



WORLD BANK YOUTH  
INNOVATION  
CHALLENGE

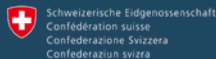
WATER SOLUTIONS FOR A NEW  
CLIMATE REALITY



Launching December 8, 2023 at COP28!

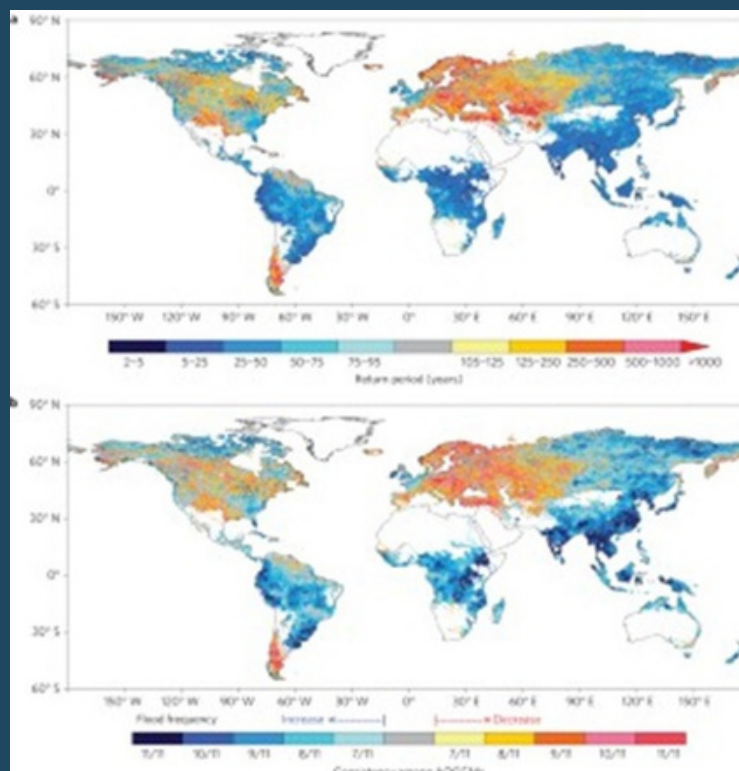
# TRACK 1

# TOO MUCH WATER



## Challenge Statement

- According to the World Bank, the average annual losses from riverine flooding alone are estimated to be around \$100 billion, affecting millions of people and causing extensive damage to infrastructure, agriculture, and other economic assets.
- One-in-100-year floods have directly affected at least 1.81 billion people across the globe (Rentscheler, Salhab, Jafino, 2018). In addition, 668 million people across East Asia and the Pacific are exposed to the adverse effects of flooding.
- The United Nations Office for Disaster Risk Reduction (UNDRR) reports that over the past 20 years, floods have affected more than 2.3 billion people worldwide, leading to significant human suffering, displacement, and loss of life.
- According to the Intergovernmental Panel on Climate Change (IPCC), sea levels have risen globally at an average rate of about 3.3 millimeters per year between 1993 and 2010. This rising sea level intensifies the impact of storm surges and coastal flooding, particularly in low-lying areas, threatening coastal communities and ecosystems.



Flooding and coastal erosion pose significant threats to communities around the world, wreaking havoc on both human settlements and the environment. These natural disasters are often exacerbated by climate change, leading to rising sea levels and more intense and frequent storms. In low-lying coastal areas, communities face the brunt of these impacts as surging waters inundate homes, businesses, and critical infrastructure. The aftermath of such events includes widespread displacement of populations, loss of livelihoods, and damage to agricultural lands. Moreover, the destruction of coastal ecosystems, such as mangroves and wetlands, intensifies the vulnerability of communities by removing natural barriers that once mitigated the impacts of storm surges and erosion.

Developing nations, in particular, often bear the disproportionate burden of these consequences, lacking the resources to implement effective preventive measures or respond adequately to the aftermath. The global nature of these challenges necessitates concerted international efforts to address climate change, adapt to its impacts, and support vulnerable communities in building resilience against the dual threats of flooding and coastal erosion.

According to a study made by the Asian Development Bank on the mean sea level trends of China, India, Japan, Kiribati, the Philippines, and Singapore, Davao region in the Philippines posted the highest mean sea level trend at 5.32 mm per year with a 95 percent confidence interval of +/-1.30mm per year based on monthly mean sea level data from 1948 to 2008. This is equivalent to 0.5 m in 100 years. Strassburg et al. (2015) noted that Southeast Asia has one of the highest sea level trends observed by modern satellites and the long-term sea level trends will continue to be affected by the worsening case of sea level rise across the globe.

For this challenge, participants are expected to design solutions that will address the issues relevant to flooding and sea level rise. These solutions may be in the form of a new or innovative business model, development of a technology that will respond to the needs of the situation, and/or an alternative policy recommendation or public campaign incorporating behavior change.

## Opportunity Areas

### Business Model Innovation:

One way to address flooding is sea level rise could be through implementing a sustainable and innovative business model. This could entail fostering multi-sectoral collaboration involving government, the private sector, and non-profit organizations. The model should prioritize scalable social impact in conjunction with financial sustainability, aiming to enhance the resilience of the most vulnerable sectors to natural disasters and rising sea levels. Diversifying revenue streams to encompass Planet, People, and Profit is integral to achieving a comprehensive and effective approach.

### Technology Innovation:

Advanced technologies utilizing AI and data science can safeguard communities from flooding. Other solutions include designing resilient infrastructure, dewatering solutions, and disaster response systems. In navigating this path, achieving a balance between scalability, affordability, and environmental sustainability is imperative.

### Policy Recommendations:

Another solution could involve facilitating collaboration across local, national, and international levels for the formulation and implementation of policies aimed at safeguarding both communities and the environment. These policies should integrate adaptive measures for behavioral change to ensure their successful implementation at the grassroots level.

## Pioneering Solutions for Inspiration

- [Komunidad Global Pte Ltd.](#) – is an environmental intelligence platform which helps businesses and governments use earth observation data and analytics to accurately assess physical risk and improve resilience from extreme weather conditions, flooding, and other climate-related events that affects governments and businesses in various sectors.
- [ReservoAir](#) – ReservoAir is a comprehensive water solutions platform designed to offer flood mitigation technology through a vulnerability mapping platform tailored for both public and private developers engaged in urban construction projects. This innovative platform is developed in collaboration with PoreBlock, a company specializing in building materials, including permeable concrete, to promote sustainable practices in urban development.
- [FloodMapp](#) -- FloodMapp uses real-time data and artificial intelligence to provide accurate and timely flood predictions, helping communities and businesses better prepare for and respond to flooding events.
- [Floodbase](#) -- Floodbase is a satellite and AI platform to track floods in near real-time anywhere on earth.

## Resources

- [Flood exposure and poverty in 188 countries | Nature Communications](#)
- [Flooding kills more people in low-income countries. Why? | World Economic Forum \(weforum.org\)](#)
- [People in Harm's Way: Flood Exposure and Poverty in 189 Countries \(worldbank.org\)](#)
- [Floods: much worse if you are poor | We Are Water](#)
- [Global flood risk under climate change | Nature Climate Change](#)
- [Impacts of Sea Level Rise on Economic Growth in Developing Asia \(adb.org\)](#)
- [Episodes \(stuffyoushouldknow.com\)](#)
- [Flood movies: Our favourite films where flooding made a splash \(floodflash.co\)](#)
- [Xylem Learning Platform \(xylemsales.com\) - Threats and Opportunities in Water lecture.](#)

## Other Citation and Resource links -

- <https://www.worldbank.org/en/topic/waterresourcesmanagement>
- <https://blogs.worldbank.org/climatechange/flood-risk-already-affects-181-billion-people-climate-change-and-unplanned>
- [https://www.unisdr.org/2015/docs/climatechange/COP21\\_WeatherDisastersReport\\_2015\\_FINAL.pdf](https://www.unisdr.org/2015/docs/climatechange/COP21_WeatherDisastersReport_2015_FINAL.pdf)
- <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>
- <https://www.adb.org/sites/default/files/publication/222066/ewp-507.pdf>

Learn more about the challenge here...

<https://wbyouthinnovationchallenge.org>



Applications Due February  
23rd, 2024