

Working Sessions

SESSION CONCEPT NOTE

Title: Ensuring Risk Resilient Critical Infrastructure

Schedule	Wednesday 24 May, 10:00-11:30
Room and Venue	Arena E
UNISDR and Mexico Focal Points	Sanjaya Bhatia (UNISDR)
Background and Rationale	<p>Rationale</p> <ul style="list-style-type: none"> • What is at stake: Critical infrastructure is essential for the efficient functioning, and delivery, of basic services provided to cities, towns and rural areas. Destruction, disruptions or interruptions in critical infrastructure, including health and education facilities, could lead to cascading effects across sectors and sometimes across borders, leading to disruption of basic services to communities, causing significant harm to the population's well-being and significant direct and indirect economic impacts. The economic costs of damage to critical infrastructure is very high, resulting in delays in achievement of the development agenda and the SDGs • Aging infrastructure further complicates the situation. Many governments have invested heavily on infrastructure in the last hundred years or so and the life span of this infrastructure is ending. Moreover, such infrastructure is under pressure from increasing populations, social change, changes in technology and in many cases has been unable to function even in disasters of relatively low magnitude. Hence, investing in new and upgrading existing infrastructure is imperative. At the same time, it is essential to ensure that the new investments are risk sensitive. • Changes in human lifestyles and the impacts of technology means any disruptions in electrical supply can become critical for the current mode of living. E.g., Damage in communication infrastructure may cripple information flow, especially affecting social media. Similarly with more adaptation to greener technologies (to reduce climate risk) - infrastructure needs to adapt as well e.g. Electric cars need more charging stations • Finally, there may be a domino effect and pressure on other infrastructure because of impact on one system – even a relatively small flooding in downtown can cripple the service industry significantly over the entire city.

- **What is the opportunity:** Sendai Framework, sustainable development goals 2030, and Paris Agreement all explicitly highlight that protection and resilience of critical infrastructure should be a high priority of governments. The vulnerability of critical infrastructure is also of concern in the governments' national security agenda. Annual infrastructure spending requirements are estimated to increase from today's USD 2.6 trillion to around USD 4.3 trillion by 2030 (Swiss RE and IIF 2014). It is imperative that all critical infrastructures incorporate disaster and climate risk assessment and mitigation measures to understand risks, plan for safety interventions, ensure the continuity of operations and reduce losses.
- The Sendai Framework refers to critical infrastructure in Priority for Action 4 as accounting for "water, transportation and telecommunications infrastructure, educational facilities, hospitals and other health facilities". Furthermore, critical infrastructure is generally defined as "the physical structures, facilities, networks and other assets which provide services that are essential to the social and economic functioning of a community or society" in the final report of the Open-ended Intergovernmental Expert Working Group on Indicators and Terminology Relating to Disaster Risk Reduction. The session will use the same definition.
- The session will help to support the monitoring and reporting of Targets (d) and (e) of the Sendai Framework, and links directly with the Plenary session on National and Local DRR Strategies.

State of Play

- There is vast diversity in the way this issue is being approached and implemented (if at all) in different nations. From the resilience and risk management perspectives, it is a complex management issue as the entire life cycle of critical infrastructure could span many stakeholders, sectors and activities. E.g., with privately operated critical infrastructure, the government has to set clear public policies, legislation and regulatory framework on the requirements for resilience, including measures for system robustness, back-up capacity, rapid recovery and adaptability to new risks that will apply to different phases of the infrastructures life cycle. Further complexities arise when national and local governments share the policy-setting, monitoring and enforcement responsibilities (OECD 2014).
- Given growing fiscal constraints, resilience in critical infrastructure involves an increasing consideration for the role of private sector as both investors in and operators of the critical infrastructure. Furthermore, when there are several operators managing different components of a critical infrastructure (e.g. electrical grid or the telecommunication network), governments play an important role in regulating the operators. Concerns for resilience become challenging depending on the modes of

	<p>infrastructure delivery as well as the level of control of the government and the private sector.</p> <ul style="list-style-type: none">• Increasingly the potential benefits of the (re)insurance sector, not only because of its investment and risk transfer functions, but also its expertise in risk modelling and resilience research are being recognized among the public and private sectors. Initiatives by the OECD and the Global Infrastructure Facility (GIF) of the World Bank Group, amongst other initiatives, aim to further explore and facilitate the benefits of insurance. The Geneva Association (an international think tank whose members are 78 CEOs of the largest (re)insurance companies, globally) is exploring the role of insurance industry in investing in and resilience of critical infrastructure.• Ability to manage these risks and ensure resilience in critical infrastructure would require an integrated approach to managing disaster and climate related risks (Golnaraghi, et al 2016):<ul style="list-style-type: none">○ Capacity to assess risks in existing infrastructure and for design and development of new critical infrastructure. This is fundamental input for designing new or retrofitting previous built infrastructure.○ Develop design standards, policy, and regulatory and monitoring framework to ensure the standards are enforced. Furthermore, in light of the transition to the low carbon economy, greening of the critical infrastructure should be considered.○ It is key that the critical infrastructure is insurable, which provides the opportunity to build further economic resilience through insurance and risk transfer mechanisms, and attracts more investment to the project.○ Emergency preparedness and standard operating procedures in case of any shocks, interruption and disruptions should be factored in. <p>This has to be underpinned by relevant policies, regulatory framework and partnerships across the various levels of the government and with private sector through effective PPP.</p> <ul style="list-style-type: none">• Policy developments (global/regional/national/local): A number of countries have policies in place to ensure critical infrastructure is built, and maintained, to high standards and the processes include business continuity planning. E.g. China built major public infrastructure to higher standards after the Sichuan EQⁱ• Strength of partnership and support: Partnerships such as ARISE, Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GAD3RES), Worldwide Initiative for Safe Schools (WISS), GA, ISO, and others can help spread the message, disseminate good practices, and set standards. Stakeholders must treat expenses on DRR as an investment in the future, not as a cost.• Challenges in implementation: Lack of awareness, insufficient risk assessments, lack of standards, lack of professional
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	<p>competencies and expertise among built environment professionals (DRR is hardly ever a core subject in civil engineering degrees and it is not a core competency), lack of cooperation.</p>
Session Objectives	<p>The session aims to call for:</p> <ul style="list-style-type: none"> • Establish a platform for critical infrastructure to ensure investments in resilient infrastructure by banks (WB, ADB, IADB, AIIB, OECD, etc.), governments, builders, architects, businesses (ISO and Insurance), and other stakeholders. The session will attempt to focus on current level of progresses and success stories, as a demonstration of the plethora of tools and technologies already available for risk assessment and mitigation – no need to reinvent the wheel. For example, Engineers Canada has established PIEVC – a protocol to assess the vulnerabilities of infrastructure to extreme weather events and future changes in climate. https://pievc.ca/ <ul style="list-style-type: none"> • Partnerships and commitments to implementation: ARISE, ISO, Geneva Association, Worldwide Initiative for Safe Schools (WISS), GAD3RES etc. (see list of networks in annex) • An online platform to compile best practices, tools, guidelines as a Wiki, development of standards for resilience of critical infrastructure, for better sharing of practices on building codes including their implementation, call for regulatory framework and monitoring to ensure that standards and building codes are enforced, risk transfer, safe schools and hospitals, etc. • Training modules, both face to face and online, to reach stakeholders <p>In addition possible deliverables include:</p> <ul style="list-style-type: none"> • Make a call to conduct disaster risk assessments of all existing and new critical infrastructure (including schools and hospitals), improve building practices & standards and foster the enforcement of building codes; make a call for business continuity planning and for greater adoption of risk informed insurance mechanisms, explore how DRR could be incorporated into the education (and professional development) of those who deliver critical infrastructure • A call to the international development community and funding mechanisms to build these standards as conditions for their engagement, loans and grants. • Promoting the important role of risk financing and risk transfer (including insurance) in building economic resilience
Discussion agenda	As per scenario
List of speakers	<p>CHAIR: H.E. Wais Ahmad Barmak, Minister of State Afghanistan</p> <p>Speakers: 1) Mr. Hans Sy, SM Prime, Chairman of the Executive Committee of</p>

	<p>SM Prime Holdings Inc. 2) Mr. Hirotada Matsuki, Director, Water and Disaster Management Bureau, MLIT Government of Japan 3) Mr. Rubem Hofliger, Swiss Re 4) Mr. P.K. Mishra Prime Minister's Office, India 5) Ms. Michele Young, Asia Regional Shelter and Construction Adviser, Save the Children 6) Ms. Inés Gutierrez, Chief of National Defense and Disaster Risk Management Bureau, Ministry of Education of Peru</p> <p>Discussant 1) Ms. Paulina Alejandra SEPULVEDA GOMEZ Ministry of Public Works (Ministerio de Obras Publicas), Chile 2) Mr. Serateki Macanawai, CEO Pacific Disability Forum</p>
Expected outcomes	<p>Call for establishment of a community of practice and an online platform, with links to existing platforms such as International Recovery Platform, Prevention Web, <i>Anticipate, Absorb, Reshape</i> A2R and other existing and relevant platforms and networks.</p> <p>Call for making disaster risk assessments a prerequisite for critical infrastructure investments.</p> <p><u>It is expected the Platform will eventually become a key part of the effort to develop national and local DRR strategies (target E), and play a significant role in the achievement of the SDGs, specifically Goal 9. It links directly with element b of the Chairs summary, and follows the outcome documents of the AMCDRR 2016 and the African Regional Platform 2016.</u></p>
Commitment / special announcement in support of the Sendai Framework	<p>Call for establishment of a community of practice and an online platform focused on resilience of critical infrastructure (as mentioned above in the Way Forward)</p>
Technical Equipment Required	<p><i>1 fixed mic for each speaker, 1 mobile mic for audience, projection equipment and laptop.</i></p>
Background documents	<p>See Annex</p>