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POLICY BRIEF ACHIEVING RISK REDUCTION ACROSS SENDAI, PARIS AND THE SDGS

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The purpose of this document is to set out key policy messages based on the synergies and coherence between the major global agreements of Sendai, Paris and the SDGs¹ – with specific reference to systemic and cascading risks.

This focus is because of the extreme widespread and long-lasting potential impacts of such events. These impacts could have long-lasting negative effects on the livelihoods and well-being of people, economies and countries, undermining development and the achievement of the SDGs.

This brief should be read as complementary to material dealing with frequent, smaller events and the day-to-day emergencies that affect hundreds of millions regularly.

THE NEED – TO IDENTIFY, REDUCE AND MANAGE ALL TYPES OF SYSTEMIC AND CASCADING RISKS:

The global trend of increasingly frequent and severe emergencies and disasters is fuelled by demographic change and urbanization patterns, the impact of climate change, increasing exposure and vulnerabilities to hazards, and the increasing global interdependencies of our systems. There is a recognition that in an increasingly interdependent world, hazards and risks are often woven through communities, societies and economies in complex ways leading to systemic and cascading risks (see Text Box for a definition). Hazards, risks and the disasters that result are partly a result of development failings, while also undermining development, exacerbating inequalities and sidelining attempts to improve people's lives.

Since 2015 the landmark UN agreements, the Sendai Framework, the Paris Agreement and the Sustainable Development Goals, have set the agenda for reducing risks associated with all hazards and unsafe conditions. The central core of these agreements is the idea of sustainable and equitable economic, social, and environmental development. Importantly, strong linkages across the agreements will help identify and reduce systemic risks, and promote sustainable development.

Policy messages are set out next. The rest of the document sets out the challenge with a focus on efforts for definitional clarity, why the IRDR is involved, and the linkages across the agreements with respect to disaster risk.

¹ Sendai Framework for Disaster Risk Reduction (2015-2030); The Paris Agreement on Climate Change; The SDGs - Transforming Our World: the 2030 Agenda for Sustainable Development.

1

POLICY MESSAGES:

These are complementary to, rather than replacing, existing guidance on frequent smaller events.

IDENTIFYING SYNERGIES AND CONFLICTS BETWEEN POLICY AREAS TO MAXIMISE CO-BENEFITS

- Focus planning and implementation on a cross cutting issue for maximum early impact in all three agreements; this could be poverty reduction, improvements to living standards and social and economic inclusiveness should improve resilience and capacity for adaptation and risk reduction.
- Working across all sectors and global agreements requires policy cohesion. Policies which are undermining or contradicting the agreed aims need to be identified and modified. More detailed understanding needs to be developed on how co-benefits can be achieved through the integration of the Paris Agreement, Sendai and SDGs; and the tangible steps policy-makers can take to achieve this.

2

RISK INTERDEPENDENCIES NEED IN-DEPTH INTERDISCIPLINARY ANALYSIS:

- Risk interdependencies need in-depth interdisciplinary analysis to ensure that risk reduction efforts are not offset by increased problems in another area. There is a need to ensure that cascading and systemic risks within sectors and across multiple sectors, are identified and managed.
- These types of risk defy analysis by the established tools of risk management. In this context, the conceptualisation, identification and understanding of risk demands an interdisciplinary integrated approach from science, collaboration between science and policy, and a cross-sectoral approach from government.
- Further understanding of risk will not eliminate uncertainty, which needs to be accepted and managed. Policy and practice take place in the absence of full knowledge, and therefore need to be flexible and able to adapt to new evidence and circumstances. The time and resources needed to eliminate uncertainty are rarely available.

3

RESILIENCE IS NEEDED ACROSS SECTORS AND SCALES, AND GOES HAND IN HAND WITH RISK REDUCTION:

- The enhancing of resilience across sectors and scales is supported by the global agreements. An important aspect of this is to improve capacity to deal with shocks and change, including through adaptation.
- Resilience is not conceptualised or defined consistently across the agreements, and effort is needed to resolve these inconsistencies.
- System and sector resilience are critical, but this should not obscure the situation at more local scales: for example, the global financial system appears to be resilient, however during the 2008 GFC this was at significant cost to the economies of some countries and livelihoods of many communities.
- The third Sendai priority, “Disaster reduction for resilience”, highlights that attempts at resilience building need to be accompanied by disaster risk reduction which addresses both hazard exposure and vulnerability. If this is not done, resilience will not be sustainable or equitable, and could act to obscure the real risk. High levels of resilience alone are unlikely to lower risks or achieve the SDGs.

4

INTEGRATED REPORTING ACROSS AGREEMENTS COULD PROVIDE SUBSTANTIAL EFFICIENCIES:

- Given that we are concerned with systemic and cascading risks where the boundaries of the hazard may be uncertain and where multiple hazards are involved, reporting should include capacities and system vulnerabilities.
- New and emerging data and technologies could assist with integrated monitoring and reporting. Guidelines on this should be prepared;
- Reporting on most hazards could be possible through existing data bases: for example, there are reporting protocols for medical issues, for natural hazards, and in some countries for technological hazards (eg reports on chemical storage, etc.). Guidelines are needed to draw these fragmented sources together.
- Further work on the indicators associated with the agreements would help enable synergies between the agreements.

5

ISSUES FOR NATIONAL RISK REGISTERS:

- An important implication for national risk registers is that systemic risks – risks that could cause the collapse of a sector or cascade throughout a society and economy – need to be identified and prioritised.
- It is likely that some such risks are not on national registers; while other are on the registers but are not given appropriate priority. Some risks affect everyone but groups that are marginalised economically or socially will generally have less capacity to deal with the issues. There is also the potential for solutions to make things worse in other sectors – use of carbon intensive technologies to adapt to climate change provides an example of this. Also challenging are systemic risks that can undermine our capacity to manage and cope with all types of issues. This would include widespread poverty or other forms of social and economic exclusion, which could act to stymie risk reduction, adaptation, achievement of SDGs and the building of resilience.

THE CHALLENGE OF RISK REDUCTION AND MANAGEMENT

Risk creation is the result of complex interactions between social and economic processes, and the natural environment. Aligning policy for implementation of the targets of the Sendai Framework, the Paris agreement and the SDGs global agreements should substantially improve risk reduction. Taken together the agreements enhance our ability to deal with systemic and cascading risks. The multi sector approaches, needed when treating the three agreements as a whole, also provide potential for significant synergies and efficiency gains from integrating the monitoring and reporting requirements as well as implementation processes. But such a holistic approach to risk prevention is hindered by a number of factors including:

- lack of consensus and clarity on what constitutes a “hazard” and how we define “risk”, and
- In spite of general alignment, it is also hindered by the lack of clear conceptual and practical alignment across the three agreements: conceptual for efficiency in reporting, and practical for the needed actions. The challenge is to identify what can be done to support strong improvements in coherence and implementation.

DEFINITIONS USED IN THIS BRIEF

Hazards: The Sendai Framework expands the range of hazards to be considered from those traditionally considered natural, to “man-made ... and related biological, technological and environmental risks” (Sendai para 15). This broad hazard spectrum and the increasingly interconnected and cascading nature of natural, “man-made” and technological hazards, together highlight the potential impact on our social, economic, financial and political systems.

Risk: here we define risk following the IPCC (Special Report on Extremes 2012) approach where disaster risk is a function of the hazard, exposure to the hazard, and the vulnerability of what is exposed. The global agreements are all concerned explicitly with risk reduction at multiple scales. In pursuit of the Sendai Priority “Understanding disaster risk”, our focus is on the emergent cascading and systemic risks that are poorly bounded in space and time, are characterised by very high uncertainties and cross sector interdependencies, and that do not respect sector boundaries. Such risks can bring about the collapse of a sector, or cascade across sectors, and space and time, to produce impacts that are both far away from the initial impact, and unexpected. Traditional definitions of risk do not fully accommodate this complexity.



Image caption

First Responders of Rikuzentakata. Firemen search for bodies in the flattened town of Rikuzentakata, Iwate prefecture, on March 22, 2011, after the devastating March 11 earthquake and tsunami. The twin quake and tsunami disaster, Japan's worst crisis since World War II, has now left 8,805 people dead and a further 12,664 listed as missing, with entire communities along the country's northeast coast swept away.

MIKE CLARKE/AFP/Getty Images

MOBILISING SCIENCE TO IMPROVE UNDERSTANDING OF HAZARDS, RISKS AND THEIR INTERACTIONS

UNDRR and ISC (International Science Council) under the leadership of IRDR (Integrated Research on Disaster Risk program) is establishing a technical process to review and define the hazards included in the agreements, as well as the definition of risk. This is because as a result of Sendai, the scope of the disaster risk agenda and of what is captured by the term “hazards” are now much broader, with an emphasis on building resilience and supporting development through risk prevention.

Such work on identifying the full scope of hazards and reviewing terminology will potentially serve multiple purposes. It should enhance cross-disciplinary collaboration, identify data requirements, provide countries with a common evidence based reference point for their own reporting on risks, etc.. Importantly it should also strengthen the foundations for looking more holistically at cascading and systemic risks with the aim of breaking the risk creation cycles.

This initiative builds directly upon the UNDRR Global Assessment Report (GAR) which argues for definitional clarity in its latest edition.

EXAMPLES:

Large scale disruption to people’s lives, their livelihoods and local economies, for example through sudden disruption to essential services, trade or established flows of people, goods and services, would likely result in a drop in capacity and increases in vulnerability for those affected. Impacts could be felt locally or across the world.

The Russian heatwave and fires of 2010 led to tens of thousands of deaths locally, partial destruction of the wheat crop, suspension of wheat exports and the cascading impact of severe price hikes globally. If another “bread basket” had been affected at the same time, for example North America or China, through a plausible heatwave or some other hazard, severe global food shortages would have resulted.



Image caption
Smoke in Moscow at august of 2010 due to peat fires. Photo by Artem Svetlov.

Hurricane Maria in Puerto Rico illustrates cascading impacts in a different way. The Hurricane damaged infrastructure including electric power and health services. There was a subsequent near collapse of essential services including health and electricity. The official death toll from the Hurricane was 64 until late 2018 when the government accepted the results of a George Washington University study that as a result of the subsequent impacts, there had been 2974 deaths. About 130,000 Puerto Ricans left the island for mainland US destinations, which then had to support these displaced people with accommodation, services and employment.



Image caption
Puerto Rican residents walk in flooded streets in Condado, San Juan, Puerto Rico, Sept. 22, 2017, following Hurricane Maria. Puerto Rico National Guard photo by Sgt. Jose Ahiram Diaz-Ramos

WHY IS IRDR WORKING ON THIS?

It is the mandate of IRDR (the Integrated Research on Disaster Risk program) www.irdrinternational.org to provide insights into the world of disaster risk and risk reduction, and to do this in an integrated interdisciplinary way. The IRDR is co-sponsored by the ISC and UNDRR. The IRDR describes the task across the natural, socio-cultural, economic, policy, health and engineering sciences as well as other related areas. The focus on risk, rather than hazards which are simply one component of risk, ensures that the scope of IRDR is broad and encompasses disaster risk, the risks of climate change, and those being addressed by the SDGs.

SYNTHESIS AND LINKAGES ACROSS THE THREE AGREEMENTS:

Hazards and risk are conceptualised very broadly across the three major agreements. This helps ensure that all hazards and risks are addressed, and that risk reduction efforts in one area or sector are not simply offset by increased problems in another. As well, there is an emphasis on systemic risk – a recognition that risks increasingly have interdependencies and cascading effects within sectors and across multiple sectors. In some cases with global impact. This approach to risk cannot be fully implemented through any one of the agreements.

In terms of practical action, resilience is a concept common to all three agreements, and is seen increasingly in other agreements and national strategies. Despite its apparent universal appeal, there is limited agreement about its meaning, and the concept needs considerable work on definition and indicators.

KEY LINKAGES BETWEEN THE AGREEMENTS AND RELATED ACTIVITIES RELEVANT TO DISASTER RISKS:

Sendai Framework for Disaster Risk Reduction (2015-2030) emphasises the building of resilience to disasters as a key contribution to sustainable development and poverty eradication. There is a strong message of inclusiveness (para 17): “through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.” And through including all hazards: “It aims to guide the multihazard management of disaster risk in development at all levels as well as within and across all sectors.” (para 15)

SDGs Transforming Our World: the 2030 Agenda for Sustainable Development is a plan for a suite of world-wide positive changes that simultaneously reduce – or help mitigate increases in – most elements of disaster risk. Attentive to not just climate change but many other threatening trajectories (e.g. increasing global inequality, biodiversity loss and freshwater extraction), the SDG agenda aims to avoid further increases in, and to even reduce, the occurrence of some hazards (notably climatic and technological), and similarly with human vulnerabilities. Disasters undermine sustainable development by exacerbating issues such as poverty, inequalities and environmental degradation, with particular areas and groups such as cities and small island states being especially challenged by disasters as they become more widespread, global and cascading in character. However, the SDGs contain internal tensions and action in some goals could exacerbate problems elsewhere – highlighting the imperative of an integrated all-hazards cross-sector approach to risk.

The Paris Agreement on Climate Change is dedicated to reducing risk to the Earth system and everything within it, and thereby ensuring that the environment that supports humanity continues. Its twin goals are low greenhouse gas emissions and climate-resilient development, with a focus on sustainable development (para 6.4-6.7). Article 7 in the Paris Agreement outlines key adaptation goals, including the need to consider sustainable development and disaster risk reduction as well when planning for adaptation. Its adaptation goals focus on enhancing adaptive capacity, increasing resilience, and limiting vulnerability – all fundamental aims of most disaster risk reduction plans, and of the SDGs.

IPCC 1.5 degree report argues that the SDGs provide a “framework for assessing the links between global warming... and development goals ...poverty eradication, reducing inequalities and climate action.” Climate change adaptation can have many synergies with the SDGs, and climate action approaches that are consistent with sustainable development raise fewer challenges and have lower costs (D.6.3. SPM, IPCC 2018). Failure to limit average global warming to 1.5 degrees will greatly escalating disaster risk. Of the five key Reasons for Concern that the 1.5 Degree Report presents, two are to do with increasing climatic and related hazards (RFC 2 and 5), two with disaster vulnerability (sensitivity - RFC 1, exposure – RFC 3) and one with the overall effect on disaster risk (RFC 4).

Global Assessment of Risk (GAR) (and the assessment framework, GRAF) is a data and science driven process that emphasises systemic risk. It argues for collaboration across sciences and societies to meet the challenges of systemic risk. It also argues that uncertainty needs to be accepted and not denied, and that effective risk reduction requires policy cohesion.



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Cover image

Solar radios distributed in Western Visayas. IOM distributes solar radios to survivors of typhoon Haiyan still living in temporary shelters in western Visayas, Philippines.

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IRDR

Integrated Research on Disaster Risk