



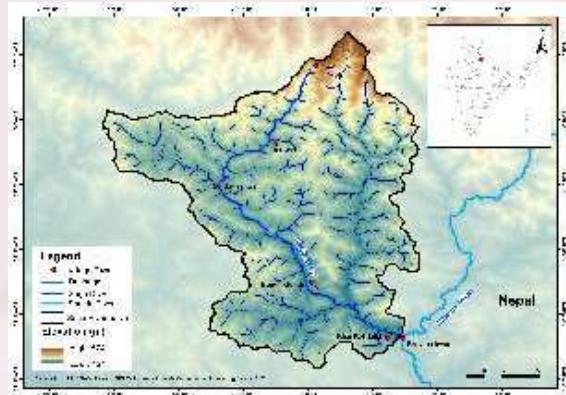
Sarju

GENERAL INFORMATION

- Sarju (Saryu) River, a tributary of the Sharda River, originates at Sarmul near Jhuni village (approx. 3000 m asl) in Bageshwar district, Uttarakhand, and flows for approx. 135 km in a south-easterly direction through the Bageshwar, Pithoragarh, Almora and Champawat districts in Uttarakhand.
- It joins the Sharda River downstream of Khai Kot Talla village in Champawat district, near Pancheshwar village in Nepal, where the Sharda flows along the India-Nepal border.
- Sarju River basin covers an area of around 4,000 km² (Figure 1).
- The basin lies in the Himalaya (West Himalaya – 2B) and Gangetic Plain (Upper Gangetic Plains – 7A) biogeographic zones.
- Climate of the basin ranges from subtropical in the lower reaches to alpine at higher altitudes, with marked variation driven by its large altitudinal span and rugged topography.
- Sarju river system exhibits a predominantly dendritic drainage pattern, with the rivers flowing through a rugged mountain terrain, forming deep gorges and V-shaped valleys.
- Ramganga East and Gomati are the major tributaries of the Sarju.

- The population density along the river is 114.14 persons/km².
- Decadal LULC transitions in the Sarju basin (2008-09 to 2018-19) witnessed a notable increase in area under kharif crop (5.6%) and double/triple crop (2.43%), and decrease in current fallow land (-6.4%) and wasteland (-1.69%). Plantation (0.17%), evergreen forest (0.08%), built-up (0.02%), rabi crop (-0.1%), deciduous forest (-0.06%), scrub forest (-0.05%), littoral zone (nil), waterbodies (nil) and snow cover (nil) remained stable, with marginal to no changes (Figures 2a and 2b).

Figure 1: Map of Sarju River basin



BIODIVERSITY VALUE

- Sarju basin is dominated by non-forest areas (38.1%), closely followed by moderately dense forest (34.04%), open forest (17.21%), very dense forest (10.43%) and scrubland (0.22%) (Figure 3).
- At higher elevations, the basin supports Himalayan Moist Temperate Forest and Subtropical Pine Forest, dominated by banjh oak (*Quercus leucotrichophora*), *Rhododendron* spp., deodar (*Cedrus deodara*) and chir pine (*Pinus roxburghii*). The mid-elevation and foothill zones are characterized by Subtropical Broad-leaved Hill Forest represented by kamala (*Mallotus philippensis*), toon (*Toona ciliata*) and chilauni (*Schima wallichii*). Threatened species include the Critically Endangered Indian nard (*Nardostachys jatamansi*) and Endangered *Aconitum heterophyllum*.
- Askot Wildlife Sanctuary and Binsar Wildlife Sanctuary have been designated as Important Bird Areas (IBA) by BirdLife International, with 239 (53 families) and 173 (45 families) bird species documented from the sanctuaries,
- respectively. Threatened species include the Critically Endangered white-rumped vulture (*Gyps bengalensis*) and red-headed vulture (*Sarcogyps calvus*), Endangered Egyptian vulture (*Neophron percnopterus*) and steppe eagle (*Aquila nipalensis*), and Vulnerable cheer pheasant (*Catreus wallichii*) and tawny eagle (*Aquila rapax*).
- Key mammalian species include the Endangered Himalayan muskdeer (*Moschus leucogaster*), and Vulnerable snow leopard (*Panthera uncia*), leopard (*Panthera pardus*), Asiatic black bear (*Ursus thibetanus*) and mainland serow (*Capricornis sumatraensis*).
- 25 fish species (3 orders, 6 families) have been documented from the Sarju River, including the Endangered golden mahseer (*Tor putitora*), and Vulnerable *Bagarius bagarius*, dark mahseer (*Naziritor chelynoides*), chirruh snowtrout (*Schizothorax esocinus*), *Schizothorax plagiostomus* and snowtrout (*Schizothorax richardsonii*).

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

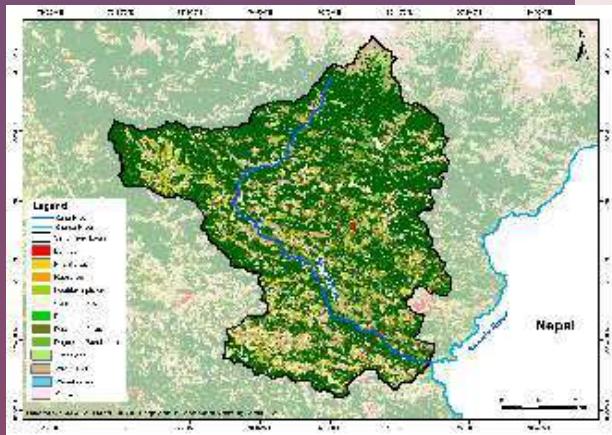


Figure 2b: LULC map of Sarju River basin (2018-19)

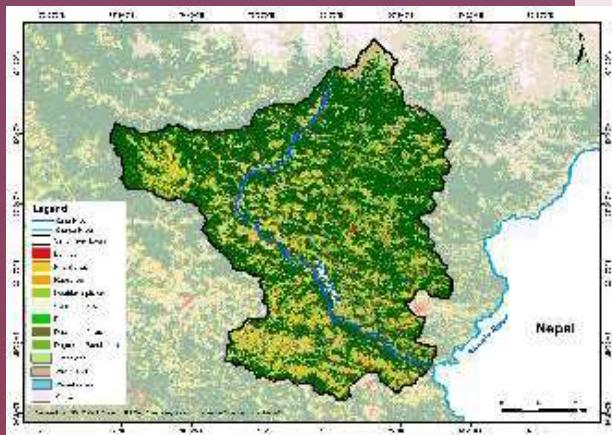
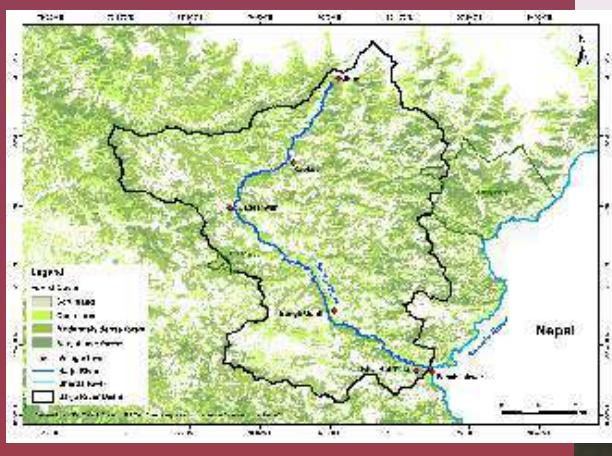


Figure 3: Forest cover of Sarju River basin (2019)



CONSERVATION SIGNIFICANCE

ENDANGERED

Avifauna

Egyptian vulture *Neophron percnopterus*
(Linnaeus, 1758)

Steppe eagle *Aquila nipalensis*
(Hodgson, 1833)

Fish

Golden mahseer *Tor putitora*
(Hamilton, 1822)

VULNERABLE

Fish

Bagarius bagarius (Hamilton, 1822)

Dark mahseer *Naziritor chelynoides* (McClelland, 1839)

Chirruh snowtrout *Schizothorax esocinus* (Heckel, 1838)

Schizothorax plagiostomus (Heckel, 1838)

Snowtrout *Schizothorax richardsonii*
(Gray, 1832)

KEY PROTECTED AREAS

Binsar Wildlife Sanctuary

Askot Wildlife Sanctuary

Golden mahseer (*Tor putitora*) | ©Rahul Rana



DRIVERS OF RIVERSCAPE CHANGE

- The Sarju River watershed is characterised by a dense and complex drainage network, making it prone to rapid runoff and heightened flood potential. Climate change induced rainfall extremes may further lead to higher peak flows, enhanced sediment loads, and more frequent flash floods, thereby altering channel morphology and destabilising riverbanks.
- Rapid urbanisation, expanding tourism, and agricultural intensification are degrading water quality and aquatic habitats through riverbank and floodplain encroachment, deforestation, discharge of untreated sewage, and unplanned road construction.
- The proposed Pancheshwar Multipurpose Project on the Sharda River near its confluence with the Sarju, together with pre-construction activities such as blasting, tunnelling, and approach-road construction, is driving habitat loss, forest degradation, disruption of ecological connectivity, and alterations in sediment and flow regimes along both the Sharda mainstem and the adjoining Sarju stretch, with severe impacts on the entomofauna and cold-water fisheries such as the golden mahseer.

INTERESTING FACTS

- Jhuni village, a remote, high-altitude village, which is the last village in the Sarju valley, is enroute along beautiful offbeat treks in the region, such as the trek to Pakhwa Bugyal, an alpine meadow situated just 7 km from the village and offers views of Nanda Devi, Nanda Khat, Nanda Kot and Panchachuli peaks. This trek also includes the Sarmul (the origin of the Sarju River) and Sahastradhara waterfalls (Translation: thousand springs).
- Chaumu Temple (Champawat district), also known as Pancheshwar Mahadev Temple, is located at the Sharda-Sarju confluence. Chaumu is a local deity in the Kumaon region of Uttarakhand, believed to be an incarnation of Lord Shiva (one of the three principal deities in Hinduism), and is worshipped as a protector of animals, with bells and milk offered as part of the rituals.
- Bageshwar, situated at the Sarju-Gomati confluence, derives its name from the Bagnath Temple, a Shaivite shrine constructed under the Chand dynasty, traditionally attributed to King Laxmi Chand in the medieval period. According to local lore, Lord Shiva is believed to have manifested here in the form of a tiger to bless Sage Markandeya, giving rise to the name Bageshwar ('Bagh' meaning 'tiger' and 'Ishwar' meaning 'lord'). Historically, the town formed an important node on the Trans Himalayan Indo-Tibetan trade route.
- Askot Wildlife Sanctuary was originally notified as the 'Askot Musk Deer Sanctuary' in 1986, with a primary focus on conserving the Himalayan musk deer. Its mandate was later expanded to protect a broader range of high-altitude species and habitats.



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