

## A NEW APPROACH TO THE COLLECTING OF GEOGRAPHIC NAMES IN BRAZIL

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### INTRODUCTION

The geographic names of a country are a layer of data of unique importance in the solution of land property and territorial disputes, as well as in the grant of hydric resources. Thus, the geographic names in a cartographic document play a critical role in the level of reliability of the geographical information of a given territory.

According to information which can be acquired at the site of the Network for promotion of cross border dialogue and exchange of best practices on Spatial Data Infrastructures throughout Europe (eSDI-NET+), the geographic names are considered one of the three most important components of data among those which constitute the information of territorial reference. Therefore, they become one of the most used means for users to retrieve information from the INDE (National Spatial Data Infrastructure) portal, which is being introduced in Brazil at present.

There are two main reasons for the community as a whole to be interested in the standardization and storage of place names, which are:

- so as to ensure that geographic features and places can be identified and located without ambiguity. Place names must be an essential reference system for services, infrastructure and public administration.
- so as to ensure that the preservation and accessibility of the invaluable set of geographic names of a country.

In order to cater to this, at present, the IBGE, besides working towards the standardization of geographic names, is also concerned with the storage and the spreading of the set of Brazilian toponym and is developing the Brazilian Geographic Names Database (BNGB). Besides the geocartographic aspects of the names, it also brings their history and etymology and an inventory of previous names of the place searched and its cultural aspects, among other features. As you know, the geographic names also reflect important aspects related to the occupation of the territory, constituting an important cultural mark of the people living in it.

At the moment, all the data is being uploaded and the database is intended for publication this year.

The information on the aspects of the geographic names regarded in the BNGB such as history, previous names of the place and cultural aspects, is acquired mainly in the collection of the names in the field. Thus, more frequent reflection on the process of collection of geographic names is necessary, once as it is done nowadays often does not reflect the new demand for the information necessary to feed the BNGB. In Brazil the process of collection of geographic names is called *reambulação*. In other lusophone countries other names are used, such as *recolha*, in Mozambique, for example. Thus, we will now proceed to describing the present procedures for the collection of geographic names in the field in Brazil. We will then discuss the possibility of a new proposal for the process of collection of geographic names in Brazil.

### **“REAMBULAÇÃO”: THE PRESENT PROCEDURES FOR THE COLLECTION OF GEOGRAPHIC NAMES**

The first observation to be made regarding the present procedures for the collection of geographic names is that they were created to be used for new mappings.

Reambular is the verb we use in Portuguese to express the process of collection of geographic names and classification of geographic features in the field. In English, we could possibly express it as “to reambulate”, or “ambulate once more”. That is: to go over a specific portion of land in order to collect, based on interviews with the local inhabitants, the names of the most prominent cartographic features in the region. These features and their names will be in the cartographic documents.

The above mentioned features can be natural or resulting from anthropic occupation, related to some categories of information which can be cartographically represented, namely: hypsographics, hydrographics, transportation systems, localities, political and administrative limits, engineering works, etc. This process of collection is based on some cartographic specimen such as aerial photographs, radar and satellite images, orthophotocharts, photogrammetric mosaics, among others.

The activity of collection of geographic names is divided in two stages: the previous planning in the office and the ulterior field work.

Traditionally, in the office, only the geocartographic documentation is collected to inform the survey in the field and only the ortophotos are taken to the field trip.

When in the field, it is fundamental to obtain the confidence and the cooperation of the informants. It is necessary to raise the awareness of the population in the area of the survey regarding the importance of the geographic names in the many areas of human experience.

Therefore, a good initiative, especially in cities in rural areas, is seeking for the support of the local radio before the beginning of the process of collection, in order to explain, through this media, the work to be done and its main purposes, so that local residents are informed previously about the campaign.

Also, administrative, religious, and juridic authorities must be contacted and the team must use their institutional identification cards.

An important aspect to be considered is phonetics in the language of the people. One should be aware of the regional differences in the pronunciation, in order to identify its correct spelling, according to the Brazilian spelling rules of Portuguese. A mistake in the spelling of a geographic name in an official cartographic document may have legal implications in the future. Thus, the surveyor should always be suspicious when something does not sound correct or is somewhat strange.

A few cases exemplify this. A surveyor from IBGE, while interviewing a local native, did not write the name of a particular farm in Maranhão State as "dos Constança" (in English: Constança's), because it sounded strange. Instead, he set out to look for more detailed information and found out that the place actually belonged to the "Constant" family.

Another surveyor, in the State of Pará, became suspicious when the name of a street was reported to be "Pampocha" by three informers, residents of the referred street. By checking the names of other streets in the whereabouts, he found that they all had names of flowers (Carnation, Rose, Jasmine, etc.). He, then, concluded that "Pampocha" actually should be "Papoula", ("Poppy", in English). In this case, the surveyor registered the name as "Papoula", the name with which the street was officially registered, according to what he found out checking the light bills.

Checking the names surveyed (and their spellings) in documents issued by companies of electricity, telephone and the like is an efficient means to avoid making mistakes when registering surveyed names in writing.

In a country like Brazil, where a considerable amount of the population, especially in the working class, receives little and/or inefficient formal education, it is crucial that the professionals responsible for the insertion of geographical names on maps are well prepared to face situations as the ones mentioned above.

It is not uncommon for the team of geographic name surveyors to come across illiterate and semi-illiterate informers and gross errors in the names of features, as shown in figures 1-3 below.

*Fig. 1. Geographic name with grammar inconsistencies. The correct form is "Fazenda 3 irmãos". Photo by Leila Freitas de Oliveira.*



*Fig. 2. Geographic name with spelling inconsistencies. The correct spelling is “Fazenda São José”. Foto by Leila Freitas de Oliveira.*



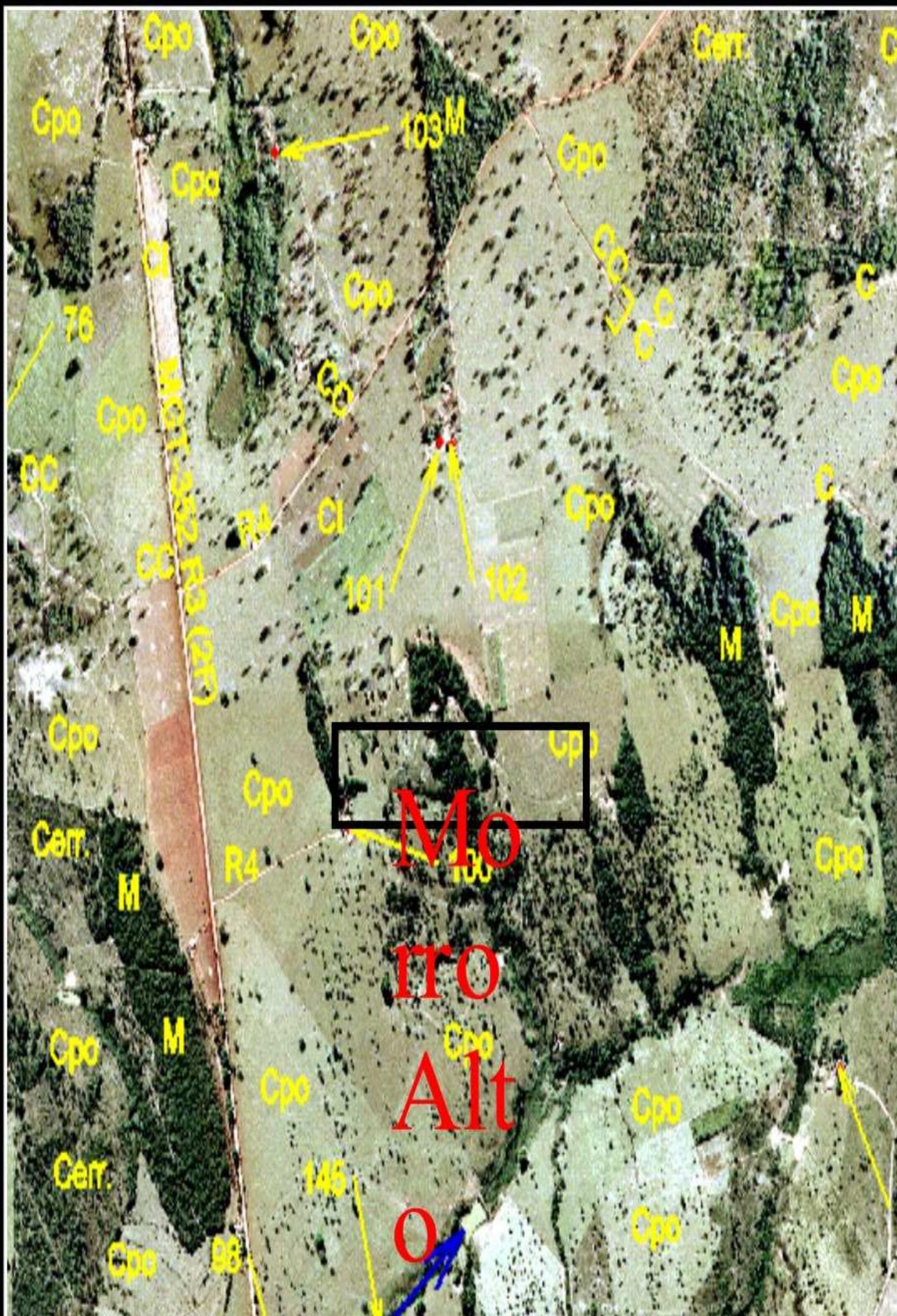
*Fig. 3. Typical informers in rural areas of Brazil. Photo by Leila Freitas de Oliveira.*



It is worth noticing that it is important to distinguish gross mistakes in the use of standard Portuguese from the regional differences regarding pronunciation and vocabulary. As an example we have the expression “Crôa” in the State of Ceará, which is the correspondent of the feature “Corôa” (sandbank) and “Córquinho” used in the State of Paraná to refer to the feature “Córrego”(creek). Terms like these must not be corrected. In such cases, the experience, knowledge and skill of the team will be crucial in making these distinctions.

All geographic names surveyed must have geographic coordinates – latitude and longitude which identify and locate it on the surface of the Earth. This geographic reference may be acquired either in the office or in the field by means of a GPS navigator. The features are then identified in the ortophoto with numbers which correspond to their geographic names as surveyed. These are stored in an operational database. In the ortophotos the features which do not receive denominations such as fields, forests and prairies are marked with a code, as seen in fig. 4.

*Fig. 4. File with codes and numbers which identify the features surveyed.*



In the office, the geographic names will go through a process of spelling check so as to eliminate any possible involuntary mistake committed by a surveyor. The names are then stored in a database and made available in cartographic documents or by means of direct search in the database.

### **“CERTIFICATION”: A NEW APPROACH TO THE COLLECTION OF GEOGRAPHIC NAMES IN BRAZIL**

In the present scenario of the Brazilian official mapping, we find some of the cartographic documentation using data collected over thirty years ago and a reduced number of experienced surveyors, which is insufficient for the surveys necessary for complete new mappings.

In addition to this, there is the need to obtain new and accurate information on geographic names regarding their historical and linguistic aspects in order to feed the Brazilian Geographic Names Database (BNGB).

Also, several mapping projects are now in progress in many of the Brazilian states, sponsored by state institutions, mainly those related to environmental planning and monitoring. In general, this mapping is being carried out by private companies, which often lack practice and information on the most adequate procedures to accomplish the task of toponymic survey, especially in scales larger than 1:25,000.

Taking all this into consideration, it becomes necessary to develop a new methodology that allows the updating of this mapping, while keeping up the quality and level of detail of the charts made by the official mapping institutions and at the same time meeting the demands for more detailed toponymic survey.

This seems to have been achieved by the new methodology used in the process of collection of geographic names of the Palmeira sheet of the topographic chart of the Brazilian State of Paraná by multidisciplinary teams of the Brazilian Institute of Geography and Statistics (IBGE) and two institutions of the Paraná state government. It promoted the certification of the cartographic denominations surveyed decades ago, integrating the work of the institutions responsible for the national mapping, establishing a flow of information among informers from local communities and the institutions, while feeding and maintaining the BNGB (Brazilian Database of Geographic Names).

The first and main difference between the traditional and the new approach presented here is that the first is meant for use in new mappings, while the latter is actually a process of certification of geographic names, aiming at collecting new denominations and at confirming, correcting or discarding the toponyms in an already existing cartographic document.

Other differences concern the activities in the office previous to the field activities, the length and depth of the interview and the joint work of more than one institution.

### **THE IMPORTANCE OF PREVIOUS SURVEY OF DOCUMENTATION IN THE OFFICE**

In the planning step in the office, an exhaustive survey of documents regarding the area must be carried out. Differently from the traditional practices, the chart to be certified is taken to the field, instead of orthophotos. Also, historical, administrative and cultural documents are analyzed, together with sheets of chart of the area produced in previous mappings in larger or smaller scale than the one being certified.

It is useful to verify whether the area is historically significant, what the economic production is and which the means of production used are and which the characteristics of the population are (ethnic elements, occurrence of significant migration/immigration, accent, pronunciation and vocabulary, religiosity, social and illiteracy indicators, percentage of the population attended by public infrastructure – basic sanitation, formal education, hospitals etc.). This information will also be used to inform and support the way the interview will be carried out.

It is also necessary to research on the localization of international, state and city boundaries, and acquire information on the existence of territorial disputes in the area.

Careful analyses and comparisons of the information contained in the documents must be made in order to establish, before going to the field, which geographic names are not consistent and require verification in the field regarding spelling, geographic coordinates, possible insertion in the mapping and other doubts. The analyses may also provide previous information on linguistic and historical aspects of some geographic names in the area being certified. Already in this step, some names are discarded, confirmed or corrected.

### **THE INTERVIEW**

Both in the traditional and in the new methodology, the names informed by the local population of the area surveyed are the ones to be used in the cartographic documents, with rare exceptions, as mentioned in previous sections. Therefore, the interview is, in both methodologies, the main source of information on geographic names. In the traditional survey, the interview is short and involves basically the question about the denomination of the target feature(s), the area it covers, and possible variant names, whereas the interview in the process of certification focuses also on obtaining data on the origins of the name, its

meaning, historical names and their scope. Although it is usually easy to obtain a great deal of information in the interviews, it is not always the result of answers to direct questions. Interviewers and informants engage in actual conversation. The conversational format of interview was preferred because it allows the possibility for the emergence of important information we had no previous plan to obtain. Also, in an easy atmosphere such as the one in a natural conversation people tend to provide more detailed information, if the surveyor is sufficiently skilled. Naturally, there is no maximum or minimum time allotted for the interview. Its length is determined by the quality of the information provided.

As drawbacks of the conversational type of interview, we can point out that it is more time consuming than the traditional one. In addition, it requires highly experienced and skilled surveyors, once it demands considerable effort and ability to somehow keep the focus of the interview, redirecting the subject politely whenever necessary and to choose the best moment to finish the interview, keeping a positive balance between the time spent on it and the amount and quality of the information obtained.

According to the recommendations of the United Nations Group of Experts in Geographic Names (UNGEGN) and the manuals for the collection of geographic names by the IBGE and the Army, 3 to 5 informants must be interviewed for each geographic name. However, if still in doubt, surveyors may continue with the interviews.

### **JOINT WORK OF SURVEYORS OF MORE THAN ONE INSTITUTION**

The process of certification of geographic names can be carried out in a joint effort of surveyors from the Brazilian Institute of Geography and Statistics (IBGE) and the Army and from the state institutions and/or private companies. The interaction among the members of the teams can provide the opportunity for the transfer of the knowledge on the toponymic survey from the more experienced members of the federal institutions to the surveyors from the state institutions and/or private companies. This can guarantee the quality of the mapping and is an efficient way to instruct new professionals who will increase the reduced number of experienced surveyors in the country.

### **THE CERTIFICATION OF THE GEOGRAPHIC NAMES OF THE PALMEIRA SHEET OF CHART IN THE STATE OF PARANÁ**

In 2009 a multidisciplinary team formed by four technicians of the Institute of Lands, Cartography and Geosciences of the State of Paraná (ITC-PR), 2 of the IBGE and 1 of the Secretary of Planning of the State of Paraná (SEPL-PR) carried out the certification of the Palmeira topographic sheet, elaborated over toponymic data collected over twenty years ago, in the 1:50,000 scale.

This project was a result of an Agreement of Technical Cooperation among the IBGE and the two state institutions from Paraná.

The main goals of the project were: training of the state teams, updating of the geographic names of the previously mentioned sheet of chart and their insertion in the BNGB.

The Palmeira sheet was chosen for the proximity of the area it covers to the capital of the state, Curitiba - where the institutions are located -, for the good logistics in the region and for its diversity in the human occupation of the territory.

The material used for operational support was the following:

- Statistic municipal map by IBGE, 2007, of the municipalities of Palmeira and Ponta Grossa.
- Sheets of topographic chart covering the same area in 1:50,000, 1967 and 1990 and in 1:250,000, 1983.
- Data surveyed on the area by telephone company Brasil Telecom
- Data on the highway network by the Departamento de Estradas de Rodagem (Department of Roads) – DER, 2009
- Official Register of Real State of the ITC
- Historical Municipal Map Palmeira, 1953
- An enlarged print of the Palmeira chart, which resulted in four sheets in the scale of 1:25,000

The material used for logistic support taken to the field consisted of:

- Arc Gis and BR Office software
- 4 notebooks
- 2 pickup trucks
- 2 GPS navigators
- 1 camera
- Formularies for the collection of geographic names

Technical meetings were held daily for constant evaluation of the team's performance, development of charts spreadsheets for the compilation of data collected in the field and for the identification of the places and features to be surveyed by the team.

The notes taken in the field were organized into reports at the end of each work day, or on the following day at the most, so as to ensure the accuracy and completeness of the records.

A total of 123 villages and farms were surveyed and 141 informants were interviewed in the 15 day field trip, and solutions were found to most of the inconsistencies pointed out in the comparative analyses made in the office and to the ones identified after the daily analysis of the field activities or in loco with the cooperation of the inhabitants of the areas.

The most interesting case which emerged in the analyses made in the office was an issue concerning the misidentification of a river the river constituted the boundary between the municipalities of Ponta Grossa and Palmeira, which had been mistaken for another one, fact that affected the extension of the territories of both municipalities. The misidentifications were confirmed in the field survey and a technical statement on the correction of that section of the municipal boundary was issued, together with a technical statement on the alteration of the geographic names of the rivers involved. The solution of this issue under the light of the new methodology may inform the solution of other similar cases in Brazil.

Other results accomplished: a significant total of 336 occurrences were updated concerning toponym, geometry and insertions in the mapping; a considerable amount of data was uploaded to the BNGB and a new Agreement of Technical Cooperation for the updating of all the other topographic sheets of the State of Paraná in the 1:50,000 scale was established.

*Fig. 5. Technical meeting in the field*



*Fig.6*



Fig.7





*Fig. 8 Fig. 6-7. The team in the field*

#### **FINAL CONSIDERATIONS AND FUTURE PLANS**

Regarding the project of certification of the Palmeira sheet of chart, an important follow-up is the development of a manual for the certification of geographic names in a joint effort of IBGE and the state

institutions, to be issued in the second semester of the current year. It will be used in the training of the teams involved in the updating of the other sheets of chart of the State of Paraná.

As far as the new methodology for the collection of geographic names is concerned, taking into account the experience acquired in the certification of the Palmeira sheet of chart, in the trainings of new teams it will be useful to highlight the importance of the contribution of members of certain communities of individuals who are interested and/or specialized in specific activities in the identification of certain features whose names are not easily obtained in interviews with ordinary inhabitants of the area. For example, when asked about the denomination of a certain elevation on the coast, ordinary inhabitants may not have an answer. However, the fishermen who use it as a reference when at sea have a name for it and will be able to inform it to the surveyors. Thus, members of hiking, mountain climbing, bike clubs and others may be of great help in the identification of features.

Finally, we consider the new approach as successful regarding its contributions to the Brazilian official mapping within its present scenario, once through the process of certification of geographic names regarding their spelling and/or pertinence, it was possible to update the existing mapping regarding its toponymic elements and point out the need for updating of some of its geometric aspects. This allows that new mappings are made only where necessary, which much contributes to savings in time and money for the country.

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