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ESRI • Summer 2009

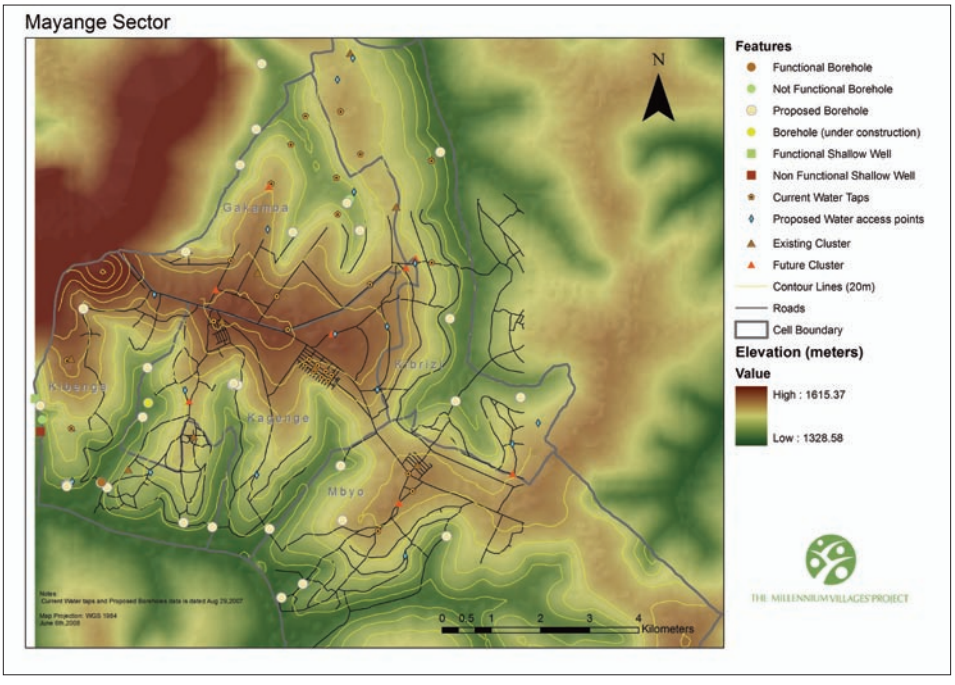
GIS for Health and Human Services

Water Sources Mapping Contributes to Health and Development Goals in Rwanda

GIS Project Contributes Its Drop to the Bucket of Millennium Development Goals in Sub-Saharan Africa

In southern Rwanda, students and professors from the University of Redlands (U of R), California, are using geographic information system (GIS) technology to map the area's water sources and collect water usage information. Their activities contribute to efforts to improve access to clean drinking water in the community and in similar communities across sub-Saharan Africa. In the bigger picture, the project contributes to an ambitious plan—the Millennium Development Goals (MDG)—that pledges to eliminate extreme poverty worldwide by 2015.

In 2000, representatives of 189 nations worldwide signed on to the United Nations' MDG commitment to reduce poverty through improving health, education, agriculture, and infrastructure. Access to clean drinking water plays an important part in supporting these goals (MDG aims to reduce by half the proportion of people without sustainable access to safe drinking water). That is why undergraduate environmental studies students, led by Max Baber, Ph.D., associate professor in the U of R Master of Science in Geographic Information Science program, and Katherine Noble-Goodman, visiting lecturer in environmental studies, found their way to Mayange, a rural sector in Rwanda, in 2008 and 2009. They arrived with GIS and Global Positioning System (GPS) equipment for mapping the area's water sources.



The Mayange Sector in Rwanda locates current, nonfunctional, and proposed water access points in relation to current and future population clusters.

Some progress has been made in advancing MDG goals, but in sub-Saharan Africa, improvements have advanced more slowly than in other parts of the world. As a result, the Millennium Villages Project (MVP) was established to work out a successful model in Africa for alleviating poverty using a set of integrated, community-driven activities. Mayange is one of 80 MVP participants spread across 10 African countries. Located in one of the poorest regions in Rwanda and with a sector population of 25,000, the area is almost completely deforested and receives 800 millimeters (about 31.5 inches) of intermittent annual rainfall. As in many other rural African areas, Mayange villagers spend hours each day retrieving water their families need to survive. Often, the water source is contaminated, which can cause health problems. In addition, the time-consuming retrieval process diverts efforts from activities crucial to sustainable development such as education and farming.

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Water Sources Mapping Contributes to Health and Development Goals in Rwanda

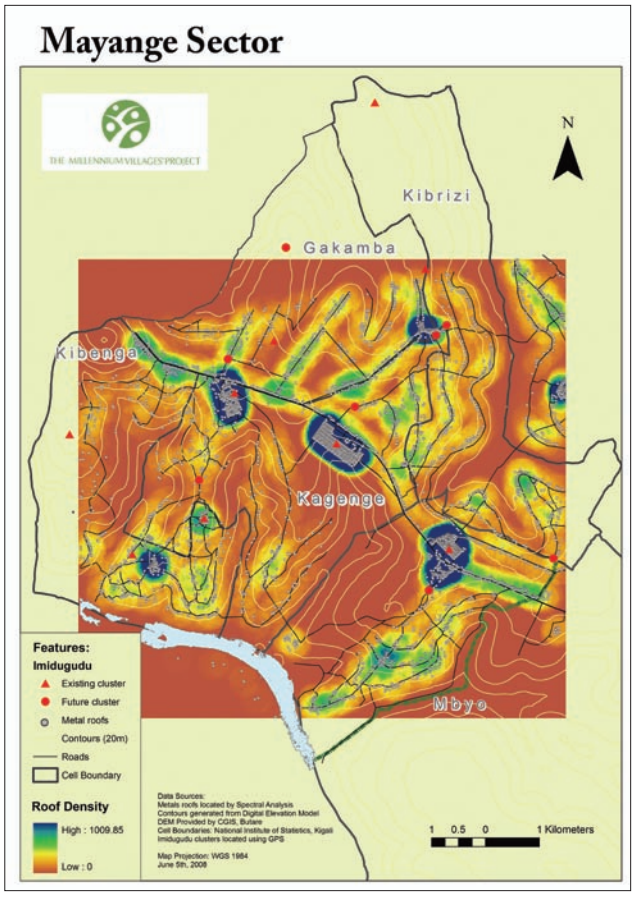
"Clean, reliable sources of water for drinking, cooking, and other basic human needs are a necessary condition for the elimination of poverty and the success of sustainable development," said Noble-Goodman. In Rwanda, more than 25 percent of the population lacks access to clean water.

Using GPS equipment and ESRI's ArcGIS, the teams spent a total of 15 days in the field mapping and classifying water access points. With the assistance of local village leaders and guides and personnel from Rwanda National University and MVP, the students built a database of water sources by collecting GPS points in the field and classifying each site as a shallow well, open pit, lake, deep borehole, water tap, or cistern. Additionally, the team collected survey data by talking with individuals who arrived at the site to fill their water cans. The survey provided information on water use, household location and size, distance to the water source, and the seasonal availability of water.

The purpose of the survey was to help MVP participants prioritize areas in most need of water source improvement, and the maps will be useful in providing local sustainable development programs with accurate locations. For example, the data can be used to identify areas where water sources are contaminated and support decisions about improving water quality, such as how to protect an open pit water source or where to dig a new water source.

"Anything that we can do to improve water quality is going to have a major impact on the population," said Baber. Ultimately, this field collection and mapping model may be used for mapping other water networks in Rwanda and parts of Africa and contribute to the implementation of sustainable practices in impoverished nations. The data is held in the care of Didace Kayiranga, MVP science coordinator in Mayange, who explained, "It gives us tools for planning and to evaluate our indicators such as distance from a household to a clean water source. This indicator cannot be easily measured without overlaying the different household and water point layers."

> "One goal of MVP is to have water within one kilometer of every household. This is very ambitious and will take a while."
>
> Molly Moore, University of Redlands Student



This map shows building (housing) density and estimated housing expansion areas in Mayange Sector.

The GIS fieldwork gave students hands-on experience to learn how GIS technology can support projects that study the relationship between humans and the environment. Working in an extremely rural, undeveloped area also provided new lessons, indicated Baber: "Students learned about the nature of uncertainty in collecting GIS data, such as mapping a community that does not have an address system and issues that can cause deterioration of the accuracy of GPS readings."

"And for a few days in May," said Noble-Goodman, "students had the opportunity to help improve the community's access to clean, safe drinking water." U of R faculty and students continue to edit and revise the project data in graduate GIS classroom studies as a way to explore the spatial dimensions of public health issues. They are running analyses and creating spatial models to predict relative likelihood of productivity for new borehole well site locations. The most commonly employed model inputs are derived from household density (as analog for population density, to incorporate proximity to population concentrations) and relative terrain situation (valley or ridge, for relative proximity to groundwater).

Students mapping the location of a shallow well in Mayange Sector, Rwanda, consult with local residents to gather additional information about well usage.

For this project, U of R worked in collaboration with Loma Linda University School of Public Health (www.llu.edu/llu/sph/), National University of Rwanda Geographic Information Systems and Remote Sensing Centre (www.cgisnur.org), and the Millennium Villages Project (www.millenniumvillages.org). Grant funds were provided by the Southern California Metropolitan Water District through a program that challenges students to develop water-conserving technology in impoverished nations.

To learn more about the mapping project, contact Max Baber at max_baber@spatial.redlands.edu.

Hardware Used

- Garmin 60CSx
- Dell Precision M4300 portable workstation

Software Used

- ArcGIS

Basemap Data Sources

- SRTM 90 m digital elevation data
- QuickBird images
- Millennium Villages Project
- National University of Rwanda GIS and Remote Sensing Centre
- Rwanda government (administrative boundaries)

ESRI on the Road

eHealth Forum 2009
October 8–9, 2009, Hong Kong
www.ehealthforum2009.org

American Public Health Association Annual Meeting and Exposition
November 7–11, 2009, Philadelphia, PA, USA
www.apha.org/meetings

36th World Hospital Congress—IHF Rio 2009
November 10–12, 2009, Rio de Janeiro, Brazil
www.ihfrio2009.com

Public Health Preparedness Summit 2010
February 16–19, 2010, Atlanta, GA, USA
www.phprep.org

HIMSS10—Healthcare Information and Management Systems Society
March 1–4, 2010, Atlanta, GA, USA
www.himssconference.org

From My View . . .

By Bill Davenhall
Global Manager
Health and Human Services
ESRI

The Sick and the Poor

Being sick and poor anywhere in the world is a prescription for trouble—not just for the individual, but for society as a whole. Being poor may be the first rung on the ladder toward sickness, but there are growing examples whereby illness leads directly or eventually to poverty. Either way, the costs to society are tremendous and long lasting. Dr. Muhammad Yunus, winner of the Nobel Peace Prize in 2006 for his approach to microfinance in Bangladesh, has suggested that poverty is grossly misunderstood by most people. He believes that the poor are among the most innovative people around and have incredible survival skills that rival mountain climbers and adventurers. Something to ponder.

He also has said that physical health is intrinsically intertwined with one's personal economy. Dr. Yunus also suggests that when you endeavor to empower people to leave poverty, the biggest hurdle will most likely be sickness, either of the individual or a family member, and that the best medicine for sickness is income. That's another thing to think about as nations struggle to reform health and welfare programs using averages and generalizations about poverty and health.

One's health and well-being, then, ride on the same bicycle, requiring a person or a nation to achieve a balance. The understanding and knowledge-building parts of this balancing act call for complex analysis and subsequent measurement of intervention strategies, something GIS is well designed to tackle. Yunus also says something that every GIS advocate knows—that drilling down into society's complex problems is the only way to solve them, and a process that identifies and uses the elements that make up a complex problem is the best method for discovering solutions. This is probably good advice to a data-intensive sector such as health and human services.

Everyone who recognizes the power of GIS understands that it can help us see the hidden, imagine the possibilities, and understand and communicate to others just how well a society is doing to reduce absolute levels of sickness and poverty. The ultimate return on investment of GIS within a health and human services department should not only be measured by cost savings from making data management, spatial analysis, Web-based data queries, or informatics more efficient. Its value should also be measured by its contribution to the mission of the organization and, ultimately, to aiding the world's sick and poor to gain health and well-being.

We need to rethink our approach to how we use information within health and human services organizations and find ways to properly empower those who work in this sector to solve complex problems, improve outcomes, and work on the "right" problems. Otherwise, we will be consumed with reacting to incomplete, fragmented, and misunderstood information that often does little good in reducing poverty or improving health.

As always, I invite your second opinion.

Regards,

Bill

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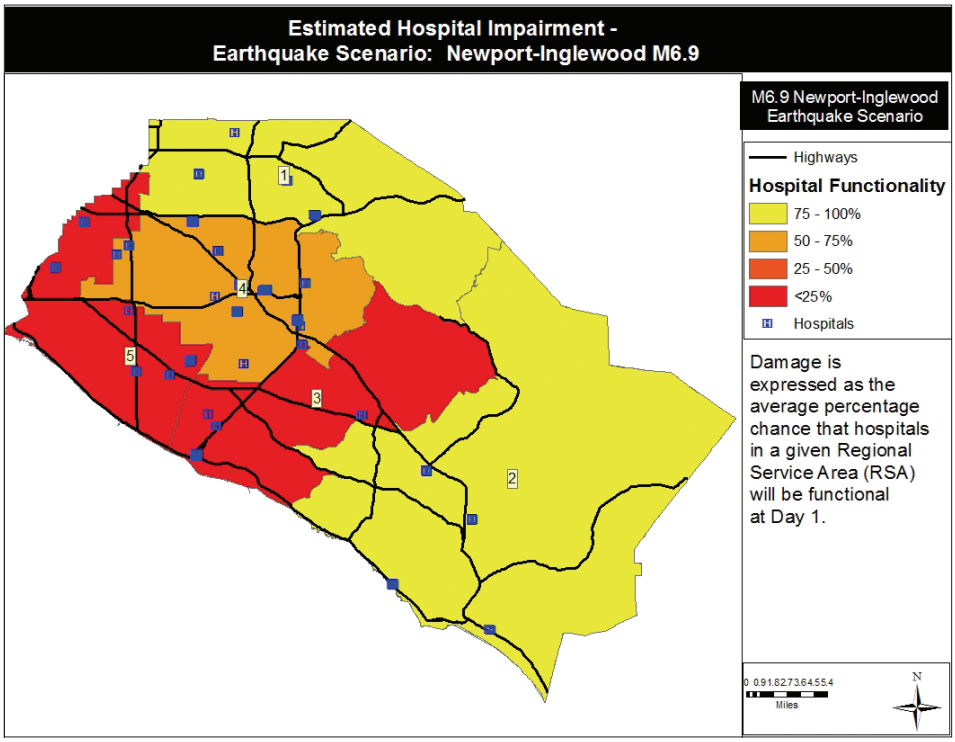
Hospitals Get a Jolt of Reality with HAZUS-MH Earthquake Analysis Results

By Rebecca Blankenship, Outreach Manager, Outreach Process Partners

After an earthquake, injured victims will look for help at local hospitals, but will the hospitals be in shape to offer assistance? In Southern California, hospitals are getting prepared for a "big one" with a system that uses GIS technology to estimate hospital building damage and related effects on hospital services. In March 2009, Orange, Riverside, and San Bernardino counties completed a two-year study that analyzes economic loss; population impact; and damage to essential facilities including fire and police stations, hospitals, and schools.

The study utilized HAZUS-MH—loss estimation software based on GIS technology—to calculate estimated physical damage and functional loss from earthquakes, floods, and hurricanes. Two earthquake scenarios provided local decision makers with a more complete understanding of the impact these disasters would have. Area hospital groups were especially interested in using the analysis results to get a better view of which hospital facilities might be damaged and how many and where acute care beds would be available.



Hospital locations and functionality in Orange County, mapped by regional service area, as predicted by a HAZUS-MH analysis of a scenario predicting a magnitude 6.9 earthquake along the Newport-Inglewood fault.

"Forewarned is to be forearmed," said Christina Bivona-Tellez, regional vice president of the Hospital Association of Southern California. "If we are left standing, do we have the capacity to protect and save lives? Both Riverside and San Bernardino counties are sitting on the San Andreas Fault, and we are overdue for an earthquake." The probability of a magnitude 6.7 or larger earthquake striking the greater Los Angeles area over the next 30 years is 67 percent according to the Working Group on California Earthquake Probabilities.

> "If we are left standing, do we have the capacity to protect and save lives?"

HAZUS-MH was developed by the Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences. HAZUS-MH operates as an extension to ESRI's ArcGIS ArcView software to map and display region-specific hazard data along with the results of loss and damage assessments. It also uses Microsoft SQL Server to manage the extensive amount of data generated for a given regional loss estimate.

The extension has a number of complex analysis modules that are initiated through the HAZUS–ArcGIS graphical user interface. Databases include inventory databases (aggregated to geographic units of either census block or census tract) and site-specific inventory databases, such as essential facilities databases that include hospitals. Analysis modules apply structural engineering and other loss methodologies to estimate damage to structures and infrastructure, the results of which can then be visualized on maps using ArcGIS functionality.

For the hospitals in the recent pilot studies, building-specific inventory data was assembled and imported into HAZUS-MH. In the earthquake scenarios, hospital facilities were overlaid onto maps of earthquake shaking, and the software's structural analysis module determined the probability that each hospital facility would end up in any one of five defined damage states. This damage state distribution was combined with inventory data on licensed acute care hospital beds to produce a damage measurement in terms of bed availability.

Local Data Is Key

Use of detailed local data is essential to obtaining accurate results in HAZUS-MH analysis. For Orange County, Raymond T. Lenaburg, chief, Risk Analysis Branch of FEMA's Region IX, with Vicki Osborn, assistant emergency manager, Orange County, led a group from the

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Salt Lake City Improves Mosquito Control Program with GIS

By Jan Saalfeld, Marketing Specialist, Juniper Systems, Inc.

Mosquito control districts are implementing geospatial techniques to improve efforts to control mosquitoes potentially harmful to human or animal health. These techniques augment the four main components of a successful mosquito control program: plan ahead, involve others, use the best science and data, and inform the public.

A variety of mosquito-borne diseases pose threats to human health, and the activities of mosquito abatement districts in the United States help protect public health. In Utah, the Salt Lake City Mosquito Abatement District (MAD) successfully leveraged GIS technology to improve its control efforts by implementing Sentinel GIS—software developed specifically for mosquito control operations—this past season.

MAD technicians inspect, treat, and drain nuisance areas in the 111 square miles that comprise the Salt Lake City district. They also monitor adult mosquito populations throughout the city using a variety of trapping devices and testing captured mosquitoes for diseases that include West Nile virus, western equine encephalitis, and St. Louis encephalitis. The geography of Salt Lake City is unique in that most mosquitoes are produced in the wetlands northwest of the SLC International Airport, where no residential or business populations exist. Control of adult mosquitoes (adulticiding) is particularly important to block the path of adult mosquitoes that may move toward the city.

Andrew Dewsnup, MAD IT manager, implemented the use of GIS and Global Positioning System (GPS) technologies in district mosquito abatement programs over the last five years. GPS locator devices were first used to map the locations of ornamental pools, tree holes, and catch basins in the urban area. All this data is now incorporated into the district's geodatabase within ESRI ArcGIS Desktop software. ArcGIS is used to display monitoring results and print reports.

Adulticiding Control

In 2008, MAD implemented Sentinel GIS, an ESRI-based software solution for mosquito control efforts, into its adulticiding operations.

"The main factors contributing to the decision to buy this system were its ease of use, gaining a physical record of where pesticide was applied, and quality customer support from Electronic Data Solutions and B&G Chemicals and Equipment Company," explained Dewsnup. Sentinel GIS is the result of a partnership between Electronic Data Solutions, an ESRI business partner specializing in field data collection for GIS, and B&G Chemicals, which distributes pest control products and equipment.

> Spray data is recorded by location, date, and time.

Sentinel GIS includes four components for larvicide, adulticide, surveillance, and service requests. Each incorporates functions and toolbars with mobile GIS data collection tools, desktop tools for configuration and reporting, and automated data management software. Adulticiding consists of using a vehicle-mounted fogger to apply chemicals that kill adult mosquitoes as the vehicle moves through an area. The Sentinel GIS Adulticiding package manages treatment activities to efficiently schedule personnel and equipment and minimize chemical usage and costs.

Dewsnup found the adulticiding component of Sentinel GIS easy to learn and use because it works within the district's already-established GIS and is customized for mosquito control.

The three components of Sentinel GIS Adulticiding are the B&G Phoenix ultra-low volume (ULV) fogger, a rugged handheld computer (such as Juniper Systems field computers with Trimble GPS receivers), and ESRI-based software solutions that include mobile GIS data

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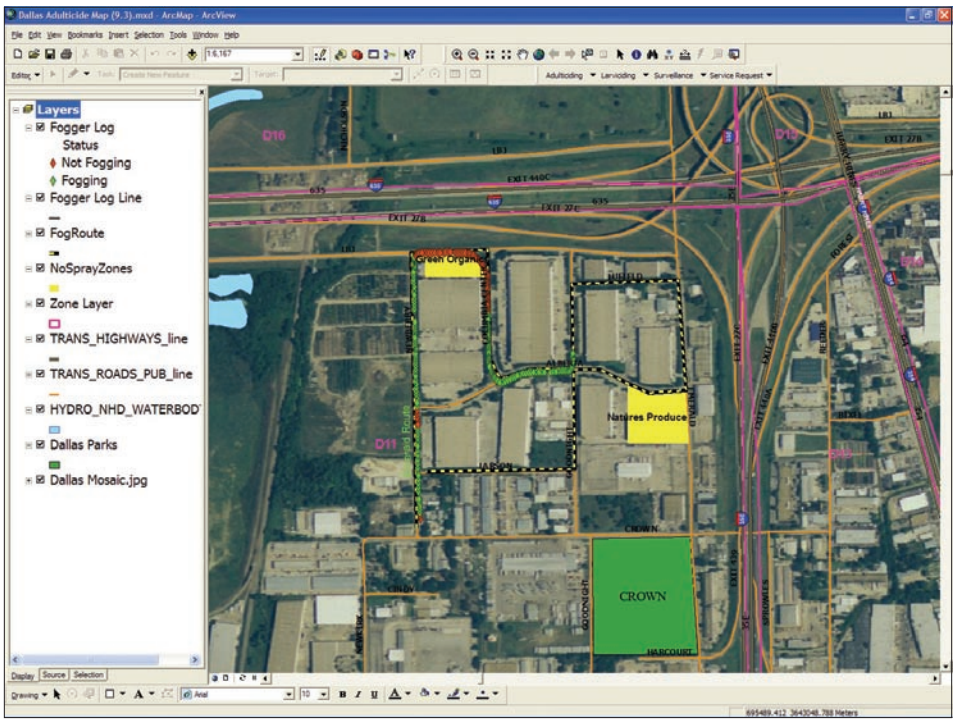

Spray zone map highlights ULV fogger routes and data logged with Sentinel GIS.

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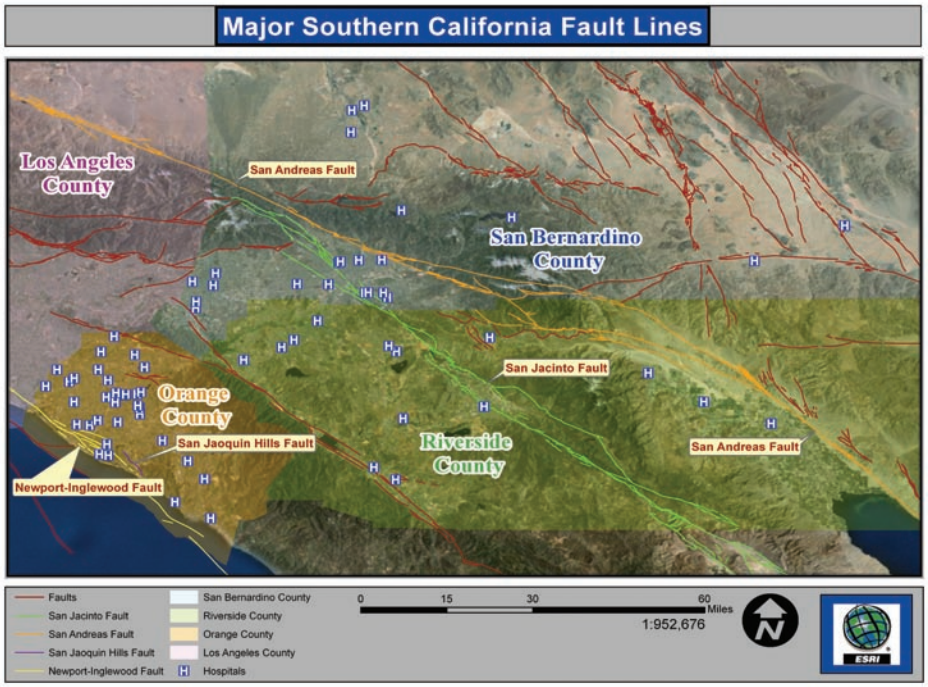
Hospitals Get a Jolt of Reality with HAZUS-MH Earthquake Analysis Results



ArcGIS maps hospital locations in relation to earthquake fault lines.

county's Community Executive Committee (CEC) to compile local data by coordinating input from 114 political subdivisions and 34 incorporated cities in the county.

The two other county CECs provided existing data or helped create new data by collecting information on structures such as date built, type, square footage, replacement costs, and backup power availability. The hospitals' engineering and environmental services departments also provided detailed information.

Bed Availability Affected

One of the outputs of the HAZUS-MH analysis computed an availability of acute care hospital beds for the hospitals. Under the scenario of a 6.9-magnitude earthquake on the Newport-Inglewood Fault, preliminary damage estimates for Orange County indicated that 47 percent of existing hospital beds would be available. Given a 6.6-magnitude earthquake on the San Joaquin Hills Fault, 32 percent of beds would be available.

Making the Most of the Analysis

This study required preparation of accurate inventory databases that can support accurate loss estimate analyses. By developing these databases before a disaster strikes, local communities can produce realistic loss estimates that can be used after a real event until actual loss data can be collected. The counties have now consolidated detailed engineering information about hospital structures and the location of hospital facilities and beds per building. Participating agencies have also established communications and practiced running HAZUS-MH before they need it during a real event.

In addition to supporting improved real-time response, the results also support emergency response planning and can be used to establish priorities for hazard mitigation projects. For example, under a magnitude 7.8 earthquake scenario along the southern portion of the San Andreas Fault, analysis showed that San Bernardino County's Emergency Operations Center (EOC) would experience heavy damage (it sits directly on the fault). Based on these results, the county applied for and was awarded a FEMA grant to improve the EOC facility.

Disaster Risk Reduction for Hospitals Has a Global Scope

In June 2009, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) called on governments to strengthen risk reduction measures in four key areas so that health and education systems are able to cope with disasters:

- Build school and health infrastructure according to disaster resilience standards.
- Assess the safety of hospitals and schools and take remedial action to make them safer.
- Ensure that all hospitals and schools implement emergency and disaster preparedness programs including staff training and exercises.
- Educate, train, and involve communities in disaster risk reduction.

WHO and UNICEF highlighted these issues during the Global Platform for Disaster Risk Reduction, a key gathering of the world's risk reduction community organized by the United Nations International Strategy for Disaster Reduction (UNISDR) in Geneva, Switzerland. The 2008–2009 World Disaster Reduction Campaign organized by UNISDR is devoted to the theme Hospitals Safe from Disasters. WHO also focused its 2009 World Health Day on the theme Save Lives. Make Hospitals Safe in Emergencies.

For more information on HAZUS-MH, visit www.fema.gov/plan/prevent/hazus and the user group site www.hazus.org.

ESRI training courses on HAZUS-MH can be found by searching for "hazus" at http://training.esri.com.

For more information on the Southern California study's hospital results, contact Christina Bivona-Tellez, Hospital Association of Southern California, at 951-222-2284.

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Salt Lake City Improves Mosquito Control Program with GIS

collection tools with a customized ESRI ArcPad toolbar and interface. ArcGIS Desktop tools are available for configuration and reporting.

The Sentinel GIS supervisory tools help Dewsnup manage personnel, equipment, equipment calibration, and chemicals used by the district for adulticiding. Editing tools allow users to view treatment areas, create new treatment areas, and set up no-spray zones or spray routes.

Field Operations

The crew prepares for fieldwork by downloading the user-specific application settings, maps, and GIS layers into the mobile device using DataLink GIS, software that synchronizes the device to the desktop PC and can prepare several handhelds at once.

As the crew makes its fogger rounds, the software application maps and keeps track of the type and amount of chemical applied, weather, location, speed, and date and time during spraying. It can warn the driver when the truck is off route or to turn off the spray when nearing identified no-spray zones, such as areas where beehives are kept or organic produce is grown. Other activities can be tracked to produce an employee time card report.

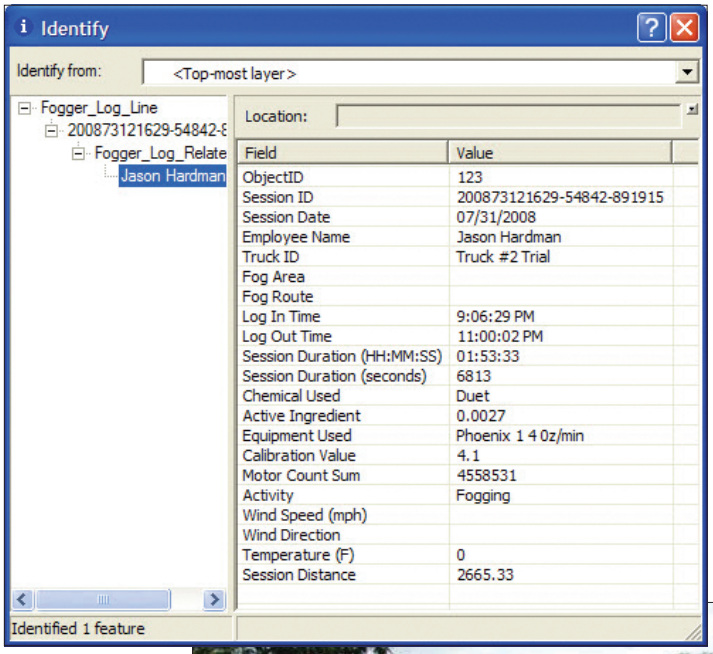
At the end of the day, the crew uses DataLink GIS to automatically transfer, merge, and update the central GIS with data from the mobile device and prepare the handheld for the next day. ArcGIS Desktop provides tools for map display and query including the creation of new ULV treatment areas. Predefined report templates quickly generate required treatment activity reports.

Advantages Achieved

Spray data is recorded by location, date, and time, providing precise information for responding to citizen calls about operations.

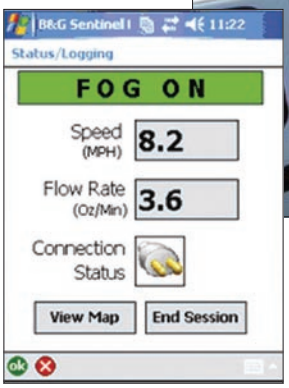
Detailed, spatially based information helps the district respond better to community needs, for example, by complying with requested no-spray zones. Visual and tabular records of treatment areas based on geospatial information afford a more effective use of chemicals, which saves money.

For more information about Sentinel GIS, visit www.elecdata.com/sentinel/sentinel.html, and for DataLink GIS, visit www.elecdata.com/gps/gissoftware.html. For more information about the Salt Lake City Mosquito Abatement District GIS project, contact Linda Dean at linda@elecdata.com.



Information recorded in the fogger log includes the type and amount of chemical applied, weather, location, speed, date, and time.

A mobile ULV fogger applies mosquito control chemicals.



A rugged handheld computer with GPS running Sentinel GIS keeps the operator informed of fogger status.

National Mapping Agencies and Health Sector Leadership Meet in Africa

Organizations Seek Effective Use of GIS in HIV/AIDS Programs

A workshop aimed at connecting national mapping agencies with health organizations to collaborate in the fight against HIV/AIDS recently brought together 188 delegates from 30 African nations and 6 European, North American, and Asian countries in Addis Ababa, Ethiopia. It was the first Pan-African conversation between national mapping agencies (NMA) and health sector leadership on establishing a community of practice to support collaborative and effective uses of geography and GIS technology that result in more effective HIV/AIDS interventions and solutions. An additional outcome will be stronger national spatial data infrastructure (NSDI) to support strategic planning in African and other nations.

"The HIV/AIDS pandemic is one of the public health priorities for which interventions, treatment programs, and education efforts require NSDI to understand the geography of the epidemic and what responses may be effective," said Patrick Naphini, a presenter from the Malawi Ministry of Health.

Held April 27, 2009, the workshop was titled Enlisting National Mapping Agencies in the Fight against HIV/AIDS: Building Partnerships with Ministries of Health and Social Services and National AIDS Commissions. Since sub-Saharan Africa remains the most heavily affected region, global response focuses on this part of the world, where HIV/AIDS impacts every aspect of life. Mapping and spatial analyses can help decision makers visualize large amounts of data about populations at risk vis-à-vis available services, supporting more equitable access to and coverage for care, prevention, and treatment. Workshop presentations focused on the use of GIS in national service provision (Malawi, Tanzania, and Rwanda) as well as community mapping and reporting (Kenya and Ethiopia).

"The discussions that took place during the workshop have not only demonstrated that the health sector can benefit from the experience and skills available in other governmental institutions, such as the national mapping agencies, but also that health can provide one of the drivers to support and justify the development of an NSDI," said Steeve Ebener of the World Health Organization.

"Forging partnerships with local centers of excellence, both public and private, is critical in meeting the growing demand for geoinformation skill sets," said Dorina Maris, an advisor with the U.S. Agency for International Development (USAID).

The workshop was held one day before the first session of the Committee on Development Information Science and Technology (CODIST) convened in the same venue. CODIST is one of the seven subsidiary bodies of the United Nations Economic Commission for Africa (UNECA), composed of senior officials and experts from member states. The theme for the first CODIST meetings focused on strengthening information and communication technology, geoinformation, and science and technology sectors in Africa.

"ESRI's health specialist and distributor network throughout Africa sees great opportunities in advancing health GIS in this increased collaboration," said Carmelle Terborgh, ESRI federal and global affairs team lead, who attended the workshop with Chris Kinabrew, ESRI public health specialist.

Following the workshop presentations, small groups of NMA and health sector staff discussed priority issues in their countries. As a result, delegates adopted the following resolutions during the CODIST meetings:

- Member states ensure that the key players in the health sector (ministries of health and/or social services as well as national AIDS commissions) actively participate in the NSDI process to ensure that public health issues such as HIV/AIDS are addressed.

2009 Special Achievement in GIS Awards Announced

Congratulations to Winners in the Health and Human Services Categories

- **Alabama Criminal Justice Information Center and State of Alabama Department of Children's Affairs,** for the Alabama Resource Management System, which uses ArcGIS Server technology to provide Web-based access to data from federal, private, and nonprofit sources to help policymakers make better decisions about child welfare
- **Department of Environmental Protection, West Nile and Black Fly Control Program, Commonwealth of Pennsylvania,** for developing a Web-based GIS using ArcGIS Server and ASP.NET with an Oracle back end, used to track mosquito and black fly samples and provide users with real-time, secure data access
- **The Dartmouth Atlas of Health Care, The Dartmouth Institute for Health Policy and Clinical Practice,** for using GIS to define regions and create hospital market measures that can then be compared with each other and used to demonstrate variation in health care delivery, cost, and quality
- **South Carolina Office of Research and Statistics,** for creating a business intelligence GIS tool that integrates dynamic mapping into OLAP cubes using Panorama's existing OLAP viewer and ESRI's ArcGIS Server and is used for visualizing multidimensional data to assist decision making in the health and social services fields

- Member states ensure nondiscrimination against those afflicted with HIV/AIDS—particularly migrants.
- UNECA, with the help of partners, will establish a community of practice allowing the transfer of knowledge and experiences integrating health into the NSDI process among countries on the African continent and discussion of issues such as developing common semantics.
- Partners assisting in the effort to realize universal access to HIV/AIDS prevention, care, and treatment are to develop and implement a communication and advocacy strategy for the use of geographic information at the continental, regional, and national levels.
- UNECA partners involved in public health and NSDI activities in member states, including donor agencies, industry leaders, civil society, and academia, are to support all of the above, for example, through public-private partnerships.

The workshop was sponsored by MEASURE Evaluation, UNECA, Joint United Nations Programme on HIV/AIDS (UNAIDS), U.S. President's Emergency Plan for AIDS Relief (PEPFAR), and USAID.

For more information on the workshop, visit www.cpc.unc.edu/measure/approaches/geographic-information-systems/codist1. For an example of spatial data infrastructure development in Malawi, contact Patrick Naphini at pnaphini@gmail.com or Steeve Ebener at ebeners@who.int. To find out more about CODIST, visit www.uneca.org/codist.

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ESRI's ArcPad 8 Syncs with ArcGIS Server and Sports a Revamped User Interface

Field staff can now share data faster from the field with ArcPad 8. Released in 2009, the mobile mapping software now includes the ability to synchronize edits with ArcGIS Server. Any device that can connect to the Internet (e.g., cradle, USB, Wi-Fi, or phone connection) can synchronize ArcPad edits directly with the enterprise geodatabase via ArcGIS Server. Field staff no longer need to return to the office to update their GIS database.

ArcPad 8 also includes a new user interface. New icons and toolbars occupy less screen real estate than in previous versions. Toolbars can be docked, minimized, and maximized, and users can either modify the out-of-the-box toolbars or create their own with a new desktop tool called ArcPad Toolbar Manager.

The GPS user interface was also overhauled in ArcPad 8. The GPS position dialog box has been replaced by a translucent toolbar that appears at the bottom of the map screen. It shows much of the same detail as the previous position dialog box but now uses colored visual cues to indicate the quality of the GPS fix.

Also included in the new release is ArcPad customization software. ArcPad Studio, the development framework for customizing ArcPad, is now included with every ArcPad license rather than being sold separately. Combining the customization tools with ArcPad helps users modify ArcPad for their specific application requirements.

ArcPad StreetMap now uses a lookup index. This makes it easier to enter and find locations than in previous versions. In addition to being bundled with the Tele Atlas Premium North America StreetMap dataset, ArcPad 8 also includes the Tele Atlas Premium Europe StreetMap dataset at no additional cost.

Beginning with version 8, ArcPad will become a maintenance-based product. ArcPad customers may subscribe to annual maintenance to get updates, and technical support will be provided to customers who are current on maintenance.

For more information on ArcPad or to try a fully functional evaluation copy of ArcPad 8, visit www.esri.com/arcpad. Users outside the United States should contact their ESRI international distributor (www.esri.com/distributors).

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Peggy Harper at **pharper@esri.com** or Susan Harp at **sharp@esri.com**.

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Health and Human Services Solutions Group

William F. Davenhall, Manager
E-mail: bdavenhall@esri.com
Tel.: 909-793-2853, ext. 1-1714

Peggy Harper, Human Services Specialist
E-mail: pharper@esri.com
Tel.: 704-541-9810, ext. 8677

Ann Bossard, Hospital and Health Systems Specialist
E-mail: abossard@esri.com
Tel.: 909-793-2853, ext. 1-2328

Chris Kinabrew, Public Health Specialist
E-mail: ckinabrew@esri.com
Tel.: 909-793-2853, ext. 1-2382

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