

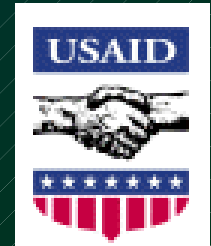
Data content standards in Africa

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Data content standards in Africa

- Background to the project
- The nature of data content standards
- Data dictionaries and feature catalogues
- Standards assessed
- Data content components
- Recommendations
- Conclusions



Background to the project

- US Geological Survey EROS Data Center (USGS/EROS) initiated a project with EIS-Africa:
 - *“Guidelines for data content standards for Africa”*
- Funded by:
 - US AID
 - CSIR

Nature of data content [1]

- Documentation specifying the information in a data set:
 - Metadata
 - Reference models
 - Data dictionaries, feature catalogues and classification
 - Feature instances
 - Data organization
- Formal description of a model, eg: using UML
 - Hopefully embedded in the data content standards

Nature of data content [2]

- Metadata
 - Data about data, including data quality
- Reference models
 - Scope of standardization activity and the context
- Data dictionaries, feature catalogues and classification
 - Feature types (classes), attribute types, attribute domains, feature relationships
- Feature instances
 - Unique, definitive versions of features
- Data organization
 - eg: XML, GML

Why data content standards?

- Data content standards tend to be more accessible
 - Easier to understand
 - Used directly by many end users
- Immediately applicable to Africa
- More “susceptible” to culture and language
 - Hence, more important to have local standards

Data content standards

- Documentation specifying the information in a data set:
 - Metadata (including data quality) \Leftrightarrow *Many projects*
 - Reference models
 - Data dictionaries, feature catalogues and classification
 - Feature types, attribute types, attribute domain, feature relationships
 - Feature instances (unique, definitive versions of features)
 - Data organization (eg: XML, GML)
- Formal description of a model, for example using UML
 - Hopefully embedded in the data content standards

Data dictionary or feature catalogue

- Both contain the types of geographical features
 - Classes or feature types
- Both contain feature attributes
 - Types and domains
- Conceptual relationships between feature types
 - Eg: an instance of the feature type 'bridge' can carry an instance of the feature type 'road' over an instance of the feature type 'river'

*Do you have a data dictionary or
feature catalogue?*

Data dictionary vs feature catalogue

- Need proper definitions to differentiate between feature types, and not merely use the label (name)
- Data dictionary
 - An unstructured collection of feature types
- Feature catalogue
 - A structured collection of feature types
 - Eg: as a hierarchical classification
 - Hence, easier to use
- Typically, a feature catalogue is constructed from a data dictionary
 - Perhaps as a profile (subset) of the data dictionary

Data content standards [4]

- 160+ standards were assessed
 - ISO/TC 211, OGC, FGDC, South Africa, Zimbabwe, etc

Name	Source	ID	Date Publish	Status	Data Content?	Metadata ?	Relevant ?	Publicly Accessible?
<i>Feature Instance Identification Standard</i>	<i>Stan SA</i>	<i>SABS 1876</i>		<i>draft</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>Cost</i>
<i>Land Cover Classification Scheme for Remote Sensing Applications in South Africa</i>	<i>Stan SA</i>	<i>SABS 1877</i>	<i>2003</i>	<i>published</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Cost</i>
<i>South African Spatial Metadata Standard</i>	<i>Stan SA</i>	<i>SABS 1878</i>		<i>draft</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>Cost</i>
<i>South African Geospatial Data Dictionary (SAGDaD) and Its Application</i>	<i>Stan SA</i>	<i>SANS 1880</i>		<i>draft</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>Cost</i>

Data content standard components

- Data content components from selected standards were compared

SANS 1880	FGDC Cadastral	FGDC Hydrographic	Zimbabwe
<i>Isoline</i>		<i>Depth contour</i>	<i>Height contour</i>
<i>Administrative Area</i>		<i>Administration Area</i>	<i>Adm Area</i>
<i>River</i>		<i>River</i>	<i>River</i>
<i>Cadastral Property</i>	<i>Parcel</i>		<i>Property Parcel</i>

Project outline

- Project plan
 - Existing data content standards and current practices
 - User requirements
 - Evaluation of existing standards
 - Data content components for each theme
 - Consult with specialists
 - Draft document on guidelines and best practices
 - Circulate guidelines for feedback
 - Analyse comments and revise guidelines
 - List server for the project
 - <http://www.gsdi.org/>
- Unfortunately, we had a very limited response

Recommendations on which standards to use [1]

- Any feature catalogues used should conform to ISO 19110:2005, *Geographic information – Methodology for feature cataloguing*
- ISO 19110 has some limitations
 - Mechanisms for cultural and linguistic adaptability (CLA)
 - Particularly useful in multi-lingual environments
 - Applies to most, if not all, countries in Africa
 - Aliases allow feature types with labels (names) in multiple languages

Recommendations on which standards to use [2]

- Currently, ISO 19110 limitations unlikely to affect most users
- Few feature catalogues will use ISO 19110 optional constructs
 - Eg: feature operations and feature associations
- ISO/TC 211 will continue to maintain and enhance ISO 19110

Recommendations on which standards to use [3]

- Not possible to recommend one, definitive data dictionary or feature catalogue
 - To be used for all digital geographical information
 - By all users across Africa
 - Under all circumstances
- Use a widely used feature catalogue that meets most of one's needs
 - Adding more detailed feature types for in-house use, if necessary
 - Does one want a specialist or a general purpose one?

Conclusions [1]

- We have completed the project
- EIS-Africa has published a CD-ROM of available data content standards and other resources
- EIS-Africa will make these available on their Web site: <http://www.eis-africa.org/>
- Be realistic in our ambitions ...

Conclusions [2]

- What do you think should be the next step?
- Regular reporting at recognised events
 - Africa GIS
 - Including a workshop on standards
 - AARSE
 - CODI
- UN ECA should ID and fund pilots
 - Produce a draft standard and pilot it!

Thank you!

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