ORGANIZATIONAL EMPOWERMENT THROUGH OPEN GIS

SPATIAL MONITORING OF THE BRAZILIAN FAMILY HEALTH STRATEGY

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BRAZIL – Aiming for equity

The experience of the Family Health strategy and the community health agents
Main challenges of primary health care
The National Department of Primary Health Care
General Case “Public Administration”
How, Where OpenGIS can help

The experience with WEB & Mapserver based solutions
History – RS, Campinas, MC, MS
OnLine - visualization of public health data
GeoLivre - Main tools
Challenges in health information
System – Integration and Interoperability

“… in Public Health”
The experience of the Family Health strategy

What is a family health team?

Each team, which is assigned to a certain geographical area, is responsible for an average 800 to 1000 families;

They have to:

- enrol and monitor the health status of the population, provide primary care services and make referrals to other levels of care as required;
- understand the social process in this territory and be proactive within the community;
- work together on clinical and public health issues including health promotion and prevention;
The rate of change

Actual % of population covered by the family health teams – Brazil, 1998 – 2005

1998 1999 2000 2001
2002 2003 2004 2005

Actual % of population covered by the family health teams – Brazil, 1998 – 2005

Main challenges of primary health care

Three points to highlight in the Brazilian perspective of primary health care:

**Changes to funding**: create a national per capita spending for all municipalities and special funding to build the family health teams for each municipality

**Rate of change**: create conditions to attract professionals to the new strategy and gain strength and sustainability

**Defining the essentials**: the composition of the teams and their core competencies in small municipalities and rural areas as well as in big cities
The National Department of Primary Health Care

http://www.saude.gov.br/dab

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General Case
“Public Administration”
1. Election
2. Government
3. Government Program
4. Program Execution
5. Execution Control
6. Evaluation

How OpenGis can help in “Primary Health Care” (DAB)?

1. Collecting (“write”)
2. Managing (“organize”)
3. Publishing (“read”)
   - What? — Data!
   - How? — Geo-Coded
   - Where — Remote (WEB)

Where OpenGis can help in “Primary Health Care” (DAB)?

Processing (spatial) data about:

- Investments
  (Family Health Teams, Projects, and many, many others)
- Production
  (offered and concluded services)
- Results
  (rates of diseases, mortality, etc.)
**Where** OpenGis can help in “Primary Health Care” (DAB)?

Particular Contributions:

- Validating and Improving of data sets (CNES, SIAB)
- Strategically Planning – area-related validation, priorities, etc
- Locating regional items
- Spatial and thematic classifications
- Area – related reports
- Regionalization
- Etc.

**How** OpenGis can help in “Primary Health Care” (DAB)?

Supporting “regionalization of the public health system SUS”

The Experience with **WEB & Mapserver** based solutions

- **2000.** State Government Rio Grande do Sul
  - http://www.rs.gov.br/
  - (http://www.geolivre.rs.gov.br)

- **2002.** City of Campinas
  - www.ima.sp.gov.br
  - (http://campinas.sp.gov.br/saude)

- **2003.** Federal Ministry of Communication
  - www.mc.gov.br
  - (http://www.idbrasil.gov.br/)

- **2004.** Federal Ministry of Health
  - www.saude.gov.br/DAB
  - (www.aids.gov.br/GeoEpiLivre)
The Experience with **WEB&Mapserver** based solutions

**2000.** State Government Rio Grande do Sul  
http://www.rs.gov.br/  
(http://www.geolivre.rs.gov.br)

State Government of RS creates  
**GeoLivre:**
First Brazilian **MapServer** - Based  
**Open Source** Solution

**2002.** City of Campinas  
www ima.sp.gov.br  
(http://campinas.sp.gov.br/saude)

**2003.** Federal Ministry of Health  
www.saude.gov.br/DAB  
(www.aids.gov.br/GeoEpiLivre)

Accessing health data OnLine  
**OnLine** - visualization of  
public health data
Accessing data Online: with Maps (MapServer)

Accessing data Online: with tables (Olap / Mondrian)

Accessing data Online: with charts (Olap/Mondrian)

The Experience with WEB&Mapserver based solutions

GeoLivre - Main tools:
- Database: Postgresql / PostGis
- Web-Mapping: Mapserver
- DW - Olap: Mondrian
- Query-Builder: Qgis
- Administrator: PhpPgAdmin, Dadabik
- Communication: PhpGroupWare, Asterix
Challenges in health information

General Challenges:
- Simplicity, timeliness, sustainability
- Universal problems, but particularly in lower-income countries
- Lack of trained personnel for data collection, analysis, reporting
- Lack of clarity about what to monitor

Universal problems, but particularly in lower-income countries:
- Political Changes
- Economical interests
- Cooperative Interests
- Labor and employment conditions
- Culture behaviors
- Education and Know-how

Lack of useful data:
- under-registration of births and deaths, particularly for marginalized groups
- unreliable cause-of-death information
- registration by occurrence vs residence
- no socioeconomic data in vital records
- reliance on data from clinical sites

System – Integration and Interoperability
Integration and Interoperability

Main dependencies ...

- Guidelines (Normas) - e-ping, GuiaLivre
- Standards (Padrões) - ISO/OpenGis
- Architectures - modular
- Identifiers (Chaves) - IBGE, CartãoSUS
- Etc..

Standardization and normalization

- by the federal Government
  - E-ping
  - Guia Livre

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THANK YOU!