

Geovisualization of a cultural heritage landscape: a case of India's largest pilgrimage of 'Maha Kumbh', Prayagraj.

Kiran Kumari Singh ^{a,*}, Neelima Mahato ^b and Binod Kumar Singh ^c

^a Department of Geography, University of Allahabad, Uttar Pradesh, India, email: kiran.singhgeo@gmail.com; ksingh@allduniv.ac.in

^b Department of Electrical Engineering, Chungnam National University, Daejeon- 34134, Republic of Korea. Email: neelapchem@gmail.com

^c Director, National Atlas and Thematic Mapping Organisation (NATMO), Kolkata, Department of Science and Technology, India, email: bkscensus2011@gmail.com

* Corresponding author

Keywords: geovisualization; 'Maha Kumbh', cultural landscape, GIS.

Abstract:

The 2025 'Maha Kumbh' in Prayagraj, India is the largest hindu pilgrimage congregation expected to receive around 400 million devotees and visitors (PIB, 2024). This century-old spiritual event is recognised as 'the intangible cultural heritage of humanity'. 'Maha Kumbh' encapsulates India's rich cultural traditions, including astronomy, rituals and spiritual enlightenment. The preparation for one-and-a-half-month-long pilgrimage, centered around sacred 'bathing rituals' (at the confluence of river Ganga, Yamuna and a mythological river Saraswati), significantly transforms the city's infrastructure and services. Temporary camps to accommodate large number of devotees, pontoon bridges over river Ganga for easy movement of people, construction of roads and basic services give a glimpse of a vibrant and planned 'spiritual city' on the river bed (Buzinde et al. 2014).

This study will capture this transformation with the following objectives: a) to present spatial analysis of land use transformation in the newly created temporary district of 'Maha Kumbh'; b) to geovisualise the demographic dynamics during the event of 2025; c) to prepare the amenities distribution map in the study area, and d) to conduct field work and create a geodatabase on the religious /spiritual sites for validation and photo documentation. In this conference, we will present geovisualisation and spatial analysis of the temporary but remarkable transformation of the natural landscape into a vibrant cultural landscape that occurs during the 'Maha Kumbh' Pilgrimage. Nowadays, digital versions of data and information and GIS and remote sensing applications are becoming increasingly common addition in heritage management. The geographic database will produce thematic maps such as population growth trends, urban spatial change, landscape dynamics, distribution of amenities. This study will produce a systematic set of cartographic datasets to analyze a spiritual event known for its cultural significance. The findings will serve as a valuable resource for future researchers investigating GIS-assisted pilgrimage tourism and contribute to a deeper understanding of the sustainability of cultural heritage.

Study area

Prayagraj is located in eastern Uttar Pradesh at the confluence of three rivers known as 'Triveni Sangam' (Fig. 2). Its latitudinal extent is 25° 26' N and its longitudinal extent is 81 ° 50' E. The city has been an important pilgrimage centre since ancient times and is selected for the smart city mission of the Government of India.

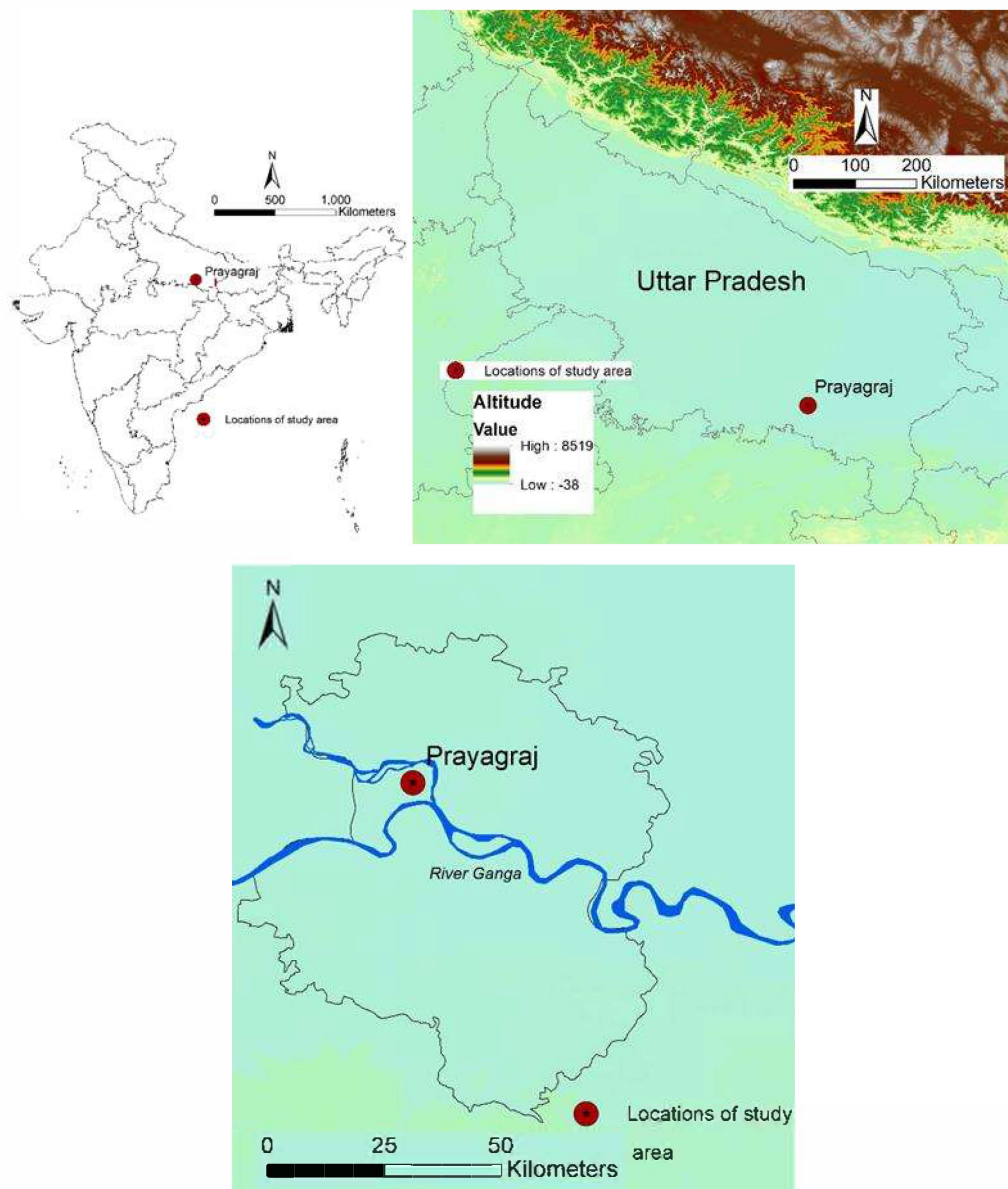


Fig. 1 Location of the study area



Fig. 2 The first Amrit Snan 'ritual bath' of this Maha Kumbh. (Source: Governance.com, 15th January, 2025)

Material and methods

The study will be carried out using satellite data acquired from Sentinel-2 and Google Earth data for the year 2025. The services and amenities data will be collected from the dedicated website created for Maha Kumbh by the government of Uttar Pradesh

References

- PIB, 2024. Maha Kumbh 2025. A Seamless and Spiritually Enriching Journey Awaits Devotees. <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2088675>
- Buzinde, C. N., Kalavar, J. M., Kohli, N., & Manuel-Navarrete, D. 2014. Emic understandings of Kumbh Mela pilgrimage experiences. *Annals of Tourism Research*, 49, 1–18.