Current Trends in the GSDI: Evolution from National To Global CODATA Meeting, Montreal 3 October 2002

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US Federal Geographic Data Committee
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Current Trends in the GSDI:
Evolution from National To Global
CODATA Meeting, Montreal
3 October 2002

- What/how does geography contribute?
- What is the FGDC?
- CAP Grants
- Who are we?
- What have we done?
- Where are we going from here?
What is it that Geography brings to the Information Technology Community???

It contributes:

*The Power of “Place” to Support Decision Making*
How do we make decisions on critical issues such as these?

- Reducing crime
- Enhancing public safety
- Containing costs
- Public health
- Managing growth
- Improving accountability
- Protecting the environment
Improving Business & Government Through...

- Improved Decision Making
- Providing Better Services
- Communicating with Citizens
What if there was a tool that could integrate data from diverse sources — and visually analyze data to support decision making — many times faster than any other tool?
A tool that could:

- Expand the information base
- Enhance the analysis of available options
- Streamline the decision-making process
- Dramatically improve your ability to select the best course of action
Geographic Information Systems (GIS)

Giving decision-makers the power to make more informed decisions.
N.C. Department of Public Instruction wanted to manage school buses more efficiently.
To make informed decisions, we have to gather the right information.

...using the best data available.

Watershed Management Area 6
Upper Passaic - Whippany - Rockaway Watershed
New Urban/Built-Up Land in Relation to State Planning Areas

| Planning Area                  | Total Acres | Acres of New Urban/Built-Up | Percent of PA is New Urban/Built-Up | Percent of New Urban/Built-Up
|-------------------------------|-------------|-----------------------------|------------------------------------|-----------------------------
| Metropolitan Planning Area (PA 1) | 92,892.252 | 3,362.921                   | 3.6%                               | 40.9%                       |
| Suburban Planning Area (PA 2)  | 26,664.177 | 1826.218                    | 6.8%                               | 22.2%                       |
| Fringe Planning Area (PA 3)   | 10,441.724 | 646.827                     | 6.2%                               | 7.9%                        |
| Rural Planning Area (PA 4)    | 1.943       | 0.000                       | 0.0%                               | 0.0%                        |
| Environ. Sensitive Planning Area (PA 5) | 84,867.534 | 2331.359                    | 2.7%                               | 28.4%                       |
| Military Lands                | 6,026.724  | 1.706                       | 0.0%                               | 0.0%                        |
| Parks                         | 14,533.009 | 48.865                      | 0.3%                               | 0.6%                        |
| Open Water                    | 793.776    | 2.004                       | 0.3%                               | 0.0%                        |
| **Totals**                    | **236,221.140** | **8,219.90**              | **3.5%**                           | **100%**                    |

Watershed Management Area 6 (WMA6)
Whippany - Upper Passaic - Rockaway Watershed
Land Use/Land Cover Change, 1986-1995
Draft Results

<table>
<thead>
<tr>
<th>Planning Area</th>
<th>1986 Acres</th>
<th>1995 Acres</th>
<th>Net Change</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>6145.088</td>
<td>4795.853</td>
<td>-1349.235</td>
<td>-21.96%</td>
</tr>
<tr>
<td>Barren Land</td>
<td>1646.023</td>
<td>2085.018</td>
<td>438.995</td>
<td>26.67%</td>
</tr>
<tr>
<td>Forest</td>
<td>84,530.739</td>
<td>78,449.861</td>
<td>-6080.878</td>
<td>-7.19%</td>
</tr>
<tr>
<td>Urban Land</td>
<td>95,994.809</td>
<td>103,764.238</td>
<td>7769.429</td>
<td>8.09%</td>
</tr>
<tr>
<td>Open Water</td>
<td>6750.856</td>
<td>6788.643</td>
<td>37.787</td>
<td>0.56%</td>
</tr>
<tr>
<td>Wetlands</td>
<td>41,153.568</td>
<td>40,337.470</td>
<td>-816.098</td>
<td>-1.98%</td>
</tr>
</tbody>
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Percent New Urban/Built-Up Land Per State Planning Area
PA6 28%
PA3 45%
PA4 8%
PA5 22%
Without GIS:

- Hit-or-miss route mapping in 107 school districts
- Huge inefficiencies
- Inability to contain costs efficiently
North Carolina Department of Public Instruction

With GIS:

- Developed pilot program more than 15 years ago
- Mandated use of GIS by all districts statewide in 1992
- State funding incentives reward efficiency: fewer buses, better routes
North Carolina Department of Public Instruction

Results:

- In the 1994-95 school year:
  - more than 500 fewer buses were needed statewide than originally estimated
  - 15,000,000 fewer miles were driven than originally estimated

- Between 1990 & 1996:
  - the state saved over 2,000,000 gallons of fuel
So how does the FGDC, the NSDI and the GSDI fit into the picture???

- Federal Geographic Data Committee (FGDC)
- National Spatial Data Infrastructure (NSDI)
- Global Spatial Data Infrastructure (GSDI)
To make informed decisions, we have to gather the right information. …using the best data available.

Watershed Management Area 6
Upper Passaic - Whippany - Rockaway Watershed
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<td>1,826.218</td>
<td>6.8%</td>
<td>22.2%</td>
</tr>
<tr>
<td>Fringe Planning Area (PA 3)</td>
<td>10,441.724</td>
<td>646.827</td>
<td>6.2%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Rural Planning Area (PA 4)</td>
<td>1.943</td>
<td>0</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Environ. Sensitive Planning Area (PA 5)</td>
<td>84,867.534</td>
<td>2,331.359</td>
<td>2.7%</td>
<td>28.4%</td>
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<td>6,026.724</td>
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Percent New Urban/Built-Up Land Per State Planning Area

Draft Results

Watershed Management Area 6 (WM6)
Whippany-Upper Passaic-Rockaway Watershed
Land Use Land Cover Change: 1986-1995

Land Use Categories:
- Agriculture
- Barren Land
- Forest
- Urban Land
- Open Water
- Wetlands

1986 Acres 6145.088 1646.023 84530.739 95994.809 6750.856 41153.568
1995 Acres 4795.853 2085.018 78449.861 103764.238 6788.643 40337.470
Net Change -1349.235 438.995 -6080.878 7769.429 37.787 -816.098
Percent Change -21.96% 26.67% -7.19% 8.09% 0.56% -1.98%
Realities Among Data

- Relevant data is often hard to find and in incompatible forms.
- Information describing data is often non-existent.
- Framework data does not exist for broad geographic areas.
- Data sharing across organizations is inconsistent.
Create a National Spatial Data Infrastructure (NSDI) .........

To encourage the collection, processing, archiving, integrating, and sharing of geospatial data and information using common standards and interoperable systems and techniques ....... and accessible via the web
Relationships Among Data
Build Once, Use Many Times

Framework Data
- Land Ownership
- Transportation
- Surface Waters
- Boundaries
- Geodetic Control
- Elevation
- Aerial Imagery

Other Thematic Data
- Flood Zones
- Demographics
- Landcover
- Water Lines
- Sewer Lines
- Soils
The Federal Geographic Data Committee

- Chartered in the early 1990s
- Federal – 19 cabinet level agencies & offices
- Most states, regional, & local governments
- Private sector
- NGOs
- Theme coordination committees - 13
- Working groups - 8
Core Components of the NSDI

- Clearinghouse (catalog)
- Metadata
- Framework
- GEOdata
- Standards

Partnerships
Federal Geographic Data Committee (FGDC)

Organisation and Operation

- Staff support to the Secretary of the Interior
- 20 Staff Positions
- 19 Cabinet Departments
- States, Regional Organisations
FGDC
Working Groups (8)

- Metadata
- Clearinghouse
- Standards
- Historical Data
FGDC
Working Groups (8)

- Biological Data
- Facilities
- Sustainable Forest Data
- Earth Cover
FGDC
Thematic Subcommittees (13)

- Base Cartographic Data
- Cadastral
- Cultural and Demographic Data
- Federal Geodetic Control
- Geologic
- Ground Transportation
- Marine Coastal Spatial Data
FGDC
Thematic Subcommittees(13)

- International Boundaries & Sovereignty
  - Soils
  - Spatial Climate
  - Spatial Water Data
- Vegetation
- Wetlands
Federal Geographic Data Committee

Coordination Group

Thematic Subcommittees

Working Groups

- Biological Data
- Clearinghouse
- Earth Cover
- Facilities
- Historical Data
- Metadata Ad Hoc
- Marine Boundaries
- SIMCRE
- Standards
- Sustainable Forest Data
Federal Geographic Data Committee (FGDC)

- Initiatives
  - Framework, Clearinghouse, Metadata, Standards, .......
  - CAP Grants
  - Geospatial One-Stop
  - Homeland Security
  - I-Teams
  - Etc...........
FGDC CAP Grants

- Small projects at the state/local level
- $300 - $600K/year
- To encourage:
  - metadata development
  - Metadata training
  - US/Canada X-boarder projects
Collaboration:

- GeoConnections, Canada
  - The FGDC of Canada
- Three years of projects
The mid 1990s

The same benefits that are realized inside national boundaries translate across international boarders

- Common Standards
- Interoperable Systems and Techniques
- Open Sharing
- Web Access
The Global Spatial Data Infrastructure (GSDI)

- First GSDI meeting in Bonn, Germany with a handful of invited professionals (1995)

- GSDI-6 Meeting, Budapest, Sept 02
  - Jointly with International Steering Committee for Global Map
  - 250 attendees
  - 52 Countries
GSDI Achievements

- Certificate of Incorporation
  - 6 August 2002
  - Seeking charitable organisation status
- Stage set to formalise the GSDI as an organisation
- Permanent Committees for Asia/Pacific, Americas, Europe
  - Creation of Permanent Comm. Africa
GSDI Achievements

- GSDI Cookbook publication and adoption

- Capacity building –
  - CODI, Addis Ababa
  - Africa GIS, Nairobi
  - KISM Survey of Kenya, Nairobi
  - Denver
  - Sioux Falls
  - Workshops, FIG
GSDI Achievements

- Capacity building (continued) –
  - Map Serving Workshops Ghana & South Africa Bamako, Mali
  - Asmara, Eritrea for GISD
  - World Summit on Sustainable Development, South Africa
  - Harare, GISD funded
  - CEISIN Training in China (FGDC CAP Grant)
GSDI Achievements

Capacity building (continued) –

- Global Map/GSDI/ESRI $9M (USD) Grant Program
  - Goal 150 countries at $60,000 each
  - Requirements
    - Contribute 1:1M or 1:250K data to GM
    - Use common standards and interoperable techniques and systems
  - 140 applications/98+ awarded
Introducing the GSDI as an organisation ... what’s next???

The Mission -- to serve as the focal point for the community involved in advancing SDI at the global level to support sustainable social, economic and environmental development.
Introducing the GSDI as an organisation ... what’s next???

- The Goal –
  - To support the establishment and expansion of globally compatible spatial data infrastructures.
  - To promote better public policy and scientific decision-making.
The GSDI ... what’s next???

- Interim Executive Board to migrate from Steering Committee to new rules, representing the main GSDI stakeholders
  - Reach Consensus on the strategic plan
  - Finalise the organizational structure
  - Develop funding strategies
    - Dues, contributions, grants
The GSDI .... what’s next?

- Complete the incorporation process
  - Non-profit
  - Educational/charitable organisation
- Cookbook – a living document
  - Update through OGC
  - Expand with business case examples oriented toward emerging nations
- Seek and pursue granting opportunities
The GSDI .... what’s next?

- Global capacity building!!!!!!
  - Country/region training
  - Cookbook expansion
  - Building awareness
  - ESRI $9M grant
  - Partner with other global and donor organisations
    - Leverage limited resources
    - Jointly seek outside funding
Closer collaboration with global organizations:

- GSDI Permanent committees –
  - Asia/Pacific -- PCGIAP
  - Americas -- PCIDEA
  - Europe -- EUROGI
  - Africa -- soon
- ISCGM, DE, UNGIWG, USAID, UNEP, FAO, CODATA, FIG, ICA, CODI, JICA, IADB, EIS Africa, EUROGEOGRAPHICS, RAVI, ADB, EC, EU ..........
- Leverage limited funds
- Combine our meetings
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- What/how does geography contribute?
- What is FGDC?
- CAP Grants
- Who are we?
- What have we done?
- Where are we going from here?
Additional Information

- **www.gsdli.org**
  - Global Spatial Data Infrastructure

- **www.fgdc.gov**
  - Federal Geographic Data Committee

- **www.opengis.org**
  - Open GIS Consortium

- **www.eurogi.org**

- **www.cpidea.org.co**
  - Permanent Comm. For the Americas

- **www.permcom.apgis.gov.au/**
  - PCGIAP