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English

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Geographical Names**
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**Technical expertise: Names collection, office treatment,
features beyond a single sovereignty and international cooperation**

Report of India

Submitted by India**

Summary

The Ministry of Home Affairs, Government of India, is the National Names Authority and works with the Survey of India, as the National Geospatial and Mapping Authority, as the authority responsible for transliterating geographical names from Vernacular Scripts to Roman and Devanagari Scripts, to standardize place names in English and Hindi. Further, the National Geospatial Policy 2022 of India has entrusted the Survey of India with implementing the fundamental data theme of Geographical Names.

This report will outline the key initiatives taken by Survey of India, which includes:

a. The traditional methodology adopted during the mapping of the country in 1:50K scale sheets – field collection, authentication, transliteration to Roman and Devanagari scripts, data archival, and preservation;
b. The transition to a digital environment and the transliteration of the Geographical Names in all the 22 scheduled languages of India using software tools;
c. The ongoing procedure of collection of sound bites with the help of a centralised server-based module and simple-to-use mobile application for crowdsourcing with linguistic experts interface; and,
d. The future roadmap.

Background

India is a multilingual country. Languages in India belong to several language families, the major ones being the Indio-Aryan languages spoken by around 77% of Indians and the Dravidian languages spoken by 21% of Indians. Languages spoken by the remaining 2% of the population belong to the Austro-Asiatic, Tibeto-Burmese, Semito-Hamiticand a few other minor language families and isolates.

The Constitution of India recognizes 22 scheduled languages under the Eighth Schedule, but the true linguistic landscape is even more varied, with 99 non-scheduled languages (Having more than 10,000 speakers in India) and several other languages (Having less than 10,000 speakers in India) and numerous dialects, shaping communication across the country. This incredible diversity reflects the nation's rich history, regional cultures, and social structures, with languages serving as key markers of identity and heritage. This diversity enriches India's cultural tapestry but also presents unique challenges in terms of governance, education, and interregional communication, thereby requiring policies and methods that promote both preservation and adaptability.

Article 343 of the Constitution of India states Hindi in Devanagari script and English as the official languages of the Union of India. However, through its Article 345, the Constitution has provided the liberty to the States to adopt (by law) any one or more of the languages in use in the State or Hindi as the language or languages to be used for all or any of the official purposes of that State. The scheduled languages of India (based on the language families) are as follows:

Indo-European: 1. Assamese, 2. Bengali, 3. Dogri, 4. Gujarati, 5. Hindi, 6. Kashmiri, 7. Konkani, 8. Maithili,
                 9. Marathi, 10. Nepali, 11. Odia, 12. Punjabi, 13. Sanskrit, 14. Sindhi, 15. Urdu
Dravidian: 16. Kannada, 17. Malayalam, 18. Tamil, 19. Telugu
Tibeto-Burman: 20. Bodo, 21. Manipuri
Austro- Asiatic: 22. Santhali

Institutional Framework

The Government of India has laid down the principles and procedures with respect to the spelling of geographical names in India, which are as follows:

a. The Government of India determines the spelling of any geographical name in the script used as the official language of the centre i.e. Hindi (Devanagari script) and English (Roman script).
b. State Governments have been vested with the authority to name geographical names of their area in their respective vernacular script and will consult SoI for determining their spelling in Roman and Devanagari scripts.
c. The Survey of India (SoI), the National Geospatial and Mapping Agency, is responsible for the transliteration of geographical names from vernacular scripts to Roman and Devanagari Scripts.
d. Other government departments are advised to consult Survey of India for accurate spellings of new installations like railway stations, aerodromes, etc.

The Ministry of Home Affairs, Government of India, serves as the National Names Authority under the Government of India (Allocation of Business) Rules, 1961, and is responsible for overseeing any changes to Geographical Names.

The Government of India published the National Geospatial Policy, in December 2022 and encompassed the fourteen fundamental data themes recognized by UN-GGIM. The policy assigned each of the fourteen fundamental data themes to a ministry/ department. The theme of Geographical Names has been entrusted to Survey of India, thereby making Survey of India the nodal agency for its implementation, including the development and adoption of suitable standards, ensuring improved interoperability and strengthening of Geospatial Information sharing.

Traditional Methodology adopted for the Collection of Geographical Names

The Survey of India, undertook the first ever exercise to create the database for geographical names in India during 1960s to 1990s. The place names were collected during the field survey for topographical mapping at 1:50K scale in a standard format known as 22 Topo. The procedure of the creation of database are as follows:

a. The field surveyor used to collect the geographical names in the vernacular script of the concerned area after by way of listening to the pronunciation of the corresponding place name by the local community.
b. The geographical names (in vernacular script) were further vetted and authenticated by a local government official.
c. The Camp officer of the field teams then converted the names from vernacular to Roman and Devanagari scripts.
d. The final spellings of the geographical names in all the scripts was checked and confirmed by the Officer in charge of the field unit.
e. The final names were then published as part of the topographical maps of the SoI.

The database, over time, got enriched with additional names from the subsequent field activities, as additions or updations of geographical names. Currently, SoI holds an extensive repository of over 1.4 million ground-verified geographical names encompassing the entire expanse of the country.

This repository was eventually brought to the GIS environment. SoI further enhanced the database by converting all the 1.4 million geographical names into 22 scheduled languages of India using software and are stored in a geographical name database (GNDB). The transliteration tool uses ASCII & Unicode storage standards & is custom built for all 22 scheduled languages. This geographical name database has been published by Survey of India on the Online Maps Portal (https://onlinemaps.surveyofindia.gov.in/) for the benefit of all users.

Ongoing Procedure for collection of Sound bites of Geographical Names

The traditional method, though went through checks at various levels and yielded authoritative geographical names, but was also ridden with certain challenges, such as:

a. The non-comprehension of the local language/script by the field surveyor which may lead to human error in the collection and transliteration process.
b. No earlier record or reference to the pronunciation of the particular geographical name, thereby capturing the local accent.
c. No consultations with linguistic experts involved for the transliteration and verification of the spelling.
d. Automation errors.

In order to address the above challenges, a system for collection and transliteration of geographical names based on the sound bites has been initiated by Survey of India. The system is a collaborative effort with the Ministry of Electronics and Information Technology, Government of India through their Common Services Centers (CSCs) scheme implemented in the country under the Digital India initiative.

CSCs are the access points for the delivery of essential Government services, social welfare schemes, healthcare, financial, education, agriculture, and a host of business to citizen services in rural and remote areas of the country. The CSCs are managed by Village Level Entrepreneurs (VLE) who are well integrated into the community. The aim of the collaboration is to leverage the capabilities of the VLEs for the collection of the sound bites / audio bytes, will aid in identifying local speakers with native pronunciations thus ensuring capturing authentic pronunciation of geographical names.

In this system, precise geospatial coordinates would be captured along with the sound bites of the geographical names. This will facilitate in the integration of the toponymy data into modern Geographic Information System (GIS) system. Subsequently, a National Geographical Name Information System (NGNIS) will be developed by SoI for access by through a Geo-Portal by all stakeholders. The NGNIS shall contain the Geographical Name Data Base (GNDB) associated with spatial data. This GNDB shall contain:

i. Existing geographical Name in Vernacular script (local language of the State), Devanagari script (Hindi), Roman script (English)
ii. Variant/Alias Name
iii. Notified Name
iv. Sound bite/ Audio-byte file(s) linked with the Geographical Name
v. Description of Geographical name e.g. Village, Town, River, Mountain, etc.
vi. Latitude, longitude
vii. Reference System - Datum
viii. Reference to the national mapping organizations topographic Sheet Numbers.

This process is facilitated through mobile applications equipped with linguistic expert interface and integrated into a centralized server-based system.

Transliteration workflow for Geographical Name Changes

The process of changing geographical names follows a structured procedure to ensure accuracy and standardization. It begins with the respective State or Union Territory (UT) government submitting a formal request to the Ministry of Home Affairs (MHA) for approval of the proposed name change. This request includes justifications and supporting documents for the name change. Upon receiving the request, MHA consults the Survey of India (SoI), to provide the correct spelling of the geographical name in Devanagari and Roman scripts from SoI. After the receipt of comments and correct spelling of the proposed geographical name, MHA grants approval for the proposed name change to the concerned State/UT government. Following this approval, the respective State/UT government publishes a gazette notification, formally announcing the change and implementing it on the ground. The updated name is subsequently incorporated into Survey of India's topographical maps based on the official notification.
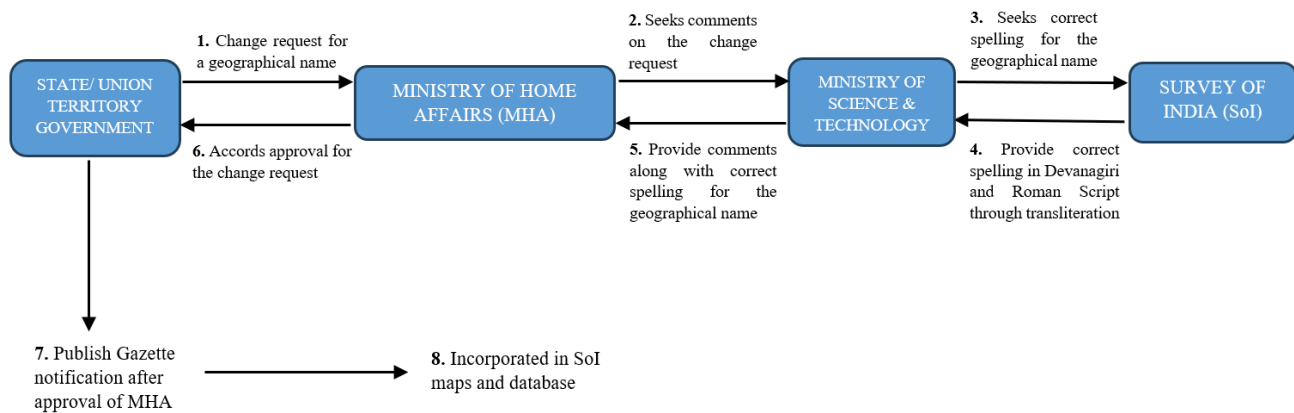

Fig-3: Transliteration workflow for Geographical Name Changes

Steps towards Standardization of Geographical Names

The Survey of India has constituted a Thematic Working Group on Toponymy, comprising experts from various government agencies, private sector organizations, and academic institutions. This group is actively engaged in the development of an Indian Standard on the Code of Practice for the Collection, Processing, and Use of Geographical Names through the Bureau of Indian Standards (BIS).

The primary objective of this standard is to establish a uniform and structured framework that is accessible to all relevant stakeholders, ensuring consistency, accuracy, and interoperability in the management of geographical names. By addressing these key areas of focus, this initiative seeks to facilitate the creation of high-quality datasets that can seamlessly integrate into broader geospatial systems. Furthermore, the standard will serve as the foundation for a cohesive and interoperable Geographical Names dataset, which will act as a critical resource for various governmental agencies, policymakers, researchers, and the wider geospatial community

Future Roadmap

A National Geographical Name Information System (NGNIS) will be developed by Survey of India for access by all the users through a Geo-Portal. The NGNIS shall contain the Geographical Name Data Base (GNDB) associated with spatial data and will serve a single authoritative database for Geographical Names in India.

Points for discussion

The Group of Experts is invited to:

1. Take note of the procedures of the collection, standardization and dissemination of Geographical Names in India and express their views on this technical paper.
2. Provide input on the Similar work being carried out in other countries and innovative procedures/ tools adopted therein.