



Asan River



GENERAL INFORMATION

- Asan River is a tributary of the Yamuna River that flows for about 40 km through the doon valley.
- Asan has a catchment of ~701.15 km², of which about 98.8% area falls in Uttarakhand and 1.2% in Uttar Pradesh.
- Asan is a rain-fed river that originates from Chandrabani village in Dehradun, Uttarakhand.
- The River flows through the Gangetic Plains biogeographic zone and Upper Gangetic Plains (7A) biotic province. Its basin falls in two biotic provinces, Western Himalaya (2B) and Upper Gangetic Plains (7A).
- Climate in the Asan River basin is sub-tropical to tropical, and depending on the altitude, it varies from tropical to cold.
- Tons, Suarna and Sitla Rao are the key tributaries of the Asan River.

SALIENT FEATURES

- The drainage pattern of the Asan river is primarily dendritic to sub-dendritic, parallel to sub-parallel, trellis, angular, rectangular, intermittent, and braided.
- Asan is represented by Leptosols and Regosols soil.
- In 2005, a 444-ha stretch located at the Asan and Yamuna rivers confluence was declared as a Conservation Reserve. Later in 2020, Asan Conservation Reserve was declared as a Ramsar Site (Site number 2437).
- The Basin is dominated by tropical moist deciduous forest type (3C/C2b). These forest are represented by *Shorea robusta*, *Lagerstroemia parviflora*, *Adina cordifolia*, and *Mallotus philippensis*.
- The aquatic vegetation of the Asan is represented by *Typha elephantina*, *Potamogeton pectinatus*,



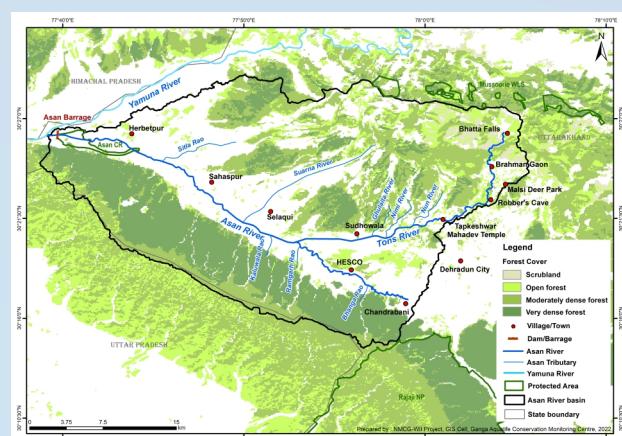
Ceratophyllum demersum and *Eichhornia crassipes*.

- Forty-four fish species including golden mahseer (*Tor putitora*), dark mahseer (*Naziritor chelynoides*) & Common snowtrout (*Schizothorax richardsoni*) have been documented from the Asan River basin.
- Baer's pochard (*Aythya baeri*), Indian vulture (*Gyps indicus*), Red-headed vulture (*Sarcogyps calvus*), Egyptian vulture (*Neophron percnopterus*), Pallas's fish-eagle (*Haliaeetus leucoryphus*) and Steppe eagle (*Aquila nipalensis*) are some of the important bird species reported from the Basin.
- 20 mammal species one reptilian species, 95 bird species 40 fish species and four amphibians belonging to three families have been reported from the Asan Conservation Reserve.
- Asan River basin supports a human population of 7.76 lakh.
- Agriculture is the major source of livelihood in the area.

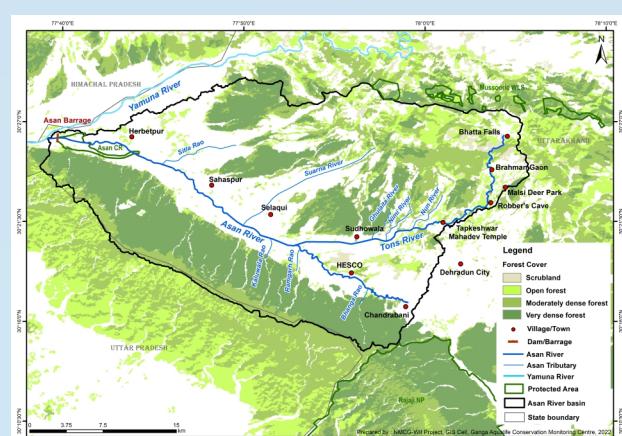


FOREST COVER

Catchment of the Asan River is dominated by non-forest cover, followed by very dense forest, moderately dense forest, open forest, and scrubland.



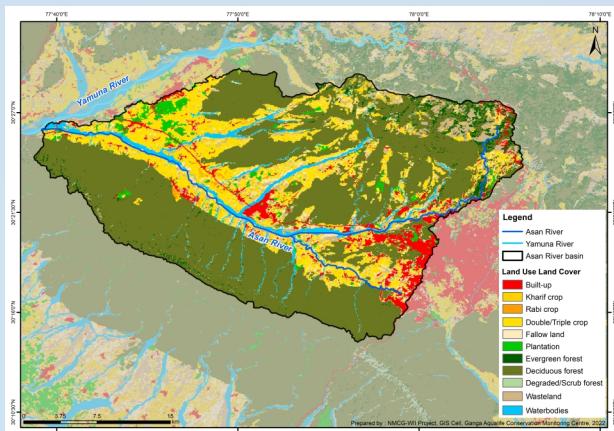
Forest cover in 2015



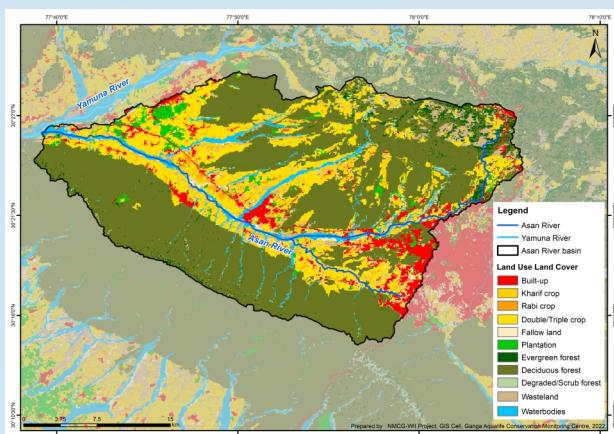
Forest cover in 2019

LAND USE AND LAND COVER CHANGE

Land Use and Land Cover (LULC) maps (2008-09 & 2018-19) revealed that over a period of ten years, there was an increase in the Kharif crop (2.89%), built-up area (0.85%), rabi crop (0.52%) and double/triple crop (0.26%); and a decrease in the fallow land (2.55%), wasteland (1.58%) and deciduous forest area (0.65%).



LULC map of 2008-09



LULC map of 2018-19



DAMS AND BARRAGES

- Asan Barrage was built on the Asan River in 1967 at the confluence of the Eastern Yamuna Canal and the Asan River in the Doon valley.
- Asan barrage, with a length of 288 m and 2.5 cumecs design flood discharge, was built for hydroelectric purposes.
- Siltation due to the barrage construction created a permanent freshwater wetland on the Asan river and bird-friendly habitats. It also helps in flood control and supplies water for irrigation and domestic use.

DRIVERS OF RIVERSCAPE CHANGE

- In a decade (2001 to 2011), the human population has increased by ~59% in the basin, which saw a corresponding increase in construction for residential and non-residential purposes.
- Urbanisation and encroachment in the basin have the potential to impact the river hydrology and cause urban flooding.
- Industrialisation in the Asan River basin also threatens surface water and groundwater quality.
- Agricultural encroachment and mining of boulders and sand from the Asan River and its surrounding areas are other issues threatening the riverine habitat and its associated species.



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