Building a Science-Policy Interface for tackling the Global Governance of Catastrophic and Existential Risks

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Introduction

The development of this report was led by the Centre for the Study of Existential Risk (CSER) at the University of Cambridge as part of a global, multi-organisation work programme to provide thinking on science and policy issues. Specifically, we have focused on the complex challenge of the multi-region and trans-cultural governance of Global Catastrophic Risks (GCRs) and Existential Risks (X-risks).

As recent literature and reports outlined, achieving action and transformative change from science outputs is often impeded by misalignment across networks and communities of practice. This frequently restricts the advancement of both science-in-policy and policy-in-science. The complex, cascading, and system issues in the global risk context demand major transformation in mindset and policy implementation. Yet, this is impeded by the scarce communication and reduced accessibility of scientific evidence/policy ideas between researchers and policymakers.

We need to reinforce more significant synergies between science/knowledge production and policy practice to ensure that research outputs are more relevant to decision-making and support more resilient governance outcomes. Consequently, the CSER Science-Policy Interface (SPI) expert group was created as a multi-organisational collaboration that sought to investigate and better understand how science and policy communities can become more closely aligned. Its main aim is to inform and enhance the co-delivery of policy approaches and recommendations that more actively support global (as well as regional and more localised) governance of GCRs.

This report summarises the collective work of colleagues from more than 30 organisations from different continents (Asia, America, Africa and Europe) from 2021 to 2023. This work started with a scoping exercise (February 2021), followed by establishing the GCR-SPI expert group (July 2021). We then hosted an online workshop (October 2021), monthly meetings (January to May 2022) and an in-person workshop (October 2022) at The University of Cambridge.
As outlined and evaluated in the following report, the CSER-SPI was able to:

- Increase awareness about GCRs beyond academia through knowledge sharing among members from different backgrounds and disciplines.
- Foster trust between our members working in academia and policy.
- Identify critical points in GCR research and policy that can be improved.
- Amplify the views from the Global South in regard to GCR management.
- Produce this report, so the lessons learned can be shared with the broader community.

Thanks to the creation of the GCR-SPI expert group, our members have engaged in various collaborative initiatives. Some include working with various UN offices, collaborations with the World Economic Forum members and wider-reaching regional organisations such as the Inter-American Institute for Global Change Research and the Asian Disaster Preparedness Center, as well as various universities and professional networks. In addition, our members have supported each other in their work on GCRs, by creating policy guides for academics, offering feedback on new grant proposals or giving feedback on policy efforts like the GCR Policy Ideas database created by one of our members.

To think that creating a Science-Policy Interface alone is the solution to complex global challenges would be naive: this is one tool among many. What an SPI like ours does, above all and very successfully, is to facilitate an environment where new relationships can be fostered, where members can think about aligning agendas, re-think old dogmas, build trust, and inspire each other to innovate in research and policy.
PART 1

Defining Global Catastrophic Risks (GCRs), Existential Risks (X-risks) and evaluating recent efforts on global governance and policy

GCRs are high-impact/high-uncertainty hazards that, should they occur, would trigger failure in one or more of the critical systems on which humanity depends to survive and flourish (basic human infrastructures such as food, health and governance systems). GCRs are also defined as potential events that could cause the loss of more than 10% of the human population. At the most catastrophic end of the GCR spectrum, Existential Risks, known as X-risks, are events that could eliminate our species or destroy the ability of survivors to rebuild society and permanently hold back humanity’s potential for future flourishing. The severity dynamics of catastrophic risk are graphically illustrated below (Figure 1).

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By way of overview, there is a wide range of existing and emerging risks that represent potential for events with catastrophic outcomes. These include risks of geophysical, biological and anthropomorphic origins such as super-volcanic eruptions, extreme climate change, ecological collapse, asteroid impact, and ever-increasingly rapid technological developments. Some examples of the latest would be the misuse or the catastrophic unintended consequences of poorly regulated artificial intelligence (AI), the creation of bioweapons (including human-engineered pandemics), and the intentional or accidental use of nuclear weapons and escalation to nuclear war. Accumulating evidence of emerging hazards warns the international community about a new era of global risk⁵.

These global risks surround us since our societies rely on ever-more complex, intertwined and vulnerable systems (food systems, energy, trade, financial systems, data and telecommunications or other critical infrastructures). For example, in the past, food systems were more straightforward, with farmers producing food that was sold directly to consumers in the market. Nowadays, food systems are much more complex, relying on large-scale chains and networks of industrial inputs and outputs that allow food to be produced and transported efficiently. The complexity of this system means that there are many more potential points of failure (e.g. trade agreements, global shipping, cold chains, speculation on futures, etc.). Unfortunately, points of failure in one system often have cascading impacts on other reliant systems and social dynamics⁶.

As the complexities and interdependencies of vulnerability and hazard increase, the potential for catastrophic or even existential outcomes also increases, reflecting that risk is a function of both:

\[
(Risk = \text{hazard} \times \text{vulnerability} \times \text{exposure})^7
\]

Vulnerabilities can arise from civil society inaction, misinformation, extreme poverty, inequality, distrust in governments, or political polarisation. On top of the interplay between threats and vulnerabilities, how human societies respond to them can also amplify or absorb consequences and thus contribute to risk.

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⁵ https://www.openbookpublishers.com/books/10.11647/obp.0336
⁷ https://www.preventionweb.net/understanding/disaster-risk/component-risk/disaster-risk
The global governance of GCRs and X-risks

Although there are clusters of policies and regulations for nuclear warfare, climate change, and biological and chemical threats, the global governance of GCRs and X-risks is fragmented, which delays the development of effective measures for GCR prevention and mitigation. However, in recent years some organisations have brought more attention towards effective GCR global governance. For example, in 2020, the UN’s Human Development Report showcased the “Existential risks to humanity” article in the spotlights section. They did the same again in the 2021-2022 report under the section “What kind of institution is needed for existential security?”.

In 2021, GCRs were recognised as a part of the new “Framework for Global Science In Support of Risk-Informed Sustainable Development and Planetary Health” as a collaborative effort between the International Science Council and the United Nations Office for Disaster Risk Reduction (UNDRR) that promotes improved global implementation of the Sendai Framework. This document highlights gaps and emerging priorities with implications for future research and reflects three GCR priorities:

- **Priority Area 1** → Understanding risk creation and perpetuation: systemic, cascading and complex risks.
  - “Defining, identifying, assessing and managing existential risks”.

- **Priority Area 3** → Enable transformative governance and action to reduce risk.
  - “What sort of governance arrangements might suit existential risks?”

- **Priority Area 8** → Measurement to help drive progress.
  - “Measurement, in particular, requires understanding systemic and complex risks, as well as existential risks, where uncertainty is often very large and important aspects of the risk may be unknown”.

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8 See: https://www.cser.ac.uk/resources/cartography-global-catastrophic-governance/
12 The Sendai Framework for Disaster Risk Reduction 2015-2030 was the first major agreement of the post-2015 development agenda and provides Member States with concrete actions to protect development gains from the risk of disaster. See: https://www.undrr.org/implementing-sendai-framework
In addition, the Our Common Agenda report (OCA\textsuperscript{13}), launched in September 2021 and produced by the UN Secretary-General’s office, presents a future-focused agenda for action. This includes emphasising better managing catastrophic and existential risks because they can drastically undermine humanity’s achievements and future potential. OCA also emphasises the need to represent future generations in policy processes, build foresight and preparedness capacity and align efforts to mitigate high-impact risks.

> “Humanity faces a series of long-term challenges that evolve over the course of multiple human life spans: warming and degradation of the planet, as well as managing new technologies such as artificial intelligence and gene editing, demographic shifts towards an older population, urbanization and the evolution of social welfare provision.”

> “An effort is warranted to better define and identify the extreme, catastrophic and existential risks that we face. We cannot, however, wait for an agreement on definitions before we act.”

Of specific relevance to GCR mitigation, the agenda set out within the OCA seeks to achieve the following policy instruments:

- A New Agenda for Peace.
- A Summit of the Future in 2024.
- A Declaration on Future Generations.
- A Strategic Foresight and Global Risk Report by the United Nations every five years.
- Ensure long-term thinking, including through a United Nations Futures Lab.
- Represent succeeding generations, including through a repurposed Trusteeship Council.
- Emergency Platform to be convened in response to complex global crises.
- High-level Advisory Board led by former Heads of State and Government on improved governance of global public goods.
- Peaceful, secure and sustainable use of outer space, including through a multistakeholder dialogue on outer space.
- Stronger global health security and preparedness.

More efforts around the world focusing on GCRs policy include the OECD Strategic Foresight Unit\textsuperscript{14}, the Centre for Strategic Futures in Singapore\textsuperscript{15}, the World Economic Forum - Global Future Council on Frontier Risks\textsuperscript{16} (now renamed as Global Future Council on the Future of Complex Risks), the Centre for Long Term Resilience\textsuperscript{17}, the Future of Humanity\textsuperscript{18}, and the Future of Life Institute\textsuperscript{19}, among others.

\textsuperscript{13} https://www.un.org/en/content/common-agenda-report/
\textsuperscript{14} https://www.oecd.org/strategic-foresight/
\textsuperscript{15} https://www.csf.gov.sg/
\textsuperscript{16} https://www.weforum.org/communities/gfc-on-frontier-risks#:~:text=Frontier%20risks%20are%20future%20shocks,likelihood%2C%20unknown%20impacts%20or%20both
\textsuperscript{17} https://www.longtermresilience.org/
\textsuperscript{18} https://www.fhi.ox.ac.uk/ai-governance/
\textsuperscript{19} https://futureoflife.org/ai-policy/
An emerging Science-Policy Interface for GCRs

As outlined already, it is well-accepted that science and policy should inform each other to co-create better research and governance. Misalignment in objectives, priorities (knowing versus acting), language (logic versus consensus), formats (publications versus decisions) and other barriers often curtail the quality of engagement between science, policy and other practitioner communities that would benefit from dialogue and synergies. In the past 15 years, scholars and practitioners have identified the need for interface actors to facilitate common networks and increase mutual understanding between researchers and policy actors. In that respect, a science-policy interface (SPI) approach brings together networks of stakeholders from policy and science communities to emphasise knowledge-building, information sharing and improved alignment.

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https://health-policy-systems.biomedcentral.com/articles/10.1186/s12961-017-0192-x
21 https://www.nature.com/articles/454940a
Building a SPI for GCRs is vital because, in addition to the usual barriers that may prevent effective input from science in the policy-making processes, there are additional constraints that make GCR research challenging to use in policy:

- **GCR research is recent and rapidly developing:** Developing policies requires a high degree of expert input and cross-validation by multiple stakeholders. GCR research is nascent, so translating that research into policy cannot rely on the argument that GCR research has arrived at extremely robust conclusions and strong policy recommendations. Instead, the focus is put on GCRs being critical, which justifies the need to foster policy-relevant GCR research and, subsequently, its translation into policy.

- **GCR research does not respond to an explicit need:** Because GCRs are not part of existing policy agendas, decision-makers are not explicitly seeking this research. Therefore, translating GCR research into policy must be accompanied by additional activities that foster the understanding of why GCRs are essential to prevent and mitigate at the global level. Without it, GCR prevention and mitigation are likely to be neglected.

- **GCRs add additional policy challenges:** It is already challenging to govern risks that are not catastrophic, and translating science into policy to manage them is also complex. Focusing on GCRs further complicates risk governance and creates a tension of priorities.

While these challenges are inevitable, they do not preclude the development of a science-policy interface for GCR mitigation. Instead, the design of such an interface should take these challenges into account and orchestrate actions that overcome them.
In a specific endorsement of this, the UN ‘Framework for science in support of risk-informed sustainable development and planetary health’ explicitly promoted the need for actionable knowledge, pursuing transdisciplinary science and multi-stakeholder knowledge co-production together with creating new networks and communities of practice. These recommendations resonate powerfully with current efforts at CSER to enhance policy work for the global governance of GCR/X-risks. Therefore, CSER embarked on the quest to build a Science-Policy Interface that allows diverse stakeholders to co-design, co-produce and co-deliver research and policy in GCRs.

The ideal goal for a GCR-SPI is to co-create research and policy recommendations that can be tested (and later implemented) at targeted countries and regions, institutions or international organisations.

A characterisation of the status of GCRs policy work during the COVID-19 pandemic.

- The global governance of GCRs took place in silos focused on specific hazards (e.g.: Treaty on the Prohibition of Nuclear Weapons, Biological Weapon Convention, etc.)
- GCR research was not per se strongly connected to policy efforts.
- There was insufficient awareness of GCRs outside academic institutions.
- Not enough trust was built between two important GCR stakeholders (academics and policy brokers).
- There is a lack of understanding and communication across different disciplines: scarcity of a systems thinking approach.
- Most of the academic research on GCRs was developed in the Global North (USA and UK).
Scope, objectives and strategy

As part of a programme of work called a Science of Global Risk funded by the Templeton Foundation, CSER led the process to establish the GCR-SPI initiative and group, bringing a range of global stakeholders together to share their understanding of the challenges outlined in this report, build trust and self-organise in a way that contributes to identifying and addressing current gaps in the global governance of GCRs and X-risks.

The objectives for the group were to:

- Spread awareness about GCRs outside academia.
- Build trust between stakeholders (academia and policy practitioners).
- Co-create research that is connected to policy.
- Co-create evidence-based GCR policies.
- Bring voices from the Global South into a discussion on GCR and X-risks.
- Contribute to supporting the Global Governance of GCRs.
Core to the GCR-SPI group was a shared commitment to it being resilient, adaptable to change, ready for policy opportunities and, at the same time, transdisciplinary, intergenerational and inclusive.

Our priority was to understand the needs within the GCR/X-risk policy ecosystem. Therefore, as a first step, a scoping exercise was conducted with key stakeholders from academia, NGOs, and governments (the method is described in Appendix 1). After analysing the results, the CSER team focused on two main stakeholder groups: academics familiar with policy processes and policy brokers interested in future risks. Individuals from these communities were invited to join the expert group.

As a next stage, we decided to bring the group together through a series of workshops. The first two-day workshop was organised in October 2021, with a second one in October 2022. In addition, monthly meetings were hosted from January 2022 for five months to allow members of the GCR-SPI to engage in discussions about GCR policy and research, update each other on their current initiatives, create a shared understanding about their methods/time/limitations, build bridges of collaboration and expand the understanding of capabilities and opportunities from each group of participants. Diverse mechanisms of communication (e.g. LinkedIn, Google Drive, emails) were used to keep the SPI group engaged and maintain regular information flows and contributions.

A timeframe of strategic aims and milestones

Financial support was available from March 2020 to February 2023. Therefore, a timeline and strategic objectives were set to build the GCR-SPI group over this timeframe (Figure 2). A detailed description of the four stages of the process is outlined in Appendix 2. In addition, the process for identifying and selecting GCR-SPI group members, as well as a list of members and affiliated organisations, is provided in Appendix 3.
Key findings

At Stage 1
We were able to bring together a diverse expert group coming from various professional and geographical backgrounds. This diversity allowed us to have different perspectives on global risk:

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During the workshops, the GCR-SPI expert group was able to:

a. Define a mission:

To build an international expert network that is capable of effectively working to support the global governance of GCRs and X-risks in a multilateral way by the use of scientific evidence and diplomacy.

b. Define a vision:

To contribute to a future where all species can thrive because GCRs and X-risks have been prevented.

c. Conduct a prioritisation exercise about what needs to change in Research and Policy to tackle Global Catastrophic Risks governance.

The group ranked the top issues that needed to be resolved in this area reaching the following results:

Improvements on GCR research

- Development of a research agenda that finds answers to GCR policy-relevant questions.
- Capacity building for understanding and engaging in policy processes.
- Training on policy writing and messaging for policy audiences.
- Creation of guides that allow researchers to understand key international policy agreements, negotiations or conventions (e.g.: Biological Weapon Convention).

Improvements on GCR policy

- Training of policymakers in the fields of GCRs and X-risks (e.g.: through workshops, red teaming exercises, gamification, etc.)
- Mapping of GCR governance actors (e.g.: who are they, where they are, what are their limitations, which type of influence they exert, which dates are relevant, etc.)
- A checklist on influencing policymaking (e.g.: similar to the one created for academics22).
- An exchange of lessons learnt of what has worked in regards to the global governance of GCRs.
- Co-developing advocacy messages and simple language for communicating with policymakers and the private sector.
- A list of GCR policy ideas.

d. Communicate online after the workshop:

CSER tried different communication mechanisms to facilitate the progression and monitoring of the SPI group. The use of emails worked best, whereas the LinkedIn group and the use of Google Drive worked the least, given that only some members use them frequently.

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At Stage 3

When we designed the monthly meetings we knew that attendance would vary depending on time zone, topic and other external factors. The most popular meeting was hosted at 2pm (UK time) with the topic of “UN Summit of the Future” whereas the less popular was hosted at 9am (UK time) with the topic of “Sharing Best Practices in GCR policy”. From a total of 31 members, we had the following monthly attendance:

Our survey (July 2022) shed some insights into our members’ motivations to attend and the challenges that prevented their presence at some of the monthly meetings. The survey was answered by 20 members:

What motivated you to join one or more of the monthly meetings? 20 responses

- The topic
- The link with my current work
- To increase my knowledge
- Staying in touch with the network and follow the discussions
- I’m not sure that I’ve joined any of the monthly meetings
- All of the above

Why did you NOT join some of the monthly meetings? 20 responses

- Overwhelmed with my current work
- It does not align to my current work
- The time zone
- I was travelling at the time of the meetings but listened to the recordings after
- Clashing with other commitments
- Conflict with other meeting that had priority
Do you think the current structure of the monthly meetings is a good way to build trust and a shared understanding of GCR work?

We also analysed the joint outcomes of our first workshop and monthly meetings regarding some of our aims:

- Has your knowledge about GCRs research or GCR policy increased?
- Have you met (online or offline) any GCR-SPI members outside our monthly meetings to brainstorm?
- Have you worked with any of the members in initiatives related to GCR since October 2021?
- Is the group enhancing or facilitating your current work?
- Did a member help you increase your professional network outside the group or lead you to another interesting topic/ project?
Finally, we also asked them if they would like to continue being part of the GCR-SPI expert group:

19 responses

5.3% 94.7% 65%

And if they would like to expand the size of the group:

16 responses

5.3% 35% 65%

For our workshop in October 2022, we had the presence of 15 members of the group plus five guest experts.

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</tr>
<tr>
<td>Lalitha Sundaram</td>
<td>CSER</td>
<td>Europe</td>
<td>F</td>
<td>Policy</td>
</tr>
<tr>
<td>Catherine Wong</td>
<td>Universiteit van Amsterdam</td>
<td>Asia</td>
<td>F</td>
<td>Academic</td>
</tr>
</tbody>
</table>

Other guests

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Region</th>
<th>Gender</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jess Bland</td>
<td>CSER</td>
<td>Europe</td>
<td>F</td>
<td>Academic</td>
</tr>
<tr>
<td>Mayleen Cabral</td>
<td>UNDRR Americas and the Caribbean</td>
<td>Central America</td>
<td>F</td>
<td>Policy</td>
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<tr>
<td>Juan Garcia Martinez</td>
<td>Alliance to Feed the Earth in Disasters</td>
<td>Europe</td>
<td>M</td>
<td>Policy</td>
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<tr>
<td>Paul Ingram</td>
<td>CSER</td>
<td>Europe</td>
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<td>Academic</td>
</tr>
<tr>
<td>Bas Heerma Van Voss</td>
<td>International Centre for Future Generations</td>
<td>Europe</td>
<td>M</td>
<td>Policy</td>
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</tbody>
</table>
The first day of our workshop was dedicated to co-develop GCR work. Therefore, different members of the group presented ongoing work, and the group was able to feed into it during the discussions or workshops. This day touched upon different topics such as the governance of GCRs at the UN, green bonds and GCRs, AI auditing, Global South perspectives on GCRs and futures literacy.

**Day 1**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome</td>
<td>Presentation of report, results of Oct workshops, survey answers and how the two days will go</td>
</tr>
<tr>
<td>Co-developing GCR work</td>
<td></td>
</tr>
<tr>
<td>Workshop</td>
<td>Navigating GCRs at the UN</td>
</tr>
<tr>
<td>Workshop</td>
<td>Our Common Agenda to future-proof the SDGs</td>
</tr>
<tr>
<td>Presentation</td>
<td>Reconciling the temporal logics of financial and non-financial actors in green bonds</td>
</tr>
<tr>
<td>Workshop</td>
<td>AI artifacts auditing</td>
</tr>
<tr>
<td>Workshop</td>
<td>Good practices in capacity-building for futures literacy on GCRs</td>
</tr>
<tr>
<td>Workshop</td>
<td>Grant Proposal: ‘Safer havens’ in global catastrophe</td>
</tr>
<tr>
<td>Workshop</td>
<td>How to bring more technical expertise to Asian Disaster Preparedness Center</td>
</tr>
<tr>
<td>Presentation</td>
<td>African perspectives of disaster and participation</td>
</tr>
<tr>
<td>Presentation</td>
<td>Environmental governance fragmentation, research on global change and funding opportunities for the Americas</td>
</tr>
</tbody>
</table>

The second day was focused on co-creating policy recommendations to tackle the global Governance of GCRs (more information on methods is in Appendix 1).

**Day 2**

<table>
<thead>
<tr>
<th>Co-creating GCR policy recommendations</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>Introduction for day 2 and continuation of day 1</td>
</tr>
<tr>
<td>Workshop</td>
<td>Co-creation of Policy recommendations for GCR Global Governance</td>
</tr>
<tr>
<td>Workshop</td>
<td>Routes for promoting policy recommendations for GCR Global Governance</td>
</tr>
<tr>
<td>Discussion</td>
<td>Policy Recommendations + Routes are Global South proved</td>
</tr>
<tr>
<td>Discussion</td>
<td>Future of the GCR-SPI + concluding remarks</td>
</tr>
</tbody>
</table>

The most exciting ideas born on this day were:

- To develop GCR educational content (drafted by Global South practitioners) for training civil servants on risk reduction.
- A proposal to create a Chief Risk Officer at the UN Secretary-General Office.
Draft proposal to create a Chief Risk Officer at the UN Secretary-General Office.

Problem: Lack of Institutional capacity at the national and multinational level to manage the complexity of GCRs.

Current status of the problem and the problem environment:

- National-level efforts have started to appear (like in the UK) but multinational coordination is needed.
- There is a lack of inclusion of non-state actors (private industry and civil society) in the GCR debate.

Improvements or potential paths for building solutions:

- Support the UN Secretary General’s work by the creation of a Chief Risk Officer (CRO) that can lead efforts on GCR prevention and mitigation. This role can be a D1-D2 level at the UN.
- CRO role should be focused on preventing (80%) and mitigating (20%) GCRs.
- The CRO can implement an alarm-type system at the UN level to track the progress of GCRs.
- The CRO ensures GCR terminology is being used right and that it gets discussed in relevant fora by connecting GCR to all important global efforts (climate change, disaster risk reduction, education, etc.) with systems thinking.

Steps to make it possible:

- Develop a one-pager that explains the proposal with links for scientific evidence. This could ideally be done and backed by academic institutions.
- Look for some states to champion the proposal (e.g.: Finland, South Korea, South Africa, Canada, etc.)
- Introduce the proposal to the UN High-Level Advisory Board on Multilateralism.
- Look for funding options (e.g.: Philanthropic organisations, UN Foundation, etc.)
Conclusions and future work

The relevance of GCRs in the global policy context has seen some recent improvement but, in general, remains sporadic and piecemeal. Further promotion and advocacy of GCR in higher levels of risk governance are required. One significant challenge discussed reiteratively during our workshops was that policymaking is contingent on short-term political cycles. Risk-focused policy and planning are often framed as ‘nice to have’ but not as crucial as more immediate issues within national state contexts. This often perpetuates reactive policy creation, with risks taken seriously in hindsight, despite repeated expert warnings.

Our SPI group finds that GCRs prevention is of particular relevance because while some risks may offer governments sufficient time to react and mitigate the impacts of GCRs, the pace and severity of GCRs and X-risks may be so unprecedented and disruptive that any form of reaction will be insufficient to mitigate impacts. Preventing GCRs requires a proactive global effort to identify instruments and policies that can address multiple risks, their drivers, the potential financial solutions, societal repercussions and possible side effects.

Moreover, improving global coordination for the management of GCRs requires active investment, agenda-setting, information exchange, facilitation, diplomacy, science-based evidence and mediation. Multilateral institutions such as United Nations agencies foster such coordination. Their existing conventions, treaties and negotiation processes must be further strengthened and, where appropriate, their remits expanded - to consider GCRs. Some of those could be the UN 2030 Agenda on Sustainable Development or the Sendai Framework (an international agreement on disaster risk among UN Member States).

Our group of experts are directly or indirectly involved in the governance of risk as academics or practitioners within private and public sector organisations at global and regional levels. The group has the expertise, connections to broader networks, and a good understanding of the benefits of working within an SPI. This collective intelligence of knowledge and experiences allows them to increase their system thinking capacity and scope of action to support more futuristic aspirations for policy thinking. This group has the potential to help address the global governance of GCRs. We encourage different organisations and benefactors to read this report to feel encouraged to sponsor the continuation of this work. If you are interested in supporting this initiative, please get in touch with CSER\(^23\) or Dr Clarissa Rios Rojas\(^24\).

Finally, we hope this report will benefit any person or organisation interested in building Science-Policy interfaces to tackle different challenges. We look forward to seeing you flourish.

\(^23\) https://www.cser.ac.uk/
\(^24\) www.clarissarios.com
Appendix 1: Methods

- Scoping Exercise (February-April 2021)

CSER aimed to understand the needs of different stakeholders in regard to the global governance of GCRs. Therefore, in March 2021, we conducted a scoping exercise focused on ‘Designing Practical Policy Solutions for the Management of Global Catastrophic Risks’. We invited different communities to share their ideas and perspectives about what is needed, what requires change and how we can create a mechanism that allows the co-creation of policy and research in GCRs.

Participants:

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Region</th>
<th>Gender</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seth Baum</td>
<td>Global Catastrophic Risk Institute</td>
<td>North-America</td>
<td>M</td>
<td>Academia</td>
</tr>
<tr>
<td>Helen Toner</td>
<td>Center for Security and Emerging Technology</td>
<td>North-America</td>
<td>F</td>
<td>Academia</td>
</tr>
<tr>
<td>Jared Brown</td>
<td>Future of Life Institute</td>
<td>North-America</td>
<td>M</td>
<td>Academia</td>
</tr>
<tr>
<td>Luiz Vieira</td>
<td>Instituto Limite</td>
<td>South-America</td>
<td>M</td>
<td>Academia</td>
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<tr>
<td>Luke Kemp</td>
<td>CSER</td>
<td>Oceania</td>
<td>M</td>
<td>Academia</td>
</tr>
<tr>
<td>Yee Kuang</td>
<td>Tokyo University</td>
<td>Asia</td>
<td>M</td>
<td>Academia</td>
</tr>
<tr>
<td>Shahar Avin</td>
<td>CSER</td>
<td>Asia</td>
<td>M</td>
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<tr>
<td>Sean Ó hÉigeartaigh</td>
<td>CSER</td>
<td>Europe</td>
<td>M</td>
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<tr>
<td>Simon Beard</td>
<td>CSER</td>
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<tr>
<td>Catherine Rhodes</td>
<td>CSER</td>
<td>Europe</td>
<td>F</td>
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<tr>
<td>Ben Payne</td>
<td>International Science Council / UNDRR</td>
<td>Oceania</td>
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<td>International Orgs</td>
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<tr>
<td>Marcos Regis da Silva</td>
<td>Inter-American Institute for Global Change Research (IAI)</td>
<td>South-America</td>
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<td>International Orgs</td>
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<tr>
<td>Melinda Kuritzky</td>
<td>World Economic Forum</td>
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<td>International Orgs</td>
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<tr>
<td>Jake Okechukwu</td>
<td>Praxis Law</td>
<td>Africa</td>
<td>M</td>
<td>Private companies</td>
</tr>
<tr>
<td>Sophie Dannreuther</td>
<td>Centre for Long Term Resilience</td>
<td>Europe</td>
<td>F</td>
<td>NGOs</td>
</tr>
<tr>
<td>Sam Hilton</td>
<td>All-Party Parliamentary Group for Future Generations, UK</td>
<td>Europe</td>
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<tr>
<td>Rumtin Sessasparou</td>
<td>CSER</td>
<td>Oceania</td>
<td>M</td>
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</tr>
<tr>
<td>Hiski Haukkala</td>
<td>Finnish Government</td>
<td>Europe</td>
<td>M</td>
<td>Government</td>
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<tr>
<td>Des Brown</td>
<td>House of Lords, UK</td>
<td>Europe</td>
<td>M</td>
<td>Government</td>
</tr>
<tr>
<td>Martin Rees</td>
<td>House of Lords, UK</td>
<td>Europe</td>
<td>M</td>
<td>Government</td>
</tr>
</tbody>
</table>
Set of questions given to participants:
- What needs to change? What has worked and what has not?
- What would be the aims of workshops focused on GCR governance?
- What deliverables would be most useful as outputs from the first workshop?
- What are the process stages we think would deliver the expected outcomes?
- What are the best methods we can use at the workshop to achieve these objectives?
- What are the limitations of what can be achieved in these two workshops? What do you think might be achievable within the suggested timeline? Any ideas on how to address that?
- Are there any topics or approaches you do not want to discuss during the first workshop?
- Who should we invite at the first workshop to discuss a strategic plan for creating a framework of Global Risk for Policy?
- Do you think the current structure of the monthly meetings is a good way to build an understanding of each other’s work and goals? Do you understand the needs, methods and/or limitations of policy brokers/researchers better? If not, can you think of other ways? Please explain.
- One of the goals of this GCR-SPI is to co-create policy and/or research to tackle the global governance of GCRs. Do you think we are working towards it? Please explain if we are or are not. How can we improve?
- How can the group facilitate or enhance your work? Are we doing it already? If not, how specifically can we help you?
- Did a GCR-SPI member help you to increase your network outside the group or lead you to another interesting project/topic outside the group? Please describe.
- Are there other things that you think are working or not working for CSER’s GCR-SPI?
- Would you like to continue working with the GCR-SPI?
- Would you like us to expand the size of the GCR-SPI?
- If you said yes to the previous questions, do you have a person or organisation in mind so we can consider extending an invitation?
- Any final feedback?
- Survey to analyse the success of workshops and monthly meetings (July 2022)

Set of questions given to participants:
- What motivated you to join one or more monthly meetings?
- Why did you NOT join some of the monthly meetings?
- Has your understanding of GCR research or policymaking increased since October 2021 due to the GCR-SPI group interactions? Do you think you are reframing your work because of that? Please explain.
- Have you met any GCR-SPI members outside our monthly meetings (via Zoom or in-person)? Please describe briefly with whom and the topic/work you discussed or brainstormed.
- Have you worked (or currently work) together with one or more of the GCR-SPI members since October 2021? Please describe briefly with whom and the work or deliverables you produced or are planning to produce together.

Set of questions given to participants on day 2:
- Define the problem.
- Define the current status of the problem and the problem environment (where does it sit, what are the models in operation).
- Describe 1-3 improvements or potential paths for building solutions (as specific as possible).
- What are the obstacles?
- Describe your routes to success (Organization / Event / Date / What is needed).
Appendix 2: The four stages of the GCR-SPI group development

Stage 0 (from March 2020 to January 2021)
This preparatory work\(^{25}\) included various activities such as raising awareness, increasing public relations, innovating in communication with non-academic stakeholders and building partnerships with different institutions.

Stage 1 (from February 2021 until October 2022)

**Aim:**
- Understand the current GCR-Policy landscape.
- Choose the experts’ profiles needed to be part of the GCR-SPI.
- Invite experts to join the GCR-SPI.
- Host the first workshop to build a GCR-SPI expert group to define the vision, mission, and priorities needed for tackling the current challenges in GCR research and policy.

**Initiatives:**
- CSER conducted a scoping exercise to survey various stakeholders (February-April 2021). Thanks to this work, it was possible to prioritise efforts and choose profiles of ideal candidates to invite to be part of the GCR-SPI expert group.
- CSER partnered with the Simon Institute to co-design and co-facilitate the first workshop with the expert group (July 2021 - October 2021).
- CSER hosted a two-day workshop with the Simon Institute for the recently formed GCR-SPI expert group (October 2021).
- CSER mapped participants (December 2021) via an online excel spreadsheet so all members can quickly identify and interact with each other.
- CSER developed communication mechanisms (December 2021) to facilitate the progression and monitoring of the SPI group. We decided to use emails, a LinkedIn group and Google Drive.

Stage 2 (from January 2022 until June 2022)

**Aim:**
- Create spaces of conversation and knowledge exchange among members of the GCR-SPI expert group so they can start building trust and a shared understanding of their agendas and ways in which they can collaborate.

**Initiatives:**
- CSER hosted monthly meetings, and the topics were selected based on the interest of the group and the predisposition of some members to co-host some of the meetings.

<table>
<thead>
<tr>
<th>Month</th>
<th>Aim</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Build trust and shared understanding between both communities (policy and academia)</td>
<td>Creating Policy Guides for scientists that want to engage with the UK Parliament and the UN’s Biological Weapon Convention.</td>
</tr>
<tr>
<td>February</td>
<td>Best study cases for GCR SPI around the world.</td>
<td>Creating a database for GCR policy recommendations.</td>
</tr>
<tr>
<td>March</td>
<td>Promote collective action by nurturing the self-assembling of sub-groups.</td>
<td>Advising the UN’s BWC initiative for creating a Science and Technology Advisory Board.</td>
</tr>
<tr>
<td>May</td>
<td>Promote collective action by nurturing the self-assembling of sub-groups.</td>
<td></td>
</tr>
</tbody>
</table>

\(^{25}\) https://www.clarissarios.com/post/7-steps-to-improve-global-catastrophic-risks-gcr-policy-work
Stage 3 (from July 2022 until October 2022)

Aim:

- Evaluation of Stages 1 and 2 via a survey.
- Analysis of what worked and what did not so it can be incorporated into the design of the next workshop.
- Hosting an in-person workshop.

Initiatives:

- A survey was designed, and it was sent to all members in July 2022.
- A two-day workshop (but in person this time) was hosted in Cambridge (October 2022).

Stage 4 (from January 2023 to June 2023)

Aim:

- Dissemination of lessons learnt.
- Having other institutions see the benefit of creating Sci-Pol interfaces.

Initiatives:

- Production of this report (January 2022 - January 2023).
- Members will distribute this report among their institutions and will be keen to share lessons learnt locally.
Appendix 3: GCR-SPI group participant selection and global spread

From the academic world, we focused on experts from universities that are already working on GCRs and X-risks policy but also more broadly invited academics with experience in Global Risk (such as risk communication and financial risk). From the policy world, we looked for experts dealing with global risk, disaster preparedness, disarmament, science diplomacy, government science advice and economic risk.

Our expert group should bring together the following expertise:

<table>
<thead>
<tr>
<th>Academics</th>
<th>Policy Brokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial Intelligence</td>
<td>Latin-American region policy</td>
</tr>
<tr>
<td>Biological risk</td>
<td>European region policy</td>
</tr>
<tr>
<td>GCR policy</td>
<td>Disarmament and Peace</td>
</tr>
<tr>
<td>Natural Risks</td>
<td>Government Science Advice</td>
</tr>
<tr>
<td>Policy and Global Governance</td>
<td>Asian Disaster Preparedness</td>
</tr>
<tr>
<td>Risk Communication</td>
<td>Disaster Risk Reduction</td>
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<tr>
<td>Financial Risk</td>
<td>International relations and diplomacy</td>
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<tr>
<td>Science Diplomacy</td>
<td>Diplomacy</td>
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<td>Government Science Advice</td>
<td>Financial Development</td>
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<td></td>
<td>Security Policy</td>
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<td></td>
<td>Nuclear Risk</td>
</tr>
<tr>
<td></td>
<td>Global and Emerging Risks</td>
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</tbody>
</table>

Our expert group should bring together knowledge from different institutions and geographical regions:

<table>
<thead>
<tr>
<th>Academics</th>
<th>Policy Brokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for the Study of Existential Risks (UK)</td>
<td>Inter-American Institute for Global Change Research (Latin-American region)</td>
</tr>
<tr>
<td>Future of Life Institute (USA)</td>
<td>EU Joint Research Centre (European region)</td>
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<tr>
<td>University of Campinas (Brasil)</td>
<td>United Nations Institute for Disarmament Research (Global)</td>
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<tr>
<td>Georgetown University (USA)</td>
<td>International Network for Government Science Advice (Global)</td>
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<tr>
<td>University of West Indies (Jamaica)</td>
<td>Asian Disaster Preparedness Center (Asian Region)</td>
</tr>
<tr>
<td>University of Tokyo (Japan)</td>
<td>United Nations Office for Disaster Risk Reduction (Global)</td>
</tr>
<tr>
<td>North West University (South Africa)</td>
<td>UN Secretary-General Office (Global)</td>
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<tr>
<td>University of Singapore (Singapore)</td>
<td>International Science Council (Global)</td>
</tr>
<tr>
<td>Future of Humanity Institute (UK)</td>
<td>Inter-American Development Bank (American region)</td>
</tr>
<tr>
<td>Alliance to Feed the Earth in Disasters (international)</td>
<td>UN Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean (Latin-American region)</td>
</tr>
<tr>
<td></td>
<td>Geneva Centre for Security Policy (European region)</td>
</tr>
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<td></td>
<td>Simon Institute for Longterm Governance (Global)</td>
</tr>
<tr>
<td></td>
<td>Nuclear Threat Initiative (Global)</td>
</tr>
</tbody>
</table>
Contact

Dr Clarissa Rios Rojas
cr659@cam.ac.uk