STANDARDS AND DATA STRUCTURES FOR STATISTICAL GEOGRAPHY

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Introduction

• Issues and considerations for developing a statistical geography
• Key characteristics of statistical and geographic data
• Importance of a statistical geography standard (and geocoding)
• Relevance for a Statistical and Geospatial Data Infrastructure
Six wise men

I keep six honest serving men,
They taught me all I knew;
Their names are What and Why and When
And How and Where and Who

• Increased demand, expectations
• Economic, social and environmental domains
• Implications for how we collect, manage, disseminate data from multiple sources
• Frameworks and standards to bring together and organise data
A Statistical Spatial Framework

Additional statistical layers
Topographic, Bio-physical and Environment
Expanded social applications
Role of NSO
A new Australian Statistical Geographic Standard (ASGS)

Began in 2006

Basis for 2011 Population Census

ABS vs. non-ABS structures
Principles for a new standard

- Australian Statistical Geographic Standard (ASGS)
  - optimised for a range of key statistics
  - stable over time – support time series analysis
  - Make sense on the ground (ie settlement patterns and well understood geographies
  - Able to accurately produce statistics for key administrative areas
  - Protect confidentiality
  - Enable international comparisons (eg urban centres / rural)
Limitations of old standard

- Australian Standard Geographic Classification (ASGC)
  - Unstable – annual revisions
  - Building block too big – based on a census field collection area.
  - Mixed unit - multiple land uses in a unit
  - Large range in population at various levels in the hierarchy – not ideal for national analysis
  - Geographical units often didn’t make sense on the ground
# LGAs – Unstable over Time

Historical change in local governments across Australia

<table>
<thead>
<tr>
<th>State</th>
<th>Councils 1910</th>
<th>Councils 1991</th>
<th>Councils 2007</th>
<th>Councils 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>324</td>
<td>176</td>
<td>152</td>
<td>152</td>
</tr>
<tr>
<td>VIC</td>
<td>206</td>
<td>210</td>
<td>79</td>
<td>79</td>
</tr>
<tr>
<td>QLD</td>
<td>164</td>
<td>134</td>
<td>157</td>
<td>74</td>
</tr>
<tr>
<td>SA</td>
<td>175</td>
<td>122</td>
<td>68</td>
<td>70</td>
</tr>
<tr>
<td>WA</td>
<td>147</td>
<td>138</td>
<td>142</td>
<td>139*</td>
</tr>
<tr>
<td>TAS</td>
<td>51</td>
<td>46</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>NT</td>
<td>n/a</td>
<td>n/a</td>
<td>64</td>
<td>16</td>
</tr>
</tbody>
</table>
Mesh Blocks

- 347,627 mesh blocks
- Reflects land use
- Generally 30-60 dwellings (if populated)
- Stable over time
- Can be split/merged
- Construct supported geographies
- Approximate non-ABS geographies
- Limited outputs
Local Gov Boundaries - Gawler
South Australia (pop. 19,768 in 2006)

Outgrown local govt boundaries
Unstable over time – amalgamation/boundary shifts
Mixed urban/rural-areas
Boundaries not meaningful
Prevents time series analysis
Functional Boundaries – Gawler South Australia

- SA2 designed to surround functional area
- Stable over time
- Contains urban area
- Differentiates between urban/rural
- Allow for urban expansion
## Availability of Statistics

<table>
<thead>
<tr>
<th>Level</th>
<th>Population</th>
<th>Statistics Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA4</td>
<td>&gt; 100,000</td>
<td>Labour force</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aggregations of other stats</td>
</tr>
<tr>
<td>SA3</td>
<td>20,000 – 130,000</td>
<td>Aggregations of data at SA2 and below (small regions)</td>
</tr>
<tr>
<td>SA2</td>
<td>3,000 – 25,000</td>
<td>Census, ERP, health, building approvals, tourism, Ag. Census</td>
</tr>
<tr>
<td>SA1 – (Census Output Unit)</td>
<td>Approx 400</td>
<td>Census data, SEIFA</td>
</tr>
<tr>
<td>MB</td>
<td>0 and about 70</td>
<td>Population, Dwelling counts</td>
</tr>
</tbody>
</table>
## Availability of statistics for different levels of geography

<table>
<thead>
<tr>
<th>Population</th>
<th>Statistics Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital City / rest of state</td>
<td>Household survey data CPI</td>
</tr>
<tr>
<td>&gt; Hundreds of thousands</td>
<td></td>
</tr>
<tr>
<td>Significant urban areas</td>
<td>ERP Census</td>
</tr>
<tr>
<td>&gt; 10,000</td>
<td></td>
</tr>
<tr>
<td>UCL / section of state</td>
<td>Census</td>
</tr>
<tr>
<td>Localities 200 - 999 Urban Centres &gt; 1000</td>
<td></td>
</tr>
<tr>
<td>Remoteness</td>
<td>Census Health (AIHW)</td>
</tr>
</tbody>
</table>
Land Account - Pilot

- Built on SA1s (3005 in GBR)
- Integrates multiple sources of data
- Overlay economic, social and environmental data
- Collaboration with states, etc
- Adds value to existing data – landuse, cover, change over time
Land owner (business or household)

Land parcel

- Water
- Forest (closed) (conservation)
- Native pasture (eg grazing)
- Rainfed cropping (eg corn, wheat)

Statistical attributes *

- Land area by ownership
- Land area by cover
- Land area by activity (land use)

* eg land value, industry, employment, income, production etc
Select a location using one of the following selection methods:

- Search
- Address Search
- States & Cities
- Browse
- Map

Search for a place name or postal area within Australia.
HINT: Enter at least three characters.

Hobart

Location Search Tips

Your search has returned 16 results.

Select a location and then click 'View QuickStats'.

Which location do I select?

- Hobart (C) - Inner (Statistical Local Area) - Tas.
- Hobart (C) - Remainder (Statistical Local Area) - Tas.
- Hobart (State Suburb) - Tas.
- Hobart (Urban Centre/Locality) - Tas.
- Hobart Undefined (Local Government Area)
- Hobart Undefined (Statistical Subdivision)
- Hobartville (State Suburb) - NSW
- North Hobart (State Suburb) - Tas.
- South Hobart (State Suburb) - Tas.
- West Hobart (State Suburb) - Tas.

View QuickStats
A Spatial Statistical Framework

- Challenges and opportunities for a statistical geography e.g. statistical units, geocoding and better use of administrative data
- Add value to evolving local, national & global spatial data infrastructures (i.e. better return on investment)
- Increase access, use & (ultimately) value of statistical information for effective decision making
- Statistical geography standard provides framework to link statistical and geographic data in a structured manner
- Adoption of sound information management policies & governance (includes collection, management and outputs)
- Must support integration of economic, social, environmental information for assessing and monitoring our well-being and progress