



USAID
FROM THE AMERICAN PEOPLE

Geographical Information in Support of Haiti's Recovery

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on behalf of the GIS Team

United States Agency for International
Development & Dept of State



*"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

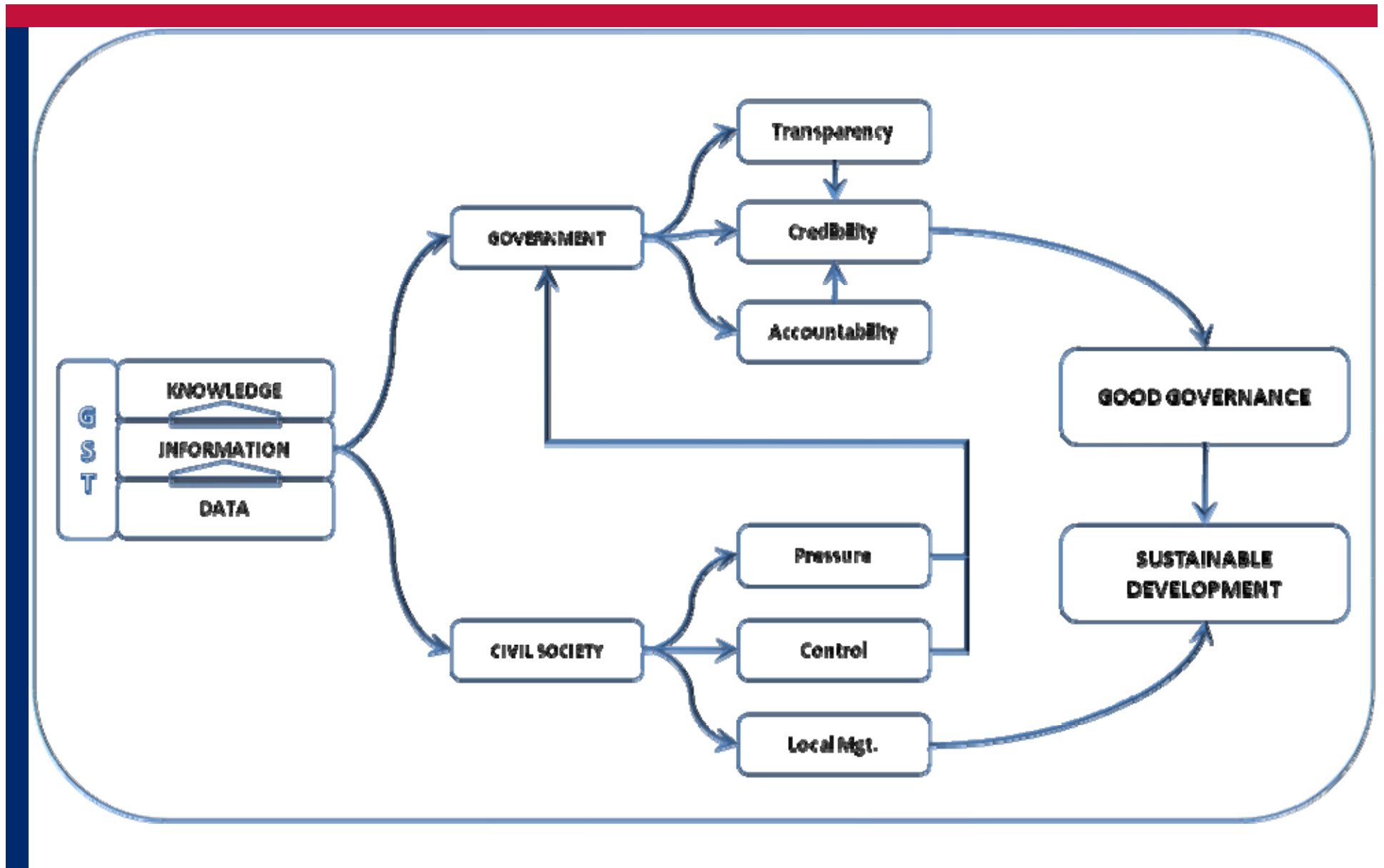


Some of the Miami Key Findings

- **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.

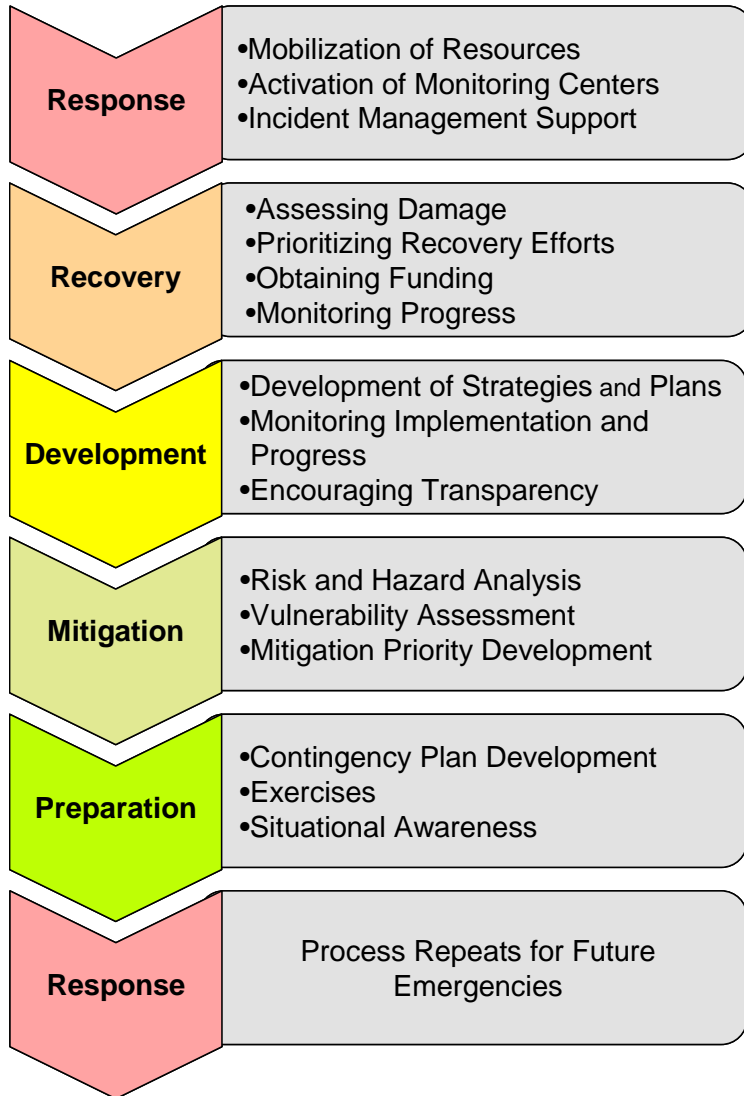
Why Geographic Information Management?

In Governance





In Reconstruction/Development

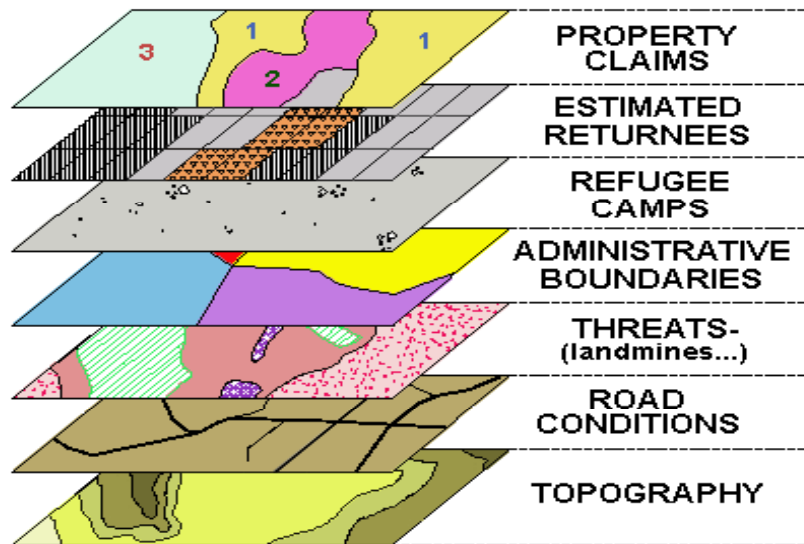


Geospatial Data

- Population
- Health and Other Services
- Infrastructure
- Utilities
- Transportation
- Cadastral, Ownership, and Land Use
- Social and Cultural Characteristics
- Natural Hazards

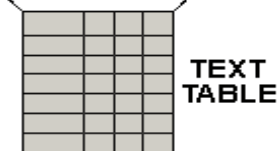
A variety of diplomatic negotiations can make use of GIS capabilities to display **georeferenced** data layers to help policymakers and planners better visualize linked problems.

GIS for Repatriation Planning



Attribute table for place or area

	Pristina	Pec	Total
PROPERTY CLAIMS			
ESTIMATED RETURNEES			
REFUGEE CAMPS			
ADMIN. BOUNDARIES			
THREATS			
ROAD CONDITIONS			
TOPOGRAPHY			



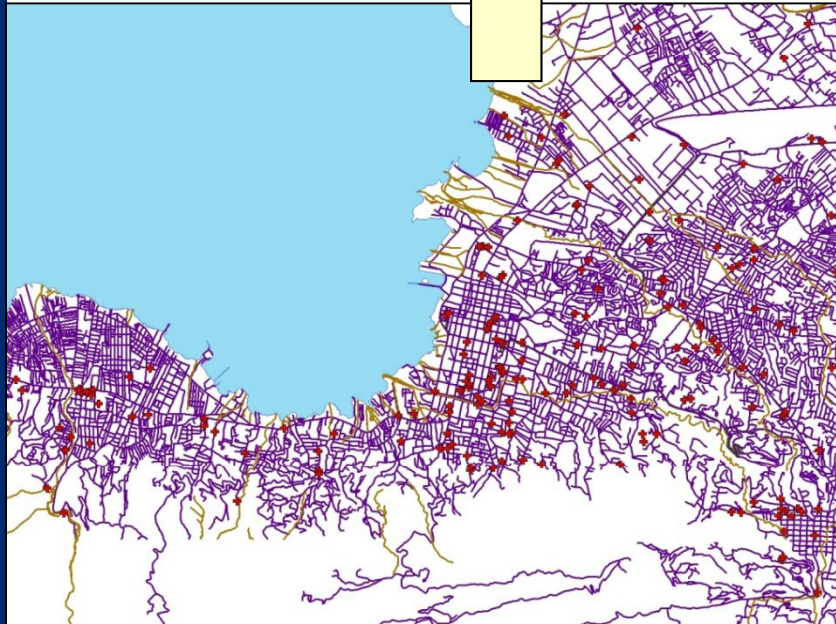
TEXT TABLE

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...

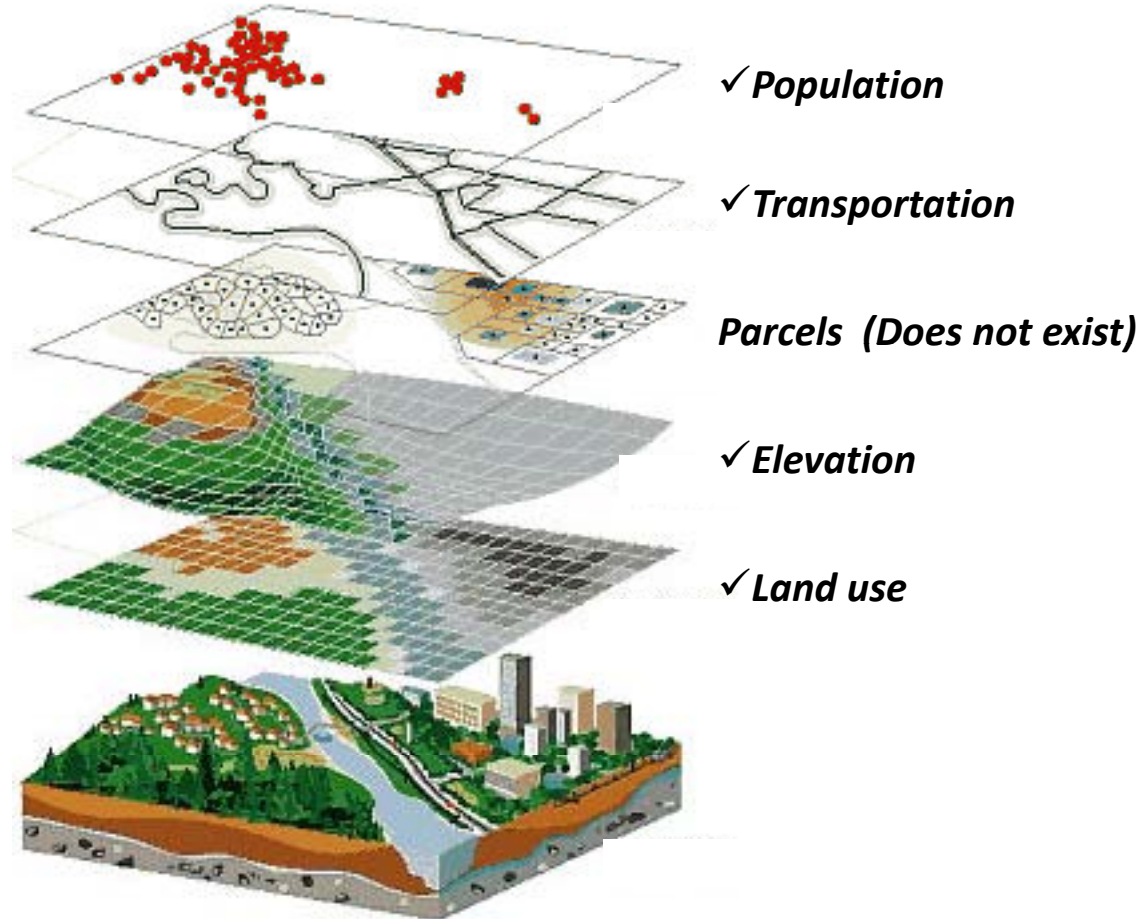


Commune	CodeComm	SantelID	HealthC_ID	NomInstitu	Fac_NameFr
PORT-AU-PRINCE	111	37	1110443	GHESKIO	Gheskio
PORT-AU-PRINCE	111	30	1110460	HOPITAL RENAISSANCE	Renaissance
PORT-AU-PRINCE	111	32	1110513	Centre de santé Sainte elizabeth	Centre de santé Sainte elizabeth
PORT-AU-PRINCE	111	43	1110517	CENTRE MEDICO SOCIAL	Centre médico-social (fism)
PORT-AU-PRINCE	111	45	1110524	CENTRE DE SANTE DE SAINT MICHEL	Centre de Santé St Michel barreau
PORT-AU-PRINCE	111	44	1110526	CENTRE DE SANTE COMMUNATAIRE	Centre de santé communautaire (rue Mgr. Guilloux)
PORT-AU-PRINCE	111	51	1110527	CLINIQUE HOPITAL LAFLEUR DU CHENE	Hôpital la fleur du chêne
PORT-AU-PRINCE	111	25	1110530	CENTRE DE SANTE JOSEPH JANVIER	Hôpital Saint-Joseph
PORT-AU-PRINCE	111	159	1110535	SANT SANTE KAY PA'W	C/S kay pa'w
PORT-AU-PRINCE	111	47	1110536	HOPITAL SAINTE CLAIRE	Hôpital Sainte Claire
PORT-AU-PRINCE	111	50	1110537	HOPITAL LA SAINTE FAMILLE	Hôpital la Sainte Famille
PORT-AU-PRINCE	111	24	1110538	HOPITAL SANATORIUM	Sanatorium de Port-au-Prince
Port-au-Prince	111	1	1115001	Hôpital du Canapé-vert	Hôpital du Canapé-vert
Port-au-Prince	111	2	1115002	Dispensaire de l'Ass. Des Chauffeurs guides	Dispensaire de l'Ass. Des Chauffeurs guides
Port-au-Prince	111	3	1115003	Dispensaire de Baillergeau c/s campêche	Dispensaire de Baillergeau c/s campêche
Port-au-Prince	111	4	1115004	Centre de Santé Aurore du Belair	Centre de Santé Aurore du Belair
Port-au-Prince	111	6	1115006	Dispensaire Carifont de Fontamara	Dispensaire Carifont de Fontamara
Port-au-Prince	111	8	1115008	Centre de santé de St. Antoine	Centre de santé de St. Antoine
Port-au-Prince	111	9	1115009	Centre de Santé Snelak	Centre de Santé Snelak
Port-au-Prince	111	10	1115010	Centre de Santé de Solino	Centre de Santé de Solino
Port-au-Prince	111	11	1115011	Centre de Santé trou sable	Centre de Santé trou sable
Port-au-Prince	111	12	1115012	SOFA	SOFA
Port-au-Prince	111	13	1115013	Centre de Santé Richard Allen	Centre de Santé Richard Allen
Port-au-Prince	111	14	1115014	ASOLDO	ASOLDO
Port-au-Prince	111	15	1115015	Hôpital François	Hôpital François
Port-au-Prince	111	16	1115016	Centre de Santé du Bon Secours	Centre de Santé du Bon Secours
Port-au-Prince	111	17	1115017	Klinik tann katou tey	Klinik tann katou tey
Port-au-Prince	111	18	1115018	Ligue anti anemie falciforme (LAAF)	Ligue anti anemie falciforme (LAAF)
Port-au-Prince	111	19	1115019	Centre de psychiatrie Mars & Kline	Centre de psychiatrie Mars & Kline
Port-au-Prince	111	20	1115020	Centre St Antoine	Centre St Antoine
Port-au-Prince	111	22	1115022	CAL SODEC	CAL SODEC
Port-au-Prince	111	23	1115023	PROFAMIL	PROFAMIL
Port-au-Prince	111	27	1115027	World Relief	World Relief
Port-au-Prince	111	28	1115028	Institut Fame Pereo	Institut Fame Pereo
Port-au-Prince	111	29	1115029	Centre de santé croix des prés	Centre de santé croix des prés
Port-au-Prince	111	31	1115031	APROSIFA	APROSIFA

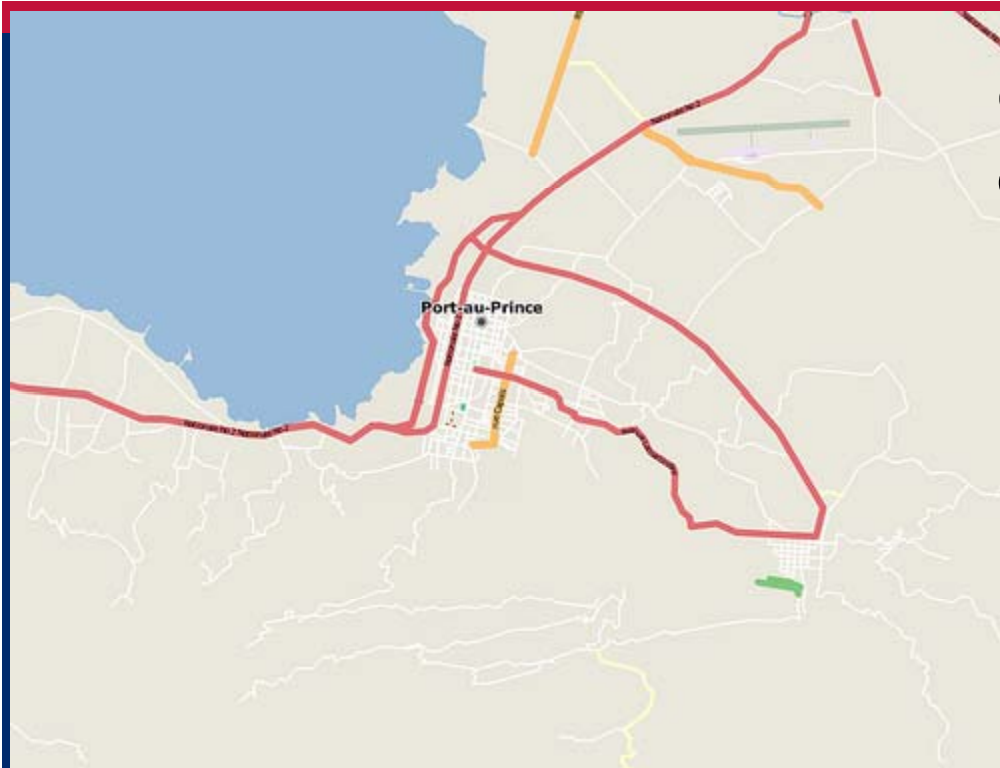


BASIC DATA LAYERS FOR HAITI

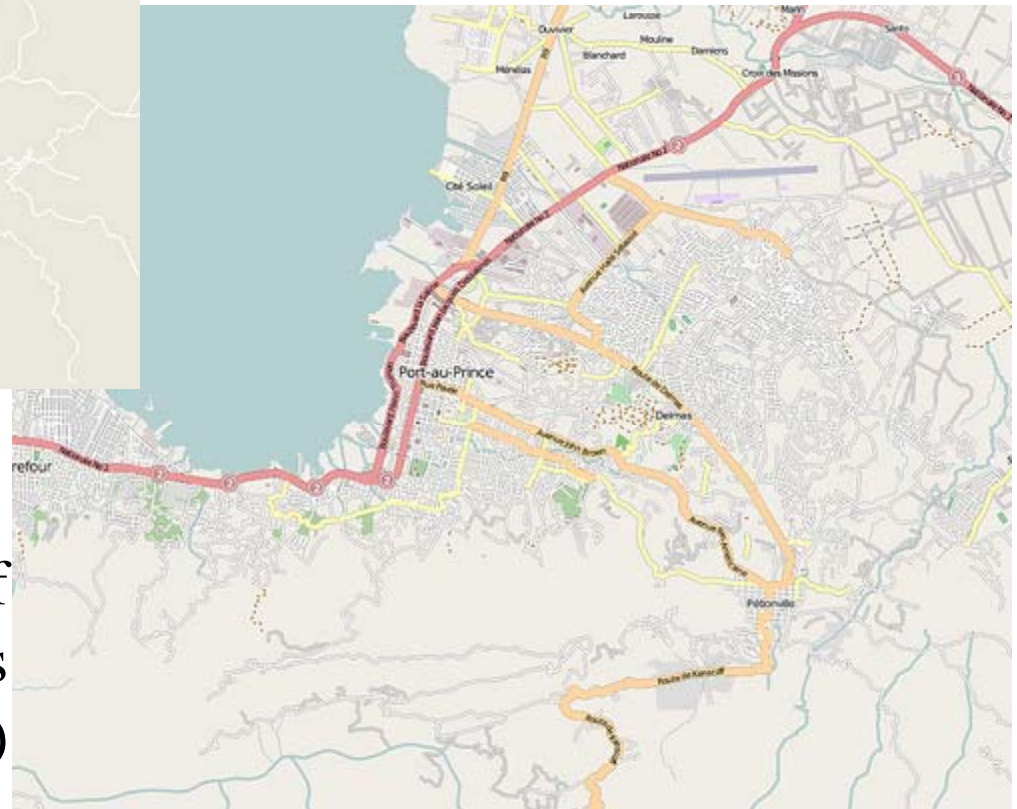
existed prior to Jan 12, 10 earthquake and still can be used for base layers



- 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)

Google crisis response

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/>

Post-Earthquake Imagery

Haiti Disaster Response Map

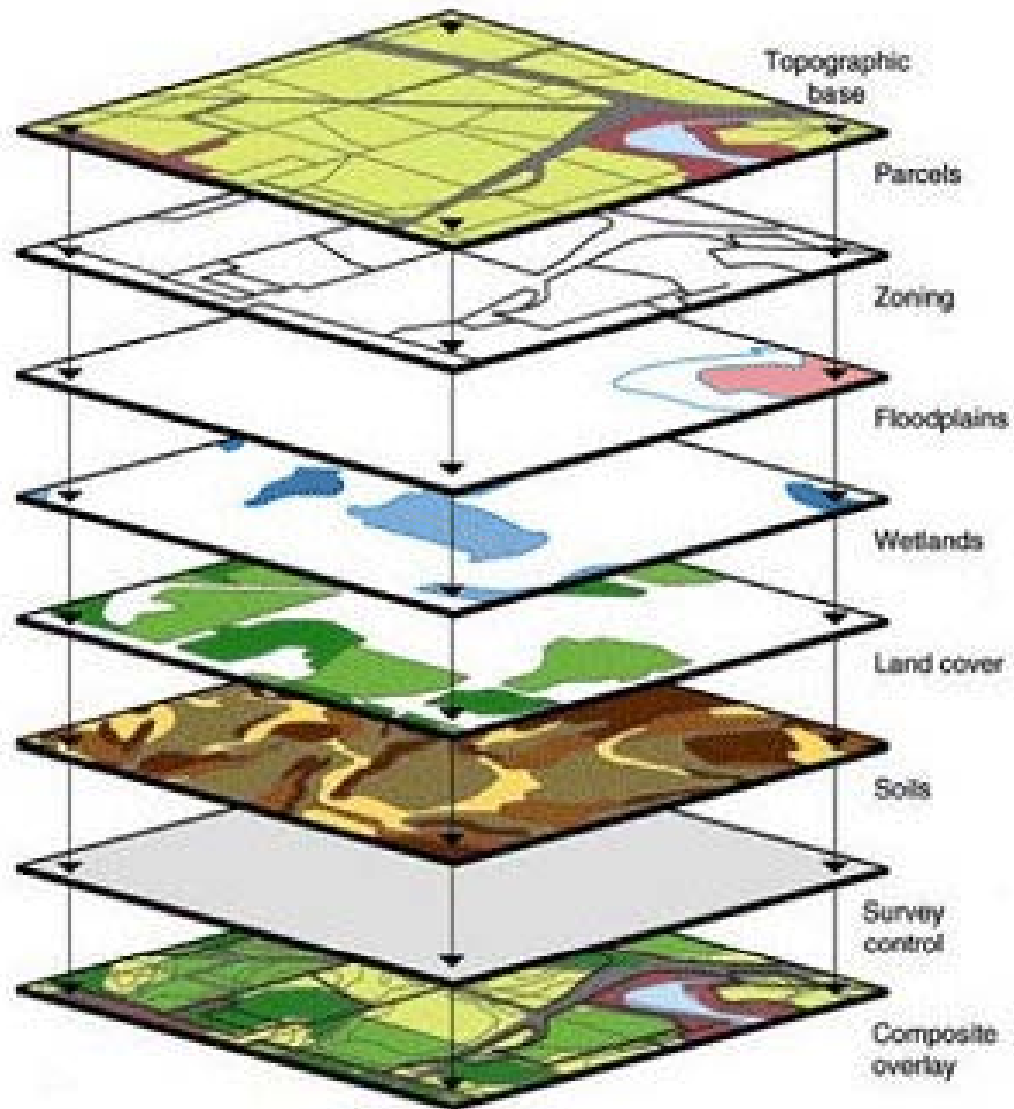
Credit: [U.S. Geological Survey](#)

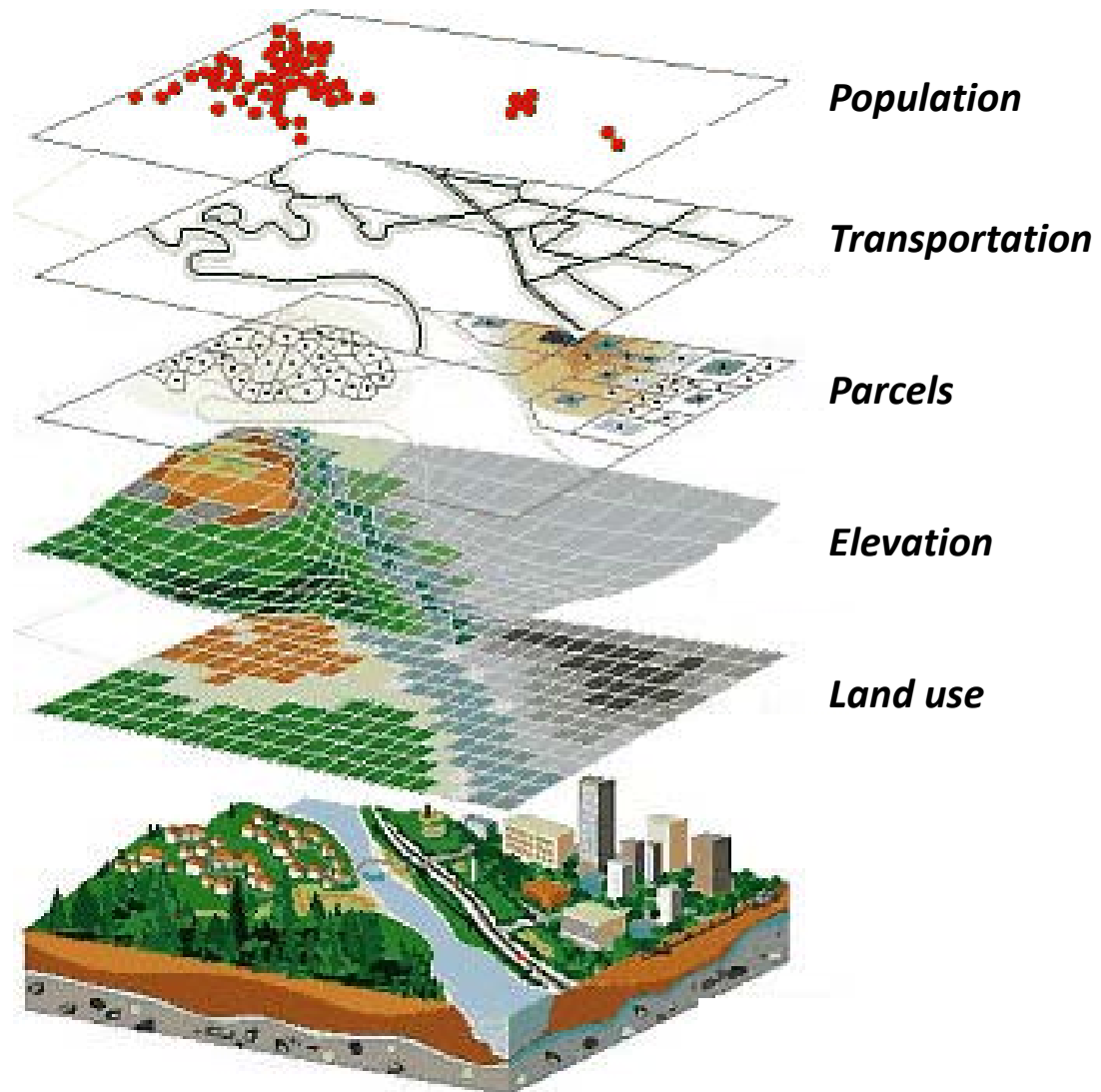
- Haiti Damage Assessment [KML](#)
Credit: [Google Earth Library](#)
- Haiti Medical Facilities [KML](#)
Credit: [Ushahidi](#)
- IDP Staging Areas [KML](#)
Credit: [Ushahidi](#)
- GeoEye-1 Satellite Imagery
Captured 1/13/10.
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Zoom in to see imagery.
- GeoEye-1 Satellite Imagery
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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

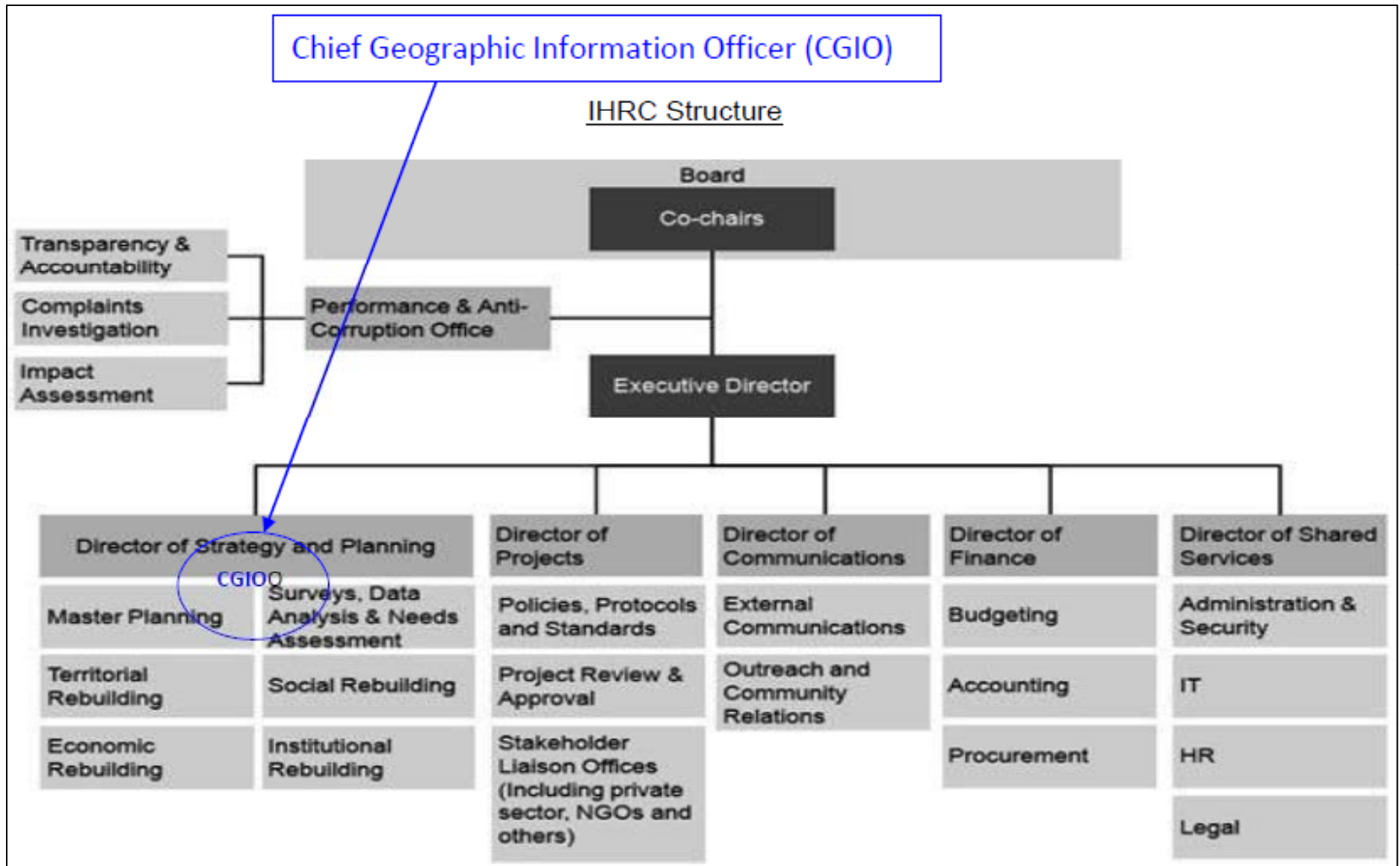
- NGA (Bethesda)
- USAID Mission, Embassy personnel
- GoH/CNIGS mgmt and EU rep
- UN OCHA information mgmt
- IOM re displacement tracking
- GoH Ministry of Environment & ONEV
- Deputy Special Rep UN Sec'y General
- GoH Deputy Ministry Planning
- UNDP Development Gateway



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**