

Geographic Information Systems (GIS)

Use Cases



Introducing the GIS Use Cases

Why use cases?

Over the past four years the American Red Cross International Services Department (ISD) has piloted and refined applications of Geographic Information Systems (GIS) to its core programming and response activities. In this time, we've found that the best tools and the most effective approaches meant little without strong relationships with our program staff rooted in their day-to-day realities of program management and national society engagement.

Our staff are passionate, talented and frequently quite interested in using technology to improve their programs. Many believe technology and GIS in particular could improve their projects' impact on beneficiaries and build technical skills within Red Cross National Societies. They and their national society counterparts are excited by GIS's ability to deliver compelling, accessible products using relatively advanced technology.

But translating this enthusiasm to concrete, manageable elements of project design was difficult. Enthusiastic program staff often couldn't see exactly how GIS integrates with our work and what it can do for projects. During conversations with program staff, certain questions came up again and again. What exactly could GIS mean for my project? What will it take to make it happen? How will it work for my national society? We realized we had to better communicate and explain GIS's promise to improve Red Cross work.

What is a use case?

So we went back to the keyboard, did some hard thinking, and pulled together these use cases. The use cases that follow capture our thoughts on some of the most common or important ways GIS can help our work. Each use case shows how a specific application of GIS can assist a given program or national society and what the ideal process is to make it happen. Some of these use cases overlap or integrate with one another; others are standalone.

More than anything, the use cases aim to **start conversations**. Read them, think about what they could mean for your work, and then schedule a time to talk to the GIS team about making one or many of these use cases a reality for your project(s). They're idealized applications; exact budget numbers, processes and outputs will vary from project to project. It's our job to adapt the approaches within these pages to your project's context and deliver something that works well for you, your team or your national society.

Finally, we must emphasize that these are works in progress. They are about serving your needs, not ours, so feel free to suggest edits and clarifications or ask for additional use cases that interest you.

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Community Selection

Problem

Selecting communities for projects is difficult and prone to political influence

American Red Cross may have a partial or poor understanding of actual needs in some areas

Delegates and project staff have little means of, or evidence for, double-checking and pushing back on selections

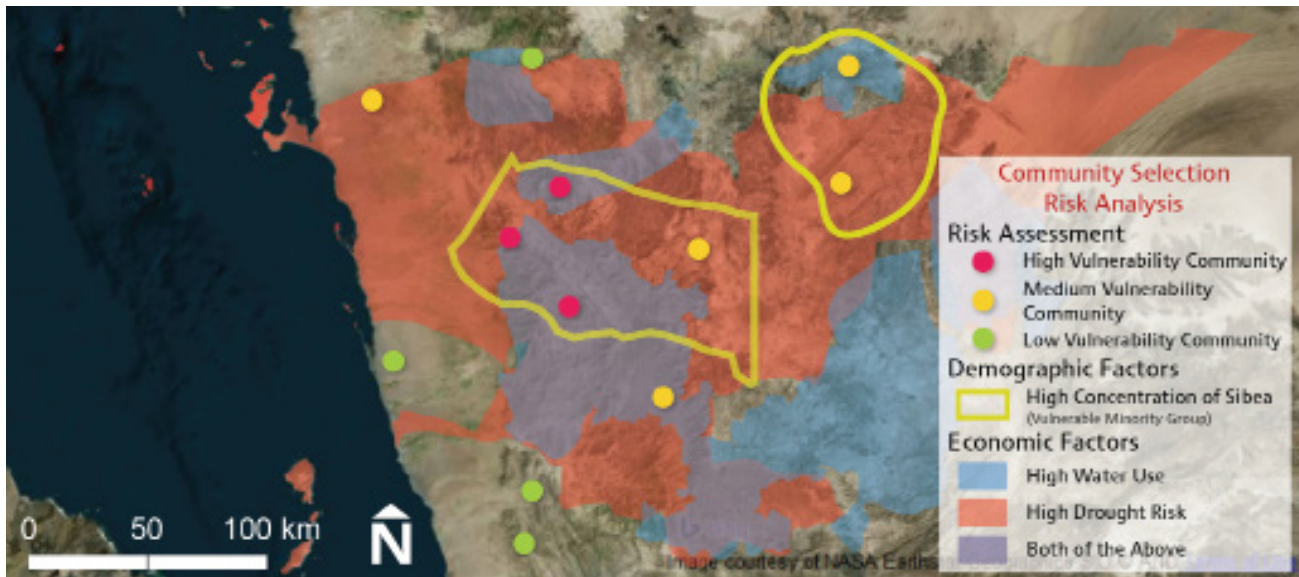
Solution

Map communities' known potential hazards

Research and map additional secondary data for provinces and communities in question

Research and locate activities by partners, peers, and communities in areas under consideration

Map historical Red Cross programming in relation to proposed communities



Value Add

Help American Red Cross target the most at-risk, least covered communities

Improve the quality of community selection and targeting

Better awareness of overlap with peers and previous programs

Make project setup choices based on demonstrable evidence

Who it's useful for

- Program Officers
- Delegates
- Regional Directors
- National Society Staff

Approximate Cost

- \$0-3,000 research and assessment (dependent on data costs)
- 2 weeks GIS team time for mapping and analysis

Key Questions

- 1 Do you have existing contacts for secondary data?
- 2 Are these activities in the budget and project logframe?
- 3 Is there a plan for managing data during or after the project?
- 4 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Create a list of target areas, needed data inputs, and key questions to answer ●●●●●
- 2 Conduct a secondary data review to gather appropriate datasets ●●●●
- 3 Create maps responding to key questions and exploring new insights ●
- 4 Contribute feedback ●●
- 5 Create additional maps as necessary to further explore new insights ●

Staff Involvement

National Society Senior Staff ●
Program Officers ●
Country Delegate/Regional Rep. ●
Technical Advisors ●
GIS Team ●

Terrain Analysis

Problem

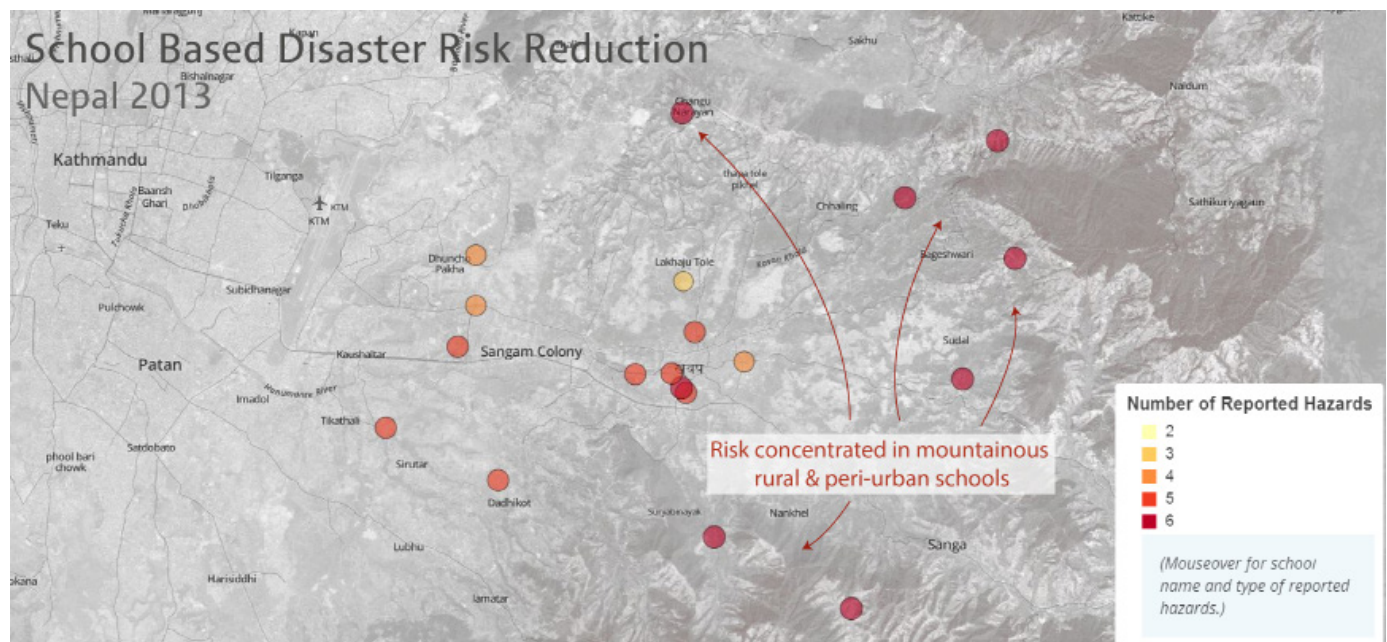
Altitude and accessibility are strong determinants of risk, expense, and overall project success

However, project staff can't see at a glance the relative altitude and accessibility of communities

Solution

Map project data (e.g. communities, hazards) overlaid with terrain layers

Collect detailed terrain layers to inform early warning systems



Value Add

Determine which schools/communities to target based on accessibility and risk

See links between project indicators (e.g. attendance at meetings) and altitude or accessibility

Adjust early warning system to allow for more warning for remote communities

Who it's useful for

- National Society Staff
- National Society Managers
- Program Officers

Approximate Cost

- \$250 per GPS
- 1 week for GIS Analysis
- 2-3 weeks for staff to collect locations

Key Questions

- 1 Are these activities in the budget and project logframe?
- 2 Is there a plan for managing data during or after the project?
- 3 Is there a plan for adjusting project plans based on analysis?
- 4 Have technical partners and advisors been included in the above planning?
- 5 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Consult NHQ GIS team when developing proposals ● ● ● ●
- 2 Incorporate GIS activities into yearly budgets and workplans ● ●
- 3 Discuss projected outputs with partners and develop plans to use them ● ● ●
- 4 Develop a data collection and analysis plan of action (*see template Annex I*) ● ● ●
- 5 Collect data identified for analysis ●
- 6 If necessary, collect a higher resolution terrain layer (Digital Elevation Model) ●
- 7 Create maps visualizing data overlaid with terrain ● ●

Staff Involvement

- National Society Staff ●
- Program Officers ●
- Country Delegate/Regional Rep. ●
- Technical Advisors ●
- GIS Team ●
- Delegation/NS GIS Staff ●

Base Mapping

Problem

Many communities are “off the map” and hence can’t be seen or understood spatially

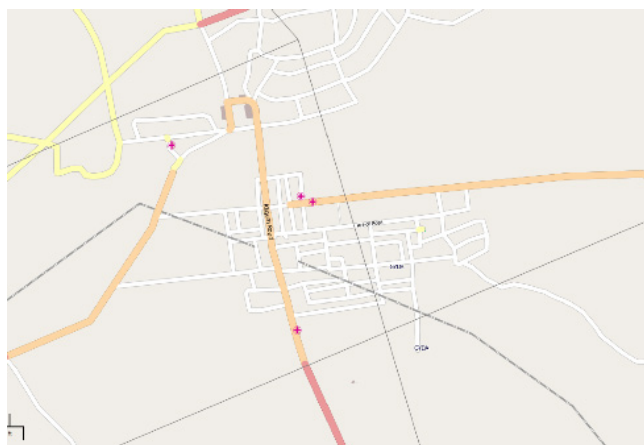
Program managers can’t compare the scale or location of communities and plan activities accordingly

Geographic risk, project, and secondary data cannot be overlaid onto communities

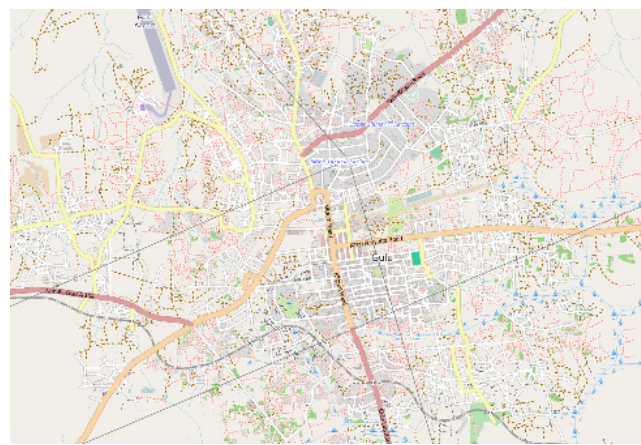
Solution

Create a detailed, building-by-building base map of each community in OpenStreetMap

Collect detailed information about building and land uses during assessment activities to complete the base map



The city of Gulu, Uganda pre-base mapping



The city of Gulu, Uganda post-base mapping

Value Add

Better ability to see individual communities and compare communities at a project scale

Base maps available for day-to-day activities

Base map is a foundation for maps and analysis throughout the project lifecycle

Base map is useful for community, NS, and peers after project completion

Who it's useful for

- National Society Staff
- Program Officers
- Delegates
- Regional Managers
- Regional Directors

Approximate Cost

- GPS training costs (by Q&L)
- \$250 per GPS
- 2 weeks GIS team (field)
- 4 weeks advance time to engage remote volunteers

Key Questions

- 1 Are these activities in the budget and project logframe?
- 2 Is there a plan for managing data during or after the project?
- 3 Is there a plan for adjusting project plans based on analysis?
- 4 Have technical partners and advisors been included in the above planning?
- 5 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Consult NHQ GIS team when developing proposals ● ● ● ●
- 2 Incorporate GIS activities into yearly budgets and workplans ● ●
- 3 Discuss projected outputs with partners and develop plans to use them ● ● ●
- 4 Develop a data collection and analysis plan of action (*see template Annex I*) ● ● ●
- 5 Identify communities or areas where base maps will be needed, and when. If necessary, provide the *exact* location of these areas to the NHQ GIS team. ● ●
- 6 If necessary, procure satellite imagery/terrain data for areas of interest ●
- 7 Organize volunteers to create OpenStreetMap base maps of communities or areas in question ●
- 8 If necessary, train staff, volunteers, or partners on the ground to contribute further details to OpenStreetMap ● ● ●
- 9 If necessary, collect and enter further data into OpenStreetMap to create complete base maps ● ●
- 10 Send PDFs, large-print paper maps, and/or links to newly mapped areas to the field ●

Staff Involvement

- National Society Staff ●
- Program Officers ●
- Country Delegate/Regional Rep. ●
- Technical Advisors ●
- GIS Team ●
- Delegation/NS GIS Staff ●

Participatory Mapping

Problem

Data collected from Red Cross participatory tools is difficult to analyze and plan activities from

Difficult to compare participatory and secondary data

Community data is collected in formats incompatible with standard paper analysis tools used by partners

Participatory data isn't used beyond the project lifecycle

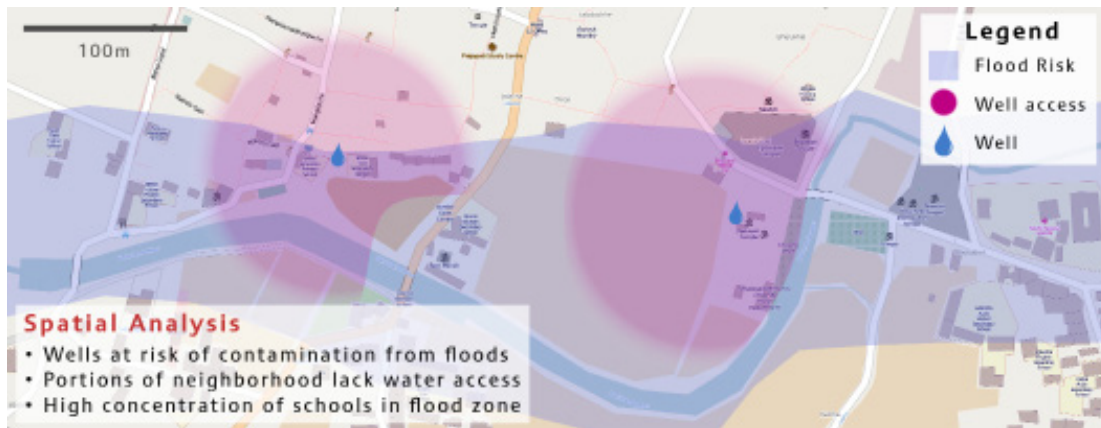
Solution

Base map communities in OpenStreetMap, then use OSM printouts to collect community data in GIS-compatible formats

Map communities, community risk data, and known secondary data in a GIS and analyze locally

Distribute contingency planning maps for likely disaster scenarios

Share data with technical partners in government, the private sector or other NGOs



Value Add

Better analysis of hazards, mitigations, and response capacity in communities

Advocate community needs to local government

Data has long lasting effects after programming is complete

Incorporation of community action plans into local disaster management plans

Who it's useful for

- Community Members
- National Society Staff
- National Society Managers
- Program Officers
- Country Delegates

Approximate Cost

- \$250 per GPS
- \$3000 training cost (depending on travel costs)
- 1-2 day pre-VCA base mapping exercise
- Normal VCA costs

GIS USE CASES PROJECT IMPLEMENTATION

Key Questions

- 1 Are these activities in the budget and project logframe?
- 2 Is there a plan for managing data during or after the project?
- 3 Is there a plan for adjusting project plans based on analysis?
- 4 Have technical partners and advisors been included in the above planning?
- 5 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Consult NHQ GIS team when developing proposals ● ● ● ●
- 2 Incorporate GIS activities into yearly budgets and workplans ● ●
- 3 Discuss projected outputs with partners and develop plans to use them ● ● ●
- 4 Develop a data collection and analysis plan of action (*see template Annex I*) ● ● ●
- 5 If necessary, hire delegation or national society GIS staff and on-board him or her ● ● ●
- 6 Train key delegation or national society staff on participatory GIS over 5-7 days ● ●
- 7 GIS staff procure satellite imagery/terrain data for areas of interest ● ●
- 8 Create OpenStreetMap base maps of communities in question ● ● ●
- 9 Conduct VCA/IPAs with participatory GIS elements included ● ●
- 10 Upload data from the field and transmit to GIS staff at the delegation or NHQ ● ● ●
- 11 GIS staff produce maps and analyze data (*locally or at NHQ*) ● ●
- 12 Collaborate with technical partners to analyze data and/or design implementation activities. Produce further maps as necessary. ● ● ● ●

Staff Involvement

- National Society Senior Staff ●
- National Society Staff ●
- Program Officers ●
- Country Delegate/Regional Rep. ●
- Technical Advisors ●
- GIS Team ●
- Delegation/NS GIS Staff ●

Technical Collaboration

Problem

Technical partners' project plans (e.g. micro-mitigation) may not adequately capture Red Cross or community inputs because Red Cross tools don't package community data (e.g. VCA, baseline) in reusable formats

Project staff challenged by preserving, analyzing, or reusing data from technical partners

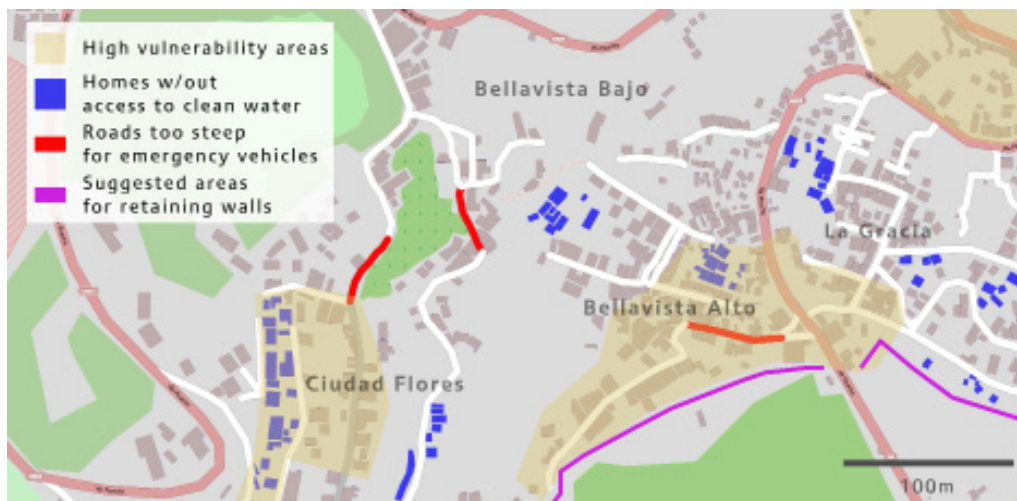
Solution

Georeference and preserve project data in accessible, standardized data formats (csv, shapefile, Access database)

Adopt tools that ease data storage, analysis & transfer (e.g. IFRC Resource Management System)

Coordinate data formats and exchange within partnership agreements

Build Red Cross national society capacity to store and manage data



Value Add

Enhanced responsiveness to community concerns in technical project planning

More detailed, responsive activity planning

Ability to reuse and recycle valuable data from technical partners

Improved information management

Who it's useful for

- Technical Partners
- National Society Staff
- National Society Managers
- Country Delegates
- Responders

Approximate Cost

- \$250 per GPS
- Normal project data collection costs
- IM Training Costs: TBD

GIS USE CASES PROJECT IMPLEMENTATION

Key Questions

- 1 Are these activities in the budget and project logframe?
- 2 Is there a plan for managing data during and after the project?
- 3 Is there a plan for adjusting project plans based on analysis?
- 4 Have technical partners and advisors been included in the above planning?
- 5 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Consult NHQ GIS team when developing proposals ● ● ● ●
- 2 Incorporate GIS activities into yearly budgets and workplans ● ●
- 3 Discuss projected outputs with partners and develop plans to use them ● ● ●
- 4 Develop a data collection and analysis plan of action (*see template Annex I*) ● ● ●
- 5 If necessary, hire and onboard delegation or national society GIS staff and on-board him or her ● ● ●
- 6 Train key delegation or national society staff on necessary data collection techniques ● ●
- 7 Collect necessary data (participatory assessment, baseline, or otherwise) ● ●
- 8 Organize data into GIS formats and share with partners capable of using it ● ● ●
- 9 Collaboratively create maps and analyze problems with technical partners. Involve communities as much as possible in verifying map analysis and creating any necessary additional data. ● ● ● ●
- 10 Upload data from the field and transmit to GIS staff at the delegation or NHQ ●

Staff Involvement

- National Society Senior Staff ●
- National Society Staff ●
- Program Officers ●
- Country Delegate/Regional Rep. ●
- Technical Advisors ●
- GIS Team ●
- Delegation/NS GIS Staff ●

Project Indicator Visualization

Problem

Project Indicator Tracking Tables (ITTs) are very difficult to analyze, visualize, and share

ITTs give no indication of geographic trends in project data

No intuitive means of comparing ITTs between projects

Impossible to analyze the relationship between project indicators and outside determinants of success

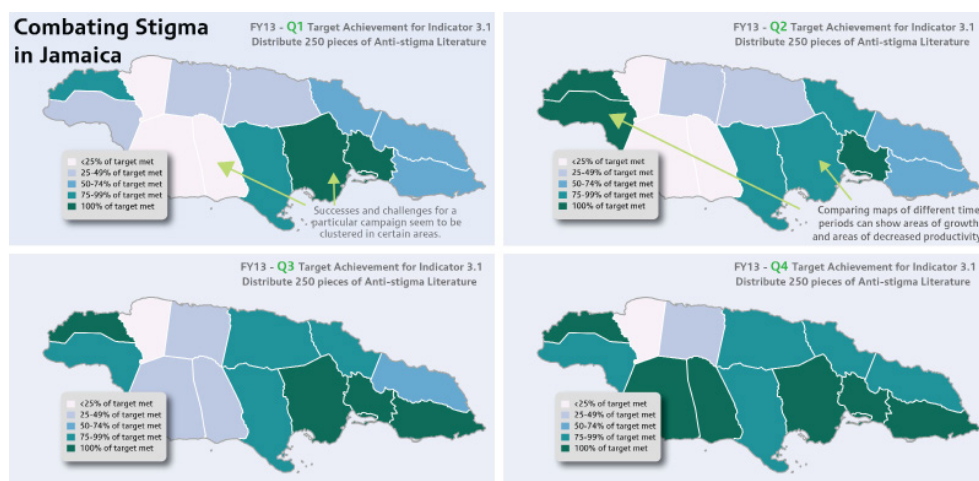
Solution

Collect points/areas for communities and then organize indicators at the community level

Create thematic maps showing trends in indicators within and between projects

Create maps comparing key indicators to project outputs

Map key indicators vs. key secondary data (e.g. demographics)



Value Add

Make reporting more accessible and actionable

Highlight problem areas and suggest possible corrections

Correlate project success to geographic factors

Show clustering of results or trends over time

Compare indicators with baseline or secondary data

Demonstrate progress to donors or partners

Who it's useful for

- Community Members
- National Society Staff
- Program Officers
- Delegates

Approximate Cost

- No additional cost to standard monitoring
- \$250 x 1 GPS per chapter

Key Questions

- 1 Are these activities in the budget and project logframe?
- 2 Is there a plan for managing data during or after the project?
- 3 Is there a plan for adjusting project plans based on analysis?
- 4 Have technical partners and advisors been included in the above planning?
- 5 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Consult NHQ GIS team when developing proposals ● ● ● ●
- 2 Incorporate GIS activities into yearly budgets and workplans ● ●
- 3 Discuss projected outputs with partners and develop a plan of action ● ● ●
- 4 Develop a data collection and analysis plan of action (see template Annex I) ● ● ●
- 5 Collect identified data ●
- 6 Produce maps and conduct analysis at identified intervals ●

Staff Involvement

- National Society Senior Staff ●
- National Society Staff ●
- Program Officers ●
- Country Delegate/Regional Rep. ●
- Technical Advisors ●
- GIS Team ●

Managing Equipment

Problem

Difficult to track the location, status, and upkeep of safety and response equipment (e.g. LSAR kits)

No way of assessing over-saturation or gaps in coverage of equipment

No means of visualizing the relationship between community readiness to respond and distribution of materials

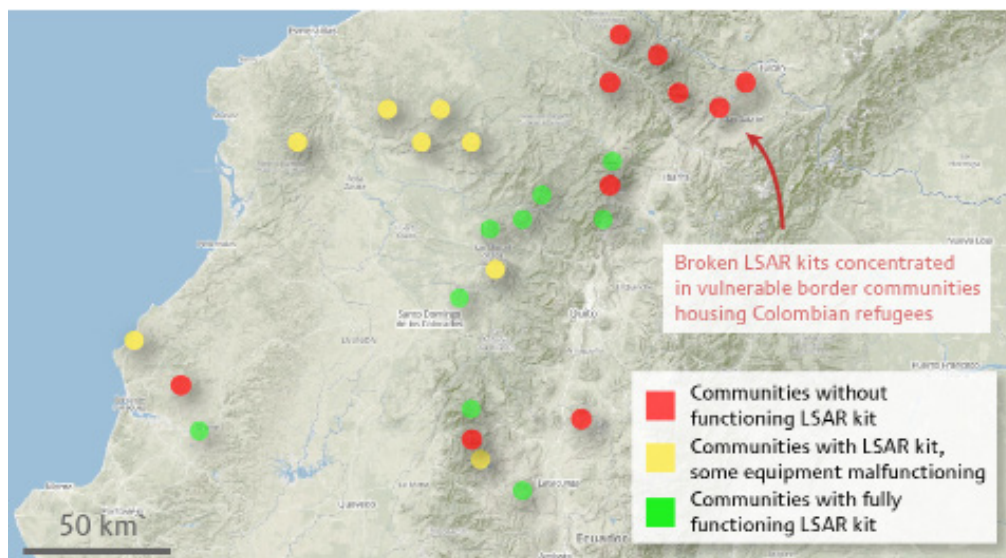
Solution

Design IM tools to capture the location, status, coverage of response equipment and capture community capacity to utilize said equipment

Map the locations of gear

Highlight status, upkeep, and anticipated coverage areas of gear

Map gear locations/status vs. overall community readiness to respond



Value Add

Replace aging or inadequate equipment quickly

Match distribution of equipment with assessed vulnerabilities

Ensure adequate distribution of equipment within congested urban areas

Enhanced readiness to respond at the community level

Who it's useful for

- Community Members
- National Society Staff
- Program Officers

Approximate Cost

- GPS costs
- 1 day of GIS team time

GIS USE CASES PROJECT IMPLEMENTATION

Key Questions

- 1 Are these activities in the budget and project logframe?
- 2 Is there a plan for managing data during and after the project?
- 3 Is there a plan for adjusting project plans based on analysis?
- 4 Have external technical partners and advisors been included in the above planning?
- 5 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Consult NHQ GIS team when developing proposals ● ● ● ●
- 2 Incorporate GIS activities into yearly budgets and workplans ● ●
- 3 Discuss projected outputs with partners and develop plans to use them ● ● ●
- 4 Develop a data collection and analysis plan of action (*see template Annex I*) ● ● ● ●
- 5 Collect required data during the course of project activities ●
- 6 If possible, upload data to regional IFRC Resource Management System and analyze locally ●
- 7 Create static maps of relevant equipment status at intervals specified in analysis plan ● ●
- 8 Update data and maps during the course of project activities, at intervals specified in data collection plan ● ●

Staff Involvement

- National Society Senior Staff ●
- National Society Staff ●
- Program Officers ●
- Country Delegate/Regional Rep. ●
- Technical Advisors ●
- GIS Team ●
- Delegation/NS GIS Staff ●

Public Engagement

Problem

The public and donors want to see details about program locations and successes

Current tools for relaying project information and locations aren't meeting outside expectations

Other organizations are ramping up their GIS efforts to meet heightened public and donor expectations

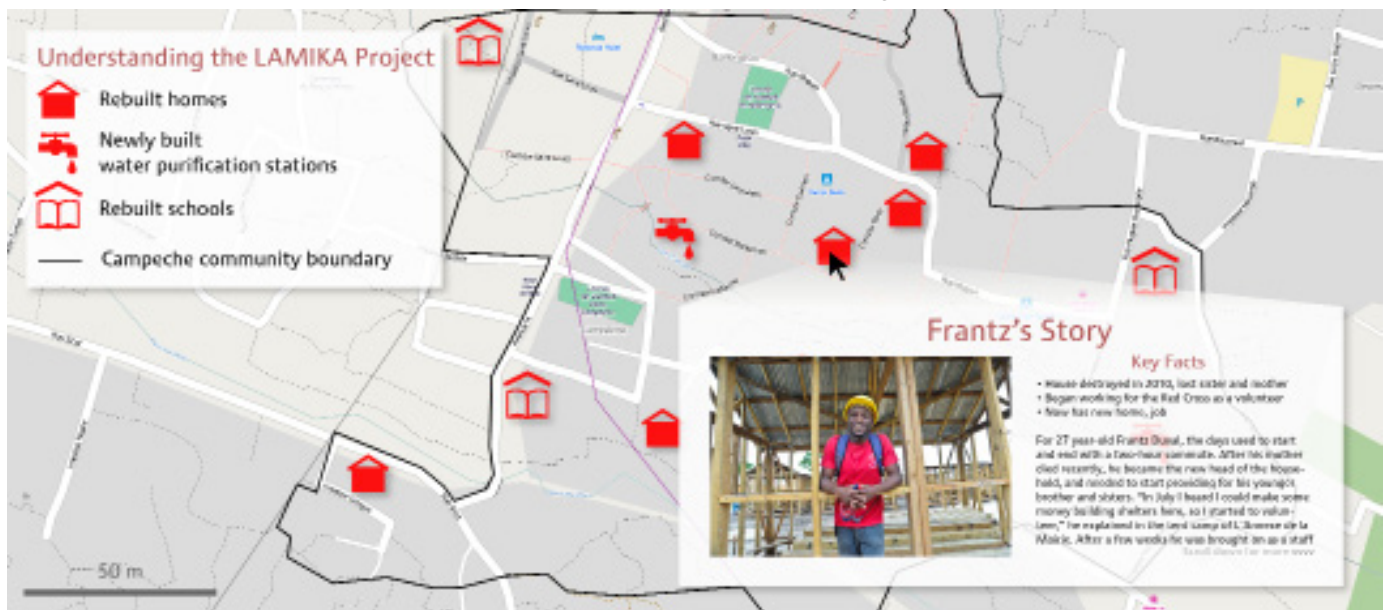
Solution

Track all project locations and map base infrastructure for relevant and high profile communities

Create interactive maps for RCO to accompany communications stories

Georeference and map photos taken in the field

Create maps of individual project locations for donors and the general public



Value Add

Greater accountability to donors

Forum for demonstrating our technological sophistication to donors

Ability to leverage new funding streams, particularly those centered on technology

Interactive content: stories incorporate maps; maps incorporate stories

Targeted fundraising campaigns for specific areas and groups

Who it's useful for

- Donors
- Communications Staff

Approximate Cost

- GPS costs
- 3 days per interactive map
- Normal project data col-

Key Questions

- 1 Are these activities in the budget and project logframe?
- 2 Where will the end product be hosted?
- 3 Is this integrated into a larger communications strategy?

Steps

- 1 Consult NHQ GIS team when developing communications strategy ●●●●
- 2 Develop a data collection and mapping plan for needed data ●●
- 3 Collect identified data during the course of project activities and/or comms visits ●●●
- 4 Create interactive maps ●
- 5 Host maps on standalone websites or redcross.org as appropriate ●●

Staff Involvement

Communications Staff ●
National Society Staff ●
Program Officers ●
Country Delegate/Regional Rep. ●
GIS Team ●

Historical Trend Analysis

Problem

Cannot visualize historical data and analyze long-term progress towards strategic goals

Reliance on narrative reports to understanding the evolution of projects in countries

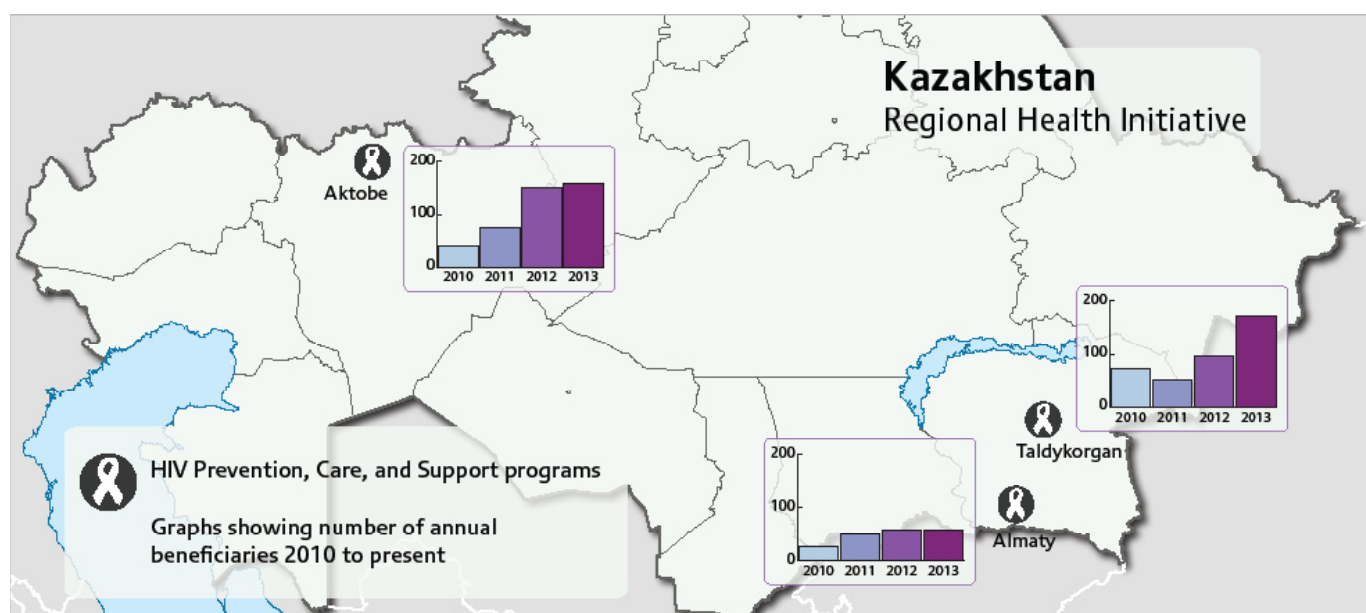
Institutional knowledge is based on personal memory

Solution

Record the geography of all data from current projects

Record the geography of all relevant data from past projects

Map the locations of past and current projects, overlaying indicators, and/or assessment data that illustrate key points



Value Add

Long-term perspective on programming improves evidence-based decision-making to increase program sustainability

Evidence-based decision-making for portfolio management

Improved, data-driven knowledge management

High-level decision-making and visualization for leadership and public engagement

Who it's useful for

- Delegates
- Regional Managers
- Regional Directors
- Senior/Executive Directors

Approximate Cost

- GPS costs
- 1 day per project to georeference past projects

Key Questions

- 1 Was data well gathered and organized during prior phases of the project?
- 2 Is there a plan for managing data during or after the project?
- 3 Is there a plan for adjusting project plans based on analysis?
- 4 Is there a strategy to keep data and analysis up to date?

Steps

- 1 Consult NHQ GIS team when developing proposals ● ● ● ●
- 2 Incorporate GIS activities into yearly budgets and workplans ● ●
- 3 Discuss projected outputs with partners and develop plans to use them ● ● ●
- 4 Develop a data collection and analysis plan of action (*see template Annex I*) ● ● ●
- 5 Collect necessary data ● ● ●
- 6 Consult NHQ GIS team regarding historical analysis needs ● ● ●
- 7 Create maps or series of maps comparing old and new data ● ●

Staff Involvement

- Senior Management ●
- National Society Staff ●
- Program Officers ●
- Country Delegate/Regional Rep. ●
- Technical Advisors ●
- GIS Team ●
- Delegation/NS GIS Staff ●

Base Camp

GIS USE CASES REFERENCE

Problem

Enviroments can be complex and difficult to visualize

Camp environments often go unmapped, making them difficult to navigate, manage and expand in an orderly fashion memory

Solution

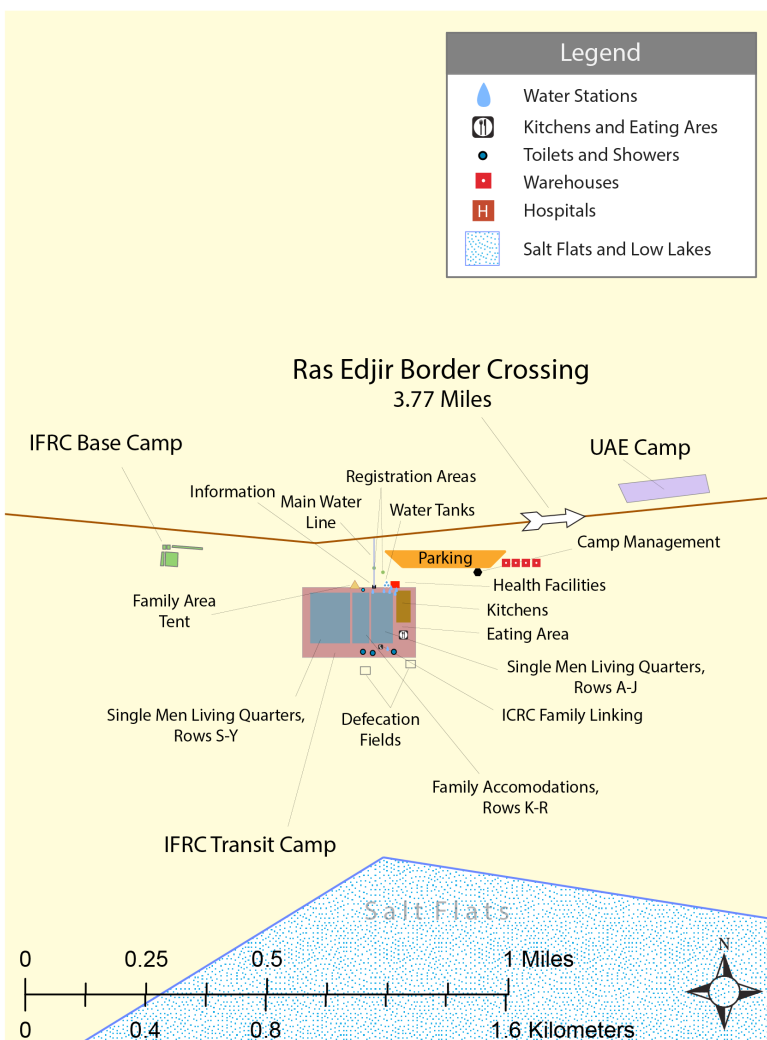
Maps can be used to make sense of complex environments at a very fine scale, including transitory environments like refugee camps.

Maps help orient camp staff and residents alike and allows for analysis of service delivery practices and general layout.



North Africa Crisis Response
Red Cross and Red Crescent Operation at Border Area

April 6, 2011



Who it's useful for

- Deployed staff
- Decision makers
- Service delivery providers

Turn Around Time

- 1 day

Field Navigation

GIS USE CASES REFERENCE

Problem

Navigation in the field is never easy, particularly when roads or transport infrastructure are destroyed.

Solution

Tablet loaded with OpenStreetMap give responders maps they can take with them, so they always know where they are.

When OpenStreetMap gets updated by remote volunteers, new data can be pushed to the tablet, giving responders more up-to-date information.



Example

During the Typhoon Haiyan Red Cross responders across the Visayas region used tablets loaded with OSM to navigate during relief operations.

Who it's useful for

- Deployed staff

Turn Around Time

- Depends on the area.
- 1 day to a few weeks
- Maps can be refreshed daily

Crowd Sourced Mapping

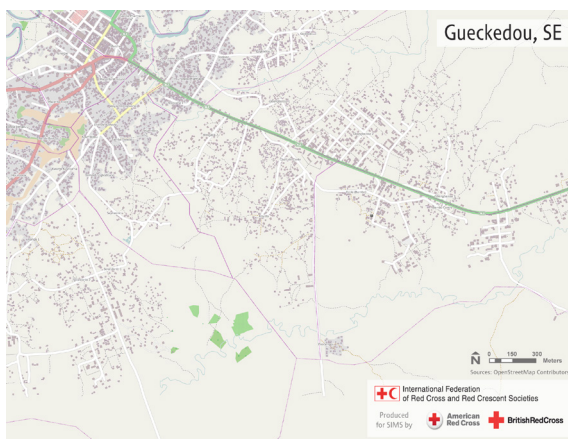
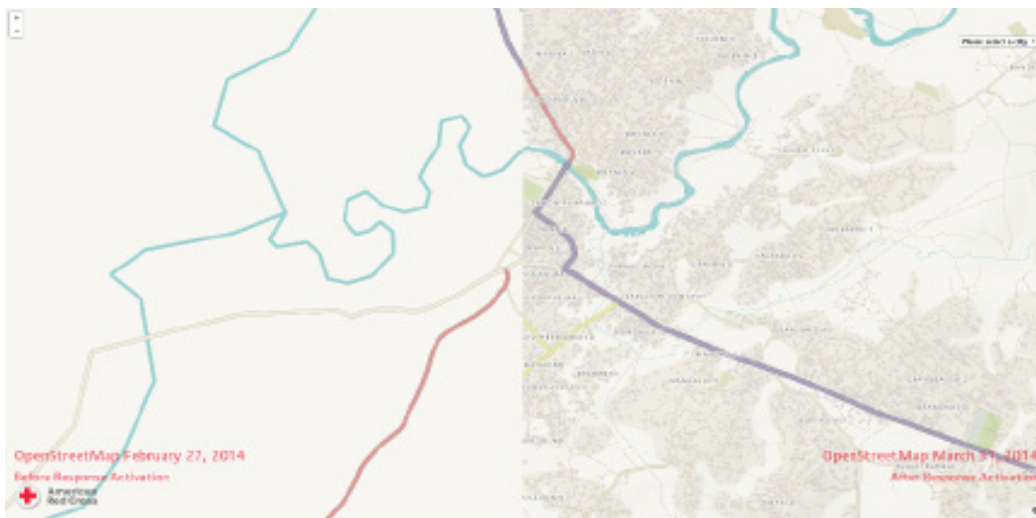
GIS USE CASES REFERENCE

Problem

Good base maps are key to any response operation: without some sense of where they are, responders have little means of navigating or understanding the scale of a place. Unfortunately, maps of response sites are often out-of-date, undetailed or non-existent, particularly at city scale.

Solution

Crowdsourcing the creation of new maps in OpenStreetMap using digital volunteers and satellite imagery allows us to rapidly create up-to-date, highly accurate base maps of any location on earth in a matter of days or even hours.



Example

This map of southeastern Gueckedou, a city heavily affected by the 2014 West Africa ebola outbreak, was produced by volunteers in under two days by remote volunteers and rapidly repackaged for responders in the field. It was used for day-to-date coordination and navigation.

Who it's useful for

- Deployed staff

Turn Around Time

- 24 hour lead
- Constantly Updating

Resource Mapping

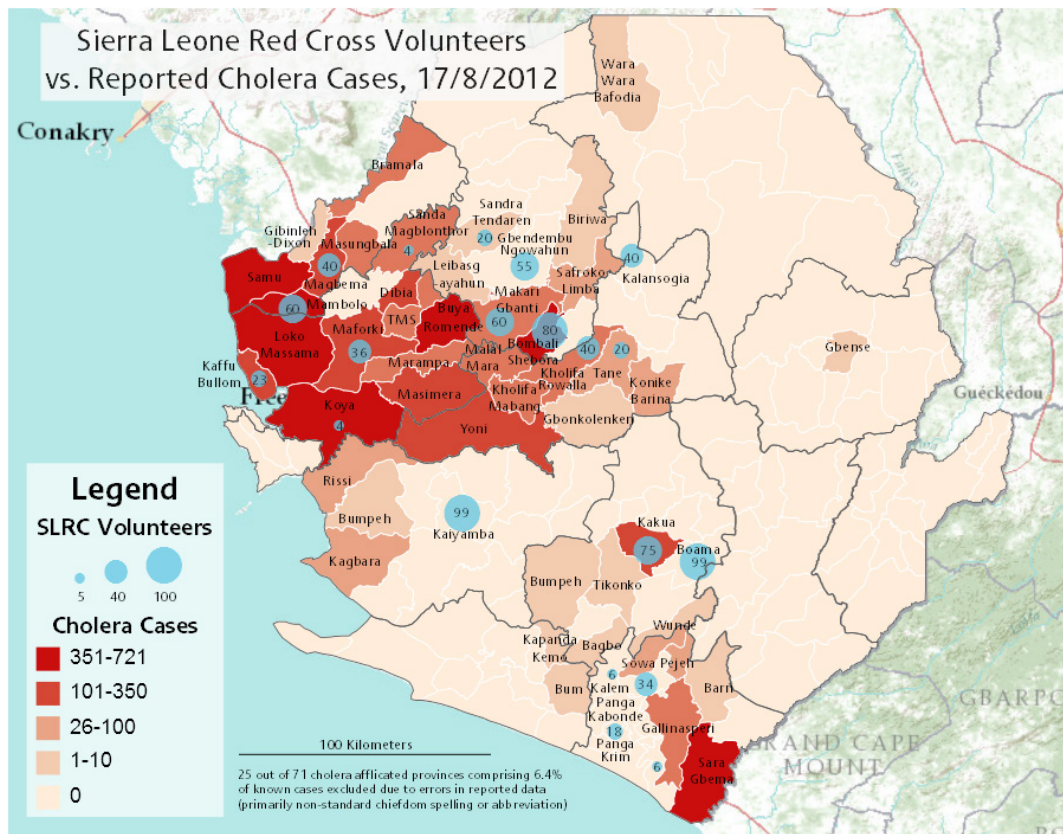
GIS USE CASES ASSESSMENT

Problem

During disasters information comes from a various sources in all different formats making it difficult to grasp the full picture and gain information in a timely manner.

Solution

Maps are a powerful, commonly understood tool of analysis for organizing and presenting piecemeal bits of information from various sources.



Example

This map combined cholera case study manually extracted from WHO PDFs and Sierra Leone Red Cross data on health-trained volunteers from 6 Excel Worksheets into one cohesive product.

It helped the IFRC, SLRC and the government of Sierra Leone understand where response volunteers were well positioned to deal with the emerging crisis (as in Kakua) and where resources needed to be shifted (as in Kaiyamba). It was also a powerful advocacy tool for the Sierra Leone Red Cross Society to communicate its reach and potential impact.

Who it's useful for

- Communications
- Decision makers
- Assessment teams

Turn Around Time

- 1 day

Scenario Mapping

GIS USE CASES ASSESSMENT

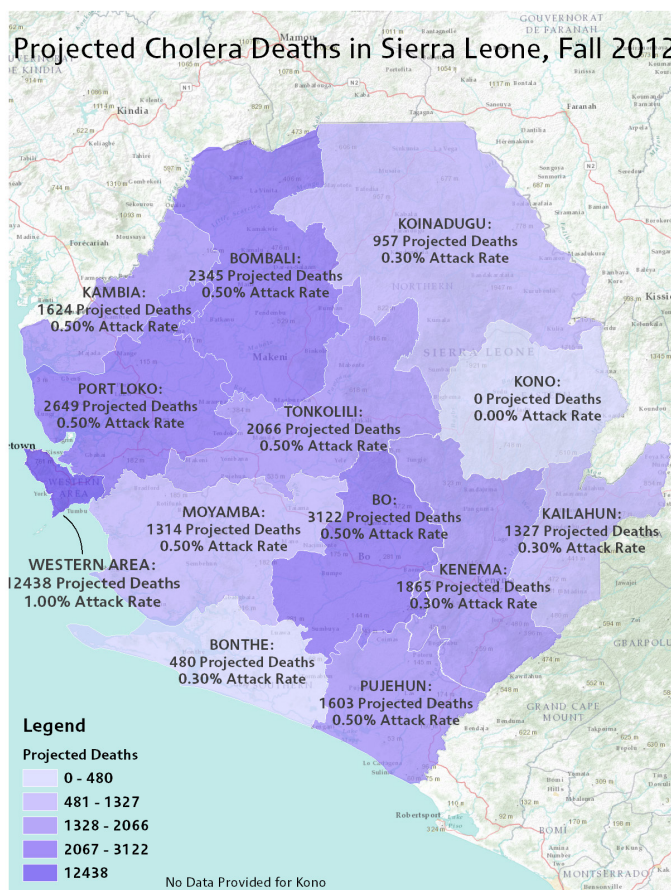
Problem

Tables and charts are crude means of understanding statistical data related to places.

While reviewing a excel spreadsheet it is hard to understand the situation.

Solution

Extracting data from PDFs or spreadsheets and representing it in map form can lead to better decision making during disaster responses.



Example

This map recast WHO cholera death projection data as a map, showing the concentration of projected deaths in the districts of Bo, Bombali, Port Loko and most of all Western Area. It was used at coordination meetings to assist Red Cross decision-making during the response.

Who it's useful for

- Decision makers
- Assessment teams

Turn Around Time

- 1 day

Imagery Analyses

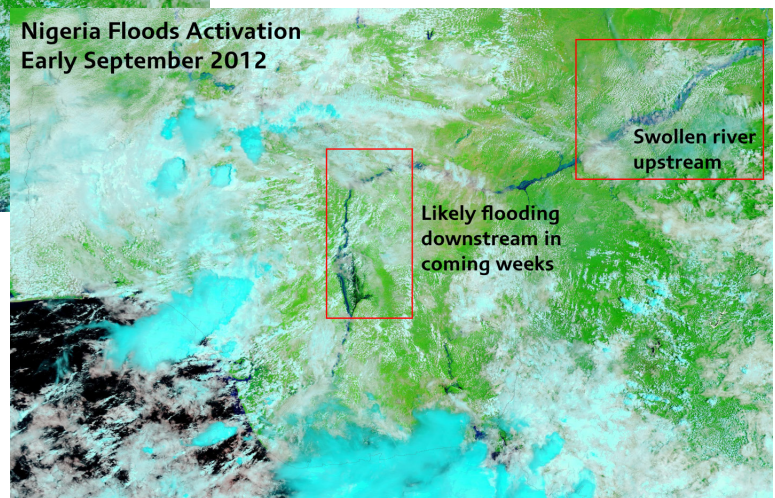
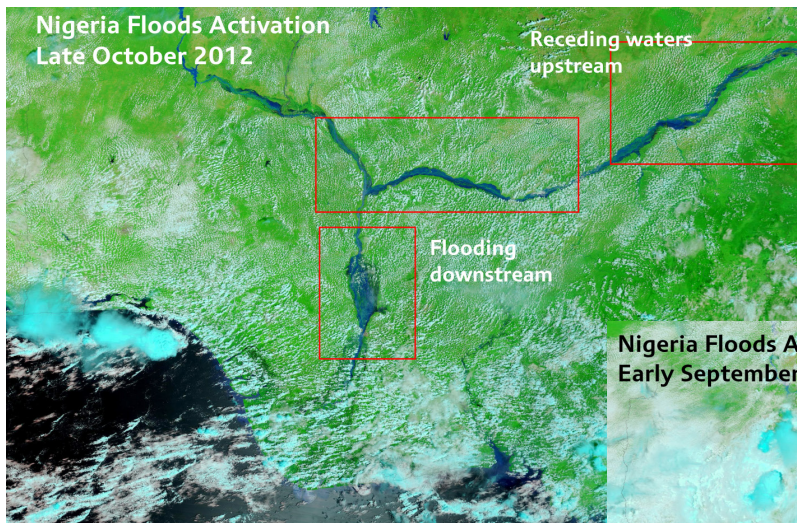
GIS USE CASES ASSESSMENT

Problem

In a response it is easy to focus on the current situation and needs. Sometimes there are future problems that are hard to anticipate when you don't know the scale of the disaster.

Solution

Satellite imagery helps responders to understand emerging risks in near real time.



Example

During the Nigerian floods of 2012 satellite imagery from NASA successfully helped the Nigerian Red Cross and Nigerian government to understand the scale of upstream flooding and the impending impact on downstream communities with this knowledge evacuations, public awareness campaigns, pre-positioning of supplies and other preventative measures can be appropriately targeted.

Who it's useful for

- Response Decision Makers
- Deployed staff
- Assessment Teams

Turn Around Time

- 1 -3 days

Damage

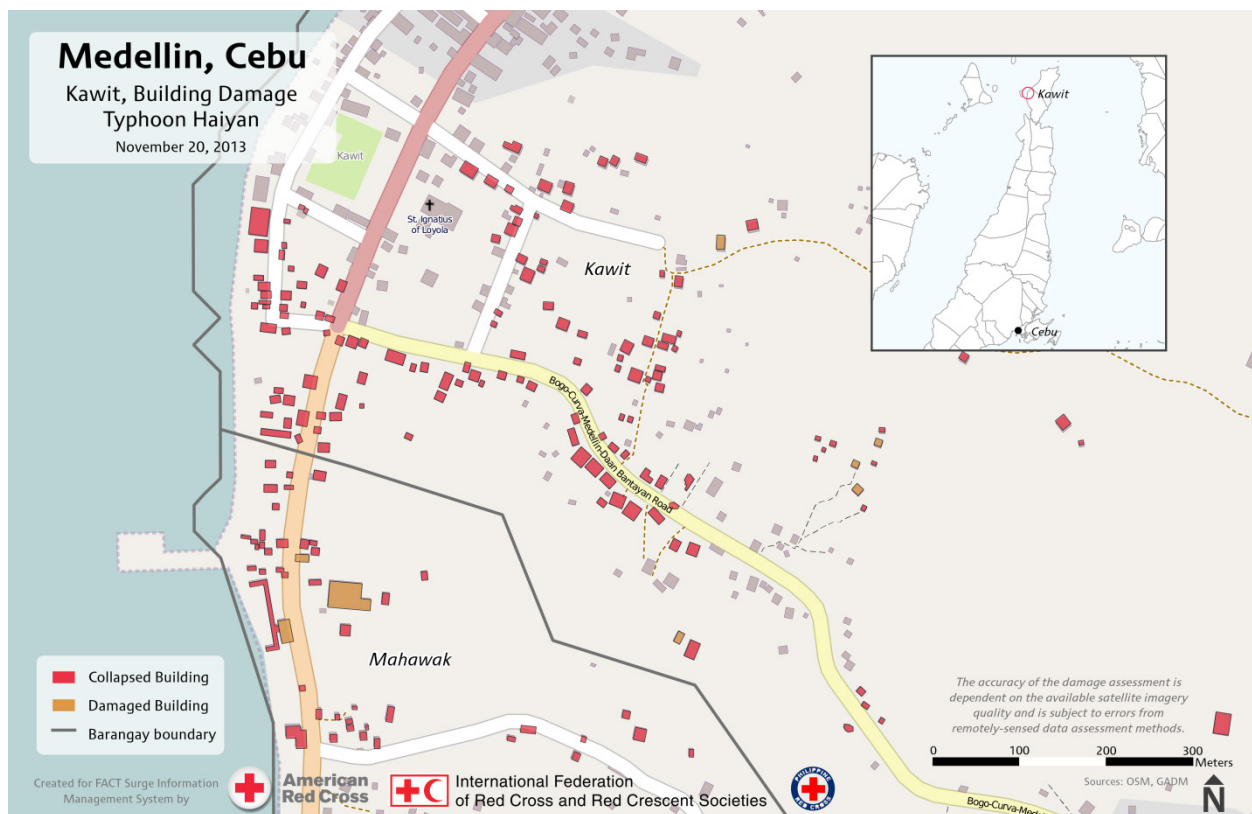
GIS USE CASES ASSESSMENT

Problem

Assessments need to be prioritized and with limited access to affected areas in the early days of a response the responders need to make decisions around deployment of people and resources with limited information.

Solution

With good data inputs, base maps quickly become damage maps.



Example

During Typhoon Haiyan, volunteers mapped damaged buildings. Maps of key cities and towns were sent to responders in the field and used to prioritize sites for detailed on-the-ground needs assessments. Response managers thus got the most value out of overstretched assessment teams.

Who it's useful for

- Deployed staff
- Decision makers
- Assessment teams

Turn Around Time

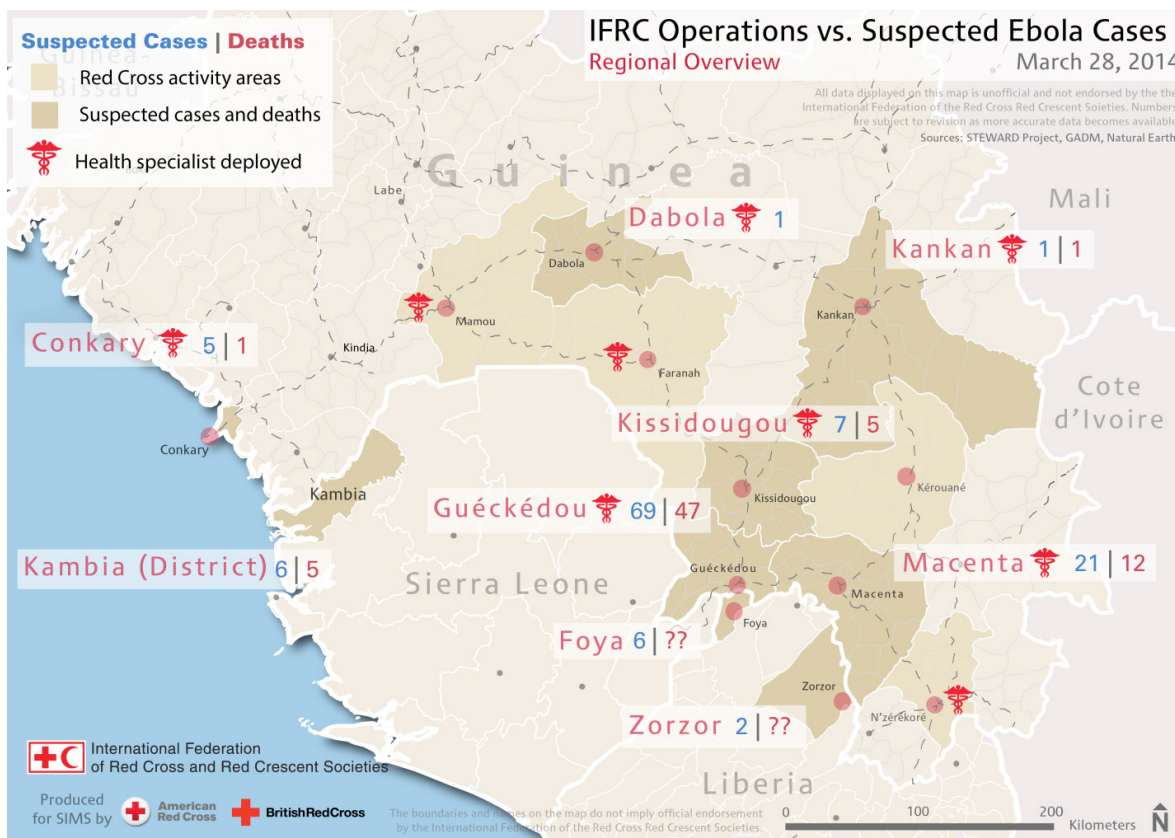
- 1 day - 1 week

Problem

Response operations traditionally struggle to optimize the delivery of limited services to the maximum number of beneficiaries during crisis events.

Solution

Coordination maps overlaying deployed resources with high level known needs help operations stay on the same page from the field to HQ level and highlight areas of additional need.



Example

This map helped the Red Cross see the extent of the Ebola outbreak in West Africa in 2014, the coverage of IFRC health specialists and the possible need to deploy specialists to emerging centers of Ebola activity in Liberia.

Who it's useful for

- Deployed Staff
- Decision makers
- Roster Officer

Turn Around Time

- Half a day

3W (Who, What, Where)

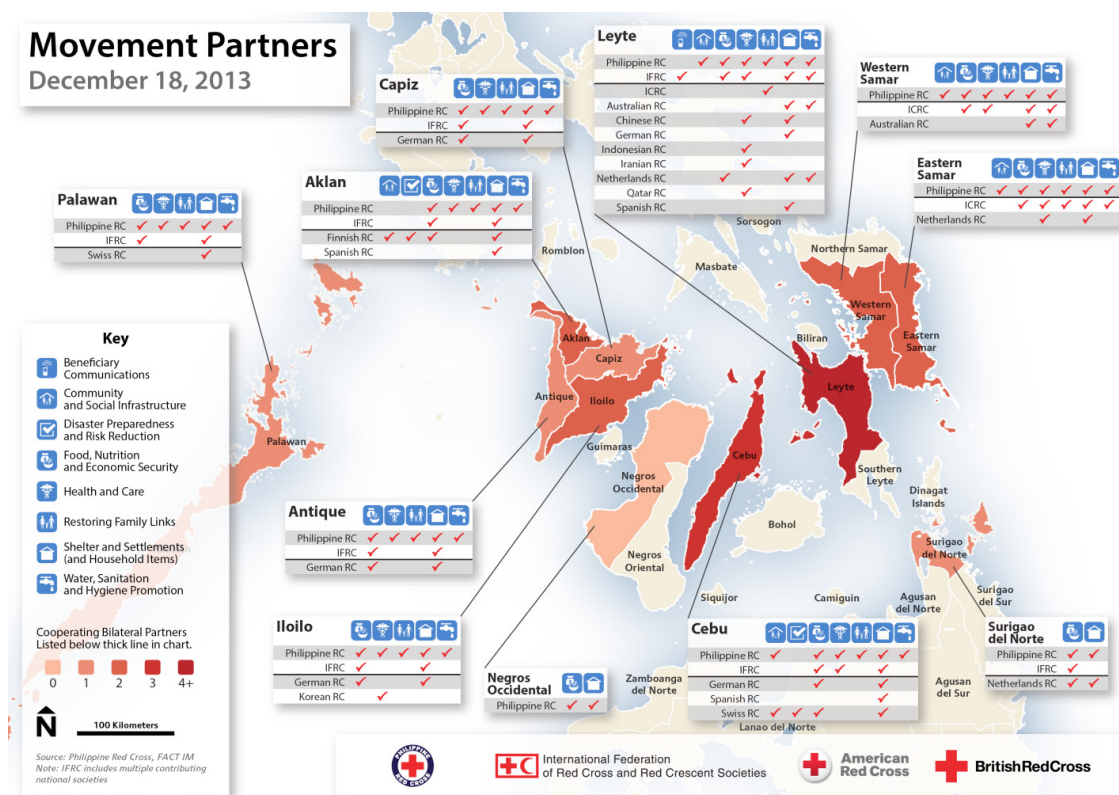
GIS USE CASES COORDINATION

Problem

Coordination is a challenge in all responses and is much more complex in large-scale response operations.

Solution

Maps help to quickly identify issues, different groups involved which help coordinate activities and plan interventions.



Example

This map was used to track the distribution and activities of Red Cross Red Crescent National Societies deploying under the Red Cross banner during the Typhoon Haiyan response. Philippine Red Cross staff, IFRC responders and managers at all levels used it to track deployments, coordinate activities, and plan interventions.

Who it's useful for

- IFRC responders
- Decision makers
- Response lead

Turn Around Time

- Half a day

Relief Distribution

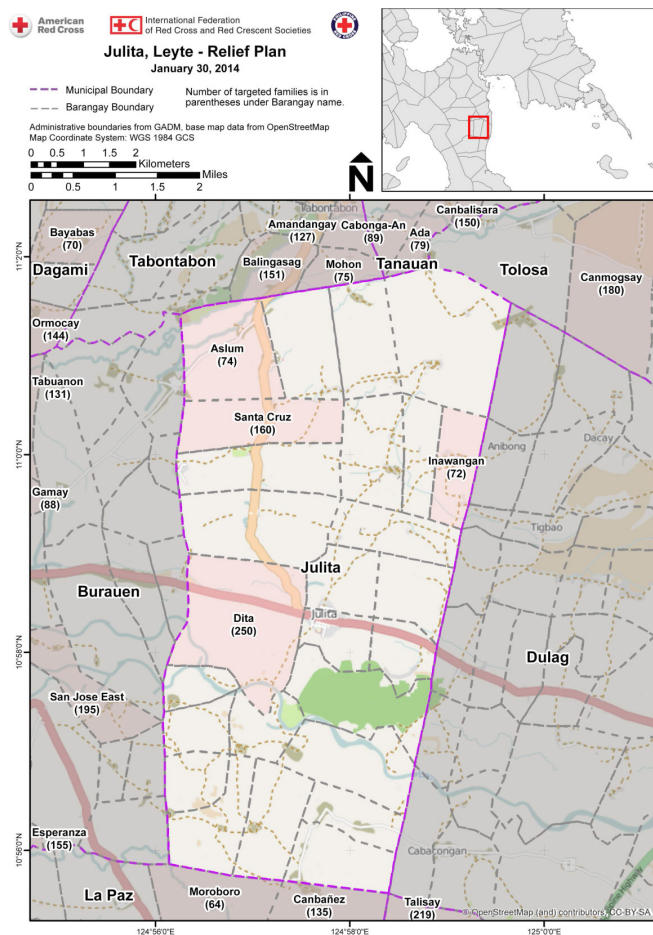
GIS USE CASES PLANNING

Problem

Relief distribution planning is a complicated process involving logistics, relief teams and the community. Planning needs to be coordinated and well communicated.

Solution

This map showed Typhoon Haiyan Relief ERU delegates at a glance the location, boundaries and probable beneficiaries of priority barangays (local government units) within their area of operations, all on top of an OpenStreetMap basemap.



Example

Delegates used these maps to develop efficient multi-day distribution plans and identify important logistical considerations (routing, land features, etc.). These maps constituted a massive improvement on the previous spreadsheet-based model of distribution planning, which took no account of routes, boundaries or underlying landforms.

Who it's useful for

- Decision makers
- Deployed staff

Turn Around Time

- 1 day

Beneficiary Targeting

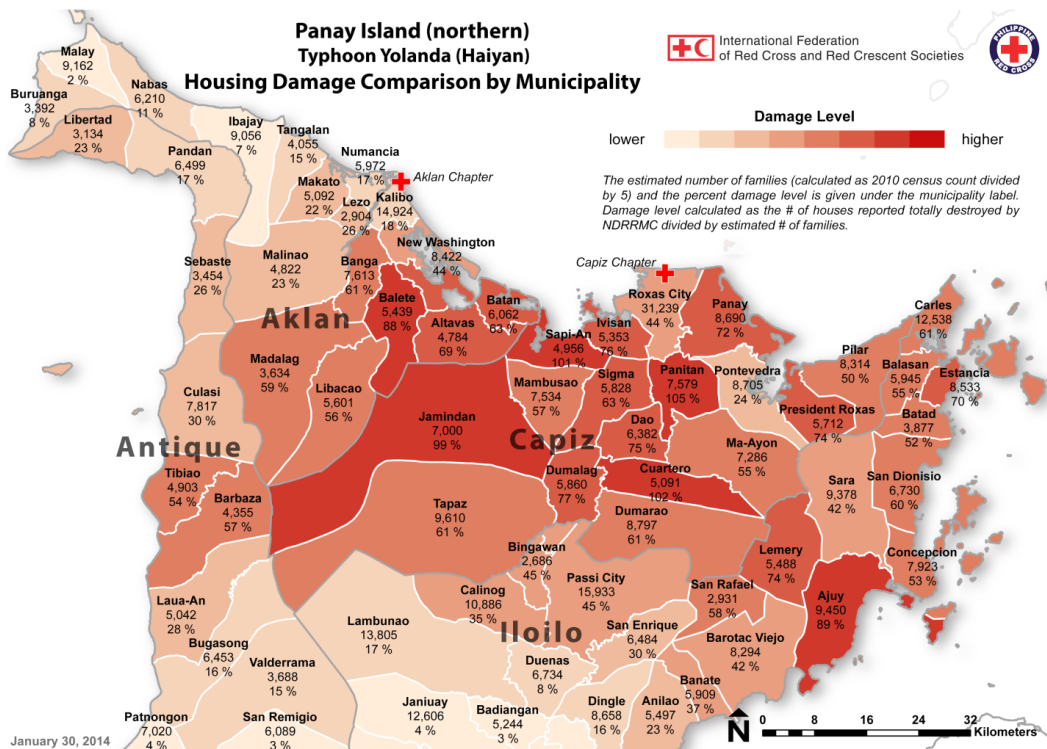
GIS USE CASES PLANNING

Problem

Understanding needs at a large scale greatly improves strategic decision making.

Solution

Maps can overlay different layers of information to help decision makers understand the needs in different areas. All data can then be verified by teams on the ground. High level overview maps help inform strategic decisions and accelerates the planning and implementation process.



Who it's useful for

- Decision makers

Example

This map was used to identify underserved but highly affected areas on Panay Island during the Typhoon Haiyan Response. As a result of this map, the IFRC and Philippines Red Cross prioritized the needs of inland municipalities in addition to the well recognized and better served coastal northeastern municipalities.

Turn Around Time

- 1 week

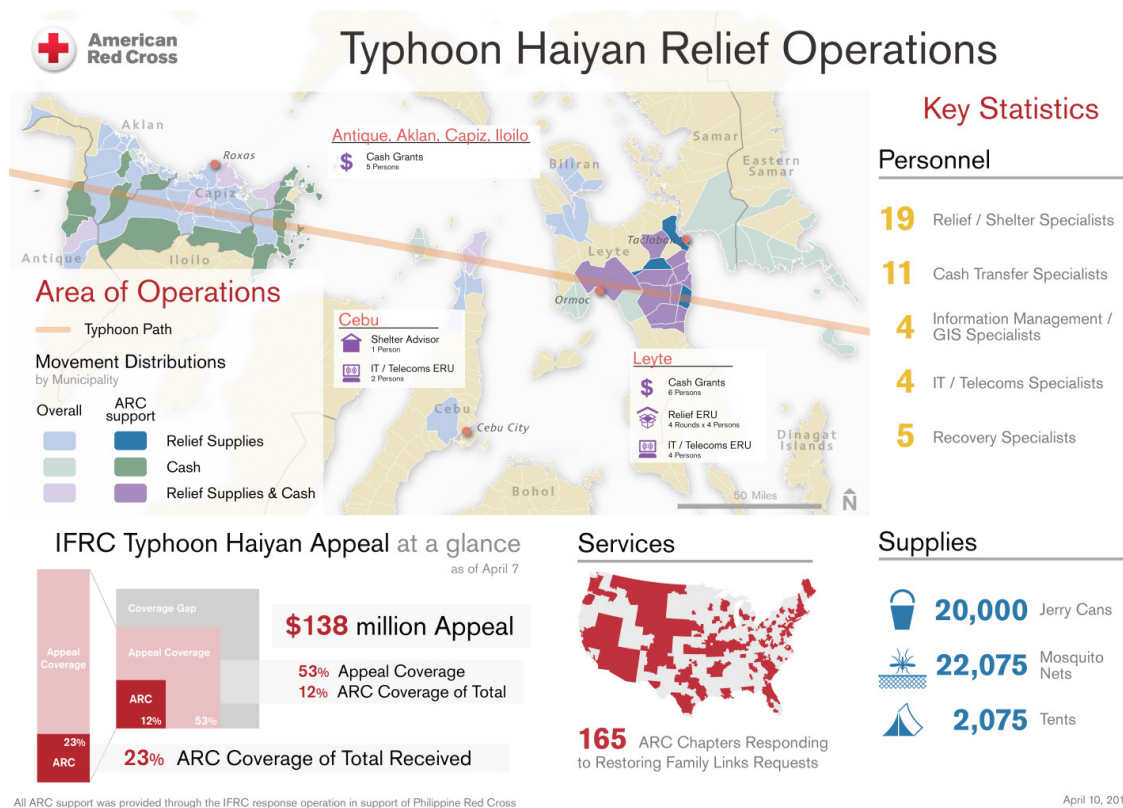
Leadership Reporting

Problem

Leadership have limited time to read long reports and digest information for strategic decision making.

Solution

Infographics and data visualization are key analysis tools for responders. During complex relief and recovery operations smart design can make key information digestible and encourage informed strategic decision-making.



Example

This infographic helped the senior leadership of the American Red Cross visualize the extent of activities and financial commitments made during the Typhoon Haiyan relief operation and plan for the long-term recovery. This map was used to prioritize recovery activities, decide on timeframes and allocated resources.

Who it's useful for

- Leadership

Turn Around Time

- 1 week