



CALL FOR PAPERS

Global Assessment Report on Disaster Risk Reduction 2022

The Call

As part of the development of the GAR 2022, the United Nations Office for Disaster Risk Reduction (UNDRR) is issuing a Call for Contributing Papers that present research, oriented by Chapter and Subchapter, addressing the issues outlined hereafter.

Background

The UN Global Assessment Report on Disaster Risk Reduction (GAR) is the flagship report of the United Nations on worldwide efforts to reduce disaster risk. The GAR main report is published every three years by the UN Office for Disaster Risk Reduction (UNDRR) and is the product of the contributions by nations and public and private science and research partners, amongst others.

It takes stock of global progress in implementing the targets and priorities of the Sendai Framework for Disaster Risk Reduction and related Sustainable Development Goals (SDGs), and of current and future risk trends as represented by the Global Risk Assessment Framework (GRAF). The GAR represents cutting edge innovative research and practice in disaster risk management. All with the objective to support risk reduction globally.

Developed through an extensive set of partnerships with international organizations, governments, businesses, academic and research institutions, the GAR is both an ongoing process of generating evidence, knowledge and policy engagement, as well as an opportunity to showcase trends and report on progress.

In so doing, it promotes access to risk information for decision making, identifies feasible practices and generates policy guidance and recommendations that can be employed at the local, national, regional and international levels. The report contributes to the Regional and Global Platforms for Disaster Risk Reduction, and the High-Level Political Forum on Sustainable Development. Progress reporting that is provided by Member States through the Sendai Framework Monitor System, is captured in the GAR as well as the annual SDGs Report.

Structure

The 2022 UN Global Assessment Report on Disaster Risk Reduction (GAR 2022) entails four PARTs:

PART I – Reaching the Target - Realising the outcome, goal and targets of the Sendai Framework, the 2030 Agenda and risk-informed sustainable development: An update on global progress in implementing the outcome, goal, targets and priorities of the Sendai Framework and disaster-related



Sustainable Development Goals (SDGs) and targets. Comprehensive and contextualized analysis of Sendai Framework data, national loss accounting data and additional data (e.g. health, water, education, inequality), examining synergies and trade-offs, transitions and interactions with systemic risks and resilience.

PART II – Unpacking and revealing characteristics of vulnerability, exposure and managing systemic risks: An investigation and examination of exposure, as well as vulnerabilities – including of social-ecological systems – and its dynamic characteristics. The PART will include exploration of our evolving understanding of their relationship to risk, including systemic risks.

PART III – Risk informed decision making in the context of uncertainty: will examine behavioural aspects of understanding and managing risk and uncertainty. It will explore how risk perception drives behaviour and decision making, and how this could be considered in effectively communicating risk and designing disaster risk reduction interventions.

PART IV – Managing and governing systemic risks – emergent solutions: An exploration of effective, emergent systems-based approaches to systemic risk assessment, management and governance for sustainable and resilient societies and ecosystems. Through known and vetted practices and case studies, this PART will examine the solution space. It will highlight successes in fomenting societal transitions and explore overarching principles that can guide such systems-level transformations, navigate trade-offs, and provide examples of effective approaches to bring forward portfolios of solutions.

Purpose

The purpose of this Call for Contributing Papers is to encourage additional research into specific topics covered in the four Parts, which will complement the Chapters under each Part by providing additional insights and perspectives, allowing regional and cultural representation of inputs.

Research will *inter alia* provide insight into synergies and trade-offs between global agendas, the drivers of vulnerability and exposure, human factors in understanding risk and taking decisions in contexts of uncertainty, and identifying good practice in understanding and managing systemic risks.

Common Themes

GAR 2022 will apply the following lenses throughout the report. Authors are invited to consider these when submitting their abstracts.

- **Synergies and trade-offs in pursuing risk resilient development pathways** – The global community has 10 years to reach the goals and targets of the 2030 Agenda for Sustainable Development, the Sendai Framework, the Paris Agreement and the New Urban Agenda. Implementing the different agendas in parallel can lead to synergies but also trade-offs. GAR 2022 will assess those trends and provide practical recommendations for practitioners to craft win-win scenarios, pursuing risk-resilient development pathways.



- **No more magic numbers - managing uncertainty and assessing systemic risks** – GAR 2022 will examine pathways towards systemic risk assessment and systemic impact scenarios, which will ultimately support governments in priority setting and decision making that considers all risk and its systemic impact. It will also provide guidance to decision-makers about how to understand uncertainty and better weigh the impact of their decisions.
- **Beyond risk data and information – how human behaviour drives decision making** – GAR 2022 will assess the impact of human behaviour on the understanding of risk and the management of risk-related decisions. It will make recommendations as to how policy and decision-makers can make risk communication and designing disaster risk reduction interventions more successful, especially when faced with systemic risks.
- **Societal transitions and systems-level transformations in managing systemic risks**– consistent with the theme of the 2022 High Level Political Forum on Sustainable Development – *Achieving sustainable and just economies and promoting sustainable urban development*, GAR 2022 will define overarching principles that can guide systems-level transformations¹ and key societal climate transitions ² leading to resilient societies and ecosystems through enhanced understanding of, and ability to manage, systemic risks.
- **Navigating new normals – risk management in a COVID-19 world** – The current COVID-19 pandemic and associated responses is provoking or exacerbating regression in both efforts to build resilient societies and nurture a culture of risk reduction, as well as progress in realising the goals and targets for sustainable development and climate change adaptation and mitigation. Anticipating further world-changing systemic events of this scale, GAR 2022 will explore what risk management and risk governance approaches, institutions and structures must encompass if they are to be fit for purpose in a world living with COVID-19 and which must anticipate the realisation of further systemic risks.

SYSTEMIC RISKS

Mismatches have occurred between the state of rapidly changing social, ecological and technological environments during the acceleration of the Anthropocene, including how people think about and act upon them. In such a complex, hyperconnected, overheated, fast-paced world, social and ecological systems become fragile and reach their tipping points. As the nature of risk becomes increasingly systemic, so the way in which we think and act also needs to be more systemic in order to sustain the health and well-being of people and planet. In a “full world”³, traditional concepts of probability and risk management cannot be applied successfully. We cannot approach solutions with a mindset that created the problem in the first place.

¹ including in governance, institutional capacity, finance, lifestyle and behaviour

² including energy, land and ecosystems, urban, infrastructure and industry

³ H.E. Daly (2005)



Doing so has in fact led to the illusion of the possibility of pursuing business as usual, just better and more efficiently; but in so doing we merely propagate the conditions for systemic risks to be realised (e.g. COVID-19, climate breakdown, etc.). One challenge to resolving this resides in our inability to balance efficiency with redundancy – slack and buffers, uncertainty and in some cases indeterminacy of thresholds, inconsistent assessments methods, and how we overcome disincentives and inertia to sustaining collaborative action (shaped by culture, trade-offs, values etc.).

Authors may consider systemic risk types⁴ that reflect the complex causal structures and dynamic evolutions (multiple causes and effects with feedback mechanisms) inherent to these risks. Noting that the very nature of systemic risks implies that their effect manifest in / cascades to various domains, and that with increasing connectivity this can result in a system becoming fragile and ultimately to system failure or collapse.

Improving our understanding and management of **the systemic nature of risk will be a central theme of GAR 2022**. GAR 2022 builds on the discourse presented in GAR 2019 which acknowledged the embryonic nature of our understanding and address of systemic risks. Authors seeking to further knowledge and enquiry in respect of the systemic nature of risk, should familiarise themselves with Chapter 2 in particular, and while not presented as definitive, use the following definition from GAR 2019 for the purposes of this Call:

Systemic risk - *a risk that is endogenous to, or embedded in, a system that is not itself considered to be a risk and is therefore not generally tracked or managed, but which is understood through systems analysis to have a latent or cumulative risk potential to fundamentally impact overall system performance when some characteristics of the system change.*

⁴ for instance: a) Health related (COVID-19); b) Financial; c) Climate change, biodiversity & ecosystems, including oceans; d) Natural hazards; e) Cyber/Internet. This typology follows from different types of flows in the anthropogenic and natural metabolism (socio-ecological systems).



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PART I Reaching the Target - Realising the outcome, goal and targets of the Sendai Framework, the 2030 Agenda and risk-informed sustainable development

Chapter 1 Aiming for the Targets - *What does national reporting data and good practices tell us about national progress towards achieving Sendai targets*

Chapter 1 of PART I will present the current state of progress regarding the implementation of the Sendai Framework and its global targets, putting forward global, regional and national disaster loss and impact trends. Assessment of disaster losses will, to the degree possible, go beyond direct losses to include indirect losses also.

1.1 Global, regional and national disaster loss and impact trends

Papers should address one or more of the below topics:

- Innovative approaches for the integration, analysis and visualization of disaster risk-related data to identify trends, patterns and relationships of national disaster loss and impact over time and identification of population groups that are most vulnerable to disaster risks.
- Innovative approaches that show disaster impact on systems, such as energy, food, health, transport systems etc. to be used for policy action and planning.

1.2 Quantifying indirect losses and impacts of disasters – building the picture of systemic consequences

Papers should address one or more of the below topics:

- Examining social and economic indirect losses of disasters, such as disruption of business, employment, etc...
- Examining environmental indirect losses and impacts, and/or indirect losses and impacts to human life.

1.3 Case studies and best practices in reducing risk and loss trends

Papers should address one or more of the below topics:

- Examples of platforms providing access to analysis-ready, geo-referenced disaster-risk data from multiple sources, organized according to common vocabularies, classifications and frameworks (e.g., the fundamental geospatial data themes).
- Evidence of proven disaster risk reduction measures that have reduced disaster risk and/or losses.
- Examples of low-cost practices in reducing risk and loss trends.



1.4 What does risk-related data from the SDGs and the Paris Agreement show?

Papers should address one or more of the below topics:

- Evidence of successful implementation of disaster risk reduction strategies by applying development or climate change-related data
- Evidence of successful reduction of losses in lives, economic losses, disruption to basic services and critical infrastructure, and lives and livelihoods by applying development or climate change-related data
- Evidence of successful implementation of Early Warning Systems and the broad availability of risk information by applying development or climate change-related data
- Evidence of successful international cooperation on disaster risk reduction by applying development or climate change-related data

Chapter 2 Interlinkages and Synergies in pursuing risk-resilient development pathways

Chapter 2 will focus on where sustainable development meets disaster risk reduction to create risk-resilient development pathways. In order to achieve the Targets of the Sendai Framework, State and non-State actors at national and local level should prioritize action which both accelerates sustainable development and creates or builds resilience, but at minima does not create additional risk.

However, global action to meet the SDGs is not advancing at the speed nor scale required to deliver the goals by 2030. This prompted the UN Secretary-General to mark 2020 as the beginning of the 'Decade of Action' that 'calls for accelerating sustainable solutions to all the world's biggest challenges - ranging from poverty and gender to climate change, inequality and closing the finance gap'.

The Chapter will assess the interlinkages and synergies in pursuing risk-resilient development pathways, examining challenges as well as success stories. It will provide recommendations for countries to consider in their efforts to simultaneously realise the goals and targets of the 2030 Agenda and the Sendai Framework by 2030, in the context of the climate emergency and imperilled ecological systems.

2.1 Interlinkages and Synergies – possibilities and trade-offs in pursuing the global goals and building resilience

Papers should address one or more of the below topics:

- Achieving the SDGs through risk-resilient development pathways – countries' experiences with prioritizing policies that accelerate sustainable development while creating or reinforcing resilience.



- Examining synergies – what are the concrete actions for reducing disaster risks that can help on a path to sustainable development?
- Building a data system that can support an effective and timely response to disasters – an example from a data system that can address all immediate needs to deliver a response to a disaster; and an example of how a data system should look like for a country to respond to a pandemic (highlighting needs to address different population groups).
- Lessons learned from trade-offs in pursuing the global goals and building resilience.
- What are the main trade-offs when pursuing the global goals and trying to build resilience and reduce risk simultaneously?

2.2 Synergies and interlinkages – possibilities and trade-offs in pursuing the Paris Agreement and the SDGs and the implications for the Sendai Framework

Papers should address one or more of the below topics:

- Global Goal on Adaptation (GGA) or the adaptation equivalent of Sendai Framework targets and the possible impact if either one is not reached or how they can mutually reinforce each other.
- Global Stock Take (GST) which will start in 2023 – and how this reflects linkages with Sendai targets and are there information which we can connect.
- Results of the NDC submission and re-calculation of the global ambition on global average temperature increase and what this means as regards risk reduction and resilience-building efforts.
- Pandemics, climate extremes and slow onset events – specific examples on how these exacerbated risks and their implications on global targets.

2.3 Policy agendas separated by shared outcomes – how distinct frameworks provide opportunities, and how to align these opportunities

Papers should address one or more of the below topics:

- Opportunities for creating resilience and disaster-resilient development pathways from the Samoa Pathway.
- Opportunities for creating resilience and disaster-resilient development pathways from the New Urban Agenda.
- Opportunities for creating resilience and disaster-resilient development pathways from the Environmental Conventions and International Environmental Agreements.
- Opportunities for creating resilience and disaster-resilient development pathways from the Addis Ababa Action Agenda.



2.4 Breaking the cycle of trade-offs for a win-win

Papers should address one or more of the below topics:

- Examples of win-win actions and measures in creating risk resilient development pathways.
- Research showing links between national disaster risk reduction strategies and priorities vis-à-vis their effectiveness (or not) in dealing with a recent climate extreme and/or slow onset event.
- Direct and indirect losses and impacts of disasters vis-à-vis losses and damages due to climate extremes – letting the numbers talk and innovative ways to reduce future risks that contribute to these losses/impacts/damages, including through comprehensive risk management or other frameworks/approaches.
- Specific in-country innovative approaches that (attempted/successfully) break long-standing cycles.
- National Disaster Risk Reduction Strategies and National Adaptation Plans – specific examples on how they were useful and how they helped countries to better prepare for and reduce risks to climate extremes alongside other hazards.



PART II Unpacking and revealing characteristics of vulnerability, exposure and managing systemic risks

Progress in meeting the global goals and outcomes of the Sendai Framework, the 2030 Agenda and the Paris Agreement has been subjected to a further body blow by the COVID-19 pandemic. The threats posed by systemic risks to sustainable development, and the structures and processes for sustainable transformations for the planet have been made acutely apparent. Systemic transitions within planetary boundaries to redress appropriation of earth system services require evolved approaches to understanding and managing risk that reflect context, and to the degree possible complexity, as well allowing a more honest acknowledgement of uncertainty in decision support.

Chapter 3 No more magic numbers

Policymakers seek certainty about the future and turn to risk assessments to compensate for the anxiety they may feel about making choices that will affect the communities they represent or to meet the requirements of strategies or plans that require them. But risk is complex and assessments from one year may not be valid the next year or may assess hazards, elements of exposure or vulnerability that are no longer relevant to the new context. Or they may fail to take into consideration the realities of the complex networks of systems that propel us into unseen new risk but also that buffer some of us from events that might be disasters in their absence.

Examples of changes to drivers we have long taken as static assumptions: Climate Change effects, changes in government, economic growth or crash, major infrastructure projects, construction of an airport or opening a canal must cause us to reassess fundamental assumptions.

Chapter 3 includes several cross-cutting themes for which contributing papers are sought:

- Transdisciplinary research of frameworks/instruments/tools of risk management and assessment at the intersection of two or more SDGs. This should illustrate real world applications showing how the intersectional nature of sustainable development has been assessed or addressed.

We are looking for three types of analyses:

1. Where frameworks have aided in 'seeing' 'increasing' 'predicting' awareness of which issues intersect (future focus).
2. Where analysis has been conducted retrospectively, specifically with the intent of applying it in a future oriented way for the same as (1).
3. Where frameworks have aided in acting on intersecting issues (both with positive or negative outcomes).

We are looking for authors to be explicit about:

- What is the risk assessed/addressed?
- who the stakeholders and decision-makers?



- who are the risk bearers (“winners” and “losers”) in the case of a disaster?
- how does the approach account for the systemic nature of risk?

3.1 Why is it so hard to get risk assessment right?

Papers should address one or more of the below topics:

- Reviews of novel risk assessment approaches across research and policy areas.
- Evaluation of utility/non-utility of conventional risk profiling approaches.
- How can we integrate risk information across hazards, scales, and models, and make it better accessible?

3.2 Dynamic drivers of risk

Papers should address one or more of the below topics:

- What are the characteristics of dynamic drivers of risk? What makes a driver dynamic? Have they always been dynamic (and we are only now understanding it) or are there new elements at work? How can we identify, assess, and monitor them?
- Work on urban development and risk management.
- (Sustainable) supply chain management that exemplify adaptations.

3.3 Complexity and uncertainty

Papers should address one or more of the below topics:

- Framework for envisaging Risks and Opportunities as parallel assessments.
- Assessing and managing indirect impact of disasters.
- Assessing and managing indirect drivers of risk.
- What is the capacity of decision makers to apply systems thinking to complex problems? - particularly experiences from the COVID19 pandemic.
- Evaluations and examples of measurement metrics when scale or intensity of the subject of measurement goes “off the scale”.
- Applications of Sanke Diagrams and Wardley maps to aid decision making under uncertainty.

3.4 Tipping points

Papers should address one or more of the below topics:

- Identification and classification of ecological and social tipping points?
- Are there historical examples or studies of tipping points in industry, technology, trade, finance?
- Comparison of alternative frameworks for identifying and assessing tipping points.
- Indigenous models of risk management.



Chapter 4 Trends in understanding risk

The next steps include not simply disabusing decision-makers of their expectations of magic numbers that will solve their helplessness at not being able to know everything; but of supporting them in re-discovering what models, statistics and projections can do. Even with limited analysis or processing power, there are some decisions that are blatantly oriented toward risk creation such as cutting social services, fracking fossil fuels, building on floodplains. Finding ways to both reinforce incentives and insist upon transparently evidence-based decisions would be a massive advancement in the reduction of risk.

Managing underlying risk drivers are where policymakers can achieve a structural and long-term reduction in risk.

- We seek compelling evidence of the actual value of – for example - environmental protection or poverty reduction on assessed risk.
- We seek examples that offer evidence about how development interventions like these impact risk assessment results (at national or local level).

4.1 Trends in understanding hazard

Papers should address one or more of the below topics:

- Examples of evolution in understanding hazards is growing continuously. The period 1980 – 2010 witnessed progress in the scientific understanding of individual hazards (in resolution, forecasting, return period, internal dynamics, etc).
- The challenge is to understand hazards in the context of complexity. We seek papers that explore the problem of foundational interpretation of the composition of risk more than knowledge about particular hazards.
- Multi-hazard scenarios remain a challenge in understanding systemic risk and cascading effects. What is the state of the art for global multi-hazard approaches? - not only focusing on one type of hazard, but considering merges between, for example, the pandemic outbreak with the yearly hurricane season and potential seismic event.
- Examples of conceptual frameworks for modelling such interactions.
- Analysis of the boundaries in capacity to understand hazard as well as boundaries in terms of interconnection between macro-regional dynamics that used to be geographically constrained, but now are showing their spread across sectors and systems.



4.2 Trends in understanding exposure

Papers should address one or more of the below topics:

- Evaluation of aspects of exposure that are particularly well covered by risk science (i.e. built environment, economic value, building materials)
- Evaluation of aspects of exposure for which there is a rich body of data but methods to incorporate into risk assessment are still in development.
- Exploration of the biggest sources of unmeasured exposure / or currently unmeasurable exposure.
- What influences the completeness or a richer understanding of exposure in understanding risk?

4.3 Trends in understanding vulnerability

Papers should address one or more of the below topics:

- Contextual/embedded/systemic attributes of vulnerable systems (e.g. poverty) versus the 'outcome' vulnerability as a result of hazard manifestation and exposure to those hazards.
- Examples of jurisdictions undertaking vulnerability assessment to inform policy – trade-offs, lessons.
- Examples of efforts to classify indicators and drivers of vulnerability.

4.4 Understanding systemic risk; best practice from sectors and regions

Papers should address one or more of the below topics:

- Examples from the health and nutrition sectors. The human body needs specific nutrients, but the delivery of those nutrients comes in different forms in different cultures. These reflect priorities, history and convention. We know many of the basic ingredients to reduce risk; we seek ideas about how this is applied in different cultural and social contexts.
- The notion of risk is meaningful for different audiences, social groups, stakeholders in different ways; the notion of Exposure, Hazard and Vulnerability will vary accordingly. In the context of a more robust interpretation of risk (beyond the natural hazards), we can acknowledge that the hierarchy/priorities among types and elements of risk will be different among different cultures. We seek examples and analysis of this phenomenon.
- Exploration/comparison of different cultural approaches to risk. To know how important disaster risk in contrast is with other – perhaps more front-of-mind challenges (i.e. food security, maintenance of tradition, religious practice/sacred places, gender issues, etc.).
- Examples of explicit and planned integration of risk management across sectors (i.e. city government integrating planning, social welfare, finance, taxation to reduce risk).



Chapter 5 The state of risk information

What is the current state of risk information for risk reduction? The modernist interpretation is that the limits of our ability to understand risk are technological, scientific or methodological – and those may indeed be important boundaries – but are there other ways of understanding what we know today, what is proximal and what seems impossible? What of relational information and the situating of our enquiry within context?

5.1 What impact data can explain about risk

Papers should address one or more of the below topics:

- Intangible loss(es) and the 'unmeasurable' – example for how certain types of losses (e.g. ecological grief, intangible loss and damage) can be or have been captured to inform 'impact' (both material and immaterial), and the influence these intangible losses have for how risk is perceived
- What are the limits of historical analysis in predicting future risk? (technological / methodological / philosophical)?
- Exploration of best practice in communicating limits and uncertainty of risk. Best practice in accuracy / best practice in ensuring user understanding.
- How do mega-events like the Indian Ocean Tsunami, Fukushima, COVID-19 or Climate Change affect measurement scales or ambition to understand or reduce risk from more conventional sources?
- Examples of best practice in promoting systematic openness of data or other sources of risk information.

5.2 Shortcuts and thin slices

Papers should address one or more of the below topics:

- Evaluations and studies of the trade-offs in use of proxy indicators to understand complex phenomena.
- Studies of the value returns of increasingly granular (or coarse) data in accuracy of measurement.
- Examples of analysis possible due to availability of data or information that has recently become open. Examples of the value of analysis possible with closed/private data (i.e. Protected national data, data that is not widely available but not necessarily closed, proprietary or for-fee source of data).
- Examples of managing qualitative and quantitative sources of risk information.



5.3 Information availability and gaps

Papers should address one or more of the below topics:

- Concrete examples of addressing “deep uncertainty” in risk and disaster– examples where robust decision making approaches have been applied by actors to address a risk or make decisions despite imperfect conditions / data availability – outcomes? Successes/failures?
- Communicating uncertainty and the limits of analysis in a way that does not paralyze decision making.
- Cases of decisions that are on hold due to expected or hoped-for availability of data or information.
- Cases where the engagement of new groups of stakeholders changes data availability, the understanding of risk or options for managing it.
- Examples of linking existing decision making priorities to stakeholder capacity and interest in reducing risk.
- What is gained and lost by focusing only on probabilistic risk? Deterministic? Systemic?

Chapter 6 Managing the drivers of risk

6.1 Best practice in managing hazards

Papers should address one or more of the below topics:

- Cases where hazard management was undertaken proactively, not in response to a shock.
- Examples of ex ante hazard management (not incident management or response – specifically, reduction of existing risk).
- Examples where hazards are managed with long-term future projections of the drivers of those hazards explicit.

6.2 Best practice in managing exposure

Papers should address one or more of the below topics:

- Examples of creative approaches to managing exposure through risk sensitive planning.
- Examples of creative approaches to managing exposure that do not explicitly seek to protect economic growth/expansion.
- Evaluation of SDG trade-offs related to economic development versus risk reduction through exposure management.
- Studies of structural adjustment programmes and other “aid-driven” policies or expectations that drive new exposure.



6.3 Best practice in managing vulnerability

Papers should address one or more of the below topics:

- Explorations of vulnerability reduction that considers trade-offs (i.e. economic vulnerability managed through XX policy but that increases other forms of vulnerability).
- Experimental approaches to managing vulnerability (aiming to serve categories with the highest vulnerability, aiming to serve multi-vulnerable, aiming to serve the most severely vulnerable) – lessons and best practice.
- Comparison/evaluation of vulnerability reduction in Least Developed Countries versus OECD countries or similar.
- The role of non-State actors in managing vulnerability (civil-service organizations, faith-based groups, community groups or unions, charities and aid, etc.).



PART III Risk-informed decision making in the context of uncertainty

Chapter 7 Cognitive biases and socio-economic and cultural components that drive risk perception

How do we prioritize/incentivise an increased understanding of how risk perception influences decision making? Do we have examples of situations where risk perception (either “appropriate” or “inappropriate”) have led to a deviation in decision making? Can we use what we can glean from these examples to better understand the factors which lead to improved decision making based effectively identifying, and potentially influence, risk perception?

7.1 What can we learn from attitudes towards risk?

Risk attitude can be defined as an individual's orientation toward taking or avoiding risk when deciding how to proceed in situations with uncertain outcomes. In terms of a decision maker's perspective, risk attitude reflects the general predisposition to a particular risk in a consistent way, and hence is formed by the content of that risk. However, is risk attitude shaped differently when faced with complex or systemic risk scenarios with a high degree of uncertainty.

Papers should address one or more of the below topics:

- How do we characterize the relationship between race, privilege and risk attitude? To what degree is it a privilege to have an ‘accurate’ attitude towards risk?
- If risk attitudes are influenced by experiences related to disaster, how long does the newly formed risk attitude last?

7.2 How cognitive biases skew the perception of risk

Papers should address one or more of the below topics:

- What underlying cognitive processes affect risk perception at the individual level? In particular, how do heuristics and cognitive biases influence risk perception? How does motivated reasoning influence risk perception? How does dual-process reasoning interact with risk perception under both System 1 and System 2 processing pathways?
- Are there identity or ideology influences that systemically affect risk perception?
- How are any of the processes above affected when beliefs about risk are associated with specific political positions in polarized political environment?
- Do these general processes differ across cultural contexts in systemic ways?
- What moral hazards are present in trying to ‘correct for’ implicit biases?

7.3 How socio-economic factors skew the perception of risk

Papers should address one or more of the below topics:



- How does socioeconomic status interact with the processes described in 7.2 above? Does higher socioeconomic status mediate any of the processes, especially through the reduction of emotional distress in considering risk due to resilience arising from more resources? Does lower socioeconomic status mediate any of the above processes?
- How does system justification interact with risk perception?
- When considering higher/lower levels of national development, are there systemic differences in risk perception at the national level?
- Do cognitive biases skew risk perception (in terms of deviation from 'normal') to a greater degree in underprivileged communities? In underserved and minority communities?

7.4 Risk perceptions among decision-makers

Papers should address one or more of the below topics:

- What kinds of information do decision-makers seek out about risk in order to make risk-informed decisions? What kinds of biases may these create?
- What are the different types of 'use' in the context of using information to make decisions? Should we advocate for better understanding of types of use? – as risk perception may play significantly different roles in various types of use cases, for example, if use means justifying a deviation from standard operating procedures based on a single piece of information there is a significantly higher bar to achieve to define 'use' compared to integrating an additional piece of risk information within a decision making process that already has various.
- How is risk perception influenced by political ideology and/or political influences, especially in highly polarized political environments?
- What evidence is there for System 1 / System 2 processing in risk decisions made by political leaders and decision makers.
- What does the above suggest for what kinds of communications can be developed to improve risk-informed decision making by decision makers?

7.5 Encouraging risk-informed decision making and acknowledging cognitive biases

Papers should address one or more of the below topics:

- What are best practices for risk communication that is informed by the psychological processes identified above?
- What are case studies of good risk-informed decision making that avoid or incorporate psychological biases?
- What are the examples of having the best intentions to acknowledge (and potentially correct for) cognitive biases, yet an unexpected negative outcome occurred? What can we learn from these examples? What is our responsibility as a privileged, multi-disciplinary, community of risk professionals to ensure this framing of potential negative outcomes is incentivised?



Chapter 8 Ability to act / Options

An accurate understanding of how risk perception is shaped is crucial to develop risk information that actually reaches its target audience. But what are the factors that shape and drive risk perception?

8.1 Cognitive reasons for attitudes towards risk

Papers should address one or more of the below topics:

- What major personality, situational, identity, ideological, and cognitive processes influence baseline attitudes towards risk?
- What major personality, situational, identity, ideological, and cognitive processes influence the attitude-behaviour link as it relates to risk reduction behaviour? That is, if people are aware of a risk, what processes influence their willingness to act on it in general?

8.2 Decision paralysis, resistance to change and holding on to the familiar

Papers should address one or more of the below topics:

- How specifically does decision paralysis, resistance to change, and attachment to the familiar influence the willingness to act on an identified risk? What underlying personality, identity, and cognitive processes drive these effects? How are these processes affected by political ideology in a polarized context?
- How does uncertainty about risk perception or behaviour identification influence the processes described above?

8.3 Options available, choice hierarchies

Papers should address one or more of the below topics:

- How do experiences of chronic uncertainty shape assessments of risk and/or impact behavioural decisions?
- How do perceptions of and calculations tied to risk differ across communities experiencing different levels of trauma and vulnerability?
- How do historical, cultural, and contextual experiences with uncertainty impact strategies used to cope with uncertainties?
- How are chronic uncertainties tied to wellbeing?
- How are social and economic inequities tied to inequalities in experiences with chronic uncertainty?
- How do more macro-level uncertainties (e.g. uncertainty about safety, financial security, health) impact uncertainties tied to specific types of risk?
- How do macro- and micro-level experiences of uncertainty shape probability assessments?
- What outcomes do the experiences of chronic uncertainty uniquely impact beyond the impact they share with chronic stress?



- How do the uncertainties experienced especially strongly by vulnerable groups impact decision making and/or well-being?

8.4 What do we learn from this?

Papers should address one or more of the below topics:

- What are the implications of the factors shaping risk perceptions for risk management policy and practice?
- What real-world processes could support the development, communication, and use of risk information?
- How can we incorporate measures that capture unique experiences indigenous to the local community as opposed to sole reliance on measures that are intended to be broadly generalizable and thus treat such differences as error?

Chapter 9 Governance / Institutional influence

Chapter 9 will build on Chapters 7 and 8 that discuss cognitive biases and how they influence risk perception and will address challenges and opportunities facing key interested parties in getting individuals and communities to invest in protective measures (e.g. risk reduction, mitigation, risk transfer mechanisms) and how to implement them.

9.1 What can decision-makers do to increase chances of acceptance of disaster risk reduction measures?

Papers should address one or more of the below topics:

- How do biases in individual decision making about disasters change in environments of increased uncertainty?
- How can decision makers best involve the general public, private and public sector institutions in developing options for implementing disaster risk reduction measures, such as resettling people and investing in cost-effective protective measures?
- Which options such as risk communication, economic incentives, insurance, regulations and new institutions and governance arrangements are effective in stimulating the implementation of disaster risk reduction measures?
- What are models of leadership that have produced superior results, or more effective investments in and planning for resilience? What structural incentives have impeded leadership by decision makers in this area, and what changes or reforms would be effective enhancements?
- Evidence and prior studies reflect that communications in respect of disaster risk management are not optimally effective. What are the communications strategies and tactics that have proven to be more effective? What techniques can be imported from the commercial sector or prior public policy campaigns? Are there structural impediments to effective communications by decision makers, and if so, how can they be ameliorated or reformed?



- Future, and even current costs, of risk reduction may be misunderstood, muted, or discounted by decision makers. Evaluate the options for more accurate budgeting and cost assessment, existing dynamics that may incentivise, under-appreciate or reject these exposures, and options to increase, strengthen or re-enforce decision maker acceptance and adaptation leadership.
- A range of factors may incentivise decisionmakers to promote mal-adaptive outcomes (real estate taxes, development fees, rent seeking) while other dynamics mute the perceived value of behaviours and outcomes that promote resilience. Evaluate options to better price in the value of resilience and mitigation investments, and the cost of moral hazard activities, and options to increase the perception of value and utility by decision makers.

9.2 How do individuals and communities respond to risk. How to improve their decisions

Papers should address one or more of the below topics:

- Behavioural economics frameworks have suggested new paradigms to tackle a range of challenges. How could these tools be applied to this space?
- Disasters operate without regard to political or economic jurisdictional boundaries. At a time of a decreasing cross-border alignment and cooperation, how might we nonetheless enhance an effective disaster risk management response? Can the shared goal of disaster risk reduction promote alignment more broadly?
- On an actuarial basis, national, subnational and other government allocate substantial resources to insurance subsidies. In the absence of an event the cost of these subsidies and programmes is unclear. Explore frameworks to dimensionalize the annual “real” costs of these programmes; analyse the economic equity of representative or large programmes; assess ideas to better communicate the real costs and promote more effective programme designs. Consider evaluating the regressive nature of public expenditures (beach “nourishment”; vacation home insurance subsidies; de minimus programmes for renters)
- Individuals frequently, by choice or mandate, invest heavily in risks unlikely to impact them (interior fires) and ignore or underinvest in risks probable to impact them (flooding). Assess the factors that create these dynamics and suggest reforms.
- Cities, states, and local communities (e.g. in the United States) tend to underinvest in their own resilience, relying on federal programmes and post-disaster recovery funds. Assess this dynamic, analyse the incentive structure of existing programmes and perceptions, survey existing localized public policy programmes and private market options and suggest potential actions and reforms.
- In the US, elective purchase of flood and earthquake insurance hover around or below 10%. Assess the conditions that create this outcome, and evaluate options to alter consumer behaviour, potentially assessing other disaster related exposures such as wildfire and pandemic risk.
- Digital distribution and financial market innovation have the potential to revolutionize disaster risk finance. Evaluate current and projected innovative schemes to deliver fit for purpose, affordable disaster risk management to consumers in high risk regions, including regions at various stages of economic development.



9.3 How to overcome governance challenges and institutional influences

Papers should address one or more of the below topics:

- Elected officials and business leaders are frequently judged on short periods of time (four-year terms; quarterly earnings) while disaster risk emergence and the effectiveness of mitigation and resilience investments play out on longer time frames. Assess this dynamic, identify case studies of superior and non-optimal incentive structures; and explore possibilities for reform, change or amelioration.
- Whether via supply chain risk, pandemic exposure, or other vulnerabilities, disaster risk is a material risk for public and regulated companies. Nonetheless, these issues have yet to emerge as the subject of a sustained, consistent governance campaign despite their widespread relevance, and despite the more focused relevance of other topics with more focused impacts. Assess this hypothesis and explore what conditions might cause these matters to move to the forefront, and whether such campaigns would be likely to have a positive impact.
- In general, the annualized cost of future disaster risks is not reflected in current budgets from governmental and quasi-governmental bodies. Assess this dynamic; evaluate relevant considerations; suggest and evaluate proposals to evaluate capital formation and more accurate budgeting; consider the role of insurance.

Chapter 10 Communicating risk for decision making, action and change

The potential for communication to contribute to systemic risk reduction has not been fully harnessed. In fact, a lack of effective communication (not just one-way information flow), potentially contributes to increased risk. To date, funding for communication within risk reduction efforts has been minimal - - and research to measure the impact even less so.

10.1 Research

Papers should address one or more of the below topics:

- What empirical evidence do we have about the relationship between disaster risk communication and change?
- What are the challenges to researching risk communication and what opportunities exist for overcoming these?
- What gaps in the evidence base should be addressed as priority?

10.2 Strategy

Papers should address one or more of the below topics:

- How can communication about risk be effectively integrated across disaster risk management – not only treated as a means of educating the public?



- What are the challenges to integrating risk communication across disaster risk management and how can these be overcome?
- What examples from which we can learn have taken a systemic approach to risk communication? How was the impact measured and what were the results?

10.3 Accessibility

Papers should address one or more of the below topics:

- In contexts where limited media options exist, how can we enable better access to risk communication initiatives for people who have poor access to media – due to geography, cost, language, gender and social norms, or otherwise?
 - What examples from which we can learn have taken a systemic approach to improving access to communication (two-way) for risk reduction among hard-to-reach populations?
 - How was the impact measured and what were the results?
- In contexts where abundant media options exist, how can risk communication initiatives access populations who are absorbed in other priorities?
 - What examples from which we can learn have successfully accessed the attention of populations on risk management issues where risk perception was low and access to media high?
 - How was the impact measured and what were the results?

10.4 Tactics

Papers should address one or more of the below topics:

- What communication tactics have worked when addressing specific drivers of change? How was the impact measured and what were the results? We welcome a wide range of considerations. Some starter examples include:
 - How can concepts of probability and uncertainty be communicated in ways that increase knowledge and understanding?
 - How can factual or fictional media programming be used to shift different drivers, such as norms, risk perceptions, self- and collective-efficacy, or motivation?
 - When should communication initiatives employ fear, humour, intrigue, disgust, or other tactics and to what end?

10.5 Collaboration

Papers should address one or more of the below topics:

- How can collaboration among stakeholders improve for more effective risk communication? For example:



- What would enable scientists and policymakers to better understand each other's interests and needs?
- How can the media and technical experts work better together to produce content that serves the general public?
- How can general populations engage in informed, inclusive public discussion and debate around challenges and solutions to risk management?



PART IV Managing and governing systemic risks – transitions and emergent solutions

This Part will examine current and emerging approaches to our efforts to understand and manage systemic risks and the transformations in governance that can assist in building resilience to such risks.

Traditional risk assessment and management strategies are increasingly challenged by systemic and evolving impacts of extremes, variability and change across time and space. Some feedbacks and potential state shifts can be modelled and quantified; others can be modelled or identified but not quantified; and some are still unknown. The physical and socioeconomic impacts of compound extreme events can be greater than the sum of their parts and few analyses consider the spatial or temporal correlation between extreme events.

Systemic risk management and governance strategies are fundamentally different from traditional approaches in that they are founded on notions of complexity, ambiguity and diversity. Transformations may require profound shifts in the institutions, technologies, and personnel, as well as the ecological, economic and social processes including consumption and resource use patterns. They cannot depend purely on market forces, nor can they be deliberately planned.

Agency, however, does clearly play a role at each stage. Numerous and diverse countries, subunits of governments, non-governmental actors, including civil society and private sector organisations, all play independent or quasi-independent roles in governance arrangements.

Polycentricity, a proposed governance system in which multiple governing bodies interact to make and enforce rules within a specific policy arena or location, is one of most advocated concepts for pursuing the common good, and to achieve collective action in the face of disturbance and change. It represents flexible solutions for self-organisation when more formal procedures seem to fail. It is also vulnerable to tensions between actors, power asymmetries, and negative institutional interactions.

Numerous projects and interventions have advanced concepts such as co-production, transdisciplinarity, science-policy interfaces, democratization of expertise, and knowledge brokering, to facilitate participatory and collaborative processes that aim to integrate different ways of knowing and jointly develop knowledge that is actionable and that contributes to effective and legitimate solutions and the transformation of society.

Practical experience and the research literature also show that the outcomes of participatory interventions can be co-opted or reinforce the problems that they intended to solve. Many studies risk failing to address the key issues of representation and power asymmetries; who participates and what values, perspectives and interests do these participants represent; as well as deliberation, how all voices can be voiced and included in a procedurally legitimate way.

A pressing question that bridges both incremental learning and transformation research is how transitions or windows of opportunity might be anticipated so that the chances for transitions to sustainability are increased.



Transitions are regime shifts with landscape implications, they are also by definition not favoured by existing dominant interests, institutions and organizations. Path dependence at multiple levels (e.g. the sunk costs of infrastructure, organizational conventions on understanding and practice, traditions of land tenure, paradigms of defining innovation systems as the result of markets alone) thwarts adaptive capacity, reduces the range of choice, and hence, innovation.

The strategic challenge for transition governance is to try to coordinate emerging innovations toward systemic change while simultaneously "opening up (or alternatively: breaking down) unsustainable regimes and institutions".

How learning takes place (of what, by whom, for whose benefit?) and asking how such learning is secured, employed, financed, and sustained are questions of enabling capabilities, and attempts to move us, as Lin Ostrom often noted, beyond panaceas. Individuals and entrepreneurs play key roles in such learning processes including providing leadership, building trust, developing visions, connecting people, and nodes in learning networks.

We are interested in how and why attempts at implementing such "comprehensive" frameworks have faltered, are working, or are evolving, drawing practical insights to inform options, acceptability, financing and actions.

This Part is to be practical and relevant to stakeholders seeking answers as to how to understand, transition to, and implement approaches to managing systemic risks. Papers should consider stakeholders with an interest in better understanding, managing and governing systemic risks, that could include individuals (e.g. in respect of health, food security, lifestyle choices), organisations and corporations, and governments.

Chapter 11 Understanding and assessing systemic risks

This Chapter will review the state of the art in approaches to define, characterize, measure and assess systemic risks. Still in its infancy, new approaches to provide material evidence of the very existence of systemic risk are required if the incentives that will drive policy makers to go beyond the conventional view of risk, are to be developed.

11.1 Systemic analyses

Papers should address one or more of the below topics:

- Transdisciplinary science and research for systems-based decision making, complexity science and systemic risk assessment.
- Examples of how risk can be understood and analysed on a systems level rather than an individual level.



11.2 Characterisation, measurement and assessment of systemic risks

Papers should address one or more of the below topics:

- Qualitative and quantitative methods and tools describing systemic risks.
- Theory and practice of measurement of systemic risk.
- Role of uncertainty and ignorance in systemic risks, including concepts of learning and concepts of how systems adapt to change over time.
- Case studies documenting avoided systemic risk (e.g. Y2K bug). Case studies should document the assessment (methodology, data) of a business as usual systemic risk scenario, intervention scenarios, and the actual management and (non)realization of the systemic risk.
- Case studies should not only focus on the "action" of managing the crisis but be explicit on the benefits of avoided actions (and consequences) by setting systemic risk management rules. Stakeholder processes of rule/policy setting effectively avoiding systemic risks and crisis management should be documented and studied.

11.3 Drivers of systemic risk and attribution of driver specific strength for systemic risk mitigation

Papers should address one or more of the below topics:

- Experimental design for intervention-targeted system simulations.
- Identification of key drivers and quantification of driver strength.

11.4 Improving learning about systemic risks – new / emerging technologies and science in complex systems modelling

Papers should address one or more of the below topics:

- Existing and emerging observational capabilities to support the measurement of systemic risk.
- Bringing modelling and computer simulation of social processes and phenomena together.
- Combining perspectives of different scientific disciplines (e.g. socio-physics, social, computer and complexity science).
- Bridging fundamental and applied work.
- Technologies to micro-target sensitive system nodes as efficient systemic risk mitigation levers.

11.5 Decision support systems for systemic risk reduction in conditions deep uncertainty and potential misinformation

Papers should address one or more of the below topics:

- Systems-based approaches to transforming information availability.
- Complex systems: modelling resilience, regime shifts, social-ecological systems, traps, transformations.



- Innovative finance, sustainable urban development, infrastructure, health and disaster risk reduction applying agent-based modelling in developing country and developed country contexts.
- Citizen science approaches and examples of decision support systems for systemic risk mitigation.
- Approaches to inform systemic perspectives, e.g. the 4Rs approach - resilience, relinquishment, restoration, reconciliation.

Chapter 12 Systemic approaches to managing systemic risks

This Chapter will highlight both proven and feasible solutions, as well as in-progress approaches to transformational change. In so doing, it begins the systematic framing of such solutions to support access, selection, and application by decision-makers; incorporating aspects of inter alia scale, articulated demand, decision making behaviour, and scalability.

Recognising that cases are not necessarily exportable beyond context and the need to embrace diversity in solutions, the Chapter will unpack principal components that may be more readily transferable, as well as examining essential elements in building collective intelligence and generating relational information that enable a better understanding of complex systems.

12.1 A systems view of life: regenerative systems dynamics

Papers should address one or more of the below topics:

- Organisations as living systems – characteristics, decision making.
- Autopoiesis and the pattern of life/ pattern of organisations as living systems – practice and research.
- Precaution to inform a systems perspective.
- Abundance revealed through collaboration and sharing.
- Creative challenges of converging crises to build collective intelligence.

12.2 Experimental systemic risk management in the living systems of organisations and institutions

Papers should address one or more of the below topics:

- Enquiry and dialogic process in context in identifying systemic risks and generating systemic responses.
- Systems leadership.
- Connecting systemic thinking and intervention across place, scale, resources and time. Locus (and illusion) of control.
- Contextual pertinence, local leadership. Connection to aggregated systemic consequence.
- Case studies examining practice in managing systemic risks.



12.3 Bridging the science policy divide: applied approaches to strengthen the interface

Papers should address one or more of the below topics:

- Reframing the conversation on systemic risks to make sense to people. Political economy.
- Emotions, values, identity and reason and how political decisions are made.
- Dialogic process and inclusion of all stakeholders.
- Science supporting the re-design of how policy makers work together, take decisions and avoid policy mistakes.

12.4 Systems innovation approach in practice: building collective intelligence through experiential learning

Papers should address one or more of the below topics:

- Understanding the nature of operating in systems, e.g. food systems.
- Systems mapping to system understanding.

12.5 Sense-making and generating transcontextual, relational information

Papers should address one or more of the below topics:

- Building a meta-perspective, shaping behaviour and understanding systemic risks through sense making and incorporating multiple perspectives and multiple interacting variables.
- Making sense of systems dynamics, root causes, acknowledging and reducing uncertainties. Demystifying complexity and avoiding paralysis.
- Governance of collective sense making, based on good intelligence and active enquiries.

12.6 Financing systemic risk management approaches: portfolios not projects

Papers should address one or more of the below topics:

- Systems innovation portfolios – the dissonance of projectized logic and systemic risks.
- Transformational financing and capital approaches.



Chapter 13 Transitions to systemic risk governance arrangements

In exploring governance transitions which aim at reducing systemic risks, we recognise that such transitions encompass changing human and institutional behaviour and thinking. Transitions to systemic risk governance, happen in order to reduce the costs, harms, inequalities and injustice imposed on people, especially to avoid that a minority takes risks and benefits from private gains, but the public pay the costs of a loss in the case of realised downside risk.

Governance transitions which enable us to better deal with systemic risk require building political structures so that societies are better able to cope with events subject to varying degrees of predictability and uncertainty. They are also about precaution, creating buffers and safety nets, having long-term goals, decelerating the pace of life and decentralizing and according greater prominence to the health and well-being of humans and ecosystems. Although interconnectivity is a main cause of increasing risks, the consequence does not need to be, undoing global networks. Rather institutional reforms equivalent of circuit breakers, back-up systems and fail-safe protocols.

For the purposes of GAR 2022, authors should apply the definition of governance as that defined by the Open-ended Intergovernmental Expert Working Group (OIEWG) and endorsed by the UN General Assembly (A/71/644) of:

Disaster risk governance – The system of institutions, mechanisms, policy and legal frameworks and other arrangements to guide, coordinate and oversee disaster risk reduction and related areas of policy. (*Annotation: Good governance needs to be transparent, inclusive, collective and efficient to reduce existing disaster risks and avoid creating new ones.*)

The Chapter seeks to be relevant and practical to specific stakeholders seeking to implement and make the transition to improved systemic risk governance arrangements. It will build on definitions outlined above and in preceding Chapters of stakeholders and types of systemic risks.

The Chapter aims at addressing the challenge of how to adjust thinking and acting in rapidly changing social, technological and ecological environments by applying systems thinking, systems analysis and systems governance. Using identified lessons, papers are recommended to distinguish risk governance at different scales from global to local levels (where implementation takes place) and for different systemic risks, examining what needs to be decentralised and what might remain centralised.

We welcome studies which are explicit on the benefits of avoided actions by, for example, setting systemic risk management rules; measures focusing on the management of a realized systemic risk are legitimate but secondary to ex ante preventative elements. Stakeholder processes of rule/policy setting effectively avoiding systemic risks and crisis management should be documented. Cases could demonstrate inter alia how the precautionary principle is implemented.

Contributions can be scientific or heuristic. Where appropriate, papers should include views from practitioners and policymakers, as well as civil society. Short case studies of successful or failed



systemic risk governance practices and institutions are welcome. Out-of-the-box thinking is encouraged.

13.1 Introduction: what is systemic risk governance and how is it different?

Papers should address one or more of the below topics:

- Distinctions between governance mechanisms for individual / conventional risk and governance for systemic risk. When is individual risk management preferred over systemic risk governance, and vice-versa?
- Relationships between principles that fall generally under the heading of “good” adaptive systems governance. Including areas of inquiry, of ecological systems, legitimacy, equity, and justice.
- Adaptive cycles – how do socio-ecological-technological systems change over time for maintaining diversity, redundancy and connectivity?

13.2 Systemic risk governance types and strategies

Papers should address one or more of the below topics, examining risks at different scales (global, regional, national, subnational and community levels):

- Multi-level and polycentric governance of systemic risks in different geographic and socio-cultural contexts, including examples of scaling up promising local / regional initiatives.
- Role of markets, civil society and governments in systemic risk governance.
- Role of international / multilateral entities in system risk governance.
- Governance structures, the web of rules and rule enforcement / implementation, institutional capacity to integrate systemic risk governance.

13.3 Enabling and supporting conditions for effective systemic risk governance

Papers should address one or more of the below topics:

- Flexibility and continuous adaptation to context, decision making.
- What are the trade-offs between efficiency, optimization and redundancy? How might trade-offs be reconciled, accepted or resolved?
- Incentives and reward systems that encourage investment (and ROI), guidelines, balancing uncertainty and indeterminacy.
- Efficacy of governance and transdisciplinary collaborative networks. Barriers within existing institutions to adoption and implementation of governance? These challenges and opportunities include different perceptions, values, limits and benefits of predictability, scenarios and deliberative processes.
- Broadening the actor networks: Collaborative partnerships and actions at different scales. Encouraging distributed decision making and participation in governance at all scales, including policy and social entrepreneurs and shadow networks of change agents to navigate transformation and take advantage of windows of opportunity.



- Systems leadership.
- What is required to prepare for and take advantage of windows of opportunity to increase the likelihood of successful transformations? Are there legal and regulatory frameworks that inherently create windows of opportunity and thus make the emergence of system governance more likely?
- Avoiding critical clusters and chains of interconnectivity / improved distribution and balance of interdependencies.

13.4 Transition pathways to systemic risk governance - managing through a changing world

This Subchapter will present suggestions to transition pathways, based on experience. Papers should address one or more of the below topics:

- Planned (deliberate transformation) versus unplanned (spontaneous, self) transition, governing and managing systemic risks as an evolutionary, learning approach.
- Enabling and facilitating transition pathways, including:
 - Capabilities, capacities and skills, of government (public), market (private) and civil society (voluntary) actors;
 - Involvement of stakeholders, including rule makers and decision makers;
 - Innovation niches.
- Crafting, implementing and evolving enabling capabilities for innovation for systemic risk management and governance, including engagement, networks, implementation, evaluation, integrated knowledge development and management
 - Collaborative networks: formal, strategic, and systematic coordination across actors (public, private sectors and levels of governance beyond ad hoc projects);
 - Assess and articulate benefits of participation and of costs of action and inaction: loss avoidance, efficiency savings, co-benefits for other sectors etc.;
 - Systemic risk governance and financing.
- Information – sources and types of information (what is advocated for vs what is asked for vs what is needed), framing and outcomes. Creating a compelling narrative/vision for a better future: Putting people first.
- Connecting behaviour to rules and incentives, reducing mismatches including between higher and lower level institutions (as a result of rapidly changing social, ecological and technological environments).
- Identifying and dealing with transition risk that derive from or are caused by transition pathways (implementation risk and consequential risk).



Timelines/Requirements

- Deadline for submission of abstracts for GAR 2022 contributing papers is the 04 September 2020.
- Abstracts must be 300 words or less.
- Abstracts must be submitted in English to gordon6@un.org and adam.fysh@un.org using the submission template available via PreventionWeb.
- Authors are required to read the GAR 2022 concept note in preparation of their abstract, which is available via PreventionWeb.
- Selection will be conducted by UNDRR together with GAR 2022 Authors; successful authors will be notified by 18 September 2020 to develop full GAR 2022 contributing papers for submission by 18 February 2021.
- All developed contributing papers will be subjected to an external peer review conducted by the Disaster, Environment and Society Research Group, School of Environment, The University of Auckland.
- All papers which successfully pass peer review will inform the development of content and be published in their entirety online as part of GAR 2022 in a dedicated Annex.
- Of successfully peer reviewed papers, UNDRR will additionally publish selected papers in the international journal '[Disaster Prevention and Management](#)'

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