

Cost Effective Adaptation to Flood: Sanitation Interventions in the Gandak River Basin, India

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Abstract

The Hindu Kush Himalayan (HKH) region comprises of areas which are highly vulnerable to flood risks. The region faces challenges from multiple non-climate stressors such as poverty, environmental and climate shocks, and inadequate infrastructure. Addressing these deprivations in ways that reduce vulnerability associated with a changing climate are critical for the communities that live here. This paper combines data on flood risks derived from a climate–hydrology model under two future scenarios of RCP 4.5 and 8.5, with socio-economic data from communities in the Gandak basin, to demonstrate how mainstreaming climate change impacts into decision-making for sanitation interventions can reduce socio-economic vulnerability to flooding. A Cost-effectiveness analysis of the alternative interventions for sanitation reveals that gains are substantially higher under an intervention that takes note of climatic events, both for the present and in the future. Substantial health costs and inconvenience losses that are particularly acute for women during floods can be averted by investing in climate friendly options. Climate adaptation (SDG goal 13 on climate action) can be synergistic with the achievement of other SDGs (Goal 6 on sanitation, goal 3 on health and well-being, goal 5 on gender).