Section 1: General/strategic issues

Chapter 1 **Geographical names, their standardization, and their value as part of geospatial data infrastructures**

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1.1 Overview

In this introductory chapter, we will look at an overview of geographical names – their usefulness to us, their standardization and the benefits from this, together with today's need for Romanised forms. We will see how geographical names have been recorded and how today the geographical names database is a powerful tool for integration with other spatial data. Whereas standardized geographical names are essential for georeferencing, they are also significant to history, culture and identity of the peoples of the world. Geographical names or toponyms are at the meeting point of history, geography, linguistics, psychology, etc. and UNGEGN plays its part in promoting their standardization to benefit world users.

1.2 Our everyday relationship with geographical names

Can we pass a day without using geographical names (or toponyms)? Probably not! They are part of our everyday vocabulary, to say where we are going, to find our way, or to plan ahead. They are all around us! We see them as signs on streets (Figures 1-1, 1-2 and 1-3) and on highways (Figures 1-4 and 1-5), on panels announcing towns (Figures 1-6 and 1-7), on maps and in atlases, and as part of the crucial information provided through different media. Geographical names are expressed in different languages and in different scripts.

Figure 1-1 Street sign in "Chinatown", Ottawa, Canada

Figure 1-2 Street sign in Seoul, Republic of Korea

Figure 1-3 Street sign in Tunis, Tunisia

Figure 1-4 Highway sign, Iceland

Figure 1-5 Highway sign, outside Gaborone, Botswana

Figure 1-6 Town sign, Slovenia (double name in Slovenian and Italian)

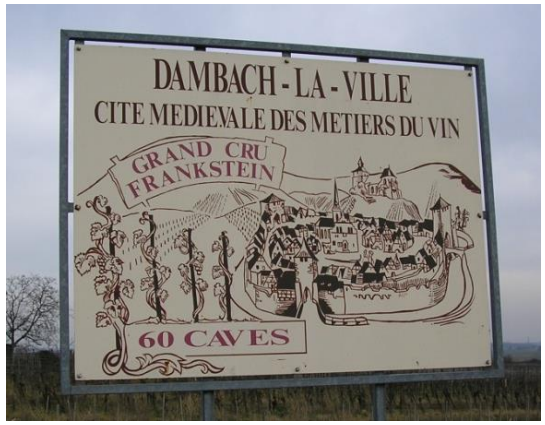


Figure 1-7 Town sign, south of Strasbourg, France

Geographical names are one of our primary points of query in searching data on the web and in relating elements from different spatially-referenced data sets (for example, villages liable to flooding and hydrographic data). They are the link between men and women and the land on which they live. They are guardians of our history, our language, our culture and our aspirations, and some names have been in use for many centuries. The misuse or incorrect representation of toponyms (for example, on maps) can be an emotional source of local or national concern.

Geographical names may be quite clear or may pose us problems! Are we looking for Sydney or Sidney? Is it Dallas or Dulles? Are Bécs and Vienne the same as Wien (Figure 1-8)? Why is there a Swedish name (Helsingfors) for Helsinki? Should I use Falkland Islands or Las Malvinas on my map? Toponyms can be the source of many interesting and complex questions!

Figure 1-8 Commercially sold bag showing the endonym Wien, as well as various exonyms for the city

1.3 Guardians of a country's toponymy

Over many centuries, explorers kept their route logs and often recorded names for the landscape features they saw and perhaps mapped. Although some of these names may have been in local use, many were created by those explorers sailing for distant lands and using the naming process as a way of claiming sovereignty and of commemorating those who had provided financial backing for their expeditions. Hence, one finds the scattering of names of royalty, financiers, industrialists, friends and family on features "discovered" in the "new world".

Lists may have been filed and used by cartographers to produce local, regional or world maps. Countries (for instance, Norway) had produced names for official maps and passed legislation to standardize their spelling in the mid-1800s. However, it was not until the late nineteenth century that any country established a national authority that would be the guardian of the nation's toponyms, to avoid ambiguity in spelling or in application of the names. The first country to establish a board for this purpose was the United States of America. In 1890, the United States Board on Geographic Names (US BGN) was created by Executive Order of the President, Benjamin Harrison. This was their time of mapping associated with exploration, mining and settlement of the west, and this federal body was given authority to resolve questions concerning geographic names. Decisions of the Board became binding for all departments and agencies of the Federal Government.

Similar reasoning regarding westward expansion of settlement was behind the establishment of the Geographic Board of Canada in 1897. During the first half of the twentieth century, Denmark (1910), Iceland (1935), New Zealand (1946) and Ireland (1946) recognized the benefits of standardizing their geographical names and established national names authorities. These numbers have grown to around 80 countries having national authorities – influenced by the increased number of UN member states, with the independence of many countries in Africa in the 1960s, and the break-up of the Soviet Union and Yugoslavia in 1991. In recent years: Afghanistan, Brazil, Mozambique and Serbia created names boards in 2009; Sri Lanka and the Føroyar (Faroe Islands) region of Denmark established their boards in 2010; Saudi Arabia did likewise in 2013, while in the same year Burkina Faso and Tunisia re-established their national toponymic committees with new legislation. Figure 1-9 shows the creation of national names authorities over time, whereas Figure 1-10 shows the global coverage of geographical names authorities as self-determined by the countries prior to January 2015.

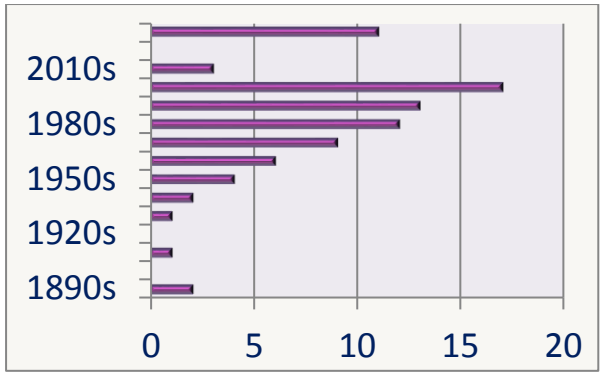


Figure 1-9 Growth of national names authorities – by date of first establishment

Figure 1-10 Geographical names authorities (as of January 2015). Green countries have national names authorities.

As recommended by resolution 4 of the First UN Conference on the Standardization of Geographical Names in 1967, the basis for national and hence international standardization rests with the countries of the world – that have the responsibility to make decisions on toponyms in their own jurisdictions. There is not just one model that can be followed by all countries in establishing a national names board! The nature of the government of the country (centralized or decentralized), the distribution of population, the number of recognized languages, and the cultural background may be among the factors that will influence the establishment of a toponymic authority. In basic terms, the names board is likely to be (a) a centralized government led names board, (possibly with advisors, or sub- or advisory-committees) and which takes decisions through this one group, or (b) a decentralized process, where decisions on names are made at the individual state/province level and accepted for national use, with an umbrella national group existing to make policy frameworks and provide international representation.

Just as the structure of a national names board may vary around the world (perhaps Madagascar is one of the largest boards, with 44 members), so too will their mandates. Most boards will have responsibility for names of topographic and hydrographic features and unincorporated smaller communities; in many cases, names of incorporated towns and administrative areas will be established by law, rather than directly by the board. Some authorities may have a mandate to decide on names of undersea and maritime features, ephemeral features (such as seasonal routes), and a few may have some jurisdiction over street, building and local park names (a topic more commonly left to municipalities for decision-making).

1.4 How are the names recorded and stored?

In the past, drawers of file cards carrying detailed records of each toponym and stored alphabetically were a common feature.

- A name card might include variant names in addition to the approved form; coordinates; administrative area where the feature is located; the history of the name; its language; the source of the name; office details of the development; date of Board approval, etc. (see Figure 1-11)

- In some offices, other sets of card records may have been kept, for example, cards with information gathered during field recording (Figure 1-12) or cards used in the preparation of gazetteer entries.

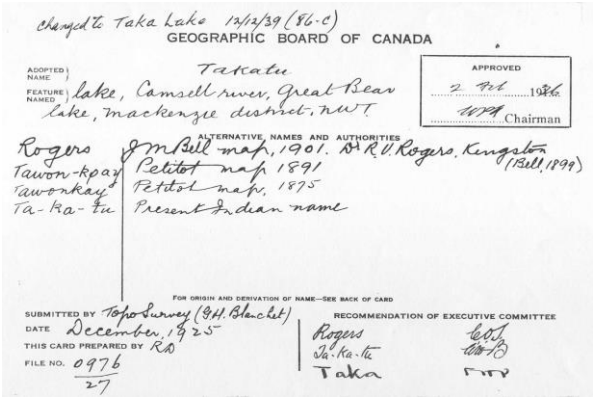


Figure 1-11 Old name record card of the Geographic Board of Canada (1926), showing variant forms found on historical maps, date of Board approval and other details.

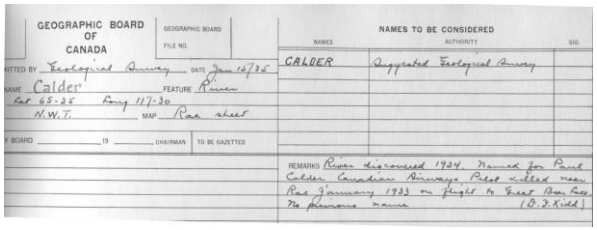


Figure 1-12 Example of a field record card of the Geological Survey of Canada, collected for consideration by the Geographic Board of Canada, 1935.

1.5 The development of digital toponymic databases

Today many national names authorities have moved to the use of digital toponymic databases, often of a sophisticated nature and integrated, or at least with the possibility of interoperability, with other place-related databases.

The data that formed the basis for today's databases, may have been collected from a variety of sources. In some cases, for instance in the United States, the names were captured directly by digitizing names data on existing published map sheets.

In other cases, for example Mozambique, existing names information was stored on cards filling many drawers. A systematic approach was needed to fit this data (often stored on handwritten or typewritten cards) to the fields established for the digital database. Questions arising through interpretation of handwriting needed to be solved, information needed to be entered in upper/lower case (not just capital letters), administrative units to be used for location had to be rationalized, coordinates had to be improved wherever possible, and reference to maps at various scales had to be consistently represented. These are just some of the details to be resolved in transferring rather "free-wheeling" early cards to the more rigorous structure of a database with specifications for each field of name attribute information. Figure 1-13 provides a card from existing Mozambique records that was entered into the national toponymic database.

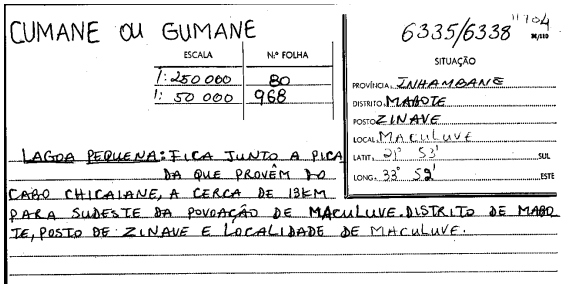


Figure 1-13 Card record of Cumane or Gumane, Mozambique, as used in building a national toponymic database. Note that Cumane and Gumane were shown as alternative forms on the card; two records were created on the database and were given the identity numbers 6335 and 6338. These numbers were added to the card, for future follow up or possibly for the addition of a scanned version of the card to the digital records.

Figure 1-14 illustrates the record created for Cumane on the national database ("toponymic management system") showing the English-language interface (as opposed to the Portuguese one) indicating the data fields included. (Gumane was shown as a variant for Cumane and also has its own separate record.)

In some databases, toponyms are attributes of different layers of data (e.g. hydrography, land features, buildings, etc.), but generally today, a toponymic database can be a collection, or layer, of data, with each name record (with its own name id) linked to other georeferenced data, using a unique feature (object) id and supported by its coordinates.

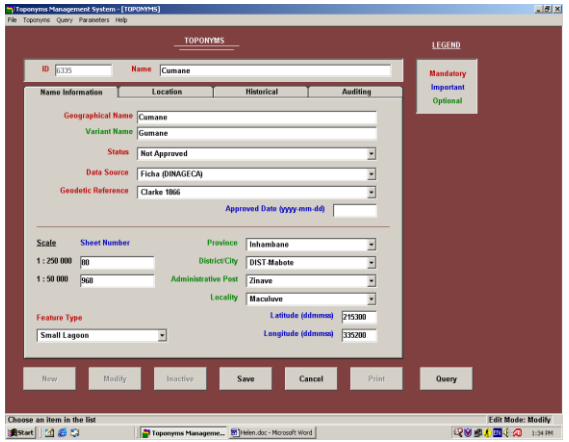


Figure 1-14 Database record created for Cumane (with variant Gumane), Mozambique.

Authorized geographical names should be easily available and accessible for public and private use – not set aside as a "best kept secret". Since the mid-1990s countries have been aiming to have their toponymic databases available through the Internet, so that the nationally approved forms of names can be queried, downloaded and used by governments and the general public. In some cases, the files may be gazetteer files, prepared at a particular point in time and/or for a particular map scale, and made available as Word or Excel files. In other cases, the public may have direct

access to query a national geographical names database (likely a recent copy of the main toponymic database).

A number of these databases are described in documents presented to the UN Conferences on the Standardization of Geographical Names and at the intervening UNGEGN sessions. To single out a particular example, I would refer you to the database of Finland, in which names are related to topographic information and also to the process of names selection, font size, etc. for use in by the National Mapping Agency. Mr. Teemu Leskinnen presented the most recent version of this document to the ICA in Rio de Janeiro in 2015 (icaci.org/files/documents/ICC_proceedings/ICC2015/papers/21/fullpaper/T21-516_1430431470.pdf).

1.6 What can a toponymic database achieve?

The use of a toponymic database has a wider application than just names for topographic maps, and the use of *standardized* written forms (spelling, diacritics, hyphens, capitalization, etc.) can provide a number advantages, to both individuals and to a country, over ambiguous situations where it is unclear which form(s) of a toponym are authorized.

Apparently approximately 80% of information affecting our daily lives has a spatial dimension. In all "place" referenced databases, geographical names are an important layer of the spatial data and a natural way of querying to find other data, so becoming vital keys to access the digital world. As a common field of information they help enable the integration of digital data sets, which become essential and powerful decision-making tools for policy makers and managers in business and government. At both national and local levels, accurate and consistent geographical names are vital for the optimal use of geo-information in such fields as:

- sustainable national planning strategies,
- environmental management,
- police quick response,
- emergency services coordination,
- trade and delivery systems,
- utility infrastructure development,
- tourism,
- communication and media services,
- cultural heritage promotion,
- registration of land holdings,
- census and statistical social surveys,
- signposting on local roads and major routeways,
- developing on-board navigation systems.

In cases, such as tsunami warnings, dangers from forest fires, climate change vulnerability, geographical names are essential to the planning and provision of emergency aid.

By way of example, low-lying areas of the west coast of Vancouver Island, Canada, are vulnerable to tsunami perils. Carefully developed map and GIS plots of the terrain with the standardized microtoponyms (small localities, street names) have been created to indicate flood levels, and road signs have been posted on the few existing routes to indicate the necessary direction of travel to attain higher ground (see Figure 1-15).

Figure 1-15 Tsunami evacuation route indicators on western Vancouver Island, Canada.

We can see that databases of clear, unambiguous (i.e. standardized) toponyms can be of benefit to us in all the situations mentioned. The benefits can be considered to cover four major areas - although with overlapping boundaries - namely: technical, economic, social, and cultural benefits, as shown with a few examples in Figure 1-16.

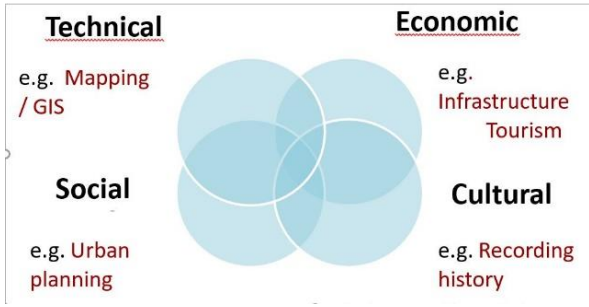


Figure 1-16 Technical, economic, social and cultural benefits of accessible standardized toponyms

n addition, today the use of crowd-sourced data has been noted as valuable to aid response in critical situations. Although the names may have no official status, their utility as unofficial (or perhaps variant names) in a database has been seen as advantageous, for instance, in serving police responses (as in the local knowledge collected by the Ordnance Survey in the United Kingdom in the Location Lingo Project) and in guiding emergency response (as in the collection of street and building names immediately following the earthquake in Haiti in 2010).

1.7 Problems from the lack of standardized toponyms

Two examples can be used to indicate the problems of lack of available standardized toponyms and associated data in times of crisis.

- In its coordination of relief efforts, the United Nations requires up-to-date toponymic data. In 2005, the severe earthquake near Balakot in a remote valley of the Himalayas in northern Pakistan resulted in over 88,000 losing their lives. UN OCHA reported that among the difficulties that made the humanitarian aid more difficult and caused delays in providing assistance, were the lack of standardized names and available gazetteers, as well as lack of access to maps, population statistics, and locations of the villages. Such data is needed for input into GIS to enable rapid response.

- UNECA (2014) reported on the situation in Somalia where lack of standardization of toponyms, repetition and duplication of toponyms, and incomplete data were problematic. For instance, Xuddur, Oddur, Xudur, Xuudur, Huudur were written forms for the same place. Baydhaba, Baydhabo, and Baidoa were equally ambiguous, as were Beledweyne, Belet Weyne, Beled Weyn, Balet Wayn. Such inconsistencies across sources lead to loss of resources, possible compromise of security, confusion and often bad decisions being made.

Street naming and addressing

Another type of situation was pointed out to UNGEGN at its session in Nairobi in 2009. In the slum areas of the city, the absence of street names and any addressing system contributed to the lack of personal identity. This included problems for an individual to receive delivered goods or to open an account that requires a residential address.

A report of the World Bank published in 2005, indicated that over 50% of urban centres in sub-Saharan Africa lacked an addressing system. Even if the city core originally had such a system, densification of the city centres and urban expansion had taken place without the assignment of names keeping pace. As this is essential for town planning, taxation systems, plotting the spread of epidemics and so on, the World Bank provided financial support for countries to develop systems of addressing and the assignment of building numbers, together with appropriate database initiatives. As street numbering is less controversial than the assignment of street names (odonyms), this was considered the first step. The World Bank recommended that streets for priority naming should be identified, lists of potential names should be created, the residents should be able to consider choices and the municipality should approve the name.

In Yaoundé, Cameroon, for instance, the urban area was divided into six zones, with the 1670 streets numbered within each zone, and buildings numbered according to odd and even sides of the street. Gradually as names are decided they can be added to the street signs as decisions are taken (see Figure 1-17).

Figure 1-17 Yaoundé, Cameroon: Street 74 in Zone 1; Street 29 in Zone 2, also referred to as rue Malam Ibrahim

The city of Ouagadougou in Burkina Faso has set up a municipal Commission de toponymie, developed principles of naming and the process of approving street names and storing these odonyms, as well as creating a detailed street map of the city (sample in Figure 1-18). A list of potential names was compiled – including mainly names of people; by 2005, 2000 streets were named compared to only 70 (of 4910) in 1997.

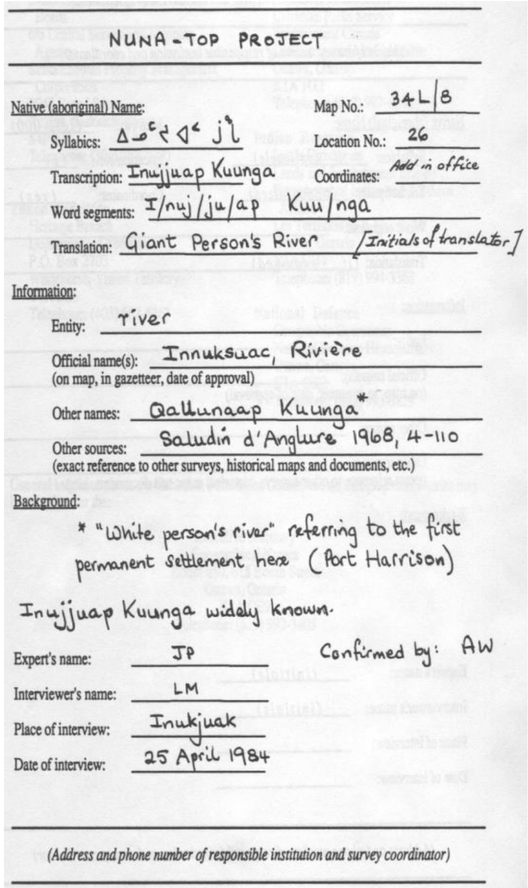
Figure 1-18 Ouagadougou, Burkina Faso: part of the street map created for the city; street sign in the Ouaga 2000 sector of Bogodogo

1.8 Romanization

Toponymic databases may be maintained in any language and writing system. China, for example, has reported to UNGEGN on their authorized geographical names data being available and searchable through publicly accessible computer terminals. Other non-romanized writing systems may provide rich toponymic databases, as for instance in Arabic, Greek, Korean or Russian Cyrillic characters. For international use, UNGEGN favours the use of single scientifically-based romanization systems as a means of converting toponyms into the Roman (Latin) alphabet. As of the 10th UN Conference on the Standardization of Geographical Names in 2012, 30 romanization systems (with conversion tables) had been adopted for use through UN resolutions. Of these 30, some are still under review for their continued suitability or their need for modification. Single romanization systems for scripts of other languages continue to be discussed and refined before their authorization and adoption.

Products from these toponymic databases may include both the original script and romanized forms. Inuktitut (or Inuttitut) as used in Northern Quebec (and Eastern Nunavut) in Canada is generally written in syllabics (i.e. with symbols for syllable sounds, as for example: pi ᐱ, pu ᐳ, pa ᐸ). Syllabics are recorded during field collection and included in toponymic databases for the area. For Nunavik (=Northern Quebec) a multilingual gazetteer was produced from the toponyms collected by surveys in the Inuit communities. The gazetteer used Inuktitut syllabics and romanized forms of the toponyms, with the addition of French and English for the explanatory texts (see Figures 1-19 and 1-20).

Difficulties can arise with data compatibility and character display of various scripts, hindering the necessary exchange of data between systems. UNGEGN addressed this issue in 1998 and concluded that the use of the Unicode standard (ISO/IEC 10646) best addressed these potential difficulties.



NUNA-TOP PROJECT

Native (aboriginal) Name:
Map No.: 34L/8
Syllabics: ᐃᓄᒃᔪᐊᑉ ᑰᖓ
Location No.: 26
Transcription: Inujjuap Kuunga
Coordinates: Add in office
Word segments: I/nuj/ju/ap Kuu/nga
Translation: Giant Person's River [Initials of translator]

Information:
Entity: river
Official name(s): Innuksuac, Rivière
(on map, in gazetteer, date of approval)
Other names: Qallunaap Kuunga*
Other sources: Saladin d'Anglure 1968, 4-110
(exact reference to other surveys, historical maps and documents, etc.)

Background:
* "White person's river" referring to the first permanent settlement here (Port Harrison)
Inujjuap Kuunga widely known.

Expert's name: JP
Confirmed by: AW
Interviewer's name: LM
Place of interview: Inukjuak
Date of interview: 25 April 1984

(Address and phone number of responsible institution and survey coordinator)

Figure 1-19 Field collection form for the recording of Inuit place names in Inukjuak, Quebec

Figure 1-20 The Gazetteer of Inuit Place Names in Nunavik (Quebec, Canada), published from the database of names collected in the field.

1.9 Geographical names and cultural heritage

The value of geographical names as part of our cultural heritage has had considerable discussion at recent UNGEGN sessions, special regional meetings and among members of the UNGEGN Working Group on Geographical Names and Cultural Heritage. Of the tens of thousands of geographical that have been used and recorded over many generations (and sometimes many centuries), some refer to major features, others may be for local community features, such as farm and field names (for example in Figure 1-21), and yet more may record names of heritage structures (for example in Figure 1-22). All are an important part of our web of knowledge and of the languages, history and customs that are the framework for the toponyms we use today and so constitute a significant element of our identity and our association with "place".

Figure 1-21 Local names of holdings in southern Iceland

Figure 1-22 Preservation of cultural heritage in the vicinity of Yogyakarta, Indonesia

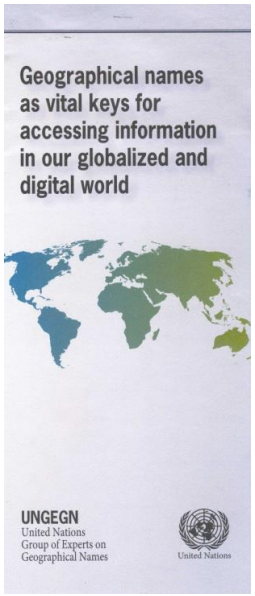
In reference to odonyms, the President of the municipal Commission de toponymie in Ouagadougou, Burkina Faso, indicated that: "Paths, spaces and boulevards shape life from afar and leave their mark on movements of thought and activity. As a result, streets, squares and buildings define and reflect the essence of the nation, in its sovereignty, its history and its culture." [translation]

Many toponymic records have been gathered (from archives, from current materials, and from oral tradition) to create collections of culturally significant names and their attributes. In the past, linguists and others involved with such collections have not necessarily recorded locational data for the named places (e.g. coordinates) in enough detail to allow these valuable records to be integrated easily and accurately into today's digital toponymic/topographical databases.

As data is more rigorously gathered and as the links between databases become better developed, it will be easier to roll in these elements of our collective memory and heritage. Being able to query (often by toponym) across a variety of databases will add considerably to the robustness of accessible data, and will help protect and preserve our toponymic heritage.

1.10 Conclusion

UNGEGN has since the 1960s been promoting national and international standardization of geographical names. On the UNGEGN website, you will find documents presented on this subject over the span of more than 50 years, as well as links to websites of the UNGEGN working groups, UNGEGN divisions, and individual countries. Manuals and pamphlets produced by UNGEGN and published by the United Nations are available to view and download for your use (see examples in Figures 1-23 and 1-24).



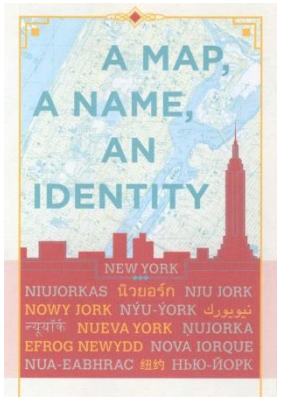


Figure 1-23 Example of a publicity brochure produced by UNGEGN
Figure 1-24 Promotional postcard, showing various exonyms used for New York, published on the occasion of the 10th UN Conference on the Standardization of Geographical Names held in New York in 2012.

In this manual, you will find a series of articles prepared by experts in various aspects of toponymy and national standardization. The material is offered to you as a follow up to the *Manual for the national standardization of geographical names* and the Toponymic web course (see Chapter 2) prepared in cooperation with the International Cartographic Association.

1.11 References

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UNGEGN website:
http://unstats.un.org/unsd/geoinfo/UNGEGN
conference and session documents, brochures, bulletins, resolutions, media kit, longer UNGEGN publications – all available to download; links to websites of UNGEGN Working Groups, Divisions, and individual country databases and toponymic materials.