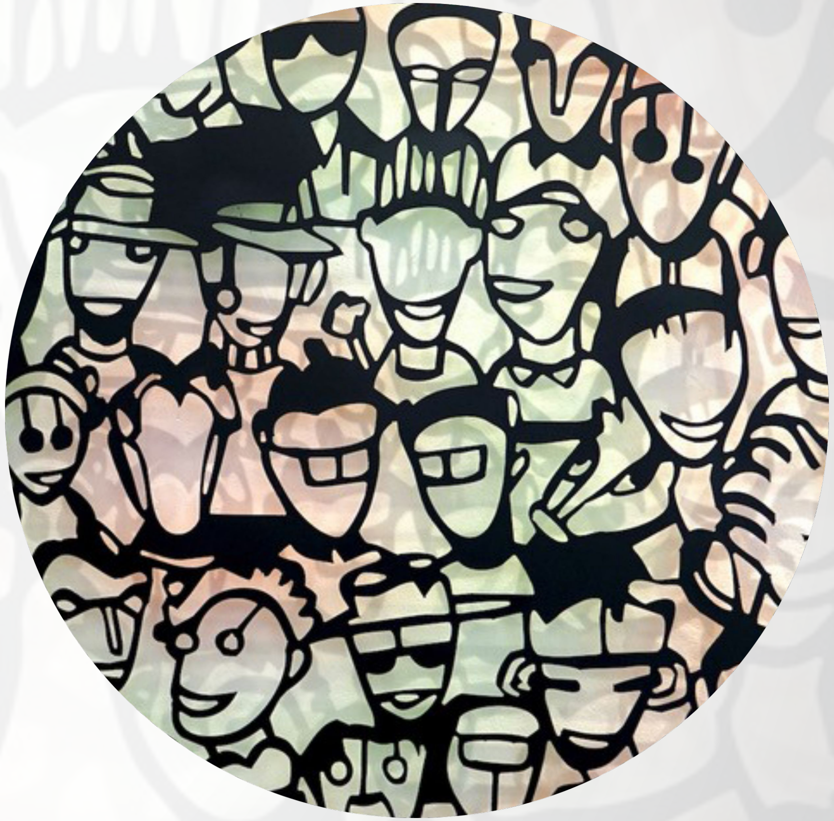
International Science Council
The global voice for science

Scientific Solidarity and Resilience in Times of Crisis

Findings from ISC Desk Review

One year into the Ukraine war: Exploring the impact on the science sector and support initiatives
20-22 March 2023



Vivi Stavrou
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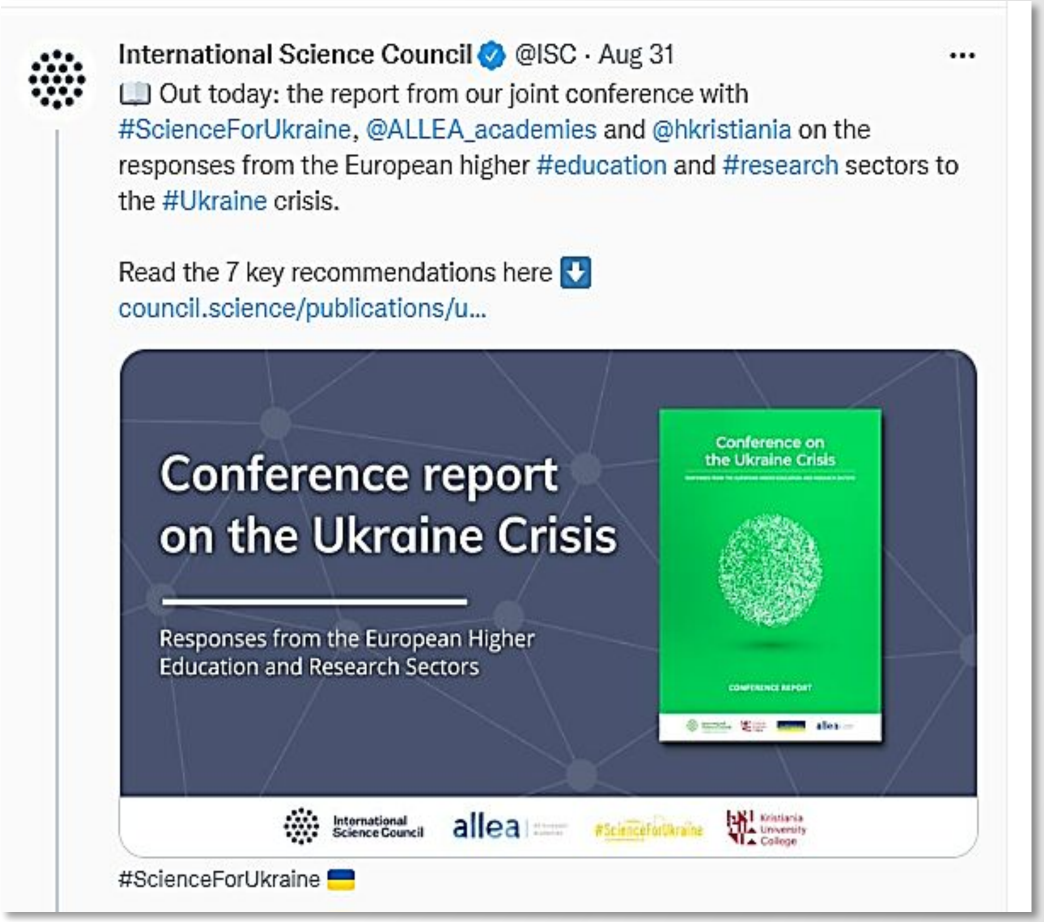
Context: Responding to Crisis

"Member states should develop policies for the protection and preservation of research objects, scientific infrastructure and scientific archives, including in instances of conflict."

Article 27 UNESCO Recommendation on Science and Scientific Researchers (2017)

SCIENCE IN EXILE



Desk Review Purpose

To examine through case studies and a policy review, the response by the scientific community to crises affecting scientists, science systems, scientific infrastructure - as well as research objects, and scientific archives.

The intent is to provide a ‘first-take’ synthesis, from a range of stakeholders, of the available information on practices, challenges and needs of scientists, science systems and institutions that have experienced crisis.

To consider, with partners, how to take this work further – whether to undertake a full assessment that can inform policy and action frameworks that can bring a degree of predictability and co-ordinated resource mobilization for helping science better prevent, prepare for, respond to and recover from crises.

Methodology

- **6 Case studies:** policy and literature review, KI interviews, 6 case studies - past and present examples from global north and south.
- **Cross-sectoral:** Relevant and comparable sectors were identified, including humanitarian response, disaster risk reduction, and cultural heritage, to review policies and approaches for responding to crises, and possible synergies and applications to the science sector.
- **Limited parameters:** A light-touch review so some relevant categories of crises impacting science were not included, or could not be pursued due to the difficulty of accessing stakeholders within the limited timeframe, including: severe geopolitical tension involving sanctions regimes or proxy; state-sponsored takeover of academic/scientific institutions; global health crises (e.g. Covid-19 Pandemic).

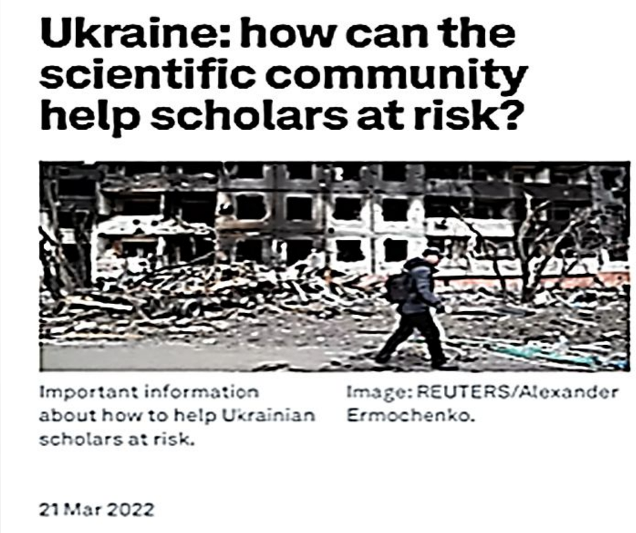
In the context of this review, crisis is defined as any instance of violent conflict or human-induced natural disaster having a material impact on key elements of a science system.

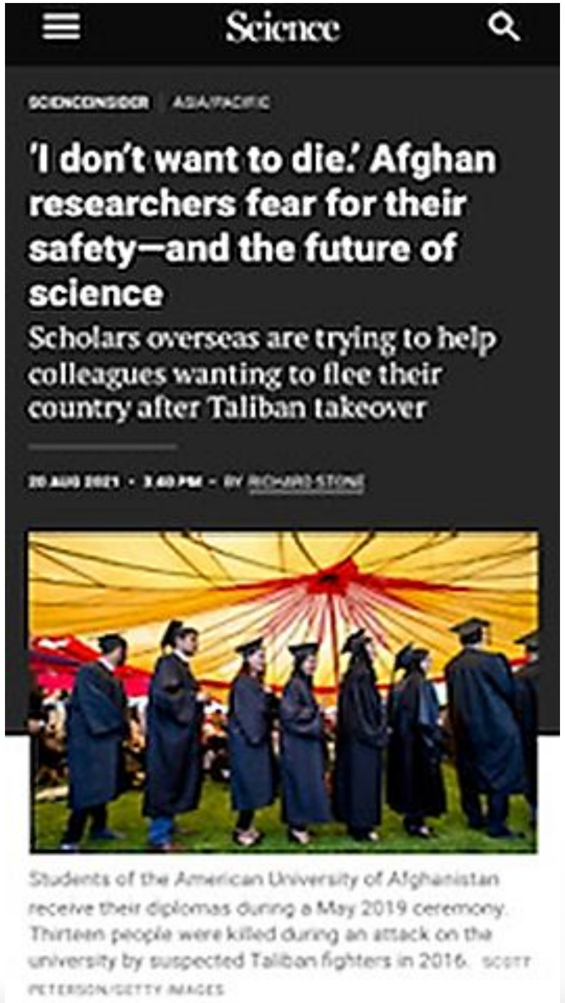
Category	Case study
Violent Conflict: crises wherein at least two parties deploy physical force to resolve competing interests. Examples of violent conflict in this paper involve both state and non-state actors.	Russian invasion of Ukraine (2022)
	ISIS occupation of Mosul University, Iraq (2014-2017)
Historical examples of conflict recovery: actions taken by specific countries and/or regions to rebuild scientific infrastructure and preserve cultural heritage following a crisis	War in the Balkans (1991-1999)
	Japan: World War Two (1939-45)
Human induced natural disasters: natural events such as floods, fires, droughts, and other extreme climate events which occur due to human negligence. These disasters can result in loss of life, human suffering, and damage to property and the natural environment	Cape Town University Library Fire, South Africa (2021)
	Natural Science Museum Fire, Brazil (2018)
	Japan: Fukushima Nuclear Disaster (2011)

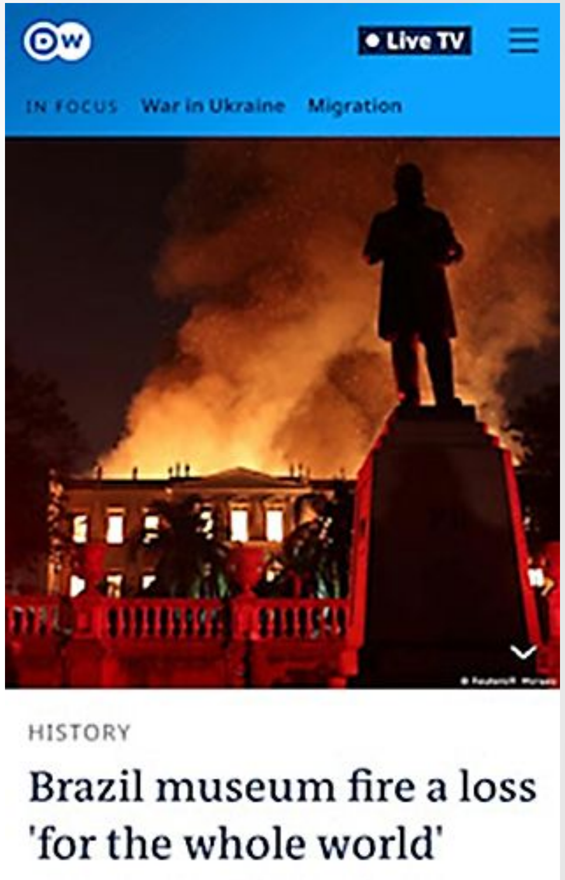
Key Findings

The key findings of this desk review are organised in alignment with the phases of humanitarian response:

- ‘Prevent and Prepare’ (pre-crisis phase)
- ‘Protect’ (crisis-response phase)
- ‘Rebuild’ (post-crisis phase)







PREVENT & PREPARE (PRE-CRISIS PHASE)

There is a disconnect between the significant expertise, insight and focus that scientists bring to research and advise decision-makers on crisis, and the work of administrators and crisis experts to mitigate the impact of risks facing science systems themselves. This underestimates both the scale and impact of such crises on science and scientists globally, and the potential value of science-led prevention and preparedness.

The review found 5 factors that significantly impact the ability of scientific communities to prevent or prepare for crises affecting science systems:

1. Widening and deepening public understanding of the value and ROI of science (investment);
2. Strengthening scientific networks and research collaborations, especially for systems and scientists most at risk;
3. Building cross-sectoral alliances for developing crisis-resilient science sectors and leaders;
4. Taking greater responsibility for risk assessment and mitigation within science;
5. Building dedicated resources for prevention and preparedness in science.

PROTECT (CRISIS RESPONSE PHASE)

In national or large-scale emergencies science tends to fall through the gap in cooperation that exists between science and the humanitarian or crisis response sector. At best, the response of organized science is ad hoc and limited to dedicated ‘science humanitarians’, rather than there being clarity of sector-wide roles and responsibilities for meeting the needs that scientific institutions are often best placed to help address.

The review identified 4 factors that determine the ability of scientific communities to respond effectively in the short-term to crises affecting scientists and science systems:

1. Predictable mechanisms (advocacy, coordination, info-sharing) for connecting local needs to international support;
2. Secure digitisation of data, records and ways of working;
3. Flexible mechanisms for filling the funding gap;
4. Inclusive, flexible support focused on helping scientists continue their work at home or abroad.

REBUILD (POST-CRISIS PHASE)

Obstacles exist to science bringing its full capacity to bear in service of post-crisis reconstruction. By incentivising and enabling stronger collaboration between local and international science actors and with the UN and development sectors, there is the potential for real transformation and reform within science during this phase, while simultaneously increasing the potential for science to be prioritised for funding and support.

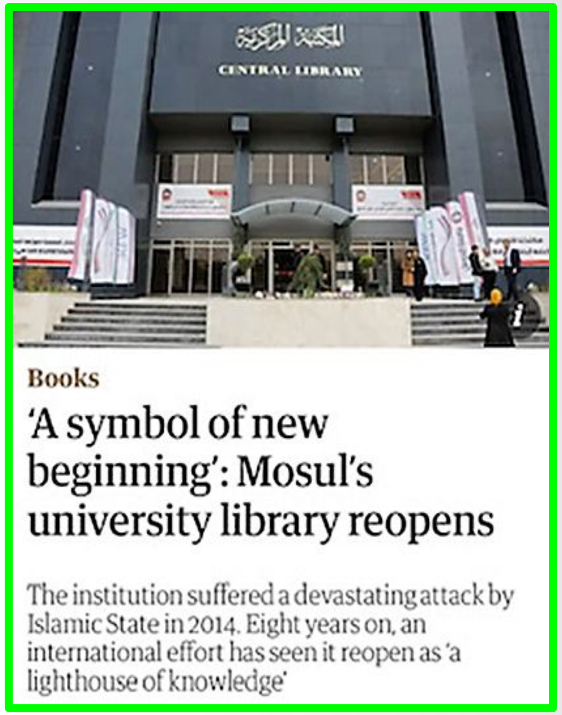
The review highlighted 5 factors that improve the ability of scientific communities to rebuild science systems effectively following crisis:

1. Putting international scientific collaboration on the agenda for post-crisis recovery;
2. Incentivising engagement of scientists and the science sector in fragile and crisis-affected contexts;
3. Defining the role of the science sector and cross-sectoral collaboration in post-crisis recovery;
4. Building trust and shared objectives between local and international scientists working to realise positive transformation, reform, and return of the displaced;
5. Realising ‘Open Science’ by addressing ongoing inequities.

Next Steps

1. Develop Desk Review as an ISC Working Paper

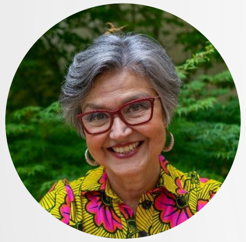
2. Consult with relevant partners to consider development of an action and policy framework for Science in Times of Crisis.



"The international science community should start planning how best to prepare the country's research infrastructure for the end of the war. Long-term partnerships that focus on capacity-building will be crucial, particularly in the areas of management, monitoring and policy. These collaborations must try to sustain day-to-day research as much as possible now, so that the research community can hit the ground running and be much more effective as soon as the conflict ends."

Nature 614, 593-594 (2023)

Work with the ISC to advance the free and responsible practice of science



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