Climate Change Impacts on Water and Health Among Children in Coastal Bangladesh

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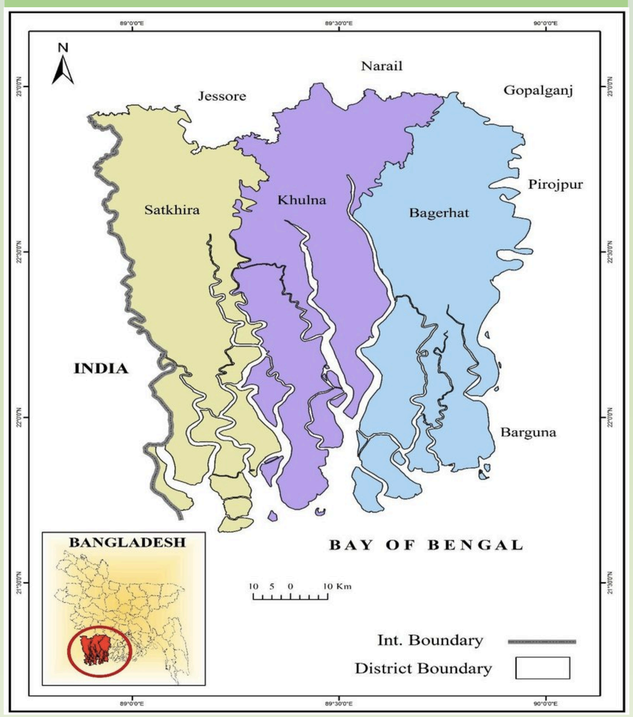
Abstract

Climate change has negatively impacted child and maternal health because of poor water quality that is influenced by salinity levels, fecal contamination, poor hygiene, and metal compound contamination. Young children are susceptible to diarrheal deaths due to poor hygiene practices and the lack of oral rehydration solutions. This is an ongoing problem that is hindered by poor intervention programs and lack of better infrastructure. I found affordable water filter treatments that can be implemented in intervention programs to reduce the prevalence of diarrheal diseases among young children.

Introduction

Coastal villages are very vulnerable to a changing climate. Underdeveloped countries are beginning to endure the challenges that are influenced by climate change. Water accessibility needs to be recognized as a global health priority, water is an essential resource that everyone, regardless of socioeconomic status, should have access to. I chose to focus my research on water contamination among rural communities in the Dhaka and Khulna divisions.

Location

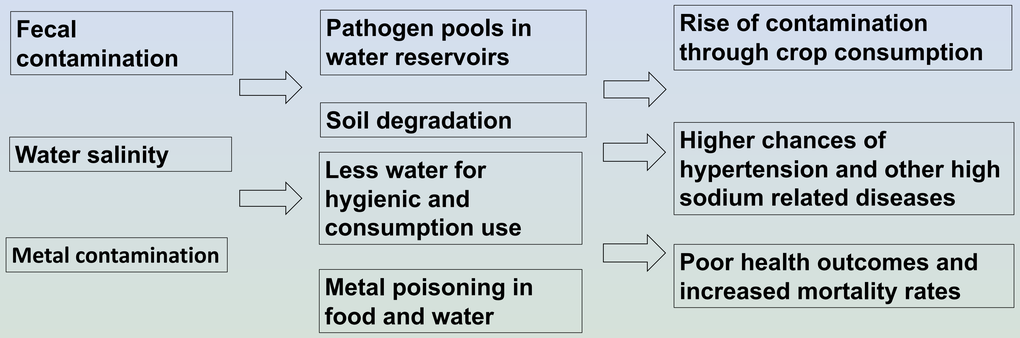


Health Complications to Mothers and Infants Related to Climate Change

- Malnutrition and food insecurity
- Diarrhea
- Respiratory disease
- Water scarcity
- Exposures to toxic chemicals
- Worsened poverty
- Natural disasters
- Population displacement

- Spontaneous abortion
- Premature contractions
- Low birth weight
- Premature delivery
- Increased neonatal mortality
- Dehydration
- Renal failure
- Vector-borne diseases (e.g. malaria and dengue)

Health Impacts of Water Contamination



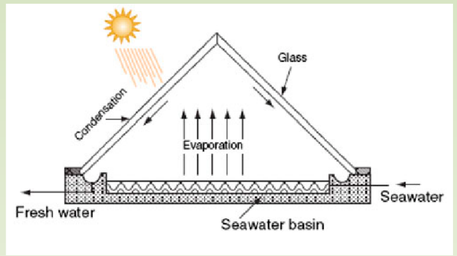
Solutions

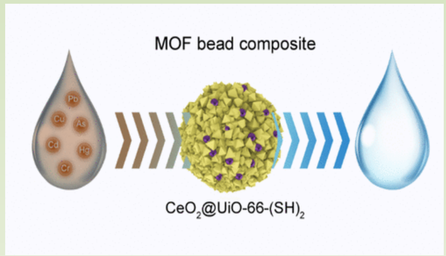
Implementation of large-scale water and sanitation programs.
~ Large-scale programs target health disparities among rural villages by focusing on more populations over a longer period.

Accessibility to oral rehydration solutions to improve survival rates among children under 5 years old.
~ Diarrheal deaths can be prevented by continuously hydrating a sick child.

Saltwater treatments and magnetic nanoparticles are cost efficient water treatments that help remove salt and metal compounds from water.
~ Removing salinity from water prevents the increase of hypertension; metal compound removal decreases the chances of childbirth defects and mother to child diseases.

First image is of saltwater desalination treatment called solar still. Second image is nanoparticle magnetic absorption of metals in water.





Results

- Factors that contribute to water contamination are high salinity levels, fecal matter, metal compounds, lack of water accessibility, inefficient hygienic practices, and poor infrastructure.
- The research I conducted showed that climate change is a driver of high salinity levels found in water, fecal matter and metal compounds contaminate water because of a lack of infrastructure.
- Agricultural contaminants also affect water quality because studies found animal fecal matter in water reservoirs.
- Inaccessibility to resources such as healthcare and clean water introduce waterborne diseases that severely impact the future generation's health.

Conclusions

Climate change has impacted the quality of health in underdeveloped populations. It's important to acknowledge health disparities among young children in rural villages and what steps can be taken in order to reduce mortality rates among newborns and children up to 5 years old. Implementing and supporting the use of oral rehydration solutions can save thousands of children. In addition, educating the general coastal population and increasing sanitation interventions will increase basic hygiene practices that will decrease potential contaminants from seeping into designated water reservoirs.

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