DAY TWO

The second day was coordinated and managed by Dr. Ganiy Agbaje, chairman of the *Nigeria Health and Mapping Summit 2011*'s steering committee. The second day consisted of two presentations and a breakout session that included group work. The first presentation summarized current projects with mapping contents to illustrate challenges and constraints to collaboration and coordination, based upon the first day's technical presentations by health organizations. The second presentation on day two was aimed at demonstrating or showing examples of countries with good geospatial data infrastructure and linkages to improve health outcomes and social services in general

Presentations

For the first day-two presentation, Dr. Aderemi Azeez of the Strategic Unit of the HIV/AIDS Division of the Department of Public Health, FMoH took participants through a summary of the previous day's technical session one presentations. Dr. Azeez began by saying that there was a lack of focus of what the objectives of the mapping efforts are within the health sectors.

He listed the following challenges with respect to mapping efforts in the health sector:

- funding
- multiplicity of efforts
- high cost of geographic data collection
- inadequate technical knowledge of GIS mapping
- little or no infrastructure to support GIS activities
- lack of standards (standard operating procedures, guidelines, etc.)
- poor understanding of the importance of GIS mapping for program development at state and local government levels

He listed the following as the challenges to mapping agencies:

- lack of awareness by consumers on the roles/capability of the mapping agencies
- awareness/dissemination problems involving NGDI
- poor co-ordination
- over commercialization
- lack of current data on locality and vital statistics
- apathy to collaboration
- slow response from mapping agencies to program mapping information demand

The second presentation on the experiences of some countries with good spatial data infrastructure linked with effective and improved social services in the health sector was given by Dr. Omojola of the Department of Geography, University of Lagos, Nigeria. He began by tracing the origins of the use of geography to health, using the following examples:

- In 1840, Robert Cowan used maps to show the relationship between fever and overcrowding in Glasgow, Scotland.
- In 1843, Robert Perry described a six-fold difference in the prevalence of fever in different neighbourhoods.
- Using mapping, Dr. John Snow revealed that a contaminated well was responsible for a nineteenth century cholera epidemic in London.

He said there was compelling evidence that location and place shape health outcomes. He defined spatial data infrastructure, according to *The SDI Cookbook* (version 2.0) as "the critical mass of processes, policies, standards, enabling technologies, mechanisms and key data sets required to make geospatial data readily available to the growing community of end-users."[1] He gave the following as examples of GIS use in the health sector in the United States:

- communicable disease prevention and control
- public health, community health assessment, and chronic disease prevention
- environmental exposure and disease risk

Dr. Omojola gave the following examples to show encouraging GIS use within the health sector in Nigeria:

- guinea worm eradication project
- onchocerciasis mapping.
- schistosomiasis mapping.
- communicable disease and control (leprosy and tuberculosis)
- GTZ – Lafia mapping of health facilities in Niger state
- EPI support mapping

In conclusion, he gave the following as the observed challenges and lessons learned from GIS use in the U.S. health sector:

- data quality and availability
- trained workforce and costs
- defining communities, which is the relevant geographic aggregation unit
- confidentiality
- misinterpretation of results.

The two presentations benefitted from panel discussion that fielded questions from the audience. Presentation materials that were shared with participants are in appendix F.

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[1] Nebert DD (ed). *Developing Spatial Infrastructures: The SDI Cookbook* [version 2]. Needham, MA: Global Spatial Data Infrastructure Association; 2004.

Group Work

The two presentations were followed with a breakout session of facilitated discussion to agree on and prioritize challenges that affect sharing of geospatial resources and development of NGDI. The session focused on group work to achieve the following objectives:

- identify opportunities for health sector representatives to collaborate with NMAs and other NGDI actors;
- articulate the most significant issues affecting mapping of health data; and
- determine resources available to help resolve issues and strengthen NGDIs.

Participants were assigned to groups based on health and mapping sectors in order to ensure group dynamics and ensure understanding of key concepts as it relates to NGDI. A list of the participants was used in the distribution and to see a tabular listing of participants assigned to groups. The work of each group was facilitated by group leaders. As their primary tool to achieve the group work objectives, facilitators relied on a worksheet (see appendix D) containing a description of the work to be done, a short survey to identify the GIS capacity at disposal in each organization, and a matrix of the most important issues faced by these same organizations.

Participants were divided into six groups with about 20 participants each. Niyi Fadairo, a leading steering committee member, and staff of the NPopC explained the group activity. The work of each group was facilitated by either a steering committee member or a participant with a strong understanding of geospatial data infrastructure problems, challenges, and plausible ways of resolving identified issues. Each group selected a rapporteur who reported the group's findings back to a plenum session. The group work focused on the following objectives:

- allowing participants to identify key NGDI issues and challenges affecting their ability to improve health outcomes in Nigeria, and to identify potential solutions;
- allowing participants to work as a group to discuss and prioritize issues, which should strengthen working relationships among conference participants;
- allowing participants to work as a group to recommend solutions;
- articulating group results to the full body of conference participants;
- identifying opportunities for health sector representatives to collaborate with national mapping agencies and other NGDI actors;
- articulating the most significant issues affecting mapping of health data;
- determining resources available to help resolve issues and strengthen NGDIs; and
- issue a *Nigeria Health and Mapping Summit 2011* communiqué expected to serve as plan of action and as an advocacy tool.

In the course of their work, each group was charged with using a provided list of possible issues to identify and rank the five most significant NGDI issues or challenges affecting their organizations' abilities to improve health outcomes in Nigeria. The full issue list had been organized into categories based on lessons learned from the CODIST I pre-conference workshop and on the areas of interest represented by the six subcommittees of Nigeria's NGDI committee. This synthesis of approaches yielded nine categories — spatial data, linking health data to spatial

data, software, hardware, personnel, training, awareness and collaboration, standards and policies, and sustainability and funding. The only NGDI subcommittee not represented in the nine categories was one that focused on legal matters. The cumulative scores across all groups are provided in figure 2.
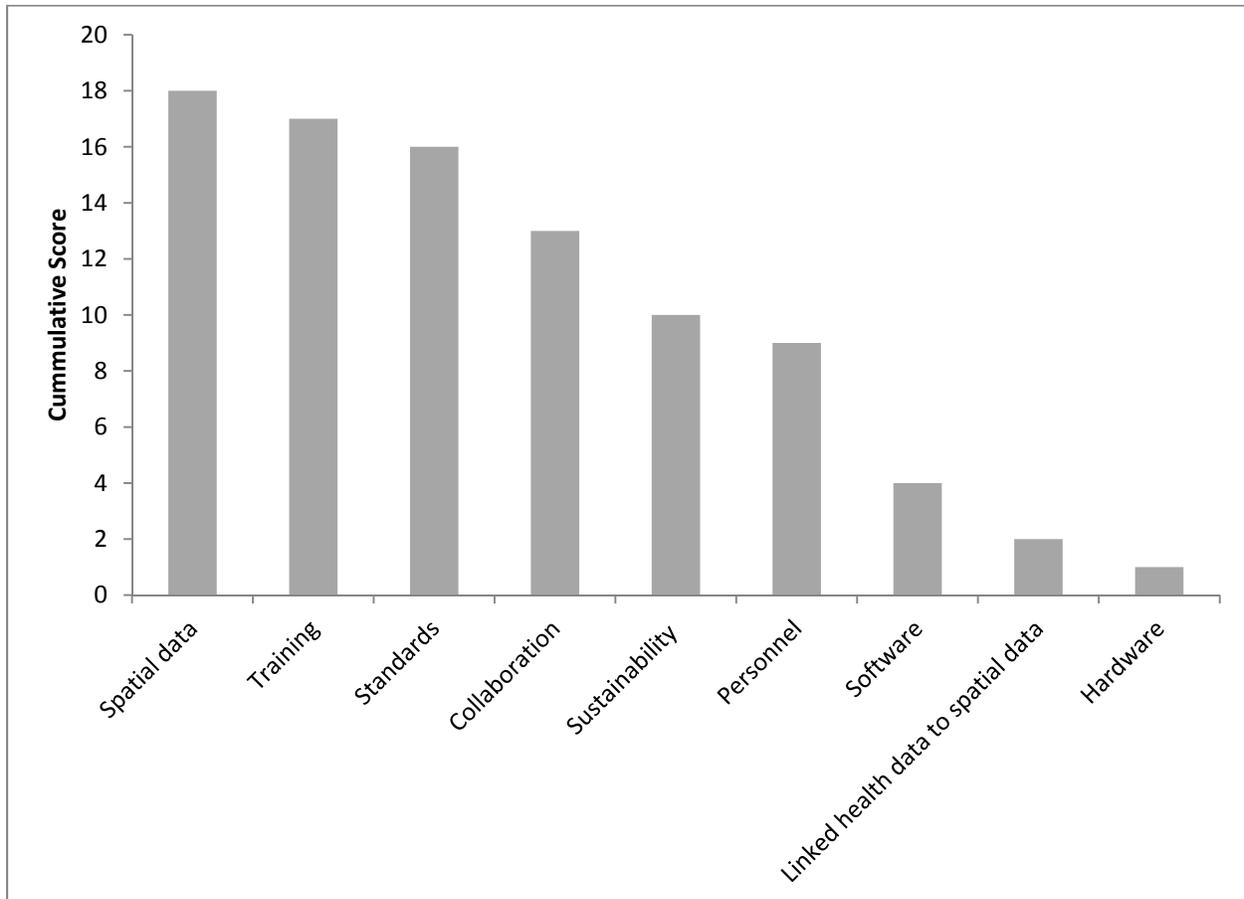

Figure 2: Cumulative scoring from the six work groups of their top five major issues affecting mapping of health data (with each group's highest priority given 5 points, the next highest priority given 4 points, etc.) shows "spatial data" received the highest total score as the most significant issue.

Based on cumulative score, participants considered issues related to spatial data – as opposed to linking health data to spatial data – to be the most significant. More specifically, the greatest sources of concern were problems with a lack of knowledge of what spatial data are available, knowing what spatial data organization might need, availability (shortage) of data for current needs, and access to the data due to internet speed and other technical factors.

Second in rank based on cumulative score was training. The concern for training is that most organization requires additional training to make effective use of GIS tools and methods.

The participants ranked standards and policies as the third most significant. The sources of concerns were snags that national geospatial data sharing policy is not clearly defined or

understood, data systems are not interoperable which prevents sharing of data, and GIS hardware and software standards are not clearly defined or understood.

The fourth most significant issue was awareness and collaboration, which encompassed awareness of other organizations' efforts as well as opportunities to collaborate. Participants also considered important the sustainability and funding and personnel (i.e., the majority of the participants were concerned that most organizations lack personnel with GIS/mapping skills or expertise).

Because the ranking and evaluation of these issues were group exercises involving participants from both the mapping and health sectors, groups were able to facilitate a discussion to explore reasons behind these challenges and identify opportunities for overcoming them. Among suggestions for the way forward were the following:

- Identify and strengthen of country coordinating mechanism for advocacy and implementation of the project.
- Disseminate the outcome of this workshop to all stakeholders nationwide.
- Develop a strategy to involve state and local governments.
- Collaborate.
- Implement the NGDI.
- A meeting should be held in 2012r to review and study the successful use of GIS in the health sector.
- Training is needed (RECTAS).
- Organizations are needed to mobilize and seek training.
- Spatial data needs for health sector organizations should be defined.
- Inclusion of GIS works in organization or department budget for health interventions is needed.
- The conference should be organized annually and there is need for a practical section in future gatherings.
- MEASURE Evaluation should have a dedicated Web page on the *Nigeria Health and Mapping Summit 2011*, which would contain the outcomes and the other information.
- There is need for available GIS Web sites for mappers.
- Agencies should have their facilities available for the utilization of other government agencies at minimal or no cost.
- The *Nigeria Health and Mapping Summit 2011*'s communiqué should be published and widely disseminated to all relevant stakeholders.
- All available spatial data should be placed in the public domain for easy reach.
- Assessments of all training centers should be done to determine their capacity to provide quality and effective training.
- Embark on advocacy for an annual health and mapping summit for continuity.
- Capacity building is important.
- Training of health sector personnel on the use of GIS to influence health outcomes should be done.
- Collaboration and coordination are important.

- Multi-sectoral collaboration should be done to foster advancement of GIS application in all sectors of the economy.
- A GIS resource library should be created for banking all available GIS spatial data.
- A resource place for all GIS available resources should be provided.
- A national geo-information policy should be enacted, and public enlightenment on the policy should follow.
- Getting information on available spatial data, showing how to acquire the data, via metadata and clearing house is important.
- A stronger link is needed between mapping (geospatial data providers) and the health sector.

Participants were asked to fill out a brief survey addressing GIS capacity in their organization. Due to time constraints, not every participant completed the form; however, it was possible to collect information from many participants. For example, some noted that their institutions do have some GIS capacities in terms of human resources.

In addition to the group work results, the steering committee and participants produced a summary report and communiqué to be shared and use as advocacy during planned meetings with the Honorable Minister of Health; Honorable Minister of Science and Technology; Senate committees on health, science, and technology; and House of Representative counterparts. The communiqué, provided in the next section, identified outcomes as:

- confirming the importance of forging robust networks between the health sector and the other key players, starting with the national mapping agencies, when it comes to the use of geographic information in support of health including HIV/AIDS programs;
- finding that overcoming the challenges in establishing and maintaining these linkages requires national-level leadership to ensure sustainability;
- illustrating that NGDIs are better built around addressing real problems instead of being ends in themselves (in this context, the exigency of social services, beyond just health sector, can be seen as an effective driver of NGDI implementations); and
- underlining the importance of holding similar conferences regularly, annually or every other year if the cost of annual summits is prohibitive.