised, it is generally relevant to establish a place (an institution, a committee or a process) whose role is to coordinate control that procedures are in place, that decisions are implemented and that suggested good practices are followed.

There are various institutional ways of assigning and sharing risk ownership for natural hazards and threats. In general, governmental agencies and sub-national authorities are assigned the management of risks that affect the public or large parts of the population. However, people should in general learn to accept a certain level of personal risk and address it individually or on a shared basis with their neighbours. Approaches to "whole-of-community" involvement such as developed by US FEMA can encourage risk sharing, in order to lessen the burden to all affected parties (US FEMA, 2012).

Hurricane Katrina

- Confusion of responsibilities between federal, state and local responders.

The multi-level nature of crisis response in the US assumes a gradual expansion of government involvement as local and then state responders are required to give assistance. However, this "pull" approach encounters difficulties when state and local capacities are damaged or overwhelmed. In the case of Katrina, federal responders waited too long for specific requests for aid from state and local authorities instead of taking a more aggressive "push" approach.

Dispersed responsibilities also complicated efforts to set up a central command. Confusion about responsibilities was increased by the existence of three major federal operational commands: the Joint Field Office and Federal Coordinating Officer; the Principal Federal Official; and Joint Task Force Katrina. The lack of a clear directing authority encouraged responders to "freelance" without coordinating with appropriate authorities. For example, the heroic efforts of the Coast Guard in search and rescue have been rightly praised, but there was little effort to coordinate with FEMA, state agencies, the National Guard or the Department of Defense, which were also running search operations. As a result, there was duplication of effort in some neighbourhoods and a lack of attention to others.

The network of responders also includes NGOs, and it is important to recognise the additional challenge of coordinating their activities. In Katrina, the Red Cross worked closely with FEMA, but still had difficulties in coordination. The Red Cross communicated logistical needs to FEMA, but found that FEMA often did not supply reliable information, failed to deliver promised supplies or delivered inadequate amounts too slowly. Such problems are indicative of more serious challenges in incorporating NGOs into the response network (Moynihan, 2008).

Box 6: Hurricane Katrina - confusion of responsibilities

3.5 Learning how to make decisions under uncertainty: Introducing flexibility and adaptability in decisions, in order to adapt to changing conditions and knowledge

In the face of uncertainties, it is useful to avoid irreversibility. Institutional mechanisms that allow for adaptation of regulation or policies as new knowledge about a potential threat is gathered have the immense value of avoiding lock-ins. For example, they set goals (e.g. flood entry strategies in buildings in flood prone areas) instead of imposing a technology or a type of product (e.g. specific building materials). They encourage innovation as one risk management option. They allow trials and errors and look forward, instead of imposing strict regulations which may create perverse incentives. In engineering, "flexibility in design" (Neufville & Scholtes, 2011), is an effective way to manage uncertainty. It enables system managers to adapt to evolving environments, to avoid bad situations and take advantage of emerging good opportunities. It is a strategic approach that views systems management as a dynamic process in which designers necessarily add or change capacities and capabilities over time. Flexibility in design is most desirable when the future is most uncertain, exactly when options are most valuable.

3.6 Removing perverse incentives and providing positive incentives to motivate positive action

Perverse incentives are those that induce counterproductive or undesirable behaviours, which can lead to negative, unintended consequences. Such incentives may lead to the emergence of risks, either by fostering overly risk-prone behaviours or by discouraging risk prevention.
One of the central insights of economic reasoning is that people will take more or less risk depending upon what incentives and disincentives are present for risk taking. For example, remuneration schemes or tax deductions for certain activities should provide incentives to adequately balance opportunities and risks. Ideally, economists argue, the incentives faced by individuals should be arranged so that the overall system produces the type and amount of risk that society desires. When key decision-makers face tangible and intangible incentives to incur more (or less) risk than best serve the interests of affected individuals or society, it should not be surprising that poor risk tolerance decisions are made. Incentives are "perverse" when there is misalignment between the incentives that market actors face and the amount of risk that society desires – this leads to counterproductive or undesirable behaviours.

Perverse incentives may appear when a "checklist mentality" exists within an organisation, with people striving only to meet pre-set indicators, rather than adapting goals to suit changing circumstances and attempting to get the best results possible (World Bank, 2005). The measurement culture that is common today – where indicators are chosen on the basis of their being easily measured or quantified – also tends to favour the creation of simple incentives, which may not be the most appropriate.

Illustrations of such perverse incentives are well documented in both the history of risk management and contemporary challenges. Perhaps the most pervasive form of perverse incentive is the encouragement to seek short-term gain – political or financial – at the expense of long-term well-being for the economy, public health, society or environmental quality. When the time course of an emerging risk is measured in decades or centuries rather than weeks or years, it may be particularly difficult to design reward systems that encourage long-term risk management.

Perverse incentives that attract new risk

Thailand

"Thailand's powerful Board of Investment (BOI) encouraged investment in three promotional zones—through tax privileges; sectoral incentives through BOI-identified priority projects; and privileges provided by the Industrial Authority of Thailand (IEAT). Although privileges offered in Zone 1, the areas surrounding Bangkok, were lower than those offered in regions further inland, they were still substantial, including corporate tax exemption for 3 years and a 50 percent reduction on import duty for machinery. Although this policy was successful in attracting FDI, it led to massive increases in flood exposure. Much of the investment took place in former rice paddies located in floodplains of the provinces, which paved the way for the 2011 Chao Phraya flood disaster". (UN ISDR, 2013), page 215.

China

"In May 2010, extreme rains killed at least 86 people in Guangzhou and disrupted the lives of 8 million. The most damaging storm in 30 years, which cost Guangzhou US$85 million, challenged the city's flood-control drainage systems and damaged 256,800 acres of farmland. Yet, despite these apparent risks, investors and their advisors do not rank them on par with other investment considerations such as corporate tax breaks, labour laws and costs and other direct business costs. Recent risk analyses of Guangzhou and Guangdong provinces do not refer to disaster risk other than the possibility that companies could be held responsible by government or communities for environmental impacts or disasters. Instead, there are broad incentives for increased investment in flood-prone areas." (UN ISDR, 2013), page 216.

Box 7: New risk taking

It is easier to pinpoint the pervasive problem of perverse incentives than it is to prescribe solutions that produce more good than harm. The basic principle is to ensure that people making decisions about risk have some stake in the game, both benefit on the upside and cost on the downside. Where possible, the stakes need to be symmetrical, or at least linked to the organisation's or society's preferred risk tolerance posture.

In the environmental field, solutions are gravitating toward arrangements where individuals and companies pay for any destruction of critical habitat and for threatened and endangered species. Those people who deliberately decide to live, work or build assets in natural risk prone areas should be financially discouraged to do so and helped to move to other areas. The theme is to align incentives with the quest for sustainability. Insurance companies and local authorities are on the front line to provide disincentives to unsustainable behaviours if land-use regulations are not adopted and enforced (IRGC, 2010).

Positive incentives are also needed to encourage good behaviours. Those include subsidies and fiscal benefits to avoid exposure and reduce vulnerability.

3.7 Building appropriate safety margins into the systems, to reduce vulnerability and increase resilience

The level of connectivity in many of today's social and technical systems is greater than in the past and the interconnections are increasing. The pace at which these systems operate is becoming faster and many are operating under higher levels of stress. This can lead to tight-coupling of components within systems and to loss of safety margins – a loss of slack or buffering capacity that leaves systems more vulnerable to disruption and thus increases the likelihood that new risks will emerge.

Fortunately, risk managers have several options to minimise undesirable outcomes that can result from tight coupling and the loss of safety margins. Building critical system infrastructures with more redundancy and resilience (where each component in the system has not only the ability to draw on other components for support, but also, crucially, a degree of self-sufficiency to fall back on in case of emergency) can limit cascading effects. However, specific incentives are often needed to encourage these measures, which may be costly to put in place and provide no benefit except in case of emergency (Homer-Dixon, 2006). Making investments such as these can be problematic as it involves resisting pressure from shareholders or tax-payers to reduce what is seen as unnecessary spending – such pressures often lead organisations to reduce their safety margins to dangerously low levels.

In general, organisations that promote an attitude to safety that rewards conscious behaviours is better equipped to deal with surprises such as those occurring as a result of disaster from natural hazards (IRGC, 2010).

3.8 Designing and implementing integrated risk management

With regard to emerging hazards and risks, with various origins and causes, it is often difficult to identify which impacts they will have across a variety of fields and how they may affect various actors. Additionally, the actions of various stakeholders may interact. There is often complexity and uncertainty and it is useful to frame the issue under consideration and set the boundaries of the analysis in such a way that it will be possible to identify and understand the various interactions. An integrative approach is useful.

With regard to an inter-agency approach to integrated risk management, so called "cross-cutting" or systemic risks in particular require specific attention and the integration of various governmental agencies to develop effective management options and implement decisions. It is important to learn how to integrate the actions of different government sectors in the assessment, communication and management of risks that affect them all.

All-hazards national risk assessment and integrated country risk management

Some governments have established structures and processes for "all-hazards" national risk assessments (that provide the evidence base for integrated assessment of risks and their impacts); "whole-of-government" approaches to integrated risk management (that involve all government agencies in the management of a risk that does or may affect them;) and "all-community" risk management (whose purpose is to involve communities and the public in the management of uncertain, complex issues that require wide-ranging multi-stakeholder and collective action). These structures and processes are designed to discuss with all potentially affected parties the identification of new threats, issues or interactions between risks. Information on these approaches can be found on various public websites.

Box 8: Integrated risk management in government

A multi-hazard approach has been considered in policy development exercise in Rwanda.

"An evidence-based Comprehensive National and District Disaster Risk Analysis Project fund has been approved jointly by the World Bank and European Union. Hazard mapping will be carried out by modeling earthquakes, volcanic eruptions, landslides, floods, epidemics, storms and droughts. The project is expected to produce a National Risk Profile and a GIS-based National Disaster Risk Database among others." (HFA Rwanda, 2012)

Box 9: Multi-hazard mapping and national risk profile in Rwanda

3.9 Setting priorities, including for resource allocation

It is not possible to address all potential threats to the security and safety of a population or economy. Institutions routinely select those threats whose impact may be most severe. To this end, they develop criteria and indicators (that may indicate important thresholds) and other tools and processes for determining when a potential threat becomes serious enough to become the focus of attention and necessitates risk avoidance or reduction measures.

This requires the understanding of that entity's risk tolerance or appetite: how much risk it can take, which determines the point beyond which (a) risk becomes too great to absorb and (b) additional risk mitigation or prevention measures need to be taken ex ante. A better understanding of the loss threshold beyond which public and private institutions as well as individuals must engage in proactive risk management must precede actual risk management decisions. Defining that level (threshold) depends on many variables, which communication can help to identify. These variables include: cost-benefit analyses but also preference analyses (in order to influence risk-sensitive behaviour).

3.10 Budgeting risk management and public investment decisions

It can be very difficult for governments to allocate budget to disaster risk reduction. The key to success is to consider it as in investment in the future, motivated by long term considerations, and to design and use innovative financing mechanisms, such as those developed in the G20/OECD methodological framework for disaster risk assessment and financing (OECD, 2012). In any case, clear political leadership is needed, which raises again the question of individual motivation to engage and feel accountable to overall disaster risk reduction.

G20 / OECD methodological framework for disaster risk assessment and risk financing

The framework is intended to help finance ministries and other governmental authorities in developing more effective disaster risk management strategies and, in particular, financial strategies, building on strengthened risk assessment and risk financing. While the framework does not specifically explore disaster risk reduction policies, it highlights the strong interconnections between disaster risk assessment, risk reduction and financial management, key building blocks for dynamic and continually evolving disaster risk management strategies.

Box 10: OECD methodological framework for disaster risk assessment and risk financing

Mexico Fonden: Investments in risk reduction, the case of Tabasco, Mexico

"*The Government of Mexico, with support from the World Bank, has initiated the assessment and monitoring of public investments in disaster risk reduction at the federal level. Investments are analysed as to how hazard and risk information is collected and used in governmental decision for disaster risk reduction and prevention. The impact of existing investments is monitored and mechanisms are implemented to prepare future investments in prevention and disaster risk reduction*" (UN ISDR, 2013).

"*National Disaster Fund (FONDEN) of Mexico is currently investing between 25 and 30 per cent of its resources in building back better. These investments in risk reduction can enable a significant reduction in disaster losses. The floods in the State of Tabasco in 2007 (UNISDR, 2009) caused losses equivalent to 30% of the state's GDP. Following the disaster, FONDEN financed a range of studies of the regions hydrology, urban development and land use which led to the implementation of an integrated programme of investments to reduce disaster risk. The value of these investments became apparent in the 2010 floods in the state. As Figure 6 below shows more rain fell in the state in 2010 than in 2007. However, the direct and indirect losses were only a fifth of those in 2007.*" (UN ISDR, 2013)

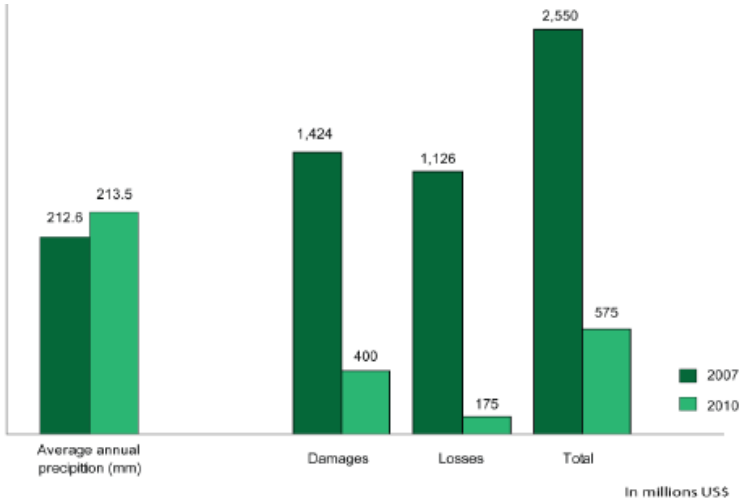

Figure 6: Losses from floods in Tabasco, Mexico, in 2007 and 2009. Source: FONDEN, UNISDR

Box 11: Mexico FONDEN

3.11 Preparing for the possibility that the "worst-case" scenarios may happen

People tend to believe that "bad things only happen to others". Building awareness that this is wrong could help each individual, as well as the organisations that represent them, to prepare for unexpected events.

Past experience has taught us to expect surprises. No one can reliably predict the future. No matter how good an early warning system is, or how thoroughly risk assessments are conducted, it is important to acknowledge that risk assessment relies on decisions about what, conceivably, could go wrong. In setting the boundaries for the formal risk assessment process, decision-makers need to remain conscious of the fact that surprises, or events outside expected paradigms (so called "Black Swans"), are always possible and that it is necessary to break through embedded cognitive barriers in order to imagine events outside the boundaries of accepted paradigms (see deficit "A10" in Figure 4).

Standard responses are sometimes not sufficient or adequate to deal with risks that escalate into unexpected crises (see deficit "B13" in Figure 5). Risk managers must be able to recognise when they are faced with such risks, such as when they have to face natural disasters or breakdowns of large critical networks. They should also acknowledge that systems and processes which work well today may not work well when dealing with unexpected and unforeseeable events. This means that decision-makers' capacity to respond to unexpected events depends on their flexibility – for example, their authority or willingness to reallocate resources when required – and the level of resilience and redundancy built into their organisational systems. The greater the redundancies and resilience, the better the system will react to unexpected surprises, giving risk managers more time to adapt to new circumstances.

For example, actions taken in light of the potential risks posed by the "Millennium Bug" included building redundancies by installing multiple back-up systems and increasing resilience by decentralising certain critical infrastructures. Although no major problems surfaced on 1 January 2000, these actions were not without benefit, as they had a major effect on risk management and contingency planning in the information technology industry (Cumming, 2002), (IRGC, 2009).

Conclusion

Risk governance deals with risk decision-making in complex and changing contexts. It identifies relevant systems and their interactions. It aims to improve the effectiveness and quality of outcome. Many of the obstacles to disaster risk governance relate to a poor understanding of what motivates people and organisations to act for the common good. For example, we don't understand well how people interpret the risks of various natural hazards related to their actual choices and behaviour. We need to learn how to overcome the bias of decision-making toward the short-term, or toward the pursuit of private interests to the detriment of the public interest. Understanding decision-making processes and how these affect vulnerability and resilience is necessary to avoid that hazards become disasters or that the consequences of risk are amplified.

UNISDR seeks to build upon the extensive data collected through the Hyogo Framework for Action (HFA) and develop a decision-support mechanism that would assist governments in domestic intra-disciplinary planning and budgetary decision-making for effective risk management. We hope that this paper can contribute to understand some of the core elements of the risk governance progress and of the enabling conditions for effective decisions.

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