Geographical Information in Support of Haiti’s Recovery

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“Okay – it’s agreed; we announce – ‘to do nothing is not an option!’ then we wait and see how things pan out…”
Problem Statement

• GIS Infrastructure Damaged (CNIGS)
  – Building destroyed
  – Leadership and others killed
  – But most data recovered

• Donors support rebuilding GIS strength
  – But tend to view it as “map-printing”

• Needs to be elevated and coordinated
Another viewpoint

...only a few clusters have fully dedicated cluster coordinators, information management focal points and technical support capacity, all of which are basic requirements for the efficient management of a large scale emergency operation. This lack of capacity has meant that several clusters have yet to establish a concise overview of needs and develop coherent response plans, strategies and gap analyses.

*Quoted from an e-mail written by UN Humanitarian Coordinator John Holmes to his top staff, as reported by Colum Lynch, Weds., February 17, 2010, TurtleBay.foreignpolicy.com.*
Recall the Miami Workshop

- Many people here participated in planning and execution
- Had broad-based participation from scientists, engineers, policy makers, sociologists, urban/regional planners, etc
- Produced “Key Findings”
  - See www.iris.edu/hq/haiti_workshop
Some of the Miami Key Findings

- **Hazard Assessment and Rebuilding Requirements**
  - **Data and maps** exist that describe natural hazards throughout Haiti, the most important of which are earthquakes, inland flooding, and landslides; these maps should be used in planning and reconstruction, with additional studies required for critical facilities.
  - **Maps must be tailored and improved,** with studies that include the Haitian scientific, engineering, and technical communities as part of their long-term development.

- **Long-Term Data Needs**
  - **Improved** topographic and bathymetric information, together with field studies of geology and soil classifications, will dramatically improve the assessment of many types of hazards.
  - **Remote-sensing data and studies** will enable repeated monitoring of changes in land-use, hazards, and crustal deformation.
  - **Monitoring networks,** including seismographs, GPS stations, rain gauges, and river gauges, and other sensors, installed, maintained, and operated by teams that are primarily Haitian, will enable long-term improvements in agricultural and economic growth as well as hazard assessment and mitigation.
  - Creation of, and membership in, **regional groups of scientists and engineers** facing similar concerns throughout the Caribbean will continually increase the capacity of the Haitian communities to develop, improve, and provide a sense of ownership in assessment and mitigation efforts.
Why Geographic Information Management?
In Governance
In Response from Ushihidi and from Google
In Reconstruction/Development

- Mobilization of Resources
- Activation of Monitoring Centers
- Incident Management Support

- Assessing Damage
- Prioritizing Recovery Efforts
- Obtaining Funding
- Monitoring Progress

- Development of Strategies and Plans
- Monitoring Implementation and Progress
- Encouraging Transparency

- Risk and Hazard Analysis
- Vulnerability Assessment
- Mitigation Priority Development

- Contingency Plan Development
- Exercises
- Situational Awareness

- Process Repeats for Future Emergencies

Geospatial Data

- Population
- Health and Other Services
- Infrastructure
- Utilities
- Transportation
- Cadastral, Ownership, and Land Use
- Social and Cultural Characteristics
- Natural Hazards
A variety of diplomatic negotiations can make use of GIS capabilities to display georeferenced data layers to help policymakers and planners better visualize linked problems.
A GIS is a map AND a database

GIS data is connected to underlying database records

Health facilities in Haiti:
- type of facility
- operational status
- and more...

![GIS data connected to underlying database records](image-url)
BASIC DATA LAYERS FOR HAITI

existed prior to Jan 12, 10 earthquake and still can be used for base layers

- Population
- Transportation
- Parcels (Does not exist)
- Elevation
- Land use

• GIS data layers for Reconstruction efforts would need to be derived from assessments of infrastructure on the ground and supporting use of imagery.
Open Street Maps just after earthquake

Open Street Map as of January 21, 2010 (9 days after earthquake)
The left side shows each of the data layers created for the emergency (Medical facilities, IDP areas, damage assessments)
http://www.google.com/relief/haitiearthquake/
The GIS Team

• Team members
  – Lee Schwartz, Geographer for State/INR
  – Nate Smith, USAID/OFDA
  – Ioana Bouvier, DAI (an NGO)
  – Wayne Pennington, USAID/EGAT,S&T
GIS Team Goals

• Goals
  – Enabling data-based strategic planning by incorporating geographic science and technology
  – Empowering the Haitian government to use this technology
  – Achieve efficiency and transparency, across space and time
Visits conducted

- NGA (Bethesda)
- USAID Mission, Embassy personnel
- GoH/CNIGS mgmt and EU rep
- UN OCHA information mgmt
- IOM re displacement tracking
- GoH Ministry of Environment & ONEV
- Deputy Special Rep UN Sec’y General
- GoH Deputy Ministry Planning
- UNDP Development Gateway
Recommendations: IHRC level

• Support a strategy for geographically informed, data-based decision-making for prioritizing donor funding for Haiti’s reconstruction through the appointment of a Chief Geographic Information Officer (CGIO) attached to the Interim Haiti Recovery Commission
  • To eventually transfer to Haitian Development Authority and GoH
Where would this CGIO sit?
USAID Mission Recommendations

• Build an “enterprise GIS” capacity at the USAID Mission to support both strategic and operational requirements, and to link to donor community and GoH initiatives.
  – Includes a number of positions, some strictly liaison types, to assist the GoH and CNIGS.
  – Mission is moving ahead on this; some had already been planned before earthquake.
Roadblocks

• None in USG; full support (maybe $$)
• Externally, some IGOs have existing products and procedures and do not want to, nor see the need to, add geographic data to their structure.
  – Ask the question:
    • “Can a database without geographic coordinates tell you if your money is being spent on building schools in flood zones?”
Current Status

- CGIO position appears likely
  - Need nominations for candidates
  - Need funding commitment

- CNIGS support is en route
  - Waiting for guidance and leadership
  - Steering committee (w/donors) needed

- USG is one of the leaders for GIS usage in Haiti; coordination among others needed