UNDRR
UN Office for Disaster Risk Reduction

UNDRR Inputs – Report of the Secretary General on 'Sustainable development of the Caribbean Sea for present and future generations'

- **Ocean and Resilience, including early warning systems**
  - ***Current state:*** At the start of July 2023, the world experienced its hottest week on record, which followed the warmest June since official records began, as well as unprecedented warm sea surface temperatures and marine heatwaves.[1] As climate change heats the oceans, ocean-related hazards such as storms, sea level rise and salt intrusion have the potential to become more intense.
  - ***Early Warnings for All:*** One crucial component to mitigate the risks of ocean-related hazards is the development and strengthening of multi-hazard and impact-based early warning systems for anticipatory and early action. In 2022, the UN Secretary-General launched the Early Warnings for All initiative, which seeks to cover every person on the globe with an early warning system by 2027 and is being implemented by several UN entities, international organizations and development partners under the lead of UNDRR and WMO. This initiative can spur action to increase resilience to ocean-related hazards and disaster risk at large, including for coastal communities.
  - ***Science and technology:*** Ocean observation is a cornerstone for early warnings and coastal resilience[2]. The key to mitigating the impact of extreme events, including flooding and storms, lies in our ability to produce accurate and timely forecasts and warnings - a capacity that critically depends on the continuous flow of ocean data. Advancing ocean science and relevant technology can help address these gaps. In addition, resilient mechanisms which can issue clear early warning to coastal residents in the case of ocean hazards are essential. It will be key to invest in emerging technologies and support governments, particularly the most vulnerable ones, such as Small Island Developing States, in enhancing their proficiency in innovations that allow for better early warning systems.
  - ***Increasing availability of early warning systems:*** Through the Early Warnings for All Initiative and the Climate Risk and Early Warning Systems initiative, in cooperation with the World Bank and the World Meteorological Organization, UNDRR has been working to increase the availability of and access to multi-hazard early warning systems and support a transition to impact-based forecasting informed by historical disaster risk data in the Caribbean. In this regard, the Office has worked with the Caribbean Disaster and Emergency Management Agency (CDEMA), Barbados, Antigua and Barbuda, Guyana and Trinidad and Tobago to conduct workshops to assess gaps and implementation plans for the Early Warnings for All Initiative and develop national roadmaps.

- **Resilience in trade and the ocean economy**

[1] WMO, "Preliminary data shows hottest week on record. Unprecedented sea surface temperatures and Antarctic sea ice loss", 10 July 2023. Available at https://public.wmo.int/en/media/news/preliminary-data-shows-hottest-week-record-unprecedented-sea-surface-temperatures-and.

[2] https://www.ioc.unesco.org/en/articles/ocean-observing-cornerstone-early-warnings-and-coastal-resilience

- As laid out in the 2023 Global Assessment Report on Disaster Risk Reduction, with over 80 per cent of the volume of global trade in goods carried by sea, seaports are key nodes in the network of global supply chains as well as the ocean economy, and vital to trade and development. At the same time, these complex infrastructure assets, often integrated within large urban agglomerations, are at the frontline of climate change. Related impacts can result in significant damage, as well as costly disruption and delay across supply chains, with potentially far-reaching consequences for international trade and the sustainable development prospects of the most vulnerable nations, including SIDS, that depend on their seaports as lifelines for trade, energy, food, tourism and in the context of DRR.
- Global port-specific risk from natural hazards has been estimated at US$ 7.5 billion per year, with 32 per cent of the risk attributed to tropical cyclone impacts, and an additional US$ 63.1 billion of trade estimated to be at risk. Under increased global warming, seaports will be exposed to rising mean and, particularly, extreme sea levels (ESLs) that could overwhelm their current defences and lead to extensive flooding and operational disruptions.
- With maritime trade expected to triple by 2050 and climate-driven hazards expected to increase, significant acceleration of investment in climate change adaptation and resilience-building for ports is needed to avert, minimize and address damages or losses and safeguard supply chains. Major scaling-up of affordable investment in infrastructure adaptation will be critical for developing countries, particularly vulnerable SIDS that are sea-locked and therefore depend particularly on their ports and airports.
- Work on resilient infrastructure, including through stress-testing of critical infrastructure has been undertaken across the region, including in Trinidad and Tobago.

- **Nature-based solutions and DRR**
  - Promoting marine and coastal nature-based solutions and ecosystem-based approaches for disaster risk reduction and promoting risk-informed integrated coastal zone management is key to achieving sustainable development of the Caribbean Sea. The ministerial declaration adopted at UNEA-6 calls for action on incorporating environmental considerations, including related to biodiversity and water, into disaster risk management policies and actions. However, the reverse is also needed, for risk-informed, forward-looking approaches to be included in environmental agreements, agendas and processes, including in the context of coastal and oceanic ecosystems.
  - Nature-based solutions are one solution that connects biodiversity, climate change and disaster risk reduction challenges and provides benefits to address all three, as well as for human wellbeing. This is particularly relevant for Caribbean SIDS that are increasingly vulnerable to environmental and hydro-meteorological hazards and subsequent disasters threatening livelihoods.
  - As more than 3 billion people rely on the marine environment for 20% of their dietary protein and up to 120 million people for their livelihood, the restoration of healthy marine ecosystems is also critical for the reduction of people's vulnerability to hazards. The reduction of marine pollution, Target 14.1, in particular from plastic waste and microplastics (both considered hazards in the Hazard Information Profiles), and promotion of sustainable fishing practices, Target 14.4,

are critical to reduce risk to human health and wellbeing and to build the resilience of coastal communities.

- **Plastic Pollution and DRR**
  - Finally, it is also important to consider the linkages between ecosystems from source to sea. For example, in terms of pollution, most of the plastic pollution littering oceans is generated on land. Similarly, the reduction of other risks on land can mitigate ocean-related hazards, particularly as coastal resilience is strengthened.
  - Disasters, particularly extreme weather events such as hurricanes and floods, often lead to an expressive number of debris, including in coastal communities of the Caribbean Sea where they can increase marine plastic pollution. Given the worldwide trend of increased frequency and intensity of extreme weather events, disaster-related plastic pollution must be tackled.
  - Plastic pollution has been particularly affecting marine and coastal ecosystem resilience. Both microplastics and plastic waste have been recognized as hazards of relevance to risk reduction and resilience building[3] and must be addressed to strengthen the resilience of marine and coastal ecosystems. They diminish ecosystem resilience, including the capacity of ocean and coastal ecosystems, such as coral reefs, mangroves, seagrass beds, to adapt to a changing climate.
  - They also pose threats to water and food security and the livelihoods of millions of people and communities, particularly by impacting fishing and tourism. This heightens vulnerability and puts people at increased risk of disasters, including from flooding, storm surges and other meteorological hazards. In addition, the significant carbon footprint of plastics (as of 2019 plastics have an estimated emission of 3.4 per cent of global greenhouse gas emissions throughout their lifecycle [4]), exacerbating disaster risks contributing to the intensification of extreme weather events, including those related to the oceans.

- **Linkages to the Antigua and Barbuda Agenda for Small Island Developing States**
  - The recently adopted Antigua and Barbuda Agenda for Small Island Developing States (ABAS) speaks to the importance of marine and coastal tourism, mariculture, aquaculture and ocean-based resources for the resilience and development of small island developing states. Further, in section F, emphasis is placed on the need to mainstream disaster risk reduction, in order to safeguard these sectors. Additionally, the emphasis on resilience of coastal communities is being supported by UNDRR's Make Cities Resilient by 2030 programme.

- **Comprehensive Risk Management**

[3] Hazard Information Profiles Online Reference (2023). United Nations Office for Disaster Risk Reduction. www.preventionweb.net/drr-glossary/hips
[4] www.oecd.org/environment/plastics/increasedplastic-leakage-and-greenhouse-gas-emissions.htm

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- The UN Office for Disaster Risk Reduction has been working to reinforce disaster risk governance and to foster the integration of Disaster Risk Reduction and Climate Change Adaptation – at the global level by anchoring Disaster Risk Reduction and resilience into climate change processes under UNFCCC and Paris Agreement, and at the national level through the Comprehensive Risk Management (CRM) approach. By assisting 39 countries and territories in 2023, the UN office for Disaster Risk Reduction, with partner organisations, has been instrumental in advising this integration into national planning frameworks. In the Caribbean, a regional workshop is committed to facilitating dialogue and collaboration among government institutions, non-state actors, and stakeholders, resulting in a regional roadmap for integrated approaches. The UN Office for Disaster Risk Reduction's active participation in global processes, such as the 7th meeting of the Paris Committee on Capacity Building (PCCB), underscores its dedication to promoting a comprehensive approach to National Adaptation Plans (NAPs), emphasizing alignment with the Sendai Framework for and the Paris Agreement.

- To reinforce the ongoing efforts and enhance disaster risk governance and integration, it is key to have a focus on capacity development, knowledge-sharing, and synergies between Disaster Risk Reduction and Climate Change Adaptation initiatives. Leveraging partnerships and maintaining an inclusive approach in planning and implementation frameworks will also contribute to moving this agenda forward. Building on the existing CRM technical resources and tools, a "Technical guidance on application of climate information for comprehensive risk management" was developed by the UN Office for Disaster Risk Reduction and the World Meteorological Office and launched at COP28. Comprehensive risk management has also seen a high uptake in the domain of early warning and early action and features in the Executive Action Plan of Early Warnings for All.

- **Future Generations Language**
  - The Declaration for Future Generations would benefit from integrating resilience and systems-thinking with a long-term time horizon. This would in turn promote a culture of prevention and place value on risk understanding in policy and decision-making processes. This approach, aligned with the Sendai Framework and the political declaration of its midterm review, aims to ensure each successive generation is more resilient. Embedding resilience and a risk-informed perspective across sectors strengthens current policies and enhances the capacity of successive generations for risk-informed thinking. By adopting these principles, the goal is to break the cycle of disasters, halt the spiral, and lay the foundation for a resilient and prosperous tomorrow.
  - Promoting a prevention-oriented, forward-looking long-term approach based on building resilience can contribute to the difference between breakdown or breakthrough to implement the 2030 Agenda for Sustainable Development. While the interests of future generations must be balanced with the urgent needs of present generations; a risk-informed approach to sustainable development can offer a solution to this paradigm. Improving our understanding of what the future will look like and how present decisions are going to impact future generations is crucial in helping us determine which global issues to prioritize. Long-term data

analytics and policy forecasting are tools that can be used to anticipate and navigate these evolving risks.

- Promote active investment in strategic foresight for decision makers and a deep understanding of future risks to equip leaders to deal with their generation's risks. Considering increasing global crises, shocks and disasters, increased investment in disaster risk reduction, prevention, mitigation, preparedness, and early and anticipatory action can be a tool to build resilience. This can open fiscal space for investments in structural transformation, resilience building and efforts towards achieving the SDGs. To unlock investments in resilience, it must be further built into core development policies, which will set the overarching context for future growth.