

Tons

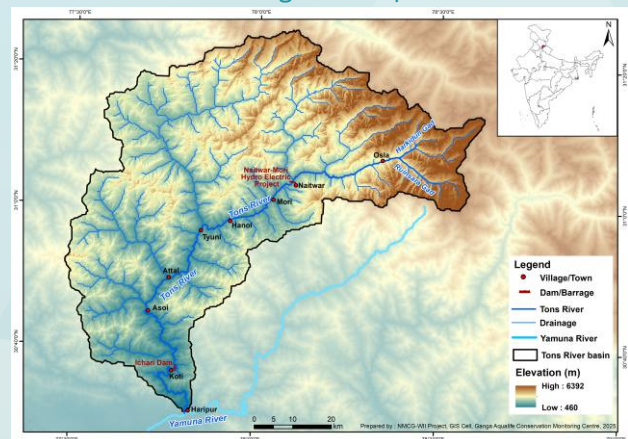
GENERAL INFORMATION

- Tons River, the longest Himalayan tributary of the Yamuna River, originates from the Bandarpunch massif (6,315 m asl), flows for nearly 150 km through Uttarkashi and Dehradun districts in Uttarakhand and Sirmaur district in Himachal Pradesh, forming the interstate boundary between the two states in the Jaunsar region of Uttarakhand.
- It meets the Yamuna River near Kalsi (Dehradun district).
- Tons River basin spans an area of about 5,146 km² (Figure 1).
- The basin falls under two biogeographic zones, viz. Himalaya (West Himalaya – 2B) and Gangetic Plain (Upper Gangetic Plains – 7A).
- The basin experiences pronounced altitudinal climatic variation, ranging from warm subtropical conditions at lower elevations to temperate and alpine climates at higher altitudes.
- The river traverses rugged Himalayan terrain, characterised by steep slopes, deep “V” shaped valleys, and glaciated upper catchments that shape its high-energy flow regime.
- Major tributaries of the Tons River include the Pabar, Sainj, and Nira, while Har ki Dun Gad and

Ruinsara Gad constitute the two source streams of the river.

- The population density along the river is 182.53 persons/km².
- Decadal LULC changes in the Tons basin (2008-09 to 2018-19) witnessed modest increases in area under kharif crop (3.99%), built-up area (0.06%), snow cover (0.50%), double/triple crop (0.15%), grassland (0.33%), and water bodies (0.02%); while current fallow land (-2.74%) and wasteland (-2.40%) declined (Figures 2a and 2b).

Figure 1: Map of Tons River basin



BIODIVERSITY VALUE

- Tons basin is dominated by non-forest areas (54.66%), followed by moderately dense forest (21.69%), open forest (11.45%), very dense forest (11.16%), and scrubland (1.04%) (Figure 3).
- The basin displays distinct altitudinal vegetation zonation, with higher elevations supporting Moist Alpine Scrub Forest dominated by Himalayan birch (*Betula utilis*) and juniper (*Juniperus communis*). Mid-elevation zones are characterized by Himalayan Temperate Forest represented by deodar (*Cedrus deodara*), oak (*Quercus leucotrichophora*), and rhododendron (*Rhododendron arboreum*), while lower elevations are dominated by Himalayan Subtropical Pine Forest with chir pine (*Pinus roxburghii*) as the principal species.
- 38 mammalian species have been reported from the Uttarkashi district, including the Endangered Kashmir musk deer (*Moschus cupreus*) and Himalayan musk deer

(*Moschus leucogaster*), and Vulnerable snow leopard (*Panthera uncia*), Asiatic black bear (*Ursus thibetanus*), sambar (*Rusa unicolor*), Himalayan serow (*Capricornis thar*) and Tibetan wolf (*Canis lupus chanco*).

- 61 avifaunal species have been recorded from Talra Wildlife Sanctuary, and 115 species from Govind National Park and adjoining areas. The basin harbours the Critically Endangered white-rumped vulture (*Gyps bengalensis*), and Vulnerable cheer pheasant (*Catreus wallichii*) and western tragopan (*Tragopan melanocephalus*).
- Tons basin hosts 22 herpetofaunal species, comprising 8 amphibians, and 14 reptilians including 8 snakes and 6 lizards.
- 30 fish species (8 families) have been recorded from the basin, including the Endangered golden mahseer (*Tor putitora*) and Vulnerable snowtrout (*Schizothorax richardsonii*).

Figure 2a: LULC map of Tons River basin (2008-09)

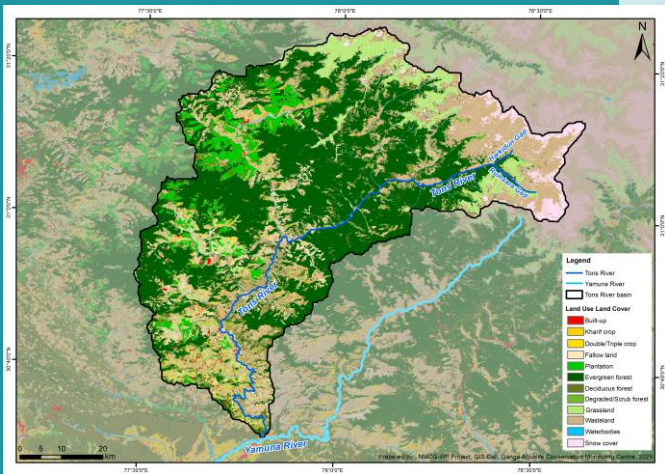


Figure 2b: LULC map of Tons River basin (2018-19)

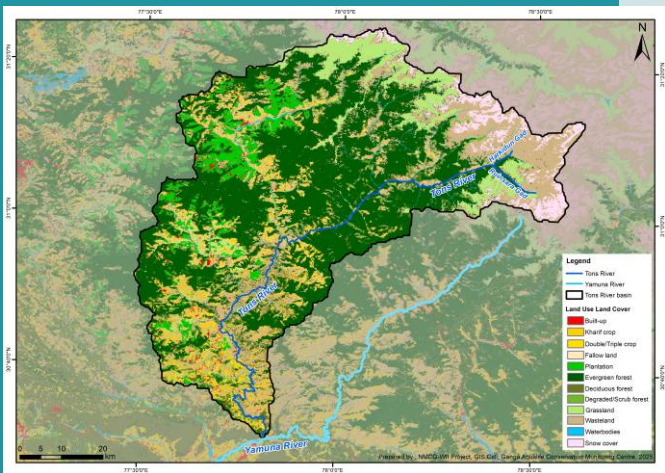
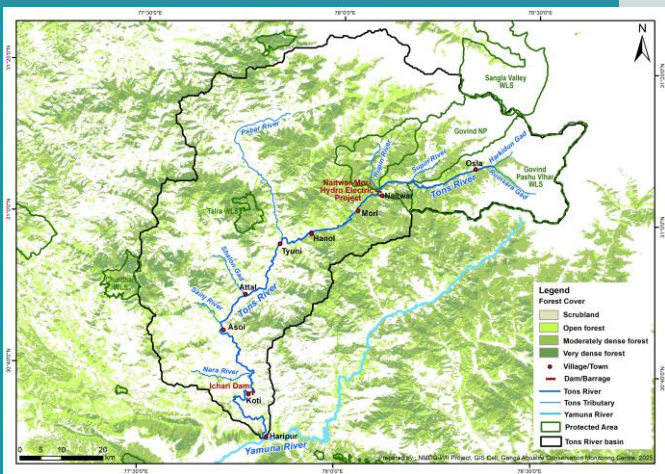


Figure 3: Forest cover of Tons River basin (2019)



CONSERVATION SIGNIFICANCE

ENDANGERED

Avifauna

Egyptian vulture *Neophron percnopterus* (Linnaeus, 1758)

Fish

Golden mahseer *Tor putitora* (Hamilton, 1822)

VULNERABLE

Fish

Dark mahseer *Naziritor chelynoides* (McClelland, 1839)

Schizothorax plagiostomus (Heckel, 1838)

Snowtrout *Schizothorax richardsonii* (Gray, 1832)

KEY PROTECTED AREAS

- Govind National Park
- Govind Pashu Vihar Wildlife Sanctuary
- Talra Wildlife Sanctuary

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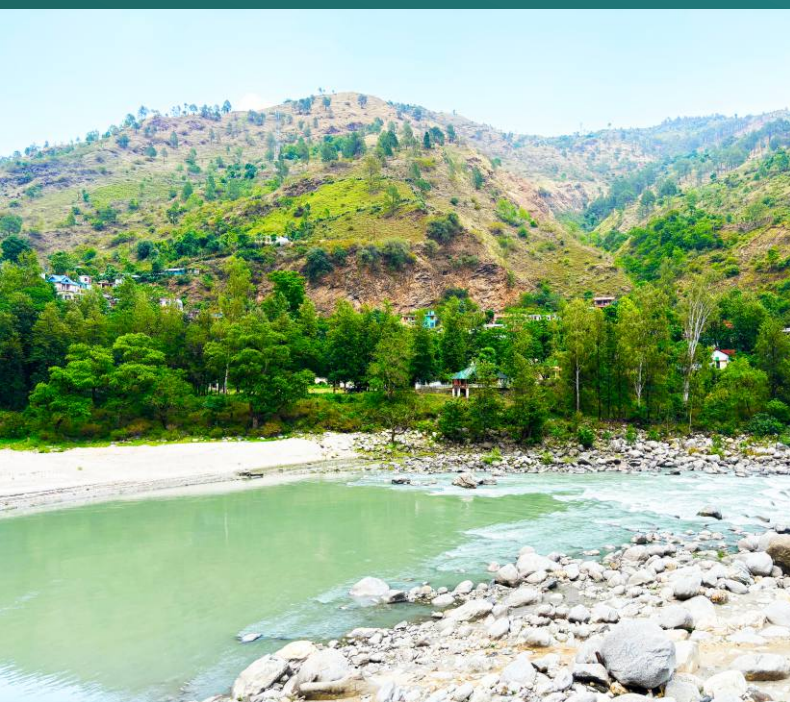
DRIVERS OF RIVERSCAPE CHANGE

- Glacial retreat and climate variability are reducing glacier mass and perennial flows, increasing long-term water scarcity risks in the upper Tons basin.
- Rising temperatures, reduced winter precipitation, and frequent landslides are intensifying hydrological and geomorphic instability.
- The under-construction Kishau Dam on the river is creating extended dewatered stretches, disrupting sediment transport, and fragmenting riverine habitats.
- Roads, tunnels, and construction activities, combined with the basin's tectonic setting, are escalating ecosystem disturbance and seismic vulnerability.
- Resource overexploitation, including medicinal plant, grazing, and firewood collection, is degrading vegetation and native biodiversity.
- Unregulated sand mining and water withdrawal are altering channel morphology and further degrading riparian habitats.



INTERESTING FACTS

- Tons Valley is linked to the ancient Indian epic of Mahabharata, with the Swargarohini peak believed to be the mythical path taken by the Pandavas on their ascent to heaven. The Devra village in Uttarkashi district is home to Uttarakhand's only temple dedicated to Karna.
- Mahasu Devta Temple is a key cultural and spiritual landmark of the Jaunsar-Bawar region, revered as a '*kul devta*' (a local chief deity) and deity of justice and protection, and significant for its Kath-Kuni architecture, traditional rituals, festivals, and role in preserving regional heritage and community identity.
- At its confluence with the Yamuna, the Tons River, augmented by tributaries such as the Pabar and Giri, contributes nearly twice the discharge of the Yamuna.
- The Tons Valley contains numerous villages characterized by traditional earthquake-resistant wooden architecture, locally known as *Koti-Banal*, reflecting the region's long-standing Himalayan construction practices and craftsmanship.



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