

GLACIERS TO OCEAN (G2O)

Integrating science, policy, and cooperation to strengthen climate resilience in the Ganges River Basin



Why the Ganges River Basin Matters



600+ million people depend on the basin for water, food, livelihoods, transport, and cultural heritage.



1.086 million km² across Bangladesh, China, India, and Nepal; over **200 million** people live below the poverty line



In **60% of households**, women and older adults face **15–20% higher poverty** and flood risk, especially in North Bihar.



~40% of basin outmigration is from Bihar, leaving land underused and increasing vulnerability in rural communities.



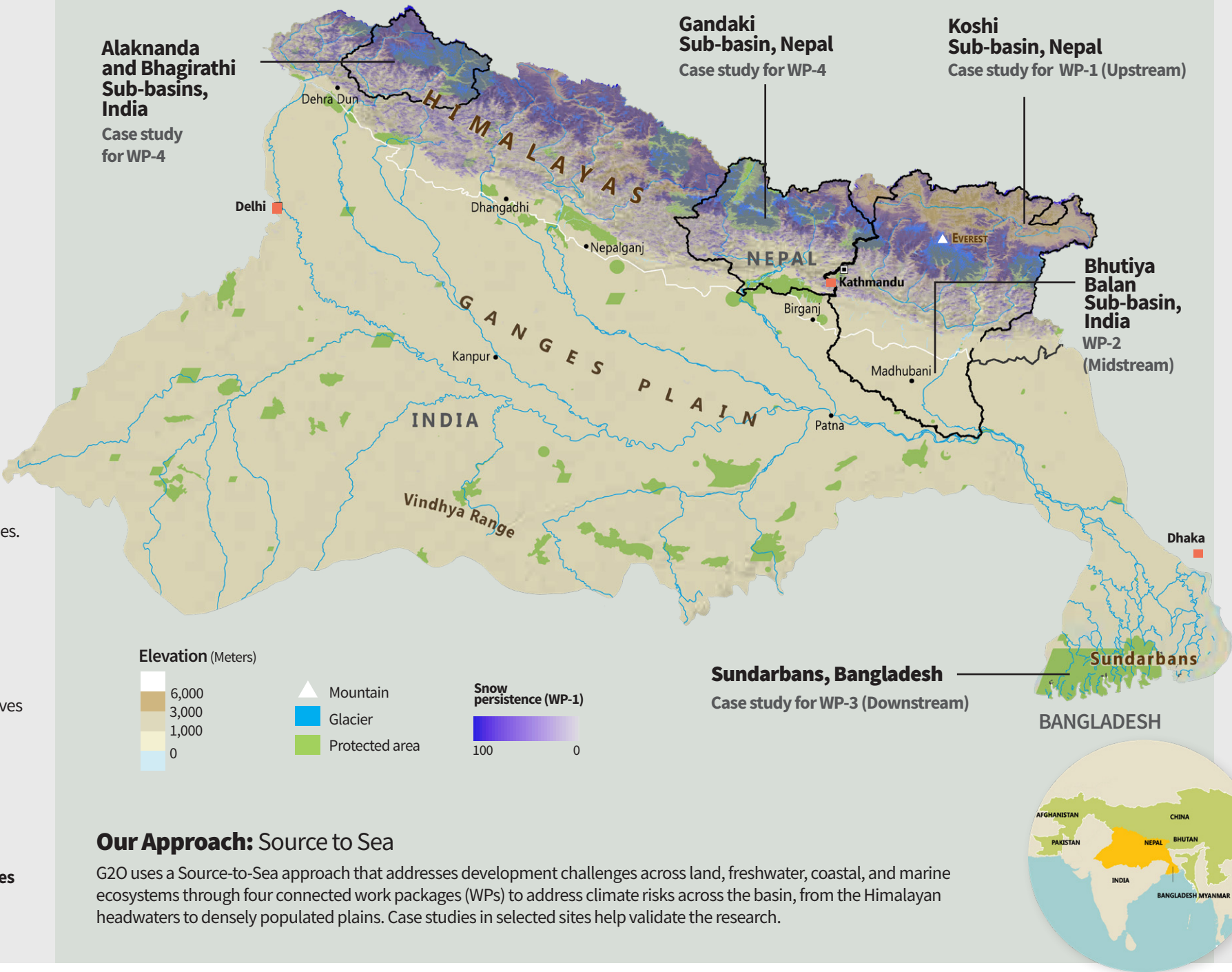
Flooding, sedimentation, and water pollution threaten ecosystems and mangroves; sea-level rise and storms **affect 10–20% of vulnerable** mangroves annually.



Heavier monsoon rainfall, downstream flooding, and upstream glacial lake outburst floods (GLOFs), **landslides, and debris flows affect communities across the basin.**

About the Glaciers to Ocean (G2O) Project

The Glaciers-to-Ocean project is strengthening climate resilience, promoting sustainable water management, and fostering regional cooperation across the Ganges River Basin – from the Himalayan glaciers to the mangrove ecosystems of the Bay of Bengal.



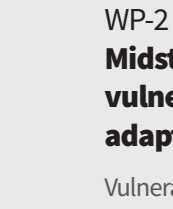
Our Approach: Source to Sea

G2O uses a Source-to-Sea approach that addresses development challenges across land, freshwater, coastal, and marine ecosystems through four connected work packages (WPs) to address climate risks across the basin, from the Himalayan headwaters to densely populated plains. Case studies in selected sites help validate the research.

Work Packages (WP)



WP-1 Upstream: cryosphere risk assessment in the Ganges River Basin
Glacier retreat, glacial lakes hazards, snowmelt, and landslides zoning and hazards in the Koshi sub-basin, Nepal.



WP-2 Midstream: climate vulnerability and adaptation assessment
Vulnerability of densely populated regions (Bihar, India) to floods, droughts, and agricultural stress.



WP-3 Downstream: mangrove and marine biodiversity
Health of mangrove ecosystems and marine biodiversity in the Bay of Bengal.



WP-4 Basin scale climate and water assessments
Climate projections, water availability, erosion, land cover change, and sedimentation.