GIS as a Management Tool in Nepal Earthquake Response
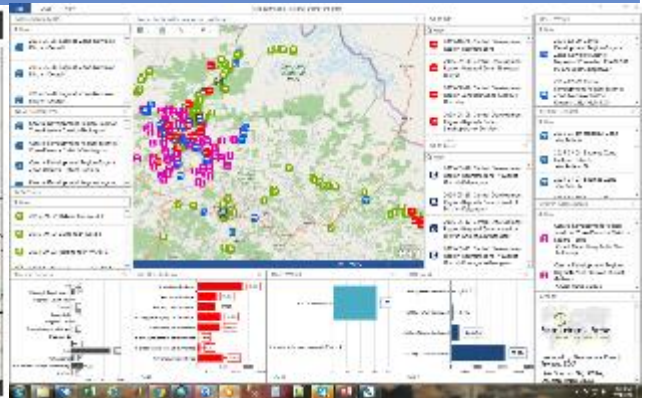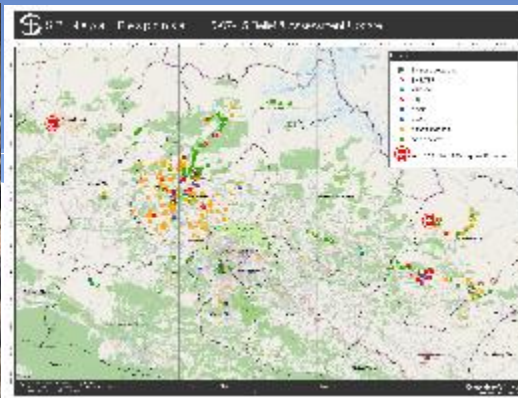
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GIS Manager | Samaritan's Purse

Samaritan's Purse INTERNATIONAL RELIEF

A CASE STUDY & LESSONS LEARNED

Presentation Agenda

- Samaritan's Purse Background
- The Case Study: GIS as a Management Tool in Nepal Earthquake Response
- Opportunities and Goals for GIS
- Components of Old Methodology
- Components of New Methodology
- Lessons Learned
- Live Demo

Samaritan's Purse Background

- Samaritan's Purse is a Christian international humanitarian aid and relief organization.
- Our core focus is in crisis and disaster relief, domestic and International.
  - Humanitarian Sectors of work Include
    - Food & Non-Food Items (NFIs)
    - Water, Sanitation, and Hygiene (WASH)
    - Emergency Shelter, Construction, Re-Construction
    - Animals and Agriculture, Livelihoods
    - Medical, Nutrition, Material Child Health (MCH)
    - Protection, Trafficking, and Child Friendly Spaces
  - Active in more than 100 countries
    - Semi-permanent field offices in approximately 15 of those countries
      - Employ around 4,000 people globally, both national staff and ex-pat staff
      - Approximately 1,000 employees domestically within the United States.
        - International Headquarters is located in Boone, North Carolina

The Case Study: Nepal Earthquake April 25 2015

- **BACKGROUND:** On April 25 at 11:56 a.m. local time, a catastrophic 7.8 magnitude earthquake struck Nepal in the northwest Lamjung District of Kathmandu. Additional severe aftershocks followed throughout the region. According to reports, there were more than 8,800 confirmed deaths and more than 2.8 million people in need of assistance.

- http://video.samaritanspurse.org/nepal-earthquake-relief-arrives/

- **HOW SAMARITAN'S PURSE RESPONDED:** Samaritan's Purse deployed a disaster assistance response team (DART) on April 26 to Kathmandu, Nepal, to assess the damage and immediate needs. The organization also deployed to Delhi, India, for collaborating with national partners on procurement and transport of relief commodities into Nepal. A forward logistics hub was established in Delhi, India, to accelerate the movement of relief supplies. The disaster relief team focused on helping 50,000 affected households with emergency shelter, water, hygiene kits, and other relief items that had been identified during the initial participatory rapid assessments by teams on the ground. Included in this response was a six person medical-surgical team that supported local hospitals and performed mobile medical clinics in the surrounding communities. This response was in coordination with Samaritan's Purse affiliate offices in Canada and the U.K. and the United Nations

Opportunities and Goals for GIS

- **The Opportunities**
  - **Improved Humanitarian Response:** To speed up the time it takes to record information in the field with greater accuracy
  - **GIS as a Management Tool:** A platform for the Incident Management Team (IMT) and (DART) field staff for decision making. Including SP IHQ leadership and the field office to have greater oversight of activities for more informed decision-making and response management.

- **The Goals**
  - **Goal 1)** Reduce inaccuracies, disorganization, and error in data capture and reporting from traditional methods.
  - **Goal 2)** Provide an authoritative information source (Master Database) for holding activity information.
  - **Goal 3)** Offer efficient and timely data information querying, reporting, mapping and synthetization.

Steps in Old Methodology

- **Step 1:** DART Information Captured by Paper
  - Needs and Damage Assessments
  - Hand Written Notes Detailing AOIs
  - Distribution of Aid and Medical Reporting
  - **Issues: Time consuming, potential for data integrity issue**
- **Step 2:** Information Transcribed and/or Coded
  - Spreadsheet Silos
  - Emails, Emails, Emails
  - Manual hand entry and dissemination of info. Into GIS
  - **Issues: Time consuming, inaccuracies, loss of info.**
- **Step 3:** Review and Validation
  - Updates to Silos of Information
  - More Emails…
  - Updates to GIS, Maps, Charts, and Other Visual Tools
  - **Issues: Time consuming, confusion, no authoritative data source**
- **Step 4:** Synthetization and Decision Making
  - Delayed Humanitarian Response
  - Missed opportunities whether reaching people in need in a timely manner or securing external funding and grants from UN, USAID, and other Awarding agencies
- **= A VERY INEFFFICIENT PROCESS**

Steps in New Methodology

- **Step 1:** Collect and Report Activities via GIS Mobile-Data-Collection w/ iForm App.
  - Needs and Damage Assessments
  - GPS Points Detailing AOIs
  - Distribution of Aid and Medical Reporting
- **Step 2:** Assign & Validate Records Within the MDC Platform
  - Records marked as validated auto map in ArcGIS products: AGOL, Dashboard, Explorer, etc.
  - Immediately available in desktop GIS for mapping
- **Step 3:** Synthetization and Decision Making
  - ArcGIS used for mapping
  - iFormBuilder used for Data Record Management and tabular exports and dissemination of information
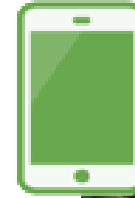
GIS Technology Diagram
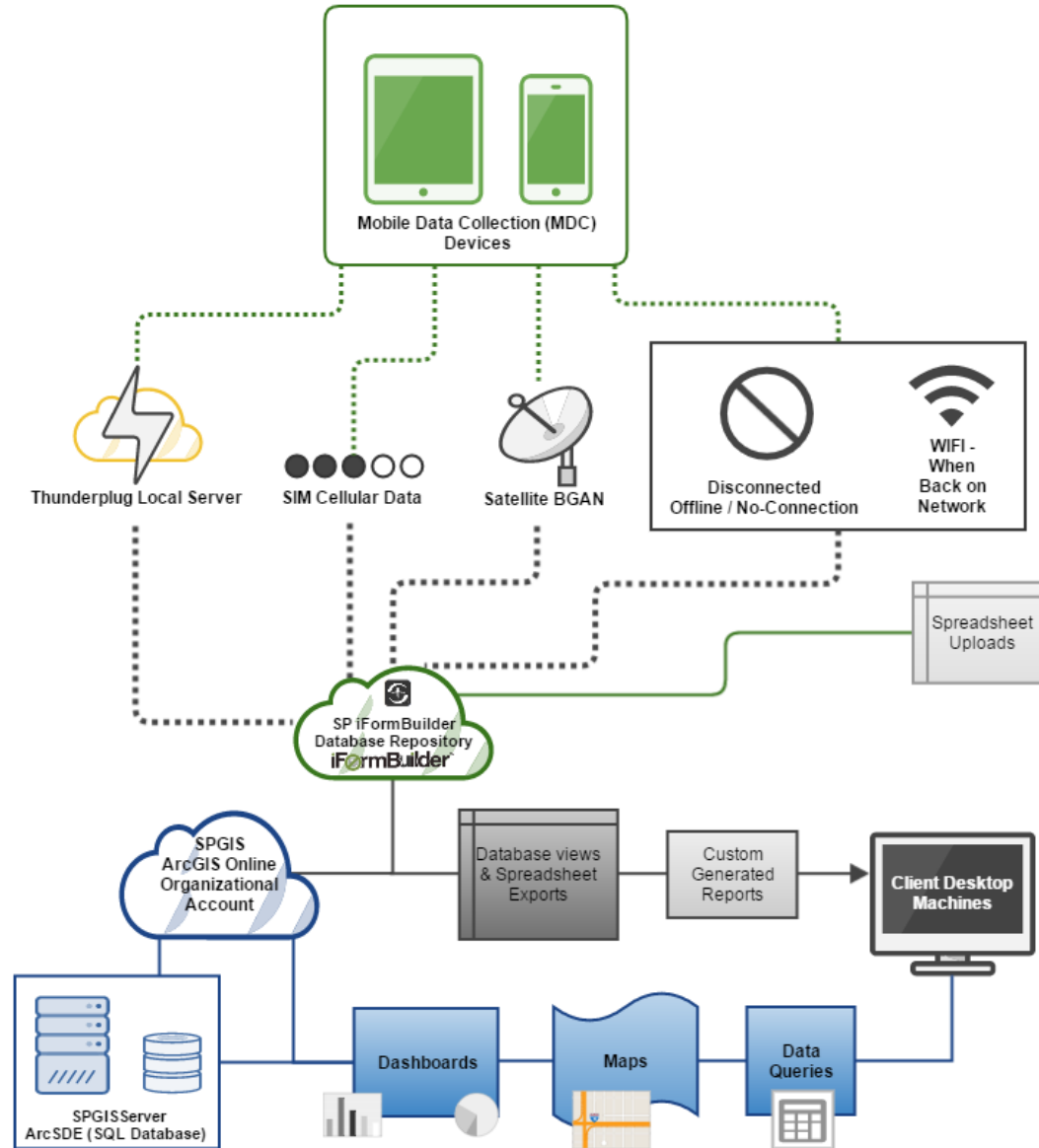
Benefits to New Methodology

- Improved Humanitarian Response Time
- GIS as The Center For a Management Tool
- Higher Accuracy in Gathered Information
- Rapid and Dynamic Processing of Data
- Records Made Available for GIS Mapping Immediately

Lessons Learned

- There are many mobile-data-collection platforms on the market.
  - For most successful implementation find one that best fits the needs of your data collectors as opposed to fitting the needs of your reporting requirements.
- When SP started capturing activity reports via MDC we did not have a validation step factored in the data collection process up front.
  - This caused all data that was submitted in field to populate in our ArcGIS dashboard and reports as "golden" without higher level review by supervisors.
  - When adopting or developing a MDC solution or method, <u>serious thought</u> should be put into creating the validation step that includes a review process for data before it is included into live map viewers and reports.

Live Demo
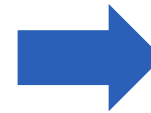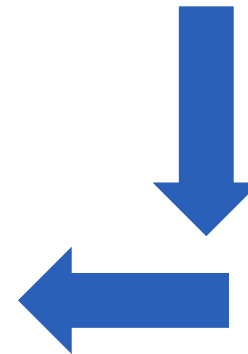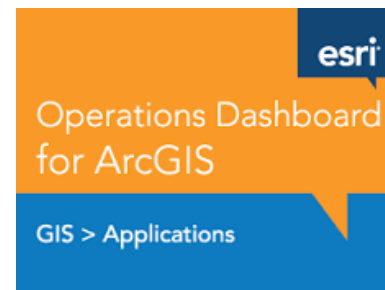
Questions or Comments?

To learn more about Samaritan's Purse, Follow us on twitter @SamaritansPurse

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