Standardization of geographical names and raising awareness of its advantages

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What is our focus?

- Need to understand
  - Communication through geographical names
  - What is being named?
  - Why we want to standardize geographical names?

- Help managers appreciate the significance of standardization
  - Benefits: technical, economic, social, cultural
  - Toponyms so much part of other issues (e.g. NSDI)

- Various examples
Referring to places and features

- By latitude and longitude
  - or other world rectangular grid (military/ civilian)
- By description
  - 28 km N of Manila
  - administrative capital of particular region
  - at crossing point of two roads
  - as particular activity centre - market town
- By number …. e.g. lake 1, lake 2, etc.
- By name !
  - in combination with locational information
Communication problems if no names – thematic maps, air photos ...

Land use - 2004
... satellite images

Geographical names needed to identify, describe, analyse
Using names ...

- People use names in everyday discussion
- Names are used in books, atlases, school texts, maps, road signs, timetables, media ...
  - paper, digital, on physical objects
- People search for other information and link information often through names ...
  - indexes, gazetteers, on Google, Google Earth
  - paper, on-line, through databases
“Geographical name”

• UNGEGN Glossary (2002):
  – *name, geographical*
    “name applied to a feature on Earth”

(usually in English = “toponym”, although this can include names on other planets)

(place name = toponym
  
  or
  = name of populated place)
What types of places/features?

- Populated places / administrative areas / geographical features
- Land / water
- Offshore features – water / underwater?
- Names within urban areas?
  - streets; buildings; parks?
- Changing or temporary features?
  - open water areas in sea ice; dunes; winds?
“Standardization”

- **UNGE GN Glossary:**
  
  - *standardization, geographical names*
    
    “The prescription by a names authority of one or more particular names, together with their precise written form, for application to a specific geographical feature, as well as the conditions for their use.”

- **Authority**
  
  - apply some official status to names – written form
  - how name is applied
  - how used
  - romanization (?)  
    approved name; official name
Standardization means -

- Aiming to avoid –
  - Duplication of names
  - Poorly recorded names
  - Confused applications
  - Lack of quick and easy access to data
So ....

- Logical and most useful if:
  - Spellings are clear, consistent, unambiguous
  - A name is clearly ‘tied’ to a location
  - Difficulties with what names are correct are sorted out
  - These names are recorded, stored and are easily available to governments and the public
  - Everybody can use the same set of names to communicate

“standardization”
Practical aspects of names standardization?

– Useful in addressing emergency situations
– Include in predictions and modelling
– Everyone can benefit ... many applications
– Integrate with NSDI; GIS opportunities
– Publicizing names through Google
  • Millions of users can access your data
  • Show names correctly
Value of standardized street names for evacuation planning

Following Katrina (5 years before) – details of streets and buildings ... for shelter provision, for tracking family members
Red River floods – Canada/US
Red River floods
Red Cross – Fargo, USA

- Red River Valley
- Floods
- Road closures
Benefits of standardized names?
Benefits of standardized names?

- UNGEGN brochure … several languages
  - Advantages of clarity and consistency

Technical benefits

Economic benefits

Social benefits

Cultural benefits
Technical benefits

- Production of maps and atlases
- GIS and spatial data infrastructures
- Search tools on the Web
- *Onboard navigation systems; unique Internet addresses; presentation of data analysis …*

Economic benefits

- Government using one standard registry of names
- Transportation, delivery and postal services – loss of time/materials without clear name references
- *Developing national planning strategies; routing in trade and commerce; urban and regional planning; encouraging tourism; promotion of countries by the media*
Social benefits

• Expression of our identity … and standardized names help in effective communication
• Reference points in laws and regulations of society
• Exact and available toponyms are essential in emergency services – humanitarian aid, search and rescue, warning of natural disasters
• *Environmental management; modelling for climate change vulnerability*

Cultural benefits

• An important part of our language and heritage
  Recording names helps to preserve our heritage
  Toponyms provide a link to our history
• Oral tradition – today the recording of toponyms becomes essential for future generations
Benefits – example of UNOCHA

• United Nations Office for the Coordination of Humanitarian Affairs (OCHA)
  – Earthquake in Pakistan, 2005
    • Problem of delays in providing assistance to remote villages
    • Difficult to obtain - standardized names, coordinates of villages, gazetteers, population statistics, maps
  – Java, Indonesia, earthquake, 2006
    • Aid progressed rapidly … maps, standardized names integrated into GIS, easily available
  – Need for cooperation and move towards a global toponymic database
Benefits: example of urban naming

- China
  - growth of cities ... new urban areas
  - more than 20,000 new urban names needed every year
    (training to 400 people in a year to improve city name planning)

- Problems in towns with no street names?
  - Development of GIS for service infrastructure
    - (road, rail, water, sewer, electric power, gas lines)
  - World Bank help for addressing in Africa
Data or scrambled eggs?

Here, there or where?

Duplication

Repetition

No standardization

Incomplete data

Resources lost

Affects security

Confusion

Bad decisions
Lack of standardized names – in emergency

<table>
<thead>
<tr>
<th>Haiti earthquake Jan. 12, 2010</th>
<th>Crowd-sourcing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Maps lacking information</td>
<td>• Quick response by volunteers – names and information</td>
</tr>
<tr>
<td></td>
<td>• Help guide emergency workers ... accuracy?</td>
</tr>
<tr>
<td>Dec. 30, 2009</td>
<td>• Needs standardization for longer term use</td>
</tr>
<tr>
<td>Jan. 13, 2010</td>
<td>• (Perhaps names are temporary ... )</td>
</tr>
<tr>
<td>Jan. 29, 2010</td>
<td>(National Geographic)</td>
</tr>
</tbody>
</table>
Geographical names in NSDI

What’s in a place?

Building any National Spatial Data Infrastructure requires authoritative national framework data themes.

Geographical Names bring context and understanding to the data. They provide “place” to “location.”

Quality data
Authoritative sources
Standards for content and format
Free or low cost
Redistribute or licence

UN-GGIM | United Nations Initiative on Global Geospatial Information Management
UN-GGIM | ggim.un.org
Geographical names in SDI

• Vital locational component for inclusion in all geo-referenced data
  – Pali Lehohla (S. Africa) re statistics/census and names
• Direct and intuitive point of access
• Help integrate data sets to provide powerful decision-making tools
• Necessary for presenting practical results of spatial data analysis and interpretation, planning and provision of emergency and humanitarian aid
Entry to spatially organized data

By using a name

Query
± 90% of Government Activities has Geospatial Element

GEOSPATIAL DATABASE
- Hydrographic
- Building and Public Facility
- Transportation
- Land Cover
- Hypsographic
- Admin Boundary
- Coast Line
- Geospatial Reference
- Toponym/Gazetteers

± 65% of Government Activities use Geospatial Element as Primary Identifier

Gazetteers:
- Indexes of spatial identifiers;
- Can be used to achieve interoperability
GIS/SDI ... new opportunities

- **Indonesia** – earthquake zone maps support the development of quake resilient infrastructure; BIG “one map”; cloud computing for sharing data

- **Malaysia** – re-delineate electoral constituencies; social issues database is g-tagged (locating and plotting domestic violence)

- **Philippines** – Urge to fund GIS and SDI to enable disaster simulations; geo-hazard risk mapping of key urban centres

- **Brunei Darussalam** – 3D mapping for flood monitoring

- **Viet Nam** – impact of climate change on rice farming ... assess vulnerability

- **Singapore** – OneMap manages geospatial data, including street names, for health, recreation, etc.

- **Bangladesh** – risk map of malaria prevalence in south
National to international standardization

- Local community use
- Province / state approval
- National approval
- International standardization
- Romanization
In concluding

- Names are vital elements in accessing our digital world and also in preserving our cultures
  - What must be standardized to provide easy, quick and accurate referencing?
  - Who benefits from names being standardized?
  - Why are standardized names important for geospatial data infrastructures?
  - To achieve standardization internationally, what are the first steps?
Where are all the Gas Stations?

2008 Hurricane Season Lessons Learned Workshop
Louisiana’s Geospatial Response to Hurricanes Gustav and Ike

January 29, 2009
State Library of Louisiana
Hurricane Gustav

- Nearly 2 million people evacuated from south Louisiana in the days before Gustav
- 34 parishes were declared disaster areas on September 2
- 48 deaths in the state of Louisiana
- 1.5 million people were without power in Louisiana on September 1

2008
Louisiana EOC needs information on the availability of fuel for the public

- Citizens enter open gas station addresses into La.gov website
- LA gov. is using internet to call gas stations
- Believe there is an official source for gas stations
- Yes, LA Agriculture and Forestry’s Weights and Measures have official list in their main building …. but they have no power
- Eventually list is obtained

<table>
<thead>
<tr>
<th>Oid</th>
<th>Parish</th>
<th>Name</th>
<th>Address</th>
<th>City</th>
<th>State</th>
<th>Zip</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td>1142</td>
<td>Iberia</td>
<td>CHASTANT GARAGE</td>
<td>205 MAIN STREET</td>
<td>LOREAUVILLE</td>
<td>LA</td>
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<td>337-229-6703</td>
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<td>4017 LOT 1 AVERY ISLAND ROAD</td>
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<td>319 EMILE VERRET ROAD</td>
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<tr>
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<td>DAGOS MOBIL AND GROCERY 0</td>
<td>3902 DARNALL ROAD</td>
<td>NEW IBERIA</td>
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<td>3373654235</td>
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<td>CRACKER BARREL 38</td>
<td>218 NORTH LEWIS STREET</td>
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<td>LA</td>
<td>70560</td>
<td>3373654110</td>
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<td>1149</td>
<td>Iberia</td>
<td>CJ’S GET-N-GO</td>
<td>4814 HIGHWAY 90 EAST</td>
<td>NEW IBERIA</td>
<td>LA</td>
<td>70560</td>
<td>3373656257</td>
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<tr>
<td>1148</td>
<td>Iberia</td>
<td>CIRCLE K 1731</td>
<td>900 JEFFERSON TERRACE</td>
<td>NEW IBERIA</td>
<td>LA</td>
<td>70560</td>
<td>3373656840</td>
</tr>
<tr>
<td>1147</td>
<td>Iberia</td>
<td>BROTHERS SELF SERVE</td>
<td>600 WEST ADMIRAL DOYLE DRIVE</td>
<td>NEW IBERIA</td>
<td>LA</td>
<td>70560</td>
<td>337-365-0175</td>
</tr>
</tbody>
</table>

- LA gov. to geocode (find geographic location for specific address)
- ~ 3400 gas stations on September 4 for a meeting on the 5th
Non-standard addresses cause delays

Spelling variance and errors

- Wrong zip code - street name and zip code do not match
- Wrong prefix/suffix
  Street instead of Road
  missing N, S, W, E prefix abbreviation – boulevard: boul\blvd
- Wrong town given
- New streets/addresses
- Multiple names (Florida Bl/ US 190)
- Highways
  123 Highway 10 instead of 123 State Hwy 10
  (standard is 123 Hwy 10)
Louisiana: lessons learned in 2008

- **Data Ownership**
  Agencies with data useful in emergencies need to identify those sources, maintain them, and make them available.

- **Location Accuracy**
  GPS locations should be gathered for as many critical databases as possible. These locations need to be maintained by the agencies that “own” the data.

- **Data Quality**
  QA, QC should be a constant commitment. Prior to hurricane season each agency should ensure the quality of their data.

- **Data Access**
  Web Services make an excellent means for sharing and distributing data. These assets should be prepositioned before hurricane season.

*During emergency operation everyone needs to be on the same page!*
Noms de rues en Afrique – Banque mondiale

Rapport de la Banque mondiale, 2005
50% des rues des villes d’Afrique subsaharienne n’ont ni nom, ni adresse
- impossible de suivre le rythme de l’urbanisation
Fonds consacrés à des initiatives des adresses et des bases de données
- système de numérotation; des noms ajoutés graduellement

Yaoundé, Cameroun
Liste de 1670 rues; 6 zones; plan des rues imprimé
L’adresses des bâtiments – impair et pair, basées sur la distance
Ouagadougou, Burkina Faso

- 4 910 rues répertoriées; 70 nommées -1997
- Commission de toponymie municipale a été crée
  - Liste de noms potentiels– noms célèbres
  - Avant 2005, 2 000 noms avec plaques (Ouaga 2000 inclus)
  - M. Titinga, président:
    - « L’identité des rues, des places et des monuments définit l’essence d’une nation et en est le reflet relativement à sa souveraineté, à son histoire et à sa culture. »

Recommandations: Identifier les rues en priorité pour les noms;
créer une liste des noms;
l’examen des résidents; l’approbation de la municipalité
Crowd-sourced names – bad/good news

- Don’t change too quickly!
  - perhaps ephemeral or not yet formalized
  - Syria and Google (criticism in UN)

- Will be needed in future, as budgets diminish
  - Must know source – authenticity and accuracy
    - Perhaps structured hierarchy of data providers
  - Benefit for names authorities by being part of other projects
    - environmental studies,
    - community-based data ... etc.