13 March 2025

English

**United Nations Group of Experts on
Geographical Names**
2025 session
New York, 28 April – 2 May 2025
Item 5 (b) of the provisional agenda *
Technical expertise: Geographical names data management

Brazilian geographical names database portal

Submitted by Brazil **

Summary:

In December 2024, the Brazilian Institute of Geography and Statistics (IBGE) launched the new website of the Brazilian Geographical Names Database (Portal BNGB). The BNGB brings together geographical names in the categories of hydrography, relief, boundaries, and localities, primarily contained in IBGE's vector basemaps in different scales. The Portal allows searches by name, category, municipality, cartographic scale, and other criteria, providing detailed information about each geographic name, including coordinates, type of feature, validation status, among others. Additionally, data can be downloaded in various formats.

During the development of the website, interactive prototypes were created to ensure a simple and accessible interface. An Application Programming Interface (API) was also developed to facilitate the use of the information by developers, enhancing BNGB's interoperability with other applications. Currently, the BNGB contains 150,813 geographical names, of which 48,263 have been validated. Validation is an ongoing and complex process due to Brazil's size and cultural diversity, and much remains to be done to incorporate historical and cultural aspects into the data.

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* GEGN.2/2025/1
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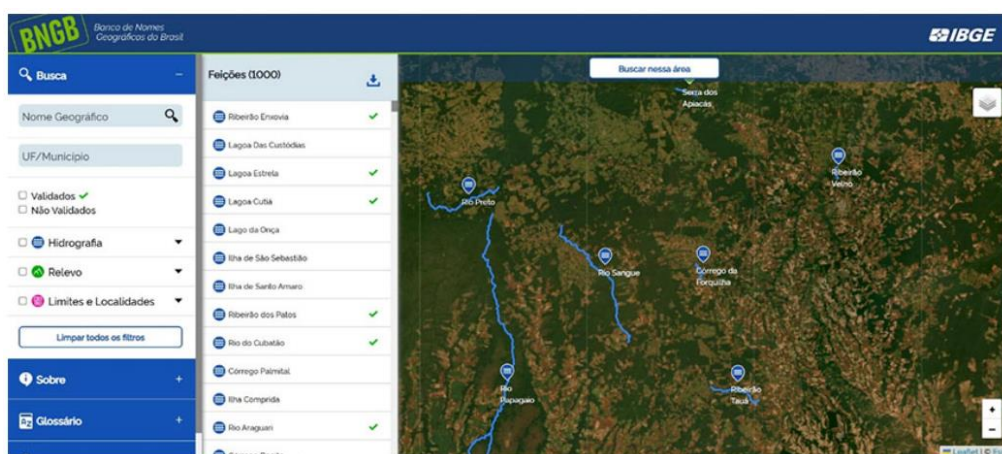
Brazilian Geographical Names Database Portal

The Brazilian Institute of Geography and Statistics (IBGE) launched, in December 2024, the new website of the Brazilian Geographical Names Database (*Portal BNGB*).

Currently, the Brazilian Geographical Names Database (BNGB) contains geographical names from categories such as hydrography, relief, boundaries, and localities, primarily derived from the vector basemaps produced by the IBGE in different map scales. Its creation aimed primarily at supporting the standardization of names within the IBGE and providing society with a platform that is exclusively dedicated to the dissemination of Brazilian geographical names.

At present, the BNGB contains 150,813 geographical names, of which 48,263 have been validated. A validated name is one that has undergone the process of treatment and harmonization among the vector cartographic basemaps conducted by the Geographical Names Department of the IBGE. The term "non-validated" is applied to names that appear in vector cartographic basemaps but have not yet been analyzed by the Geographical Names Department, or for which no solution/conclusion has been reached yet. Currently, there are 22,309 names validated by the specialists and 25,954 validated through IBGE's semi-automated compatibility process, as outlined in the 2023 paper *Compatibilization of Geographical Names Used in the Brazilian Official Mapping*[1].

The harmonization of geographical names from diverse data sources and collection methodologies constitutes an ongoing and complex endeavor, given Brazil's vast territorial dimensions and cultural diversity. Further efforts are required to incorporate historical and cultural attributes into the BNGB, as well as to refine the validation processes and associated documentation.

The *Portal BNGB* enables searches based on geographical name, keyword, generic term, category of geographical feature, map scale, validation status, municipality and spatial extent, among other criteria. For each queried name, the system returns attributes such as the "ID BNGB" (unique identifier of geographical names in IBGE's vector basemaps), geographical name, generic term, specific term, category of geographical feature, the scale(s) at which the feature is represented, name validation status, validation level (specialist or automatic, by the system), latitude, longitude, validation date, among others. Additionally, users can download search results in multiple formats, including GeoJSON, XLS, and CSV.
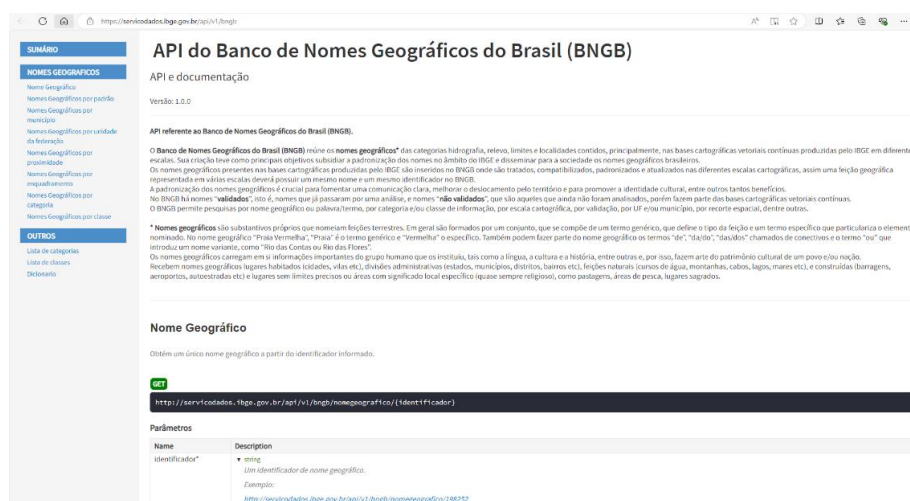

Portal BNGB: Interface displaying search results.
Source: bngb.ibge.gov.br

During the Portal's design phase, a series of interactive prototypes were developed to a user-friendly, modern, and responsive interface that effectively conveys BNGB content while allowing users to interact dynamically with the map and the geographical names displayed on it.

To enable the seamless and secure consumption of the data in the BNGB through the Portal, an Application Programming Interface (API) was developed and made publicly available, especially for system developers. Given

that query results are formatted for compatibility with widely used software solutions, the API BNGB enhances interoperability with external applications and fosters the dissemination of standardized geographical names cataloged and processed by the IBGE.

BNGB API Documentation Interface
Source: https://servicodados.ibge.gov.br/api/docs/bngb?versao=1

The *Portal BNGB* is available at https://bngb.ibge.gov.br/ , and the *API BNGB* can be accessed at https://servicodados.ibge.gov.br/api/docs/bngb?versao=1 .

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[1] Moreira, Graciosa R.; Diniz, Viviane B.; Pinto, Beatriz, C. P. S.; Resende, Ana C. R. B. Compatibilization of geographical names used in the Brazilian official mapping. Abstracts of the International Cartographic Association, 6, 172, 2023. 31st International Cartographic Conference (ICC 2023), 13–18 August 2023, Cape Town, South Africa. https://doi.org/10.5194/ica-abs-6-172-2023 | © Author(s) 2023. CC BY 4.0 License. Available at https://ica-abs.copernicus.org/articles/6/172/2023/ica-abs-6-172-2023.pdf