

Planning for coastal climate impacts on non-sewered sanitation

Abstract for 1st IWA Non-sewered Sanitation Conference 2023

Introduction

Many of the world's cities are sited along coasts. Storm surges often flood low-lying parts of these cities which impacts the health and safety of those living in these areas – in low-income settings, it is most notably the poor and marginalised. Sea level rise due to climate change is projected to exacerbate these disruptive events, making them more frequent and more damaging.

In low- and middle-income countries (LMICs), current urban sanitation services often struggle to safely contain and treat human waste for a variety of reasons. Sea-level rise and the associated increase in storm surges will add a further layer of complexity to urban sanitation service planning in these settings. Planning for sea-level rise is needed to ensure the future reliability of these services and can be a catalyst for upgrading neglected sanitation services to achieve citywide inclusive sanitation.

This presentation will detail a systematic process for working with non-sewered sanitation stakeholders to assess the risks that hazards related to sea-level rise pose for non-sewered sanitation and how they can be accounted for in planning processes.

Methods

The University of Technology Sydney – Institute for Sustainable Futures (UTS-ISF), with support from the Bill and Melinda Gates Foundation, has developed a handbook that lays out a 15-step process for assessing and planning for sea-level rise impacts that is suitable for non-sewered sanitation services in LMICs. The steps are carried out in four phases:

1. **Data information and collection:** Stakeholders collect available information pertaining to the current sanitation context, the institutional landscape for management of sanitation, current coastal flooding issues, and climate change projections. This phase can be designed to accommodate settings where data availability is poor.
2. **Situation analysis:** Stakeholders collaboratively examine the data they collected in phase 1 to develop a shared understanding of the current sanitation context and climate-related issues. They also identify “hot spots” within the city that should be prioritised for addressing sea level rise impacts in sanitation plans.
3. **Understanding and monitoring the impacts:** Stakeholders identify the potential causal chain of impacts that sea-level rise creates for sanitation and indicators for monitoring these impacts as they emerge.
4. **Planning the adaptive responses:** Stakeholders assess adaptation options for addressing the anticipated impacts, including deciding who is responsible for their implementation, and form an action plan for implementing adaptations in the near-, medium- and long-term.

Results

The presentation will provide an overview of these steps as well as case study examples from pilot workshops of the handbook in cities in Indonesia and Fiji. In Mataram, Indonesia, city government participants made a plan to socialise and improve communication, information and education on sanitation and sea level rise; map at-risk sanitation infrastructure; and

develop climate-resilient sanitation facilities. In Suva, Fiji, city government participants made plans to raise awareness on environmental hygiene, monitor sea level rise impacts on the environment, formalise informal settlements, and install flood-resistant septic tanks in informal settlements.

Conclusions

Conference attendees will gain a practical understanding of how sea-level rise can be accounted for in non-sewered sanitation planning and learn from examples of what adaptation actions can be taken. This is critical for the promotion of citywide inclusive sanitation which will be increasingly challenged by coastal flooding events driven by sea-level rise. Although the focus of the presentation is on sea-level rise impacts, the presentation also provides an example of how climate resilience more broadly can be practically implemented into urban sanitation planning processes.