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Freshwater and Islands: A SIDS perspective

Assela Pathirana[1], Akosua Sarpong Boakye-Ansah[1], Fazeela Ibrahim[2], Tharika Fernando[3], Adam Mubeen[1], Adele Young[1], Amit Singh[4], Suma Khlaid[5], Helen Deise Barbosa[6], Atishma Lal[7]

[1]IHE Delft Institute for water education, Delft, Netherlands. [2]Villa College, Male', Maldives. [3]IHE Delft Institute for water education, Colombo, Sri Lanka. [4]Pacific Community, Suva, Fiji. [5]Feneka Corporation, Male', Maldives. [6]IHE Delft, Santiago, Cape Verde. [7]- Pacific Islands Forum Secretariat, Suva, Fiji

Abstract

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Home to about 1% of the world’s population, small island developing states (SIDS) were categorised as a special case for both development and environment by the UN in 1992 [UN, n.d.]. SIDS are about 58 states and territories located in three regions: the Caribbean, the Pacific, and the Atlantic, Indian Ocean, Mediterranean and South China Sea (AMIS) and are considered among the most vulnerable group of locations in the globe. On average, the ocean area of a SIDS country's EEZ (Exclusive Economic Zone) is nearly 30 times the landmass, making the majority of natural resources occur in connection to the sea. A mix of climate and local human impact drivers have made these islands vulnerable to water hazards like beach erosion, floods, drought, groundwater pollution etc. [Nurse, et al., 2021]. These occur in a backdrop of a special socio-economic context, sometimes known as the “island paradox”: the concurrence of high vulnerability to the risk of external shocks and relative prosperity (for example being highly sought-after tourist destinations) in comparison with other types of economies [di Friedberg, et al., 2021]. This was perfectly illustrated by the impact of the COVID-19 pandemic on many SIDS: the reduction of international tourism and foreign remittances seriously impacted the economies of these islands [Sachs, et al., 2021].

IPCC (Assessment report 6, Working group II) chapter on small islands [Nurse et al., 2021] identify air and ocean temperature change, ocean chemistry, rainfall, wind strength and direction, sea levels and wave climate including tropical cyclones, drought, and distant storm swell events as major climatic drivers of change. The impacts of which depend on the magnitude, frequency and extent of the events as well as on the geophysical, social, economic and political context of the island. The majority of these drivers as well as their corresponding hazards and risks are very much related to the water systems of the nations. While in absolute terms do not often make global headlines, in terms of percentage of GDP or population impacted, SIDS are among the most vulnerable locations on the Planet. To address these vulnerabilities, an essential component is the wholistic understanding, rehabilitation, management and preservation of the water systems in these nations. Integrated management of water and marine resource management challenges in this rapidly changing environment calls for good governance, integrated policies, improved community resilience, and capacity-building.

Sustainable water management in SIDS requires a multi-faceted approach that encompasses innovative technologies, community engagement, robust policy frameworks, and international collaboration. Technological innovations are essential to address water security challenges in SIDS. From advanced desalination techniques that provide a reliable source of fresh water to efficient rainwater harvesting systems that maximize available resources, technology plays a critical role in ensuring the sustainable management of water

in these regions. Wastewater recycling and reuse can significantly reduce the demand for freshwater, contributing to water security.

While acknowledging the importance of technological innovations in addressing water security challenges in SIDS , this session will also , highlight the importance of integrating traditional knowledge with modern innovations to create resilient water management systems. Community-driven initiatives play a crucial role in achieving water sustainability in SIDS therfore, by involving local communities in water management decisions, SIDS can harness traditional knowledge and practices that are well-adapted to the local environment. This participatory approach not only ensures the sustainability of water resources but also empowers communities, fostering a sense of ownership and responsibility towards different innovations implemented for water conservation.

Papers in the session

Note: These are the initial papers, we may ask for the possibility of adding two or three more talks.

Our preference is to use thee (5-8) topics to provide sort of ‘elevator pitches’ each lasting about 5 minutes. This will be followed by a public discussion in a workshop format. The goal of the public discussion is to discuss and debate the appropriate approaches for water security in small island developing states.

1. Commercialization and Service Differentiation in Santa Cruz - Small Islands Development State, Cabo Verde: This paper examines Aguas de Santiago S.A (AdS), a commercial public water utility in Santiago, Cape Verde, and its impact on service differentiation and consumer inequality. It highlights the challenges of balancing commercial objectives with equitable service delivery, leading to a low-level equilibrium for certain consumer groups.

2. Sustaining Small-Scale Water Systems (3SWater): Focused on small islands, this project integrates local knowledge with collaborative learning to enhance the sustainability of small-scale water systems. It aims to protect aquatic ecosystems and improve quality of life through pilot demonstrations, specialized training, and applied research, developing scalable, globally applicable solutions.

3. Infrastructure Asset Management in SIDS – Challenges of the ‘islandness: Discusses the explosive growth of water supply and sewera3ge services across the Maldives' outer islands, emphasizing the challenges of infrastructure provision in small, isolated communities. The paper shares lessons learned from these mixed-success projects on sustainability and implementation.

4. Watering PSIDS NDCs – Enablers and Barriers – case study of Fiji: Water is critical for sustenance of life and environment, yet it often finds itself in the shadows of climate change and disaster risk reduction. The impacts of climate change (CC) are primarily felt through the water systems – too much water or too little water. For many Pacific Small Island Developing States (PSIDS), the effect of CC on hydrological cycle is only going worsen, which renders the key questions how “island” communities are planning for anticipated changes. The Nationally Determined Contributions (NDCs) provide opportunities to mainstream and prioritise water throughout all national climate planning and implementation processes and further pursue it at global climate discussions. While the role and importance of water in national climate planning is acknowledged, it is still not sufficiently reflected in the NDCs – the highest national climate communications to the United Nations Framework Convention on Climate Change (UNFCCC). This session presents how water is integrated in NDCs in PSIDS, its enablers and barriers. It provides valuable lessons for mainstreaming water in NDCs, giving it the recognition it deserves, allowing for management of water as an asset for achieving the goals of the Paris Agreement.

5. Capacity Development in the SIDS Water Sector: Presents the development of an innovative, MOOC-integrated course on managing small island water and marine resources by IHE Delft. This initiative addresses the need for capacity development in integrated water management within SIDS, offering a comprehensive overview of water-related challenges and innovations, available as a free, self-paced online course and adaptable for various training formats.

6. The inhabitants of the Republic of Maldives' islands rely heavily on groundwater sources for their non-potable water requirements. Recent anecdotal evidence and opinions of inhabitants indicate contamination of the groundwater resources. Water samples were collected from numerous dug-wells in two outer islands Mulah and Muli and were tested for physical,chemical and biological markers for contamination. Further, household questionnaire surveys were conducted to gain insights into the experiences of the residents when transitioning across sanitation systems. Interviews supplemented these surveys to understand the historical and policy context of the transitions. Many inhabitants complain of the foul smell of groundwater. The water testing results show signs of faecal contamination of groundwater, in spite of the fact that both islands have piped sewer systems. Further work is being done to identify the sources of this contamination and possible remedial actions.

7. Unveiling Water Challenges in the Maldives: Perspectives from the Outer Island Communities Kolhufushi and Muli: Freshwater scarcity in the Maldives demands holistic strategies to tackle climate and human-induced challenges affecting water quality and quantity. Aligned with UN Sustainable Development Goal 6, the government aims to provide safe water access to all inhabitants by 2023 through centralized water piped networks (desalination plants) on each (outer) island. This approach overlooks informal local methods such as rainwater harvesting and groundwater extraction, which can also serve as sustainable solutions for island communities. Hence, this research aims to elucidate the perspectives of local communities and how they cope with different water resource challenges on the outer islands of Kolhufushi and Muli in the Maldives. For this research, 25 Household interviews and 5 Key Informant interviews have been conducted on each island. This research aims to foster more dialogue among stakeholders about Maldives' water management and provide insights to boost water security and safety in the Maldives via individual, community, and institutional efforts and support.

8. Life history of a water policy: Fiji’s draft National Water Resources Management and Sanitation Policy: This research illustrates the social, political, traditional history associated with resource management in Fiji has deeply carved the development of Fiji’s draft National Water Resources Management and Sanitation Policy (NWRMSP), its processes, and development dynamics. The policy process in this case has been heavily top-down, largely influenced and shaped by political actors, often guided by political aspiration, then resource governance requirements. It further reveals that to a certain extent, the NWRMSP iteration is inadequately rooted in the local context but rather constructed by international actors, who also seem to fund the policy formulation, based on their interest in certain water sector activities in Fiji, most of which forms “policy-based lending”. The research further highlights that the initial idea behind policy formulation has been lost in transition and at the end, the policy is only made to satisfy global declarations having ramifications on its intended purpose. It further illustrates that with each iteration the actor dynamics change, with new actors emerging with different power, interests, and influence, each having a varied impact on policy formulation.

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