

## BASICS and GIS in Liberia (2006-2009)

BASICS has been assisting the MOHSW of Liberia in the development of the National Health Policy and Plan since July 2006. From the outset that assistance has included a GIS component that has included the following key activities:

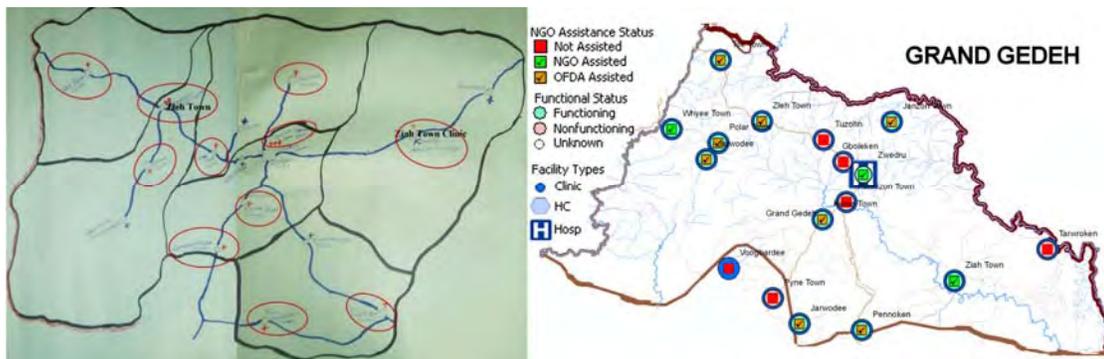
- Creation of the Health Facility database (October 2006)
- Transition Gap Mapping (February 2007)
- Mapping and County Health Planning (June 2007)
- The Health Management Information System and GIS (September 2007)
- The National Review Conference (July 2008)
- GIS Training at the MOHSW (October 2008)
- Town-specific to Facility-specific GIS Coordinates (January 2009)

This report provides a brief description of each of these activities.

### A. Creation of the Health Facility database (October 2006)

In 2006, GIS mapping in Liberia was already somewhat developed thanks to the National Information Management Centers (NIMAC) which was formerly called the Humanitarian Information Center (HIC).

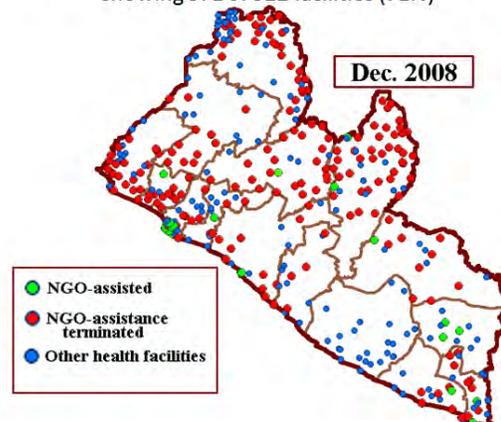
BASICS worked with the MOHSW to establish a health facility database that including both mapping coordinates for many health facilities. The coordinates were based on town-specific coordinates. During 2007, BASICS assisted the MOHSW in refining the database, completing missing information, adding information for additional health facilities, and validating the information with hand-drawn maps of County Health Teams.



### B. Transition Gap Mapping (February 2007)

BASICS consultant Carrie Hesseler\_Radelet and Megan Shepherd-Banigan collaborated with a EU consultant (Urban Grudeborn) to expand the health facility data base to include donor specific information, including end of contract dates for assistance to the 80% of health faculties that were receiving OFDA and ECHO humanitarian assistance. This information allowed the MOHSW to illustrate in a convincing fashion the potential “Transition Gap” at the February 2007 Partners Forum (as right). This map visibly displays 371 (71%) of the 522 health facilities listed in the MOHSW database.

**Liberia Health Facility Map (Feb 2006)**  
showing 371 of 522 facilities (71%)



### C. Mapping and County Health Planning (June 2007)

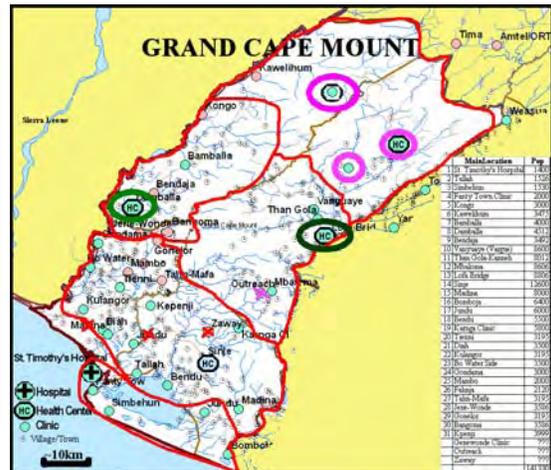
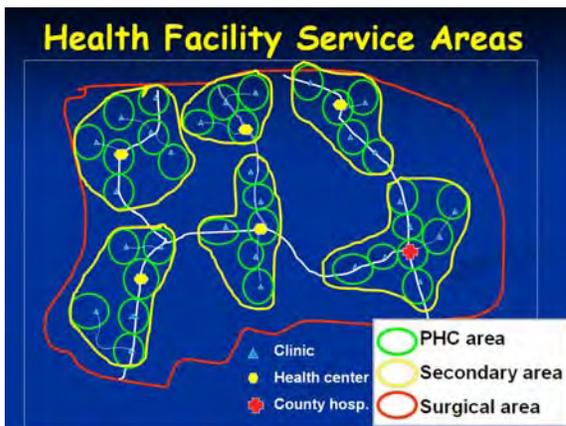
Following the February 2007 Partners Forum, BASICS encouraged additional activities to improve mapping, including the following steps:

- 1) Inventory of Health Facilities by CHTs (June 2007);
- 2) Comparison of the new inventory with the existing health facility database;
- 3) Discussions with CHOs to resolve discrepancies and identify GPS coordinates;
- 4) Updating the MOHSW database and importing into a GIS program; and
- 5) Generating updated County Maps for the county health planning process.

County Health Facility maps were prepared for all 15 counties in a variety of formats, e.g., JPG, PDF and PPT. These maps distinguish between functional and nonfunctional clinics, and between health centers operating as clinics and those providing 24/7 services. Additionally, a process was developed to use these maps to facilitate a strategic facility planning discussion.



The County Health Planning process includes the concept of the need to define and map health service “catchment” populations – primary, secondary and surgical. Clinics, health centers, and hospitals each have a primary catchment area. Health centers have both primary catchment area and a secondary catchment area to receive referrals from clinics. County hospitals have primary, secondary and surgical catchment areas. The designation of the primary service areas (and their populations) is essential to keeping denominators consistent, i.e. so that a population is not counted twice.

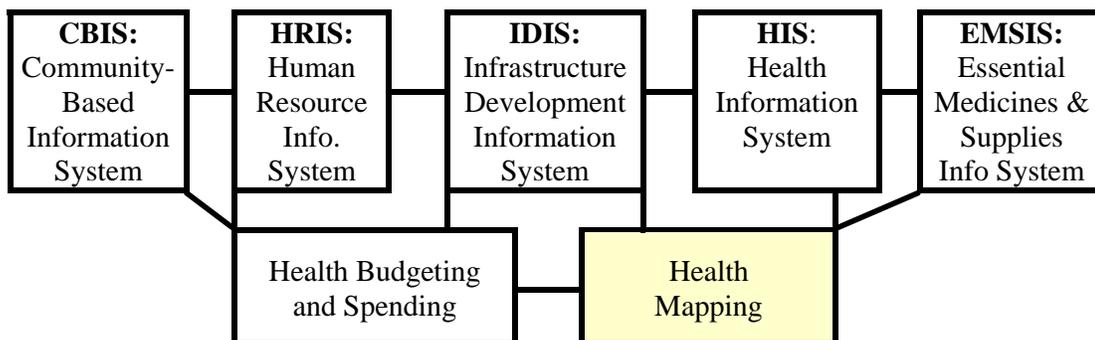


#### D. The Health Management Information System and GIS (September 2007)

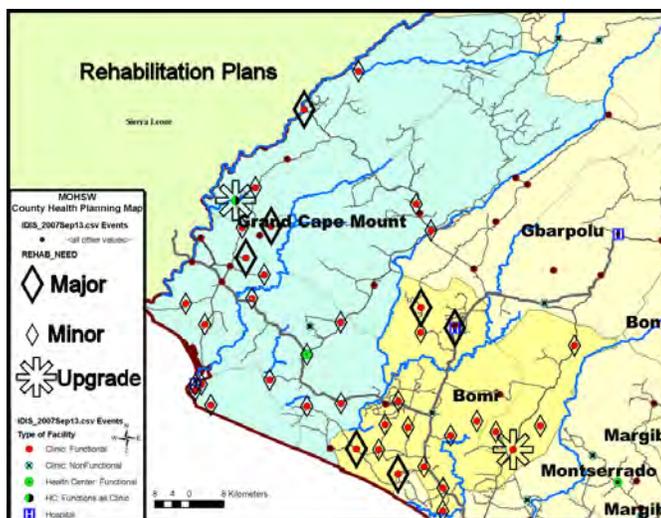
During a partners' meeting in September 2007 to discuss plans for development of the HMIS system. Participants included NIMAC, UNHCR, USAID and Merlin attended this meeting. NIMAC was, as expected, is particularly interested in the mapping aspects and in coordination of information systems across ministries.

At that meeting BASICS consultant Franklin Baer presented a conceptual framework for an integrated Health Management Information System (HMIS) as a comprehensive interlinking network of informational datasets. The HMIS architecture specifically includes a GIS component to integrate information across databases to visualize and map planning and monitoring.

#### A Conceptual Framework for the MOHSW Health Management Information System(s)



In discussing next steps it was noted that the information systems with the most potential for immediate development are Mapping, IDIS and HIS. The Mapping and IDIS information systems are already developed and operational. It will be possible to significantly expand IDIS with information generated by the County Health Planning process. Once GIS software and training are established within the MOHSW it will be possible to use IDIS/mapping for monitoring the implementation of the NHPlan, e.g., to show the health facilities selected for rehabilitation (as shown below for Bomi and Grand Cape Mount).

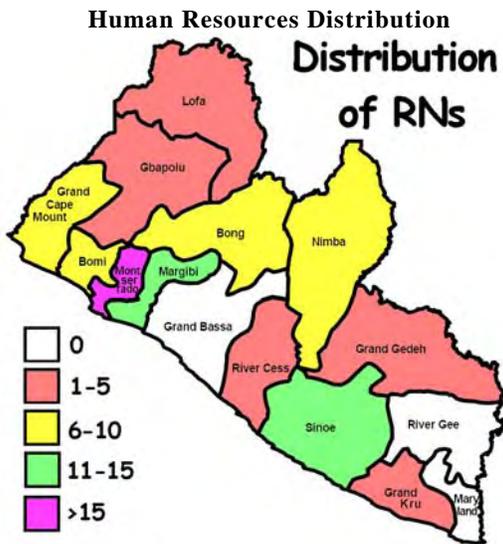


**E. The National Review Conference (July 2007)**

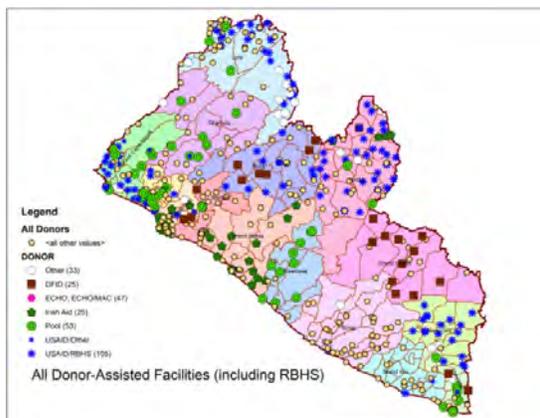
The BASICS team in Monrovia, especially Rose Macauley and Luke Bawo, works on an ongoing basis with the MOHSW to encourage the use of GIS in monitoring progress in the implementation of the National Health Plan. A good example of this was in providing technical assistance to the MOHSW pillar teams in mapping to present the status of their work at the July 2008 National Conference to Review the Implementation of the National Health Plan. Those maps included mapping

- Human Resource Distribution;
- Accreditation of Health Facilities;
- Planned Rehabilitation of health facilities;
- Mapping of Support Systems, e.g. location of computers, vehicles; and
- Transition Gap Updates.

The following are a few of the maps that were developed for that conference, and which demonstrate the variety of ways that GIS is already being used within the MOHSW.



**Status of Donor Assistance (January 2009)**



**Tracking USAID-donated commodities**

