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MANAGING DISASTER RISK AND WATER SECURITY: Strategies for Small Island Developing States

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There are 38 Small Island Developing States (SIDS) in the world, located in the Caribbean, Pacific and Atlantic-Indian-Ocean-Mediterranean-South (AIMS) China Sea regions. The SIDS are on the front line of climate change, highly vulnerable to extreme weather events and sea-level rise. These factors, combined with pressure on the limited natural resources that these island nations need to sustain their economies and ensure their populations' livelihoods, mean that they are the first to be severely affected by global climate variations and water crises.

This briefing presents issues that decision-makers in island nations need to address to craft national or regional strategies for disaster risk reduction (DRR) and water security planning. DRR policies, and the resulting strategies and action plans are the basis for building long-term partnerships for sustainable development with international funding agencies. SIDS are among the highest-risk locations on the planet. Today some are already experiencing the adverse effects of sea-level rise, vulnerability to water shortages and extreme weather events (Figure 1), and their knock-on effects of desertification, ecosystem degradation, and threats to local food production.

Practical approaches that decision-makers and planners can take to design SIDS-specific policy and action to mitigate climate shocks are highlighted in the recent study by UNU-INWEH - Disaster-Risk, Water Security Challenges, and Strategies in SIDS. It documents current strengths that some states have, their adaptive capacities, and disaster preparedness policies and plans that are in place. It also highlights weaknesses that need to be addressed. These include the lack of up-to-date data and information to manage climate shifts effectively, a need for better coordination between national institutions, and the imperative to boost national sectoral agencies' capacity to do disaster risk planning. By better understanding their situation and shortcomings, SIDS decision-makers will be better prepared to create robust programs for disaster preparedness and reduction, and infrastructure investment to enhance DRR and water security.

The study highlights actions that SIDS can take to improve their resilience to climate shocks:

- ***Build cross-sectoral cooperation and data sharing*** *between national agencies for agriculture, energy, urban planning, environment and water resources, disaster management, and with local communities and their representatives.*
- ***Integrate water security*** *into DRR policies.*
- ***Engage with development agencies*** *to ensure that they understand the specific needs of SIDS and the importance of providing them with long term technical support and investment.*
- ***Increase DRR and capacity development efforts in all SIDS*** *to embed water security thinking at both the policy and community levels.*

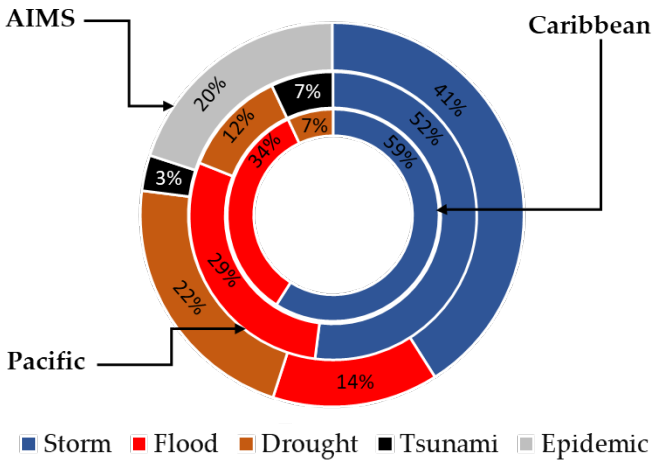

Figure 1: Types of disasters in SIDS in 2018. AIMS SIDS - Africa, Indian Ocean, Mediterranean and South China Sea countries (outer ring) are exposed to all five types of disasters. Pacific SIDS (middle ring) are exposed to storms, floods, and to a lesser extent drought and tsunami. Caribbean SIDS (inner ring) are exposed primarily to storms and floods, and to a lesser extent to drought.

Building cross-sectoral cooperation and data sharing

Each island state has its specific economic, geographic and ecological characteristics. But SIDS share a number of common issues, and all will benefit from sharing information on these topics to improve planning for DRR and infrastructure investments. Cross-regional sharing of hydro-metrological data, such as precipitation and temperature, improves the accuracy of weather forecasting. A good example is the National Water Information System that stores all national water-related data in a platform shared by Barbados, Guyana, St. Lucia, Jamaica. Other Caribbean countries are planning to join this platform.

National level DRR planning will progress significantly as decision-makers gain better access to data across all economic sectors – from ministries of planning, finance, environment, agriculture and food security, water and natural resources management. These data collection and sharing processes need to be managed by a dedicated specialist in each sector, who will ensure highest data quality and relevance for decision-makers.

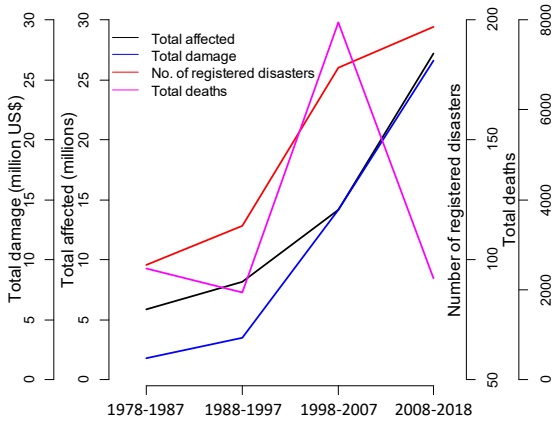

Figure 2: Trends in numbers of people affected, total damages caused by disasters, numbers of registered disasters and casualties in SIDS (Data Source: EM-DAT https://www.emdat.be/)

To improve regional DRR planning and knowledge exchange, all SIDS can benefit from adopting the Sendai Framework for disaster risk reduction to share disaster-related information in the Sendai Monitoring System. The Maldives National Water and Sewerage Policy (2017) is an excellent example of how DRR, climate change adaptation issues, and water security are mainstreamed into a national policy. This is a process that brings together government agencies and ministries, NGOs, the research and academic community, political parties, local businesses, and community leaders. It also links to tourism, fisheries, and other core national industries. This type of national development planning can be enriched if it shares these data with neighboring island states across the region.

SIDS and climate change: today's reality

Two significant trends affecting most SIDS today are:

An increase in severe climate events: The number of disasters in SIDS is increasing at a higher rate than the global average (*"the number of registered water- and climate disasters rose from 212 (1978–1997) to 377 (1998–2018), an increase of almost 178%"*). But there is a significant decrease in total deaths (Figure 2). This decline may be attributed to combined DRR efforts across these states. Climate change is likely to cause increased frequency and intensity of these disasters.

Water scarcity: More than 70% of SIDS face a risk of water shortage, a number that rises by more than 90% in SIDS with low altitude; and some 75% of SIDS face a risk of groundwater pollution (UNESCO). Most island states are water-scarce today, with low groundwater volumes. Increasing demand from population growth and tourism – coupled with decreasing supply due to pollution and changing rainfall patterns – are causing freshwater resources to be increasingly limited.

"Our beaches are disappearing; our drinking water is being affected... SIDS are the ground-zero of a global climate and biodiversity crisis," says Belize's Minister of Foreign Affairs, Wilfred Elrington (High level meeting on SIDS at UN, September 2019).

Integrating water security into the core of DRR policies

A trans-sectoral and interdisciplinary approach is necessary to ensure water security in SIDS (74th UN General Assembly in New York-SIDS representatives, September 2019).

Water policies in SIDS have been generally applied using the Integrated Water Resources Management (IWRM) framework. This approach links with SDG target 6.5 and generally with the SDG 6 call for action to all sectors in society to cooperate to improve the management and availability of water resources for economic, environmental, and social-development. The DRR approach for SIDS calls on decision-makers to add a water security lens to IWRM thinking. This means integrating participatory water governance activities, better financial models for water sector management, and stressing the value and knowledge systems that are relevant to local communities. Water security also means addressing environmental protection and the adverse effects of poor

management, while managing any conflicts related to the water crisis that may affect a state's political stability.

A DRR approach encourages all sectors to work together to improve water security in a country. UN-Water's Water Security Agenda (2013) is a useful guide for countries to embed DRR in their existing national plans. It is about going beyond water allocation and competition discussions, to encourage cooperation between all players to address the country's risks. Applying the water security conceptual framework to design water management policies also provides an opportunity for SIDS to regulate social-ecological relations to achieve sustainable water futures, given that a focus on protecting ecosystems and ecosystems services is reflected in the framework. It is also important to note that in 2016, the UNESCO-led Transboundary Water Assessment Program initiated groundwater assessment in SIDS, and provided a useful reference for collective action that can be scaled-up.

A regional water security approach helps SIDS address common climate change issues, in the process of developing common DRR policies and actions, as a basis to encourage donors to invest in regional initiatives. This process adds value by sparking cooperation between government agencies, NGOs, Academia, private sector, tourism and fisheries sectors, community leaders, and political parties.

Toward a global policy platform for SIDS and sustainable development

Third International Conference on SIDS in Samoa (2014) agreed on the SAMOA (Small Island Developing States Accelerated Modalities of Action) Pathway –. providing a base frame for 300 multi-stakeholders` partnerships to support SIDS. The inter-governmental SIDS Partnership Framework was created to monitor progress and stimulate new partnerships for sustainable development of SIDS. In 2019 the UN General Assembly hosted the high-level event to review the progress of SAMOA Pathway activities.

The World Bank's recent funding of new initiatives in the Dominican Republic on disaster risk resilient agriculture and IWRM (2018-2019), aims to improve access to water supply and sanitation services in targeted river basins, improved irrigation and drainage services, and to encourage better resilience for rural producers and overall water governance. Another project on sustainable water supply and sanitation for rural communities and small-town, focuses on delivery mechanisms for water, sanitation and hygiene (WASH) to improve the country's capacity to respond to water-related emergencies. This approach links with the integrated vision outlined in the water security framework and SDG 6 targets portfolio.

Engaging with development agencies on a SIDS-focused agenda

The fragile water and ecological profiles in SIDS and the continual threats they face of damage from climate-related disasters, mean that these countries need a different type of support from development programs than their continental counterparts. SIDS specific situations require long-term financial and technical support and investment to put the DRR components in place.

SIDS' priorities for funding and investment are to create infrastructure for data, information; and knowledge sharing between government agencies, communities, businesses, and high-income countries for technology transfer. Likewise, innovation-based economies such as Singapore – considered a SIDS – have a wealth of knowledge to offer, particularly with experience on early warning systems, flood mitigation actions, climate-proof urban planning, infrastructure, and water provisioning systems.

Development partners can further strengthen DRR for the long-term by supporting education and encouraging the sharing of national policies across island regions. A knowledge-sharing platform between SIDS can:

- Present effective and sustainable water provisioning and management interventions such as rainwater harvesting, desalination, and facilitate business and trade opportunities to support innovations assisting with water quality, reuse and recycle processes. It can drive the sharing of best practices in a network linking water and land management initiatives in mainland landscapes.
- Encourage support to develop small and medium-sized businesses. This includes: inclusive growth and financing; loans, savings, insurance and microfinance; and design of entrepreneurship such as subsistence farming and fishing, and tourism sector activities.

Increasing DRR and capacity development efforts in all SIDS

A capacity building effort is needed in all SIDS to embed water security and DRR thinking at both the policy and community levels, to encourage action on climate change and sustainable development.

To make water security and DRR a reality, skills need to be developed for water authority personnel, hydro-engineers, and water infrastructure technicians in areas such as technology, communication and management. Interactive learning platforms will inform teachers, researchers, and education professionals, and embed water security and DRR concepts in national curricula to influence the younger generation.

For example, The Mauritius Strategy (2018) is incorporating resources for educational reform and implementing sustainable development strategies into the education curricula. UNU INWEH's Water Learning Center' provided a 'Global Water Security' program that offers a practical guide to water security concepts (https://wlc.unu.edu/). Most of the learning material can be tailored to SIDS specific content.

In the coming three decades, water security and climate change adaptation, including DRR planning, will be a significant challenge for the world's most vulnerable SIDS. At the same time, there are clusters of SIDS whose social, economic, and policy situations, and environmental profiles are stable and progressing. These disparities make it difficult for international agencies to create one comprehensive

development plan for all SIDS. But they offer an opportunity for the transfer of know-how for sustainability planning or technologies between the more and less developed islands states or SIDS clusters.

Each SIDS that transitions to a DRR and water security planning approach generates rich experiences that can be shared with other lagging states to help them catch-up to meet their SDG targets. Policies that work well in one country for coalition-building for efficient wastewater reuse and recycling, or incentives for eco-friendly practices provide excellent proof-of-concept for less-developed SIDS to adopt and scale-up.

Building inter-sectoral connections on priorities such as water, land, climate change and DRR actions will give SIDS the leverage to access development financing, better capacity for harmonized planning, and achieve bigger impact in facing climate change and natural disasters. Taking action as a group, SIDS can create enabling environments for business investment and encourage each other to put in place innovation-based development planning.

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