



# **Place-Based Development: Using Geospatial Tools to Plan, Monitor, & Visualize Infrastructure Investments**

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US Agency for International Development**



**USAID**  
FROM THE AMERICAN PEOPLE

# ***Place-Based Development: Key Concepts***

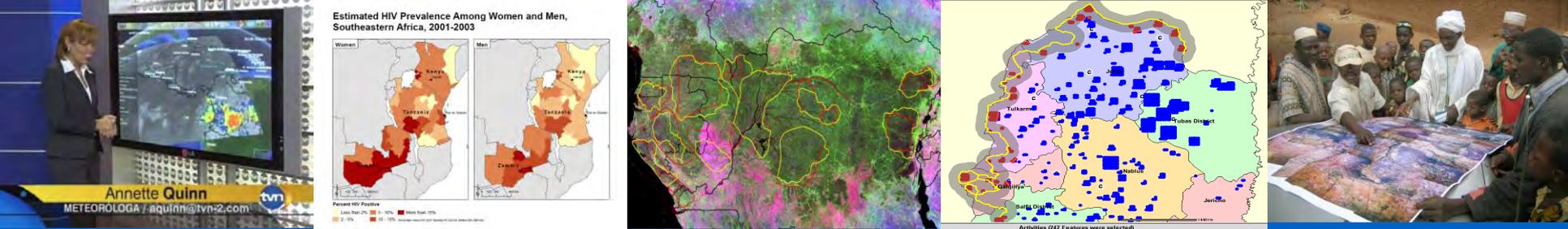
***Systems Approach: linking across natural, social, economic systems in defined geographic space***

***Scale of Interventions: considering temporal & spatial dimension to understand how actions link to overall system***

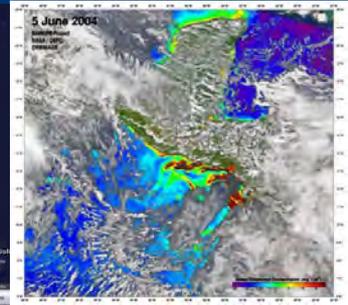
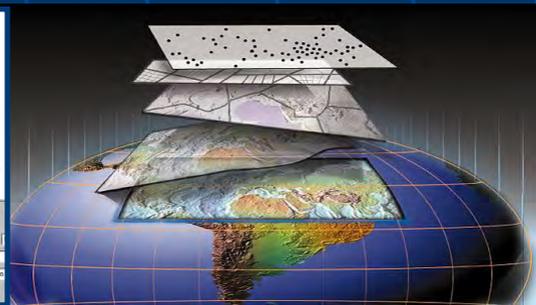
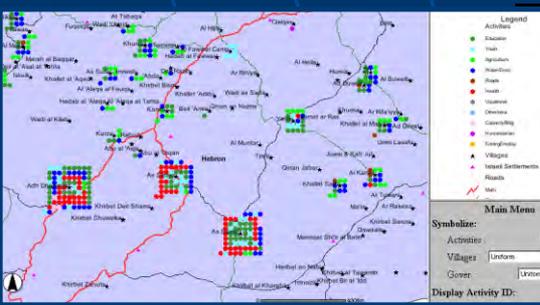
# ***The Challenge***

***Plan built environment as integral part of:***

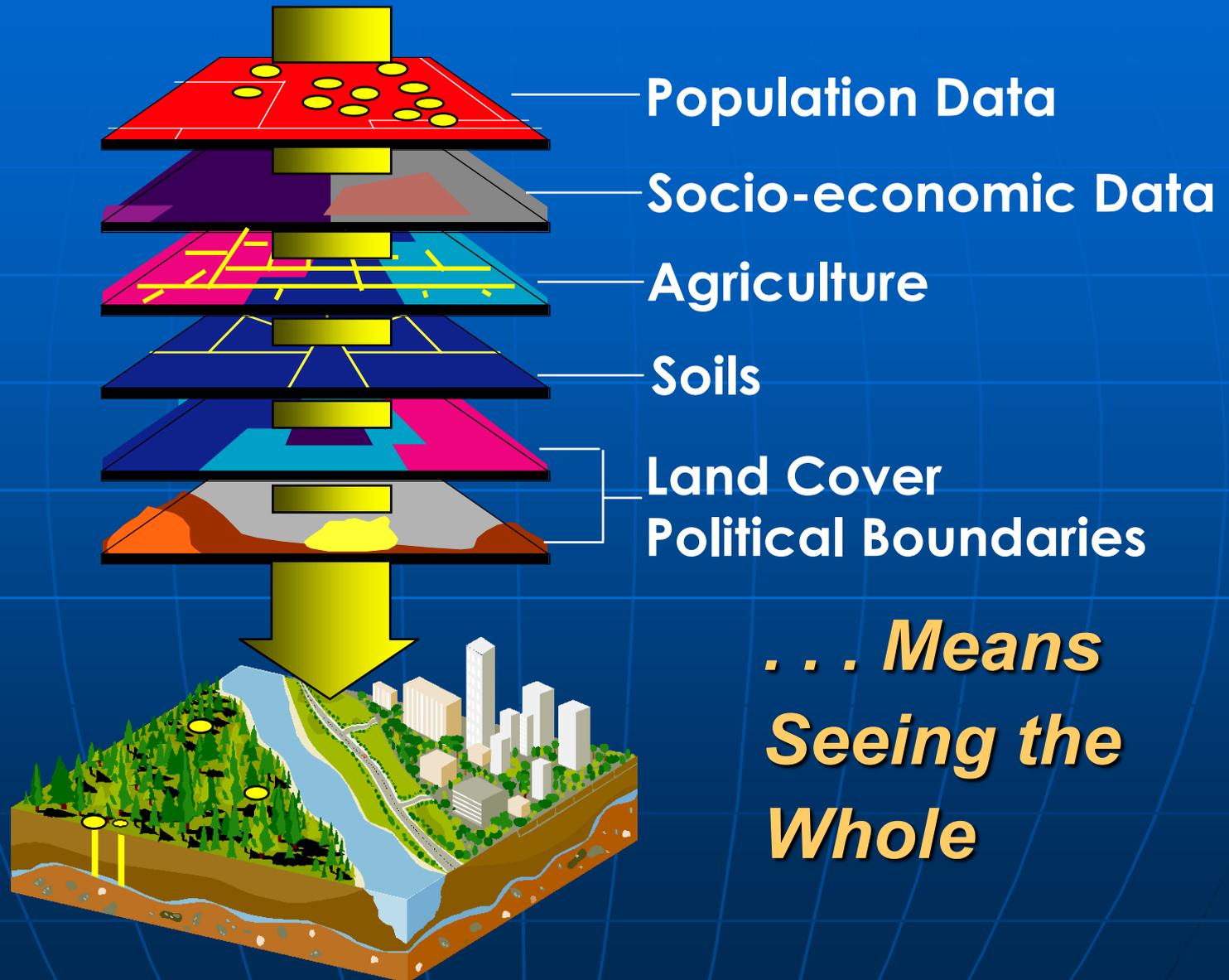
***natural lands, open spaces, working landscapes, & ecosystem functions that provide benefits to human populations***



# What is Geospatial Information Technology and How Can it Help Meet this Challenge?



# Measuring & Integrating the Parts ...



# ***Geospatial Tools Can Help With:***

***Infrastructure Project Planning***

***Monitoring/Tracking Projects***

***Visualizing Information***

# ***Infrastructure Project Planning***

***Local Government Goes Mobile: China***

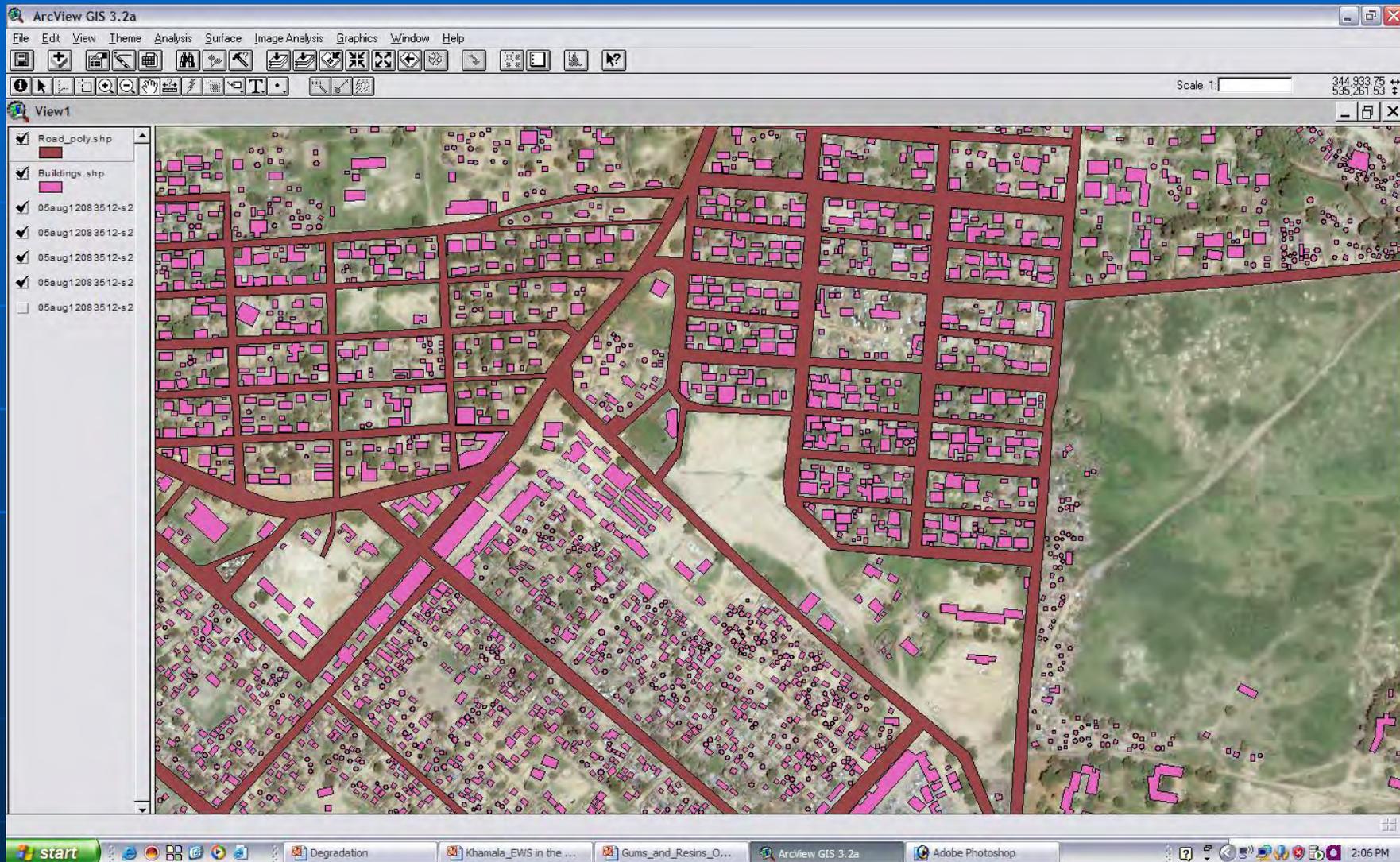
***Public Health Planning: Zambia***

***Strategic Town Planning Initiative: Southern Sudan***

# *Juba City, South Sudan, September 2005*



# Mapping Infrastructure: Buildings, Roads



# *Mapping Land Use*

*(community planning, land titling)*



# ***Infrastructure Project Planning***

***Rebuilding Ormoc City: Philippines***

***Cultural Heritage Inventorying: South Africa***

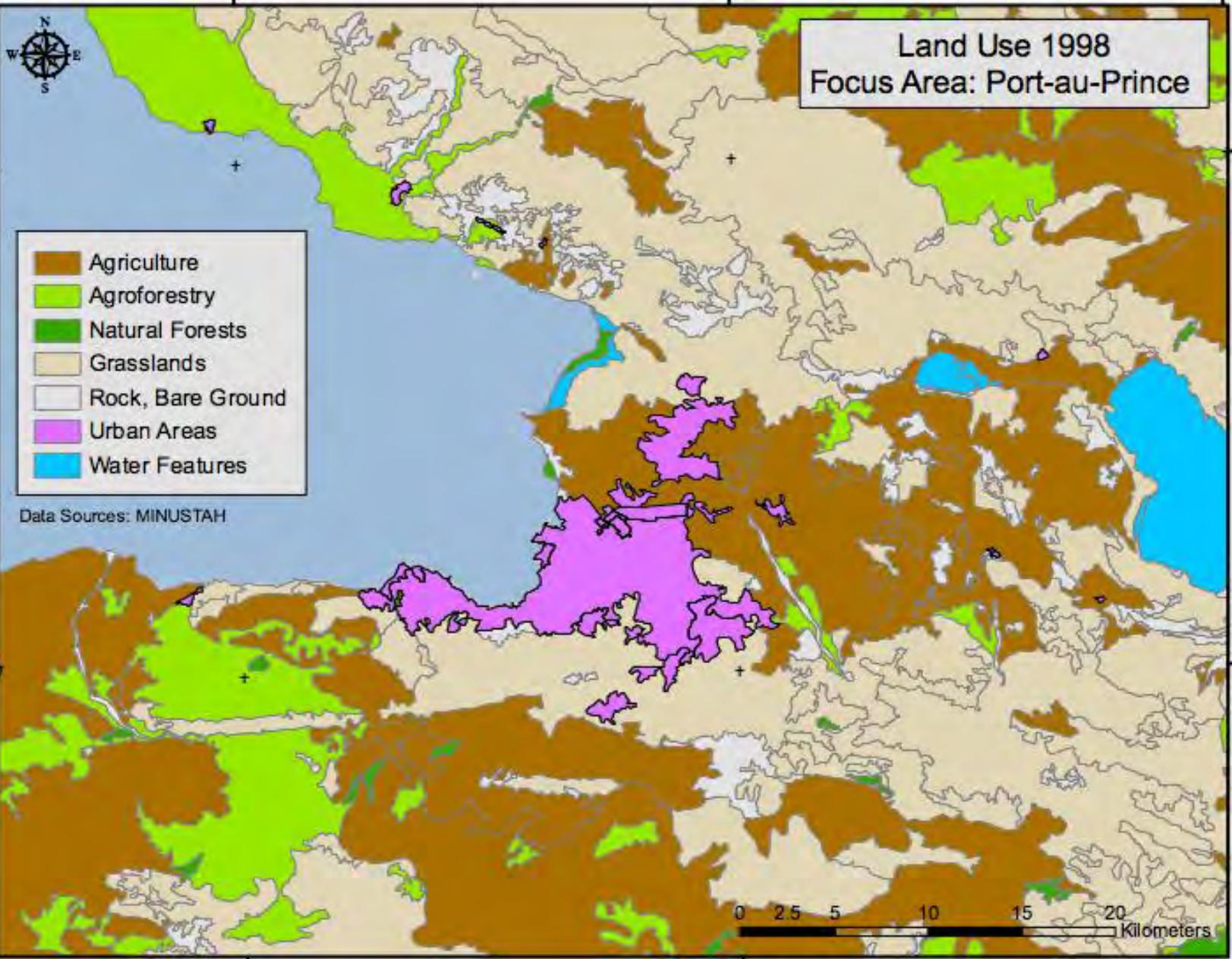
***Girls Education Initiative: Egypt***

***Land Use & Irrigation Zone Analyses: Haiti***

# Land Use 1998 Focus Area: Port-au-Prince

-  Agriculture
-  Agroforestry
-  Natural Forests
-  Grasslands
-  Rock, Bare Ground
-  Urban Areas
-  Water Features

Data Sources: MINUSTAH





# ***Tracking Projects***

***Managing Road Network: Ghana***

***Geo-MIS: West Bank/Gaza***

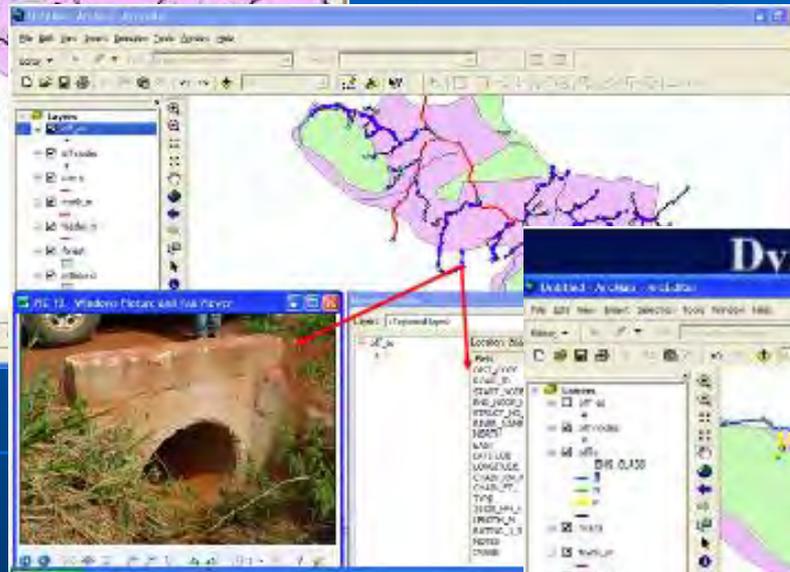
# Transportation Infrastructure Analysis: Ghana



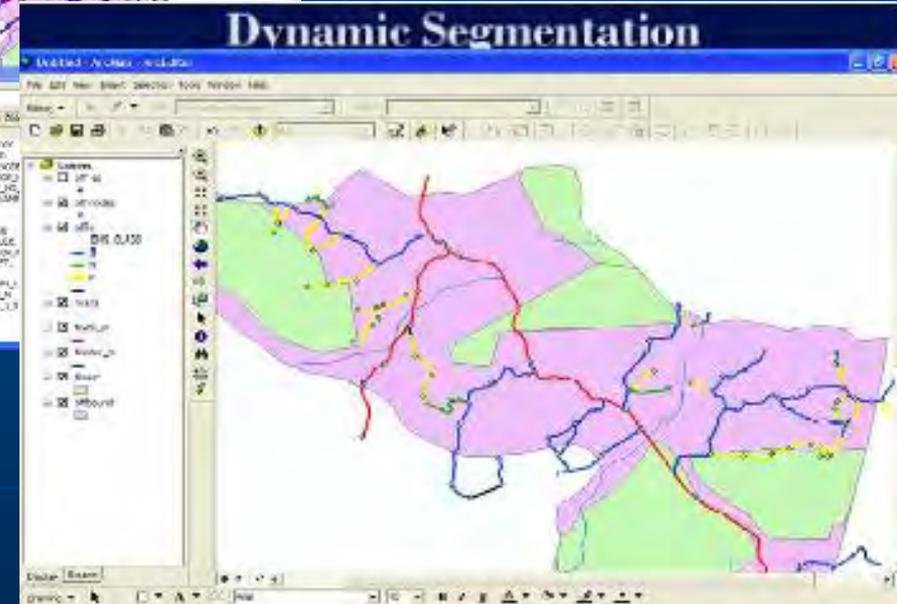
**GPS Tracking**



**Road Conditions**



**Structure Conditions**



**Engineered, non-engineered, partial engineered roads**

# Monitoring Progress of School Project: WB/G

[View Pictures](#)

Activity ID: 17426

SO: SO14

Partner: ANERA - American Near East Refugee Aid

Program: EWAS II - Emergency Water/Sanitation and Other Infrastructure Program

Governorate: Tubas District

Village: Tubas

Activity Description: Installation of 260 m2 shed at Tubas Seconday Girls School - Phase II

Existing Pictures (Click on thumbnail to select; DoubleClick to enlarge) :

Project sign



Stone works around the shed body



Stone works around the shed body



Steel works for the skeleton of the shed



Stone works around the shed body



Steel works for the skeleton of the shed



Steel Works for the Skeleton of the Shed



Completed steel works of the skeleton of the Shed



Installation of the Shed Cover



Installation of the Shed Cover



The Shed Cover has been installed



External View of the installed shed



# Monitoring Progress of Road Project: WB/G

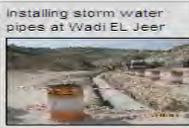
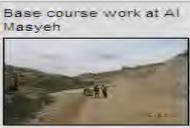
### View Visit Report

visit ID:	539	Visit ID of Correcting Report:	
Activity ID:	16570	Date of Visit:	2010-02-24 <input type="button" value="set"/> <input type="button" value="clear"/>
Visitor:	Tayseer Edeas	Local Contractor:	
Visitor's Position:	CTO	Local Participants:	
Partner:	MWH	Program:	INP_IRD
PCBS ID or Cluster Code:	CLU011	Village Name or Cluster Name:	Any Partner - Jerusalem
AT Code:	A051		
Activity Type Description:	Construction / improvement of interior and connecting roads (other than agricultural)		

**Activity Description:** Abu Dis Internal Roads: Rehabilitation of interior roads of Abu Dis City with total length of 4.8 KM. Rehabilitation works include: excavation of the existing asphalt layers, building new base course and asphalt layers, building new retaining walls and new

Activity Status:	Closed	Percent Completed:	90
Activity Start:	2009-10-14	Planned Completion:	2010-07-16
Last On-site visit:	2010-06-21	Actual Completion:	
Estimated Cost:	3529754	Actual Cost:	3529754
USAID Contribution:	3529754		

**Existing Visit Pictures (DoubleClick to enlarge) :**

		
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Accessibility:	G	Availability of Materials:	G	Safety Measures:	G
Environmental Mitigation Tools:	G	Design:	S	Supervision:	G
Progress:	G	Quality Assurance Measures:	S	Clear USAID Sign:	G
Community Contribution:	S	Community Involvement:	S	Benefit to Community:	S
Sustainability:	S	Exit Plan:	S		

**Visitor's Comments:** The work continued. Preparation work to pave the first asphalt layer at EL Zaitoun road. Installation of pre-cast storm water piping at segment A of Wadi EL Jeer. First base course layer at Wadi EL Masyeh as well as grading and compaction. Casting ready mix concrete of the storm water culverts inlets and wings.

**Visitor's Recommendations:** The contractor was instructed to increase his work crews to better utilize the available equipment.

# West Bank & Gaza - USAID Assistance by Governorate

## Legend

### USAID Assistance per Governorate Since 1999

- Democracy & Governance
- Economic Growth
- Education
- Health
- Humanitarian Assistance
- Roads Infrastructure
- Water Infrastructure

\$ 1,521 M Non-geographic Resources  
(i.e. cash transfers)

Mediterranean Sea



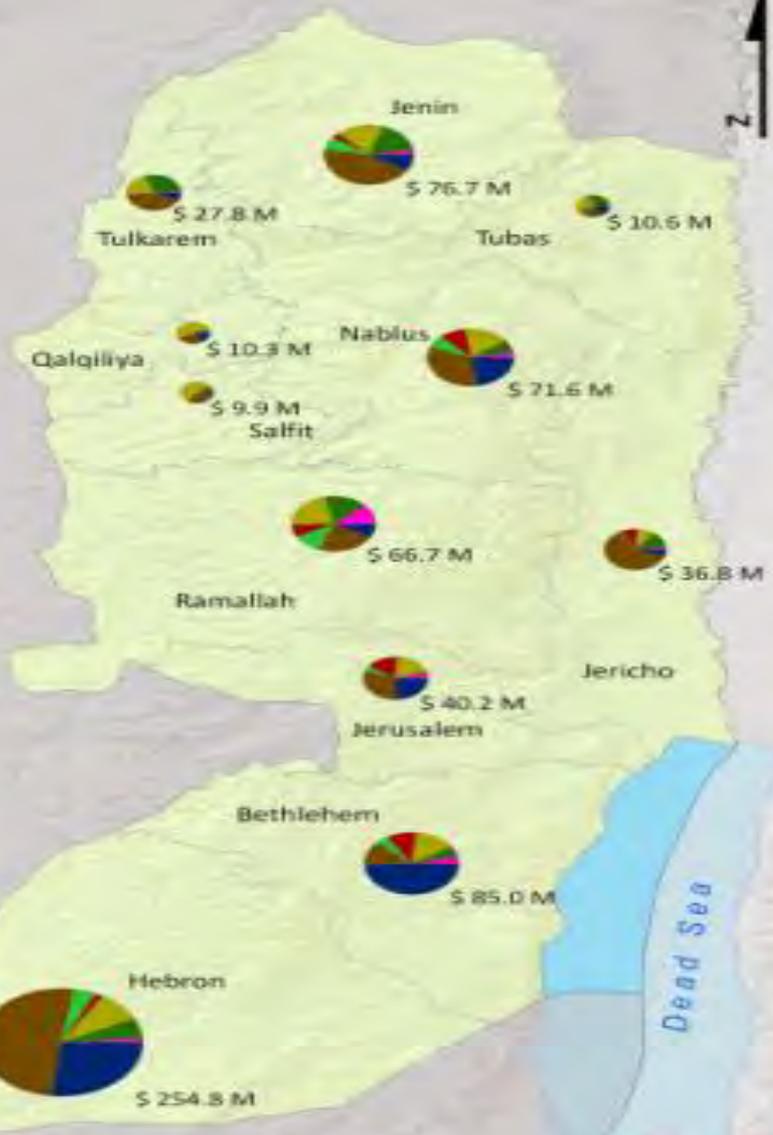
Gaza Strip

Jabalya  
Gaza  
Deir al Balah  
Khan Younis  
Rafah

Egy

Israel

Be'er Sheva

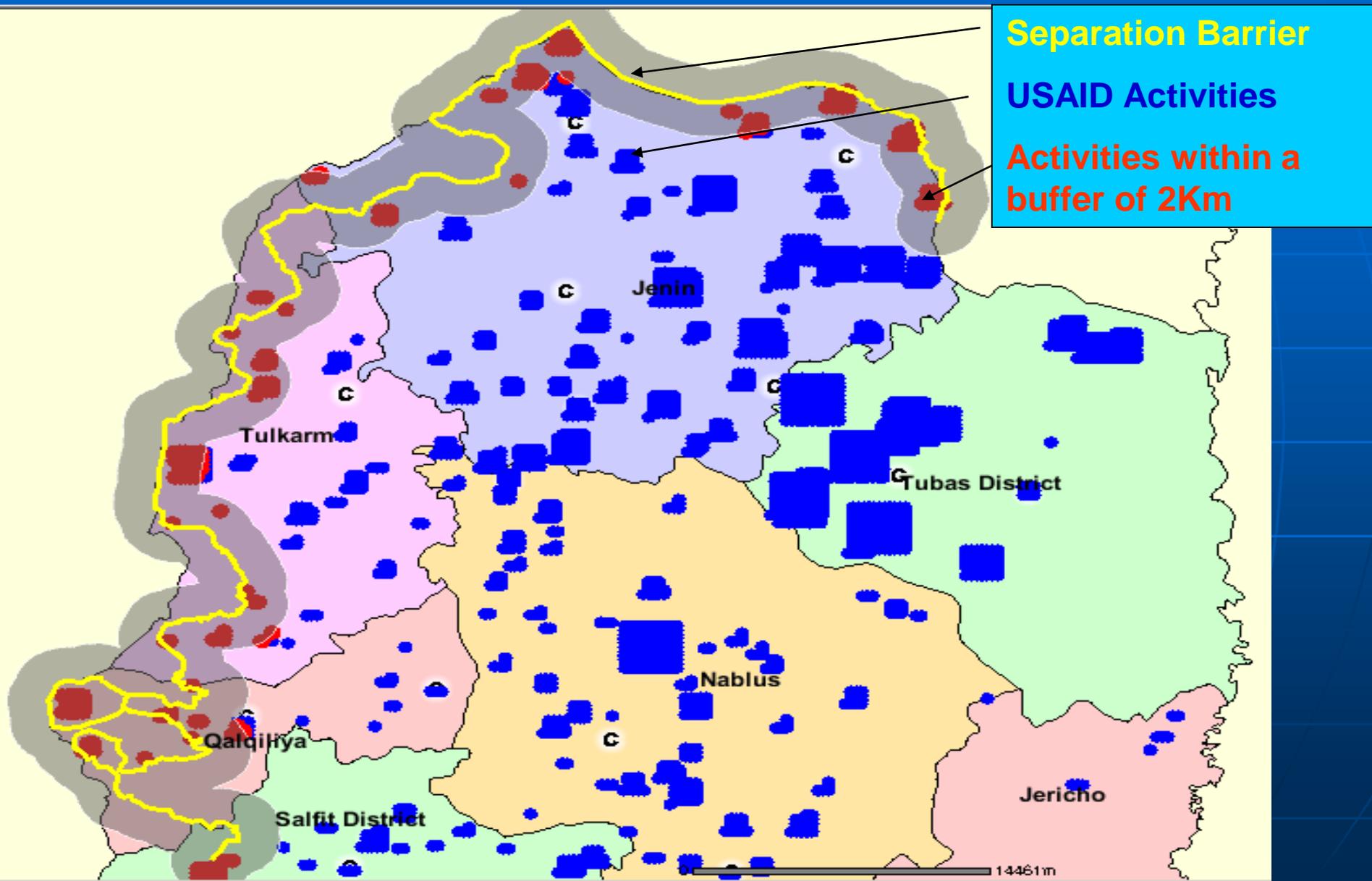


Dead Sea

Jordan



# USAID-WBG Projects Relative to Israeli Separation Wall



Activities (242 Features were selected)

# ***Visualizing Information:***

## ***Examples from Haiti***

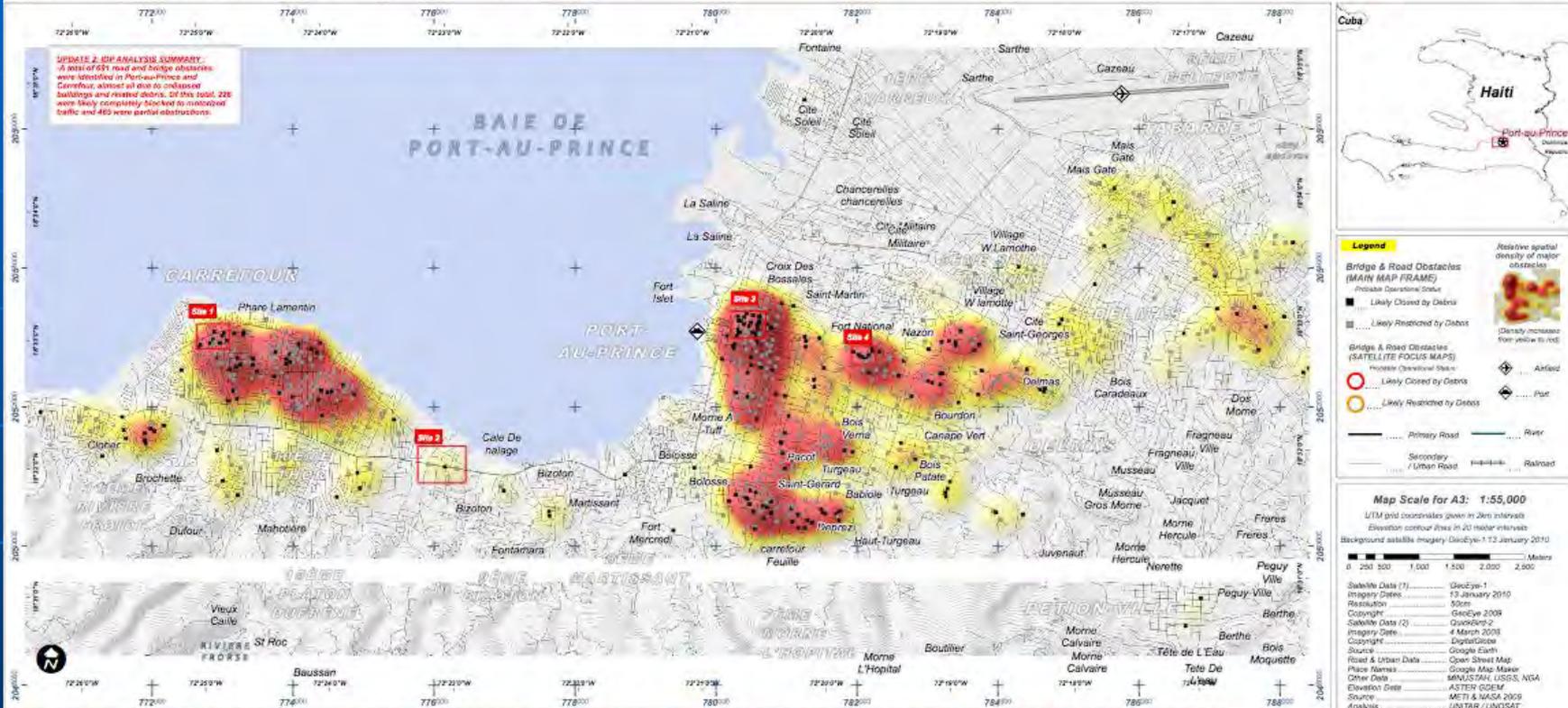
# Combining Different Kinds of Data

## DENSITY OF BRIDGE & ROAD OBSTACLES IN PORT-AU-PRINCE AND CARREFOUR, HAITI (UPDATE 2)

Operational Analysis with GeoEYE-1 Data Acquired 13 January 2010 and QuickBird data acquired 4 March 2008

This map illustrates the relative spatial density of major road and bridge obstructions in Port-au-Prince and Carrefour, as identified in satellite imagery recorded on 13 January 2010. A total of 691 obstacles were identified, almost all due to collapsed buildings and related debris. In only a few cases were the obstructions the result of landslides. Of this total, 226 were likely completely blocked to motorist traffic and 465 were partial obstructions restricting vehicle access. Four case examples of specific road obstructions are shown in the imagery. This is a preliminary analysis & has not yet been validated in the field. Please send ground feedback to UNITER@UNOSAT.

**Earthquake 7.0M**  
**18 January 2010**  
**(20:00:00 UTC)**  
**Version 2.0**  
 Glide No:  
**EQ-2010-00009-HTI**



**Legend**

**Bridge & Road Obstacles (MAIN MAP FRAME)**  
 Probable Operational Status  
 ■ Likely Closed by Debris  
 ■ Likely Restricted by Debris  
 (Density increases from yellow to red)

**Bridge & Road Obstacles (SATELLITE FOCUS MAPS)**  
 Probable Operational Status  
 ○ Likely Closed by Debris  
 ○ Likely Restricted by Debris

Other symbols: Airfield, Pier, Primary Road, Secondary/Urban Road, River, Railroad

**Map Scale for A3: 1:55,000**  
 LTM grid coordinates given in 2km intervals  
 Elevation contour lines in 20 meter intervals  
 Background satellite imagery GeoEye-1 13 January 2010

Scale: 0 to 2,500 Meters

Metadata:  
 Satellite Data (1) ..... GeoEye-1  
 Imagery Date ..... 13 January 2010  
 Resolution ..... 50cm  
 Copyright ..... GeoEye 2009  
 Satellite Data (2) ..... QuickBird  
 Imagery Date ..... 4 March 2008  
 Copyright ..... DigitalGlobe  
 Source ..... Google Earth  
 Road & Urban Data ..... Open Street Map  
 Place Names ..... Google Map Maker  
 Other Data ..... UNITER@UNOSAT, USGS, NSA  
 Elevation Data ..... ASTER GDEM  
 Source ..... METI & NASA 2009  
 Analysis ..... UNITER / UNOSAT  
 Map Production ..... UNITER / UNOSAT  
 Projection ..... UTM Zone 18 North  
 Datum ..... WGS-84 (EGM96)

Map Data © 2009 Google  
 Improve with Google Map Maker

The depiction and use of boundaries, geographic names and related data herein are not warranted to be accurate nor do they show official endorsement or acceptance by the United Nations. UNOSAT is a program of the United Nations Institute for Training and Research (UNITAR), providing satellite imagery and related geographic information, research and analysis to UN humanitarian & development agencies & their implementing partners.

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 UNOSAT

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 24/7 Hotline: +41 76 487 4998  
[www.unosat.org](http://www.unosat.org)

# Haiti Aid Map: <http://haitiaidmap.org/>

The screenshot shows a web browser displaying the Haiti Aid Map website. The address bar shows the URL <http://haitiaidmap.org/sector/shelter-and-housing>. The page header includes the logo "HAITI AID MAP by InterAction" and navigation links for "About", "Analysis", and "Contact". Below the header, there are filters for "Sector" (set to "Shelter and Housing") and "Organization". The main content area features a map of Haiti with 75 pink circular markers of varying sizes representing projects. Text on the left of the map states "75 projects covering 45 communes". A "LARGER MAP" button is located at the bottom right of the map area. Below the map, there are three sections: a table of project names and organizations, a pie chart titled "PROJECTS BY ORGANIZATION", and a list of "REPORTED DONORS".

HAITI AID MAP by InterAction

About Analysis Contact

Project information from 61 organizations in Haiti. Browse by: Shelter and Housing Organization

Sector

**Shelter and Housing**

75 projects covering 45 communes

LARGER MAP

PROJECT NAME	ORGANIZATION
<a href="#">Haiti Earthquake Response</a>	World Vision US, Inc.
<a href="#">Integrated Recovery Assistance Program</a>	World Vision US, Inc.
<a href="#">Shelter, Water and Sanitation, and Agriculture</a>	World Relief
<a href="#">Haiti Earthquake Response (HEAR)</a>	World Concern
<a href="#">Quartier Support for Transitional Shelters</a>	World Concern
<a href="#">Emergency Response Management</a>	Save the Children
<a href="#">Haiti Earthquake Recovery Program</a>	Project Concern International (PCI)
<a href="#">House Tagging and Repairs</a>	Pan American Development Foundation
<a href="#">Shelter</a>	Oxfam
<a href="#">Providing Relief Supplies and Transport</a>	Operation USA

PROJECTS BY ORGANIZATION

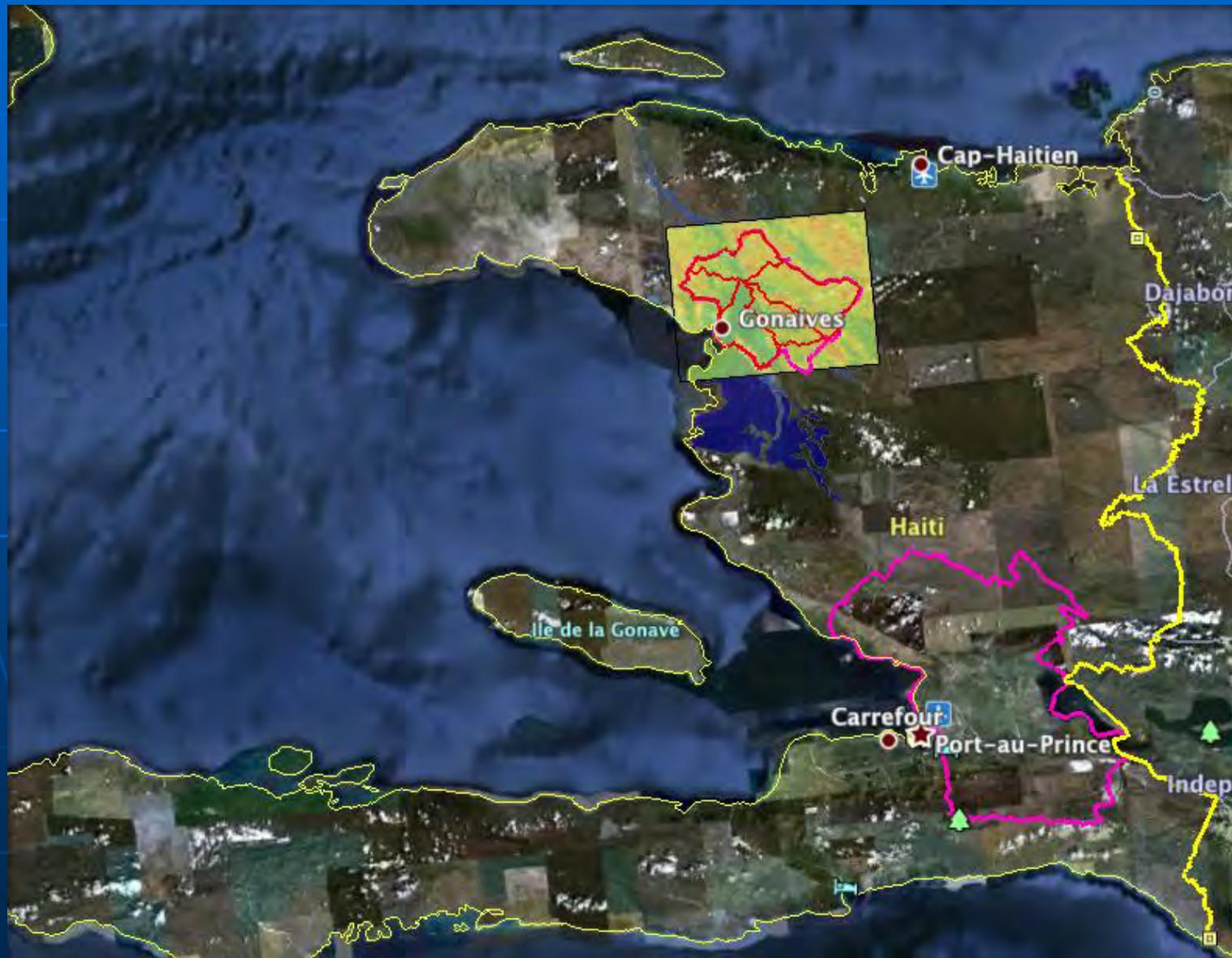
- Brother's Brother Foundation - 14
- Habitat for Humanity International - 7
- American Red Cross - 7
- American Refugee Committee International - 4
- Action Aid International USA - 3
- Others

REPORTED DONORS

- [ACT Alliance](#)
- [African-American Baptist Mission Collaboration \(AABMC\)](#)

Feedback

# *Visualization in Google Earth: Haiti*



# Overview of Geospatial Technologies:

**GEOSPATIAL REVOLUTION** PENN STATE PUBLIC BROADCASTING **Follow Us**

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Episode 2: Full Episode (14:42 minutes)

Chapter 1: Creating an Interactive City

Chapter 2: Powering Business

Chapter 3: Finding a Healthy Future

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Watch & Embed

YouTube vimeo

Episode 1 **Episode 2** Episode 3 Episode 4 Trailer

THE PROJECT FOR EDUCATORS RESOURCES FOR PRESS/PROMOTIONS

<http://geospatialrevolution.psu.edu/>

# ***Accessing Geospatial Tools:***

***Enlist local GIS specialist in project planning phase;***

***Enlist technical assistance of new Geospatial Center in USAID/W***