



Risk issues related to human health, safety and the environment...



and IRGC core concepts, tools and applications for risk governance strategies to better deal with them. Applications to:



New technologies
(e.g., nanotechnology, synthetic biology)

Climate change
(e.g., solar radiation management)

Ecosystem services
(e.g., loss of pollination services)

Energy
(e.g., governance of bioenergy policies, carbon capture and storage)



IRGC's Risk Governance Framework

Helping policymakers, regulators and risk managers understand the concept of risk governance and apply it to their handling of risks. The framework offers an interdisciplinary and multi-level governance approach detailing 5 elements: risk pre-assessment, risk appraisal, risk characterisation and evaluation, risk management, risk communication

The IRGC framework specifically highlights certain important features to risk governance:

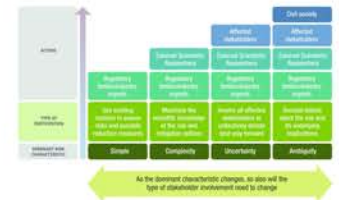
Role of the Context

The framework stresses the broader social, institutional, political and economic contexts that must be taken into account in risk-related decision-making.



Stakeholder Involvement

The involvement of stakeholders is both to ensure that the risk handling process is inclusive and responsive to those affected by it and to maximize the effectiveness and acceptability of the decisions that are made.



Risk Characterisation & Evaluation

Following the appraisal phase and prior to the management phase, it is crucial that **decision makers evaluate the risk**. It is at this point that a **judgment on the acceptability and tolerability** of a risk is made, based on **values and evidence**.



Risk Governance Deficits

A Risk Governance Deficit is a deficiency or a failure in risk governance structures and processes. It prevents the risk from being handled in a fair and efficient manner. IRGC has worked to identify and describe the causes of the most commonly occurring risk governance deficits with the aim of helping governments, regulators and private sector actors to better understand how these deficits occur and how they can be minimized.

Examples of risk governance deficits and their impacts:



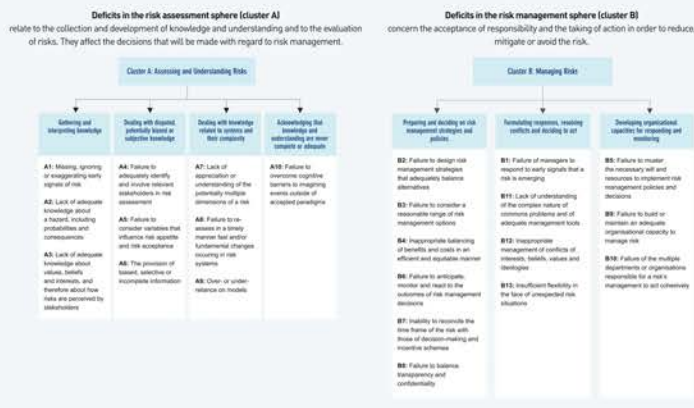
The response to Hurricane Katrina: the poor handling of the crisis and the misunderstanding of the dynamics of complex systems;

Bovine Spongiform Encephalopathy (BSE): false assurances from the UK government and overstating or understating the degree of certainty;

Risk Governance of genetically modified crops in Europe: the failure to address issues of public perception and the subsequent failure to set an internationally coherent set of regulations;

Fisheries depletion and collapse: the absence of a cohesive strategy or norms to deal with problem of the commons.

The deficits are grouped into 2 broad categories that reflect the generally-agreed distinction between risk assessment and risk management:



Contributing Factors to Risk Emergence

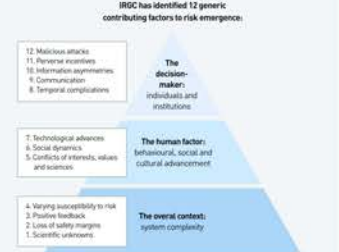
Sources, drivers and governance issues related to why risks emerge



IRGC defines as "emerging" a risk that is new, or a familiar risk that becomes apparent in new or unfamiliar conditions.

Emerging risks are issues that are perceived to be potentially significant but which may not be fully understood and assessed, thus not allowing risk management options to be developed with confidence. There are a set of factors that contribute to creating "fertile ground" from which risks can emerge. "Contributing factors" can operate in two directions, either to amplify or to attenuate the likelihood and/or severity of the emerging risk and its consequences.

COMPLEX SYSTEMS often give rise to the emergence of systemic risks. Their behaviour involves chance variation and is therefore often unpredictable and hard to control. Some traits common to complex systems, such as non-linearity or threshold behaviour, have the effect of increasing the unpredictability of the system's future behaviour and, as a result, make risk anticipation difficult. On the other hand, some traits such as adaptability and self-organisation may act to make risk emergence less likely, as they can confer on the system a coping capacity, allowing it to withstand some potentially destabilising perturbations.



Example of IRGC's work: "Slow-developing catastrophic risks"



Risk issue: Slow-developing catastrophic risks (SDCRs) evolve slowly in complex systems, making changes less perceptible. Potentially catastrophic consequences may be so far in the future that immediate action is dis-incentivised. However, in complex systems, small changes can sometimes lead to changes in behaviour and regime shifts, from where it is often difficult to reverse the course of change.

Examples: desertification, biodiversity loss or demographic imbalances.

Role of IRGC: To improve the governance of these types of risks, IRGC is interested in identifying mechanisms by which:

- scientists can better anticipate the evolution of such risks;
- decision-makers are better equipped to act.

What can be done? Possible planning approaches include early warning systems, thresholds approach (using modelling), scenario development, and resilience thinking and building. Policy makers need to use the advanced analytic and mathematical tools available to anticipate and mitigate risks. They should not be reticent to use them out of fear for public blame if the tools are not as effective as hoped.

By whom? Analysts and policy-makers both need to make changes in order to develop more effective policies with regard to slowly changing risks with potentially catastrophic consequences.

For analysts, this includes:

- better communication
- recognition of the agenda of politicians and the need to identify any short-term benefits of long-term policies
- recognition that rationality is not the only basis for making decisions
- taking care to avoid over-claiming

For governments, this includes:

- being as rational as possible
- identifying who can "own" the SDCR
- learning how to better manage moral hazards
- working to improve risk-absorbing systems and building resilience
- establishing political and business links between risk and opportunity
- providing positive incentives and rewards for "good behaviour"
- communicating effectively