

Student Thesis Competition (STC) Season 5 on “Re-imagining Urban Rivers”

Hydrology, Habitat, and Humanity : A Case of Kabartal, Asia's Largest Freshwater Oxbow Lake

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Course Discipline: B.Plan

UNDERSTANDING THE NEED FOR KABARTAL'S CONSERVATION



Drastic Wetland Area Reduction - 139 km² (1988) to 38 km² (2024)



Agriculture-Induced Degradation - Causing groundwater decline, increased flooding, wetland loss, and farmer-fisher conflicts.

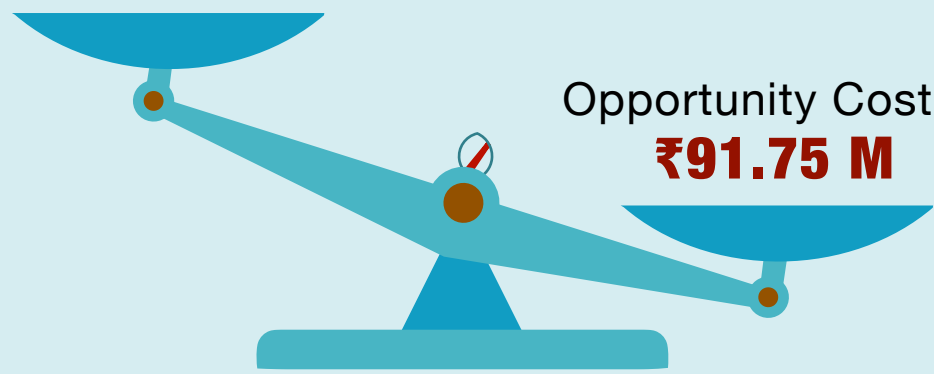


Ramsar Site Compliance Risk - Designated under criteria 1, 2, 4, 5, but failing 4 & 5, risking future compliance.

Weighing the Opportunity Cost Since 1970s

Realized Benefit

₹12.67 M



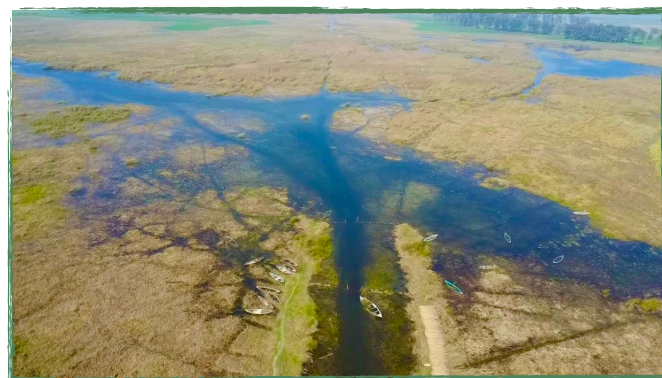
Opportunity Cost

₹91.75 M

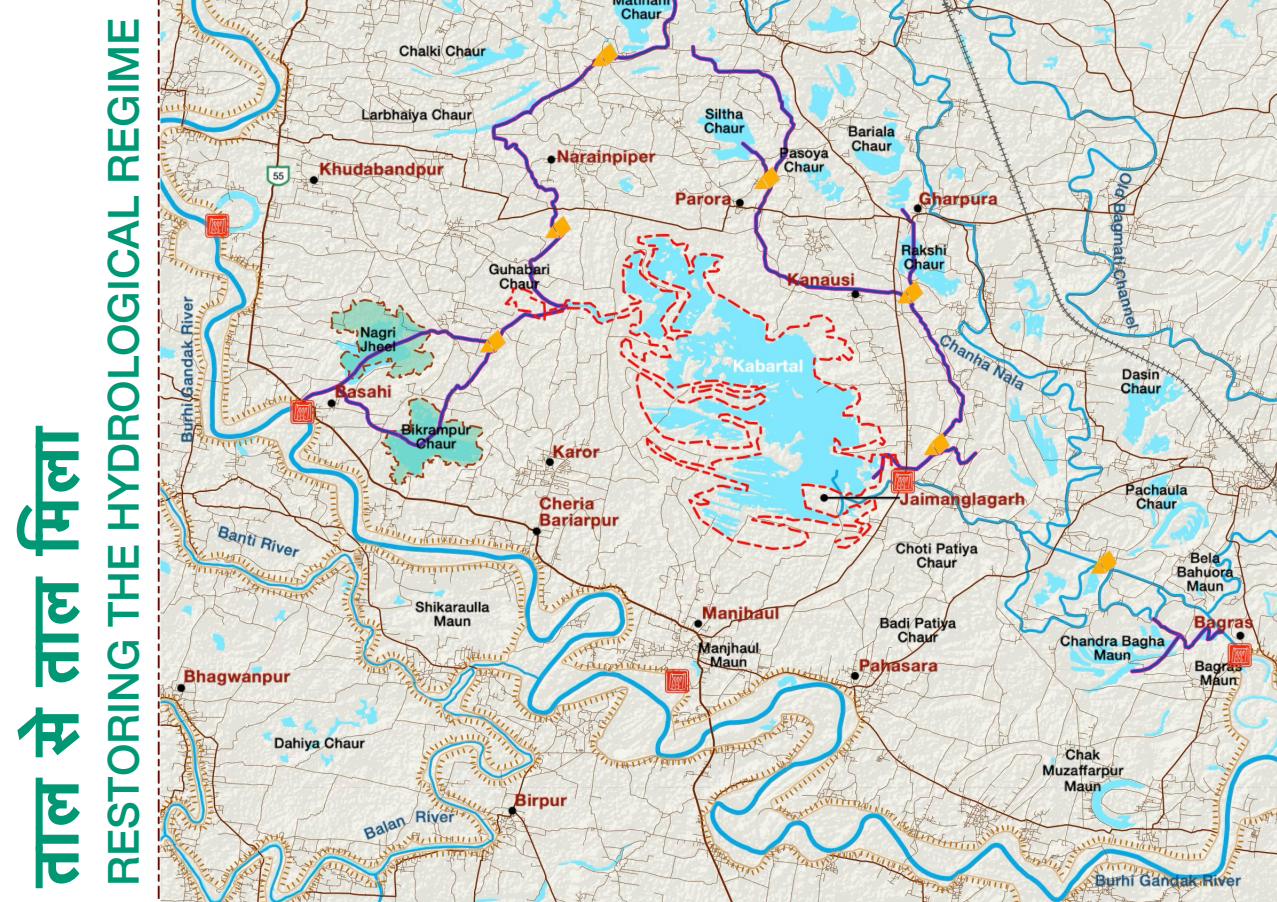
Kabartal's conversion **losses are 7.2x greater than gains**



Wetland or Array of Scattered Canals

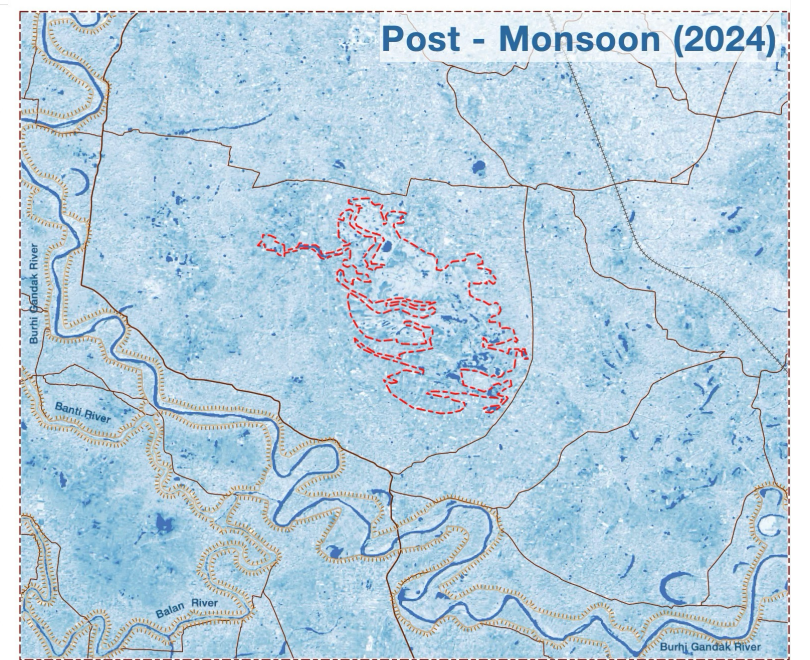
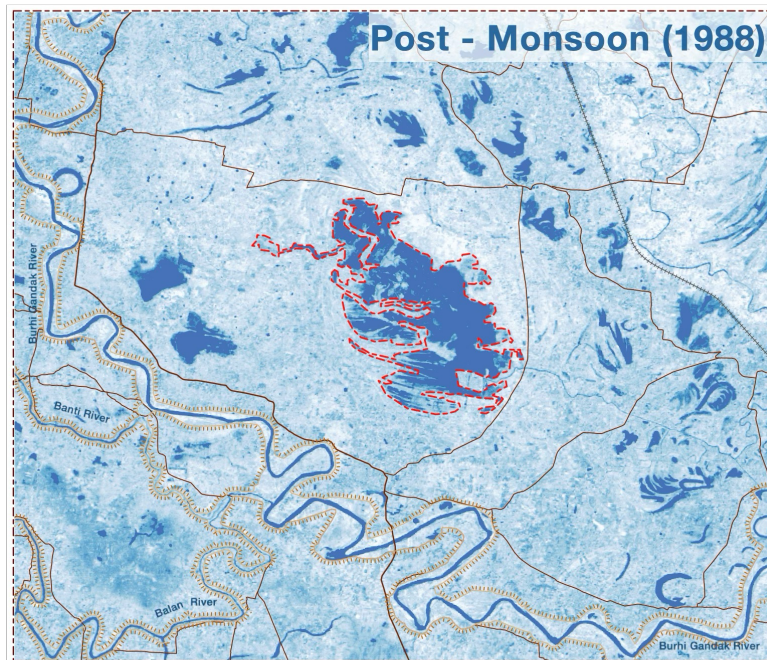
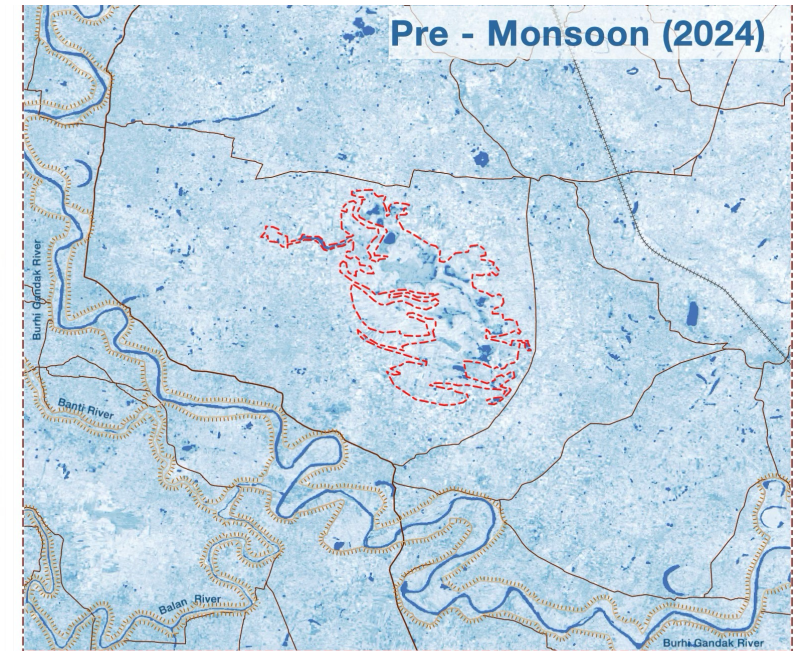
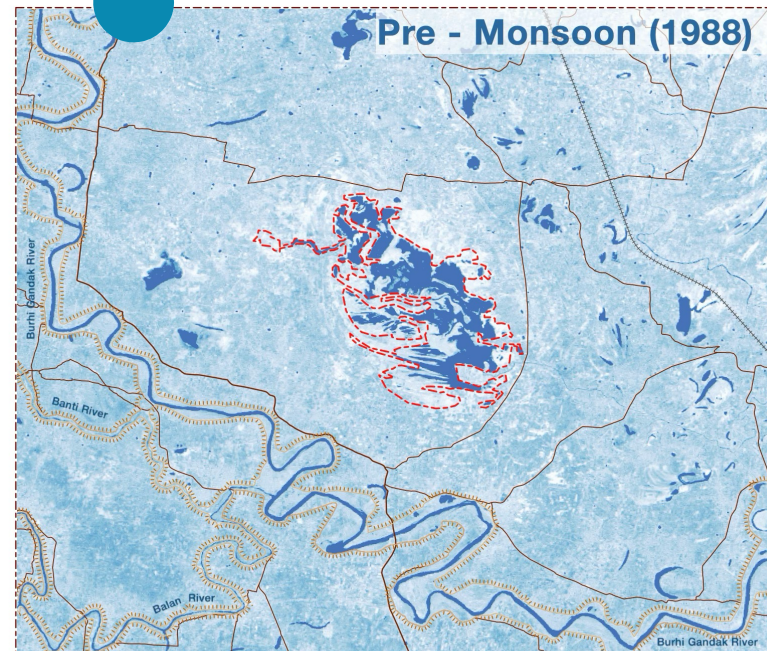


Dying Wetland: Just Puddles Left Behind



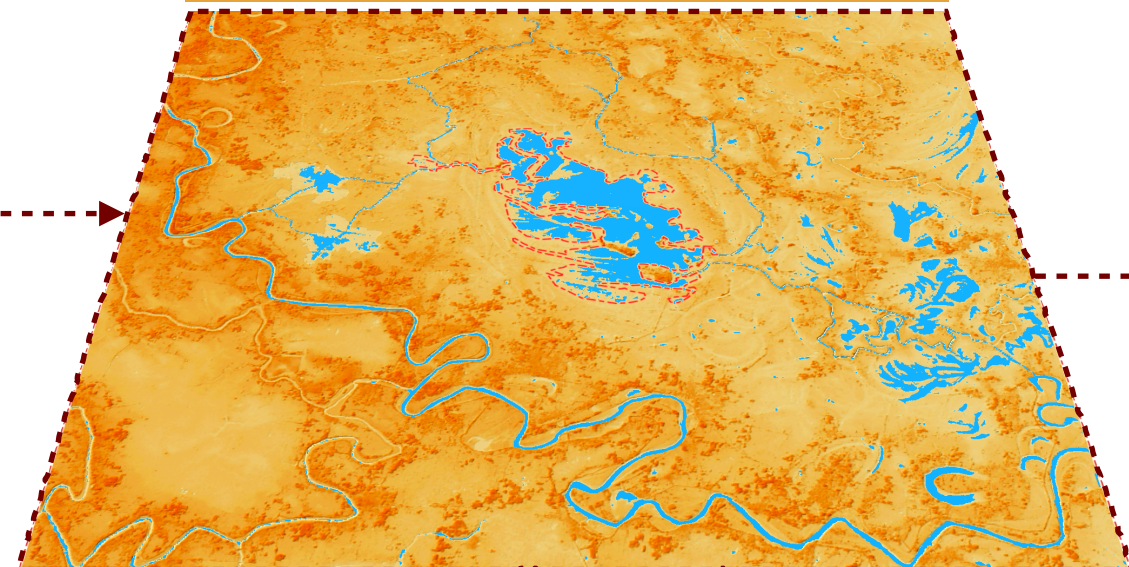
Legends
 - - - Study Area Boundary
 - - - Ramsar Boundary
 - - - Proposed Canals
 - - - Areas to be Dredged
 - - - Gated Spillway
 - - - Check Dams

WATER TRENDS



0 1.25 2.5 5 7.5 Km
 MNWII - Landsat 5TM & Landsat 9TM
 - - - Study Area Boundary
 - - - Ramsar Boundary
 - - - Embankments
 - - - Open Water

Minimum Inundation To Be Maintained



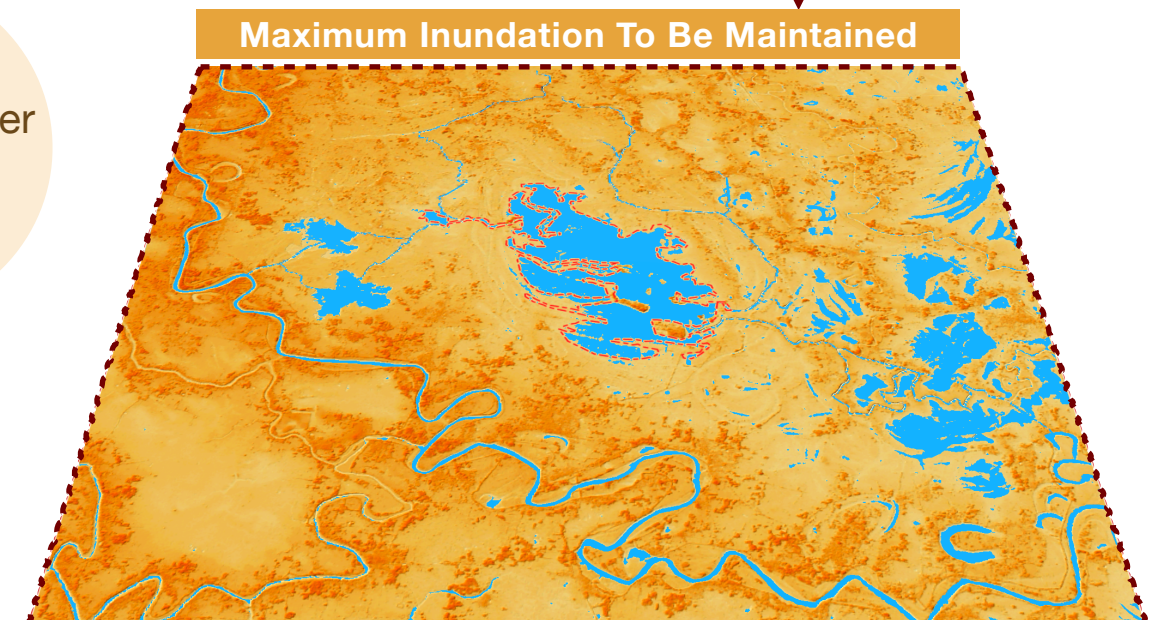
Minimum Water level (37 m AMSL)

Inundated Area (60%)

Maximum Inundation To Be Maintained

Maximum Water level (37.6 m AMSL)

Inundated Area (100%)



In line with the TEEB TII, this restoration is expected to **boost wetland-dependent livelihoods** by approximately **increasing economic outcome of:**

Fishries



4.19 x

Agriculture



1.31 x

Aquatic vegetation



14.96 x

Groundwater Recharge



1.50 x

