

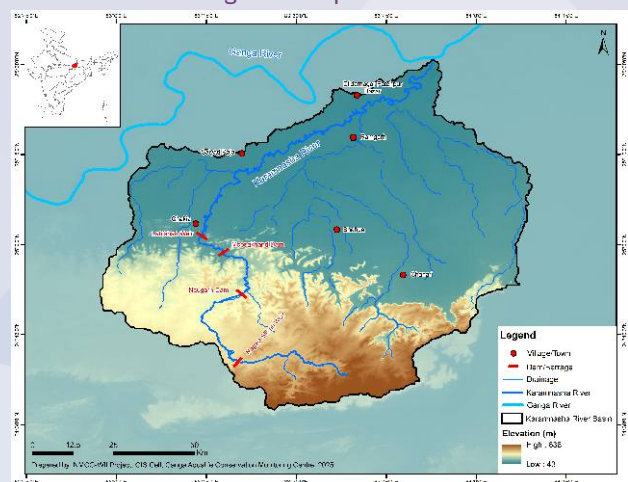
Karmanasa

GENERAL INFORMATION

- Karmanasa River, a tributary of the Ganga River, originates in the Kaimur Hills near Sarodag village (Kaimur district, Bihar; 350 m asl), and flows for 192 km in a north-west direction through Sonbhadra, Chandauli and Ghazipur districts in Uttar Pradesh, and Kaimur and Buxar districts in Bihar.
- It joins the Ganga River at Chausa (Buxar district, Bihar), and forms the eastern boundary between Uttar Pradesh and Bihar for about 76 km.
- Karmanasa River is characterised by a trellis drainage pattern in the upper basin, and a dendritic drainage pattern in the middle and lower basin.
- Karmanasa River basin spans an area of 7,788.74 km² (Figure 1).
- The basin lies within two biogeographic zones, namely Deccan Peninsula (Central Highlands – 6A) and Gangetic Plain (Upper Gangetic Plains – 7A, Lower Gangetic Plains – 7B).
- The basin is characterised by humid subtropical climate with three distinct seasons, viz. hot and dry summers, a humid monsoon season with high rainfall, and cool, dry winters.
- Chandraprabha, Durgavati, Karunuti, Nadi and Khajuri are the major tributaries of Karmanasa.

- The population density along the river is 603 persons/km².
- Decadal LULC transitions in the Karmanasa basin (2008-09 to 2018-19) witnessed a 10.31% increase in area under double/triple cropping and a 5.6% decrease in current fallow. Built-up areas (0.42%), waterbodies (0.14%), plantation (0%), degraded/scrub forest (0%), deciduous forest (-0.05%), rabi crop (-0.40%), wasteland (-0.98%), and kharif crop (-3.84%) have remained largely stable with marginal to no changes (Figures 2a and 2b).

Figure 1: Map of Karmanasa River basin



BIODIVERSITY VALUE

- Karmanasa basin is dominated by non-forest areas (71.55%), followed by open forest (15.57%), moderately dense forest (11.42%), scrubland (0.76%), waterbodies (0.62%) and very dense forest (0.08%) (Figure 3).
- Upper basin is dominated by Tropical Dry Deciduous Forest with species like sal (*Shorea robusta*), tendu (*Diospyros melanoxylon*) and crocodile-bark tree (*Terminalia crenulata*), and understory vegetation like roundleaf jujube (*Ziziphus nummularia*), jackal jujube (*Ziziphus oenopia*) and palash lata (*Butea superba*). The lower basin supports Tropical Moist Deciduous Forest represented by sal, mahua (*Madhuca longifolia*) and khair (*Senegalia catechu*).
- Karmanasa River flows through the Kaimur Wildlife Sanctuary, which is named after the Kaimur Hills, and is located on a plateau between Karmanasa River to the west (bordering Uttar Pradesh) and Son River to the south (bordering Jharkhand).
- The mosaic of habitats in the Kaimur plateau, support rich biodiversity including the Endangered tiger (*Panthera tigris*) and Indian pangolin (*Manis crassicaudata*), and Vulnerable four-horned antelope or chousingha (*Tetracerus quadricornis*), leopard (*Panthera pardus*), and sloth bear (*Melursus ursinus*).
- 178 birds (19 orders and 61 families) have been documented from the Kaimur Wildlife Sanctuary, including the Endangered Egyptian vulture (*Neophron percnopterus*), and Vulnerable common pochard (*Aythya ferina*) and river tern (*Sterna aurantia*).
- The basin supports the Critically Endangered gharial (*Gavialis gangeticus*) and Vulnerable mugger (*Crocodylus palustris*).
- 43 fish species (8 orders and 19 families) have been recorded from the basin, including the Vulnerable *Wallago attu*, and Near Threatened Gangetic ailia (*Ailia coila*) and *Ompok bimaculatus*.

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

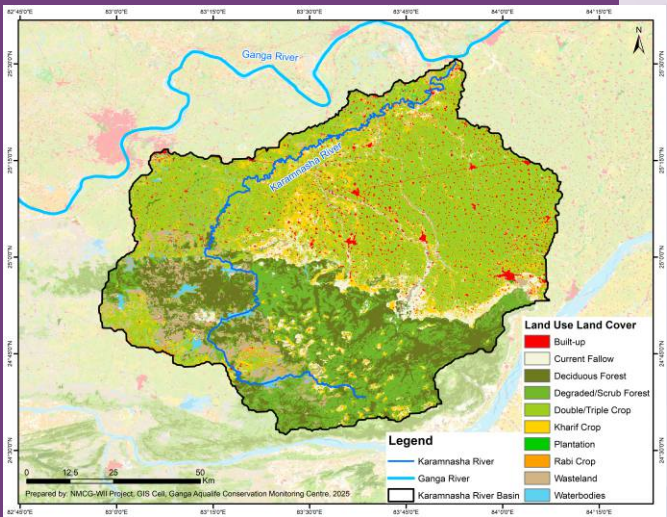


Figure 2b: LULC map of Karmanasa River basin (2018-19)

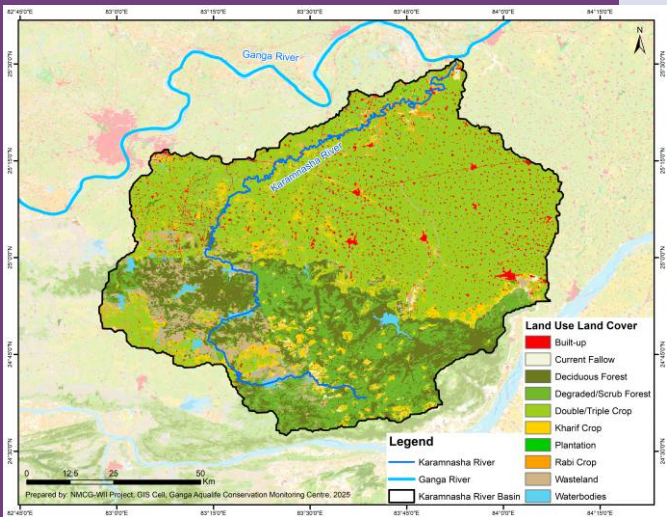
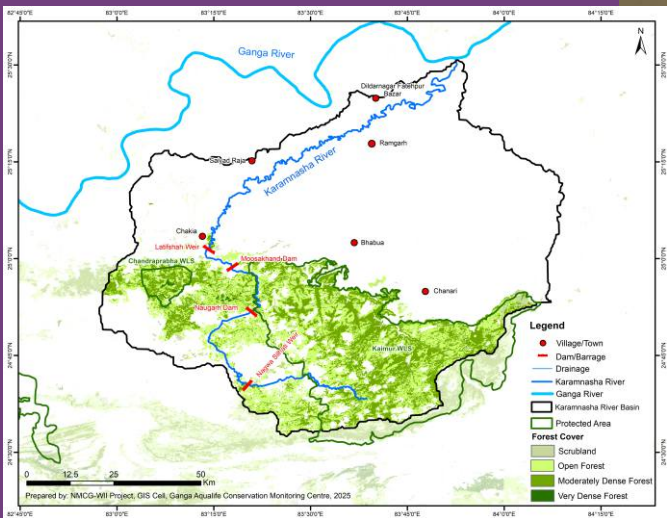


Figure 3: Forest cover of Karmanasa River basin (2019)



CONSERVATION SIGNIFICANCE

CRITICALLY ENDANGERED

Reptiles

Gharial *Gavialis gangeticus* (Gmelin in Linnaeus, 1789)

ENDANGERED

Avifauna

Egyptian vulture *Neophron percnopterus* (Linnaeus, 1758)

VULNERABLE

Avifauna

Common pochard *Aythya ferina* (Linnaeus, 1758)

River tern *Sterna aurantia* (Gray, 1831)

Reptiles

Mugger *Crocodylus palustris* (Lesson, 1831)

Fishes

Wallago attu (Bloch and Schneider, 1801)

KEY PROTECTED AREAS

Kaimur Wildlife Sanctuary

Chandraprabha Wildlife Sanctuary

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DRIVERS OF RIVERSCAPE CHANGE

- Large-scale deforestation, recurring landslides, and rapid shifts in land use, particularly in the upper Kaimur Plateau, have intensified soil erosion and increased sediment load in the river.
- Extensive extraction of stone, sand, and coal in the catchment, along with changes in agricultural practices, has destabilised riverbanks, deepened gorges, and disrupted natural drainage patterns.
- Major structures such as the Nagwa, Naugarh, Musakhand and Latifshah dams, along with numerous smaller check dams and anicuts, have fragmented fish migration routes and reduced dry-season flows in the middle and lower reaches.
- Unregulated sand extraction in the lower alluvial stretches, coupled with pollution from upstream cement industries, threatens water quality, aquatic habitats, and the overall ecological integrity of the river.

INTERESTING FACTS

- The name 'Karmanasa' is derived from Sanskrit, meaning “destroyer of karma (religious merit or good deeds),” which is why the river is traditionally considered inauspicious in both Hindu and Buddhist belief systems.
- The mythological origins of the story are rooted in the story of King Trishanku, who attempted to ascend to heaven in his mortal form with the help of Sage Vishvamitra. When the gods rejected him, Trishanku was left suspended between heaven and earth, and the river is said to have formed from the tears or bodily fluids that fell from him during this liminal state. Consequently, the word Trishanku, a figure in Hindu mythology, signifies a state of limbo, a symbolic middle ground between one's aspirations and their present reality.
- Karmanasa valley hosts one of India's oldest Iron Age sites. Excavations at Raja Nal Ka Tila in Sonbhadra have revealed iron-smelting furnaces and artefacts dating to around 1200-1300 BCE, indicating advanced metallurgical activity in the Vindhyan Plateau over 3,200 years ago.
- Karmanasa meets the Ganga at Chausa, the site of the 1539 Battle of Chausa, where Sher Shah Suri defeated the Mughal emperor Humayun, an event that marked a major turning point in medieval Indian history.
- Karkatgarh Waterfall on the Karmanasa River, in the Kaimur Wildlife Sanctuary, was a crocodile hunting ground for Mughal rulers and British officials who also came to enjoy the beautiful flora and fauna. A dak bungalow was constructed during colonial rule on the 300 ft wide and 100 ft high waterfall, to provide a place for leisure.



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