



**USAID**  
FROM THE AMERICAN PEOPLE

# Crowd Geocoding for Financial Development

**Shadrock Roberts | USAID GeoCenter**

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**D. Ben Swartley | USAID GeoCenter**

**Through risk sharing mechanisms, USAID's Development Credit Authority encourages local banks to lend to creditworthy but underserved sectors.**





# Why map?

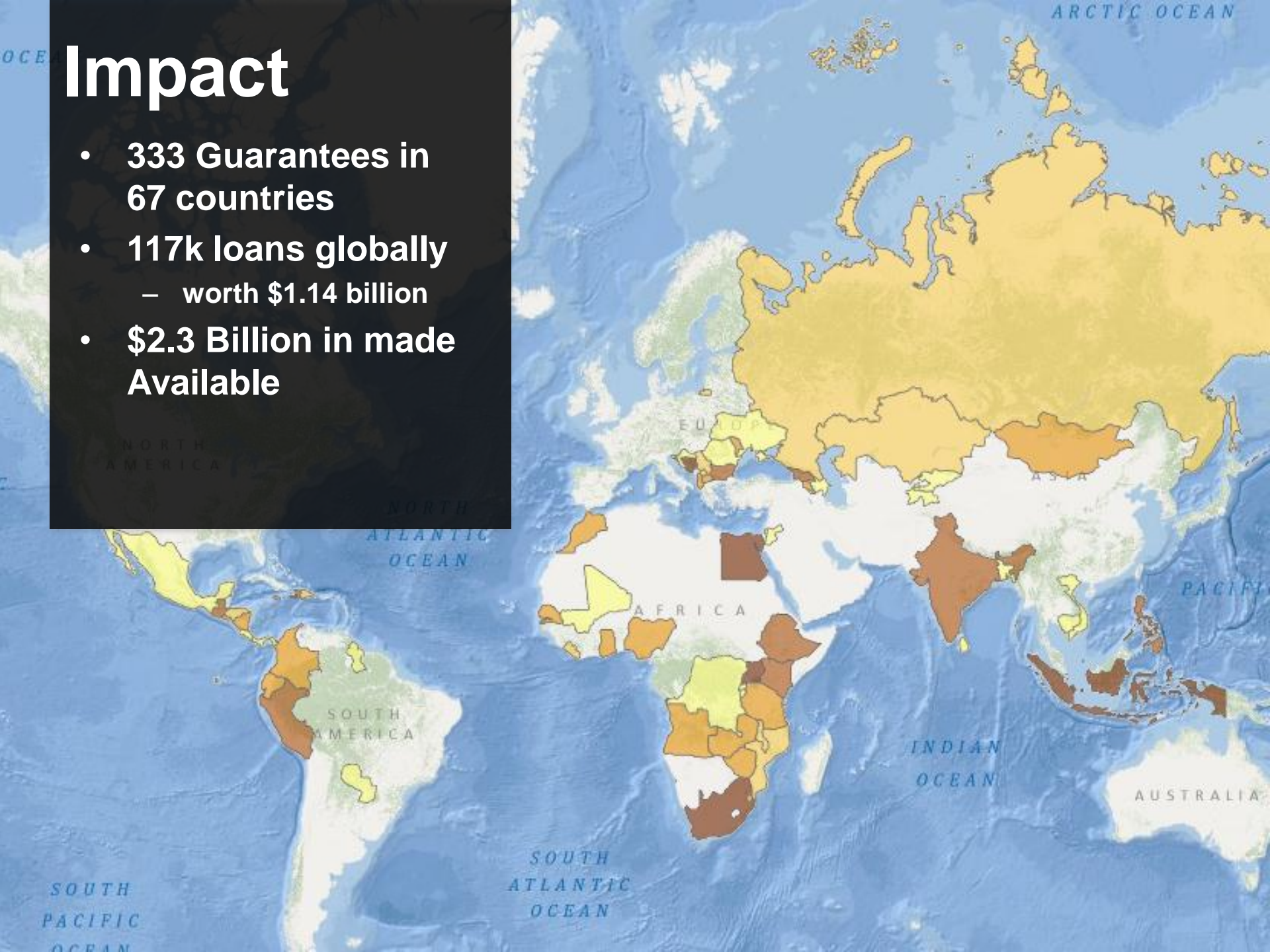
- Better Serving Entrepreneurs
- Targeted Lending
- Analyzing Transnational Impact
- Improved Partnerships





# Impact

- 333 Guarantees in 67 countries
- 117k loans globally
  - worth \$1.14 billion
- \$2.3 Billion in made Available



# The Problem

Country	Original Location
Vietnam	Mac Thi Buoï Vinh Tuy Ward, Hai Ba Trung Dist Ha Noi Viet Nam
Haiti	Port au prince
Haiti	Sud
Paraguay	### calle, campo ####

Status	Country	Original Location	Admin 1	Admin 1 Code	Place Name
Completed	Vietnam	Mac Thi Buoï Vinh Tuy Ward, Hai Ba Trung Dist	Ha Noi	VM44	Ha Noi
Completed	Haiti	Port au prince	Ouest	HA11	Port au prince
Completed	Haiti	Sud	Sud	HA12	Sud
Bad Data	Paraguay	### calle, campo ###	Null	Null	Null



# The Solution

- USAID Staff ?
- Contractor ?
- Crowdsourcing & Partnerships



# **Policy Issues & Necessary Clearances**

- **Free labor**
- **Non-Disclosure Act Compliance**
- **Releasing Publicly Identifiable Information**
- **Information Quality Act Compliance**



# Technical Innovation

An Official Web Site of the United States Government

DATA.GOV  
EMPOWERING PEOPLE

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## Rabble: Simultaneous

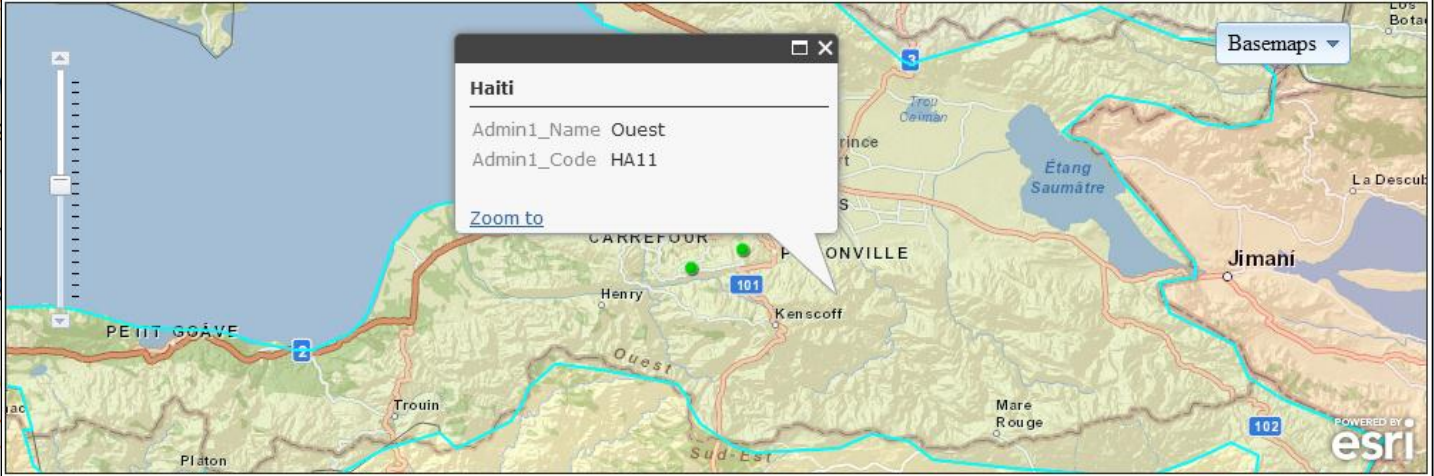
**USAID**  
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### USAID Crowdsourcing Tool

Place name or address:

You rock: You  
• [Read the](#)  
Skype c  
• [Make the](#)  
relations  
waive an

You are not logged in  
If you don't already have an account, please [sign up](#)  
Admin: [Status](#) | [Logout](#)



Basemaps

Haiti  
Admin1\_Name Ouest  
Admin1\_Code HA11  
[Zoom to](#)

▲ OID	Name	Admin 1	Country	Type	Description	Latitude	Longitude
0	Port-au-Prince	Ouest	Haiti	capital of a political entity	Port-au-Prince, Ouest, Haiti	18.53917	-72.335
1	Port-au-Prince	Ouest	Haiti	third-order admin division	Port-au-Prince, third-order admin division	18.51667	-72.31667

POWERED BY  
esri



# Assembling the Crowd



855 members globally  
Extensive experience in a variety of online mapping projects. Insanely passionate, highly caffeinated.



2,672 members globally  
Venerable volunteer group known for their professional expertise in GIS.



Jane & John Q: we wanted to meet them and get them excited about USAID and DCA.





# Crowd Motivation

- “I’m between jobs right now and this is a great opportunity for me to connect with people doing similar work as me in the DC area.” – **Dan, GeoDC**
- “The true meaning of crowdsourcing: I’m skyping with my mom to get help with the Sri Lanka-based tasks our volunteers are having some trouble with (she’s from there)”. – **Jeannine, Standby Task Force Volunteer**
- “I wasn’t sure what I was going to be doing but I appreciate what USAID does and wanted to help.” – **Stephanie, volunteer who works full time at National Defense University**
- “I haven’t felt like this since the soup kitchens and food drives I used to do in college. I love this.” --**Rick, GISCorps**

# Working with the Crowd

## **Drafting the Scope of Work to Deploy VTCs**

- Allocate adequate time

## **Time Management**

- Understand the demands of the project to allocate appropriate resources and budget their management time.
- Well-defined tasks are more achievable than vague, partial notions.
- Maximize volunteer time by planning ahead!

## **Communication**

- Organization, organization, organization.
- Practice, practice, practice.
- SBTF and GISCorps place an emphasis on after-action review to learn from the project and to better prepare for the next.



# Messaging to the Crowd

facebook

Sign Up



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Be Part of the Crowd: Join USAID's First CrowdSourcing Event

Public Event · By USAID Development Credit Authority

June 1 at 12:00pm until June 3 at 11:55pm in EDT

Online

On June 1, the first day of the event, volunteers finished geotagging you to all our volunteers including Standby Task Force, GIS Center, ESRI, Socrata, DOD, Data.gov, GSA.

Economic growth is key to transforming the developing world. Countries to eventually do away with extreme poverty. USAID link between the location of certain of our economic growth and

Email or Phone



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**John Spencer** @JspencerUNC  
Just completed my first 5 assignments in @USAID\_Credit #crowdsourcing #GIS event. [usaidcrowd.herokuapp.com](http://usaidcrowd.herokuapp.com)

1 Jun



**USAID DCA** @USAID\_Credit  
@JspencerUNC Congrats on you first five records! We've got a ton of records out right now.

1 Jun

Hide conversation · Reply · Retweet · Favorite

2:10 PM - 1 Jun 12 via web · Details

The Standby Task Force

The World's Leading Online Volunteer Community for Live Mapping

About · Our Model · Deployments · Partners · Events · Praise · News

SBTF & USAID Partnership on Poverty Alleviation and Smarter Development

By PATRICK | Published: MAY 21, 2012

4 tweets

retweet

The Standby Volunteer Task Force (SBTF) continues to break new ground in 2012. This time around we're partnering with colleagues at the US Agency for International Development (USAID) who recognize, like we do, that equitable and sustainable economic growth is instrumental for countering extreme poverty across the globe. Being one of the biggest development organizations in the world, USAID has the resources to have significant impact on the livelihoods of millions. To this end, our colleagues want to better understand the link between their economic growth initiatives and their subsequent impact on poverty alleviation. This is where we as SBTF volunteers come in.

Our partners have access to a considerable amount of data which, if analyzed, will yield some very important empirical insights on the link between economic

Recent Posts

- Mapsters Partner with Geofeedia to Improve Media Monitoring Efforts
- SBTF/USAID - A Partnership - The Future of Digital Volunteers?
- A Master's Thesis on the Motivations Behind the SBTF
- Harvard Humanitarian Initiative - (HSI) Simulation Exercise - An Appreciation
- SBTF & USAID Partnership on Poverty Alleviation and Smarter Development

Categories

- Uncategorized

Geospatial

The Only Viable Future is a Sustainable Future

Internet Freedom Fellows Program Emphasizes Defense of Fundamental Freedoms Online

@StateDept Preps for Inaugural @TechGirls Exchange

U.S. Naturalization Ceremony Honors World

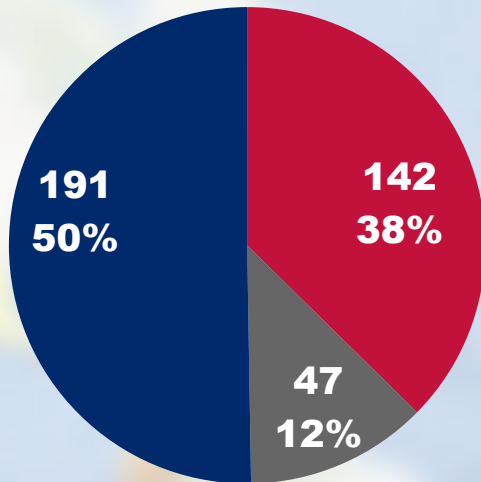
# Assembling the Crowd

■ Standby Task Force

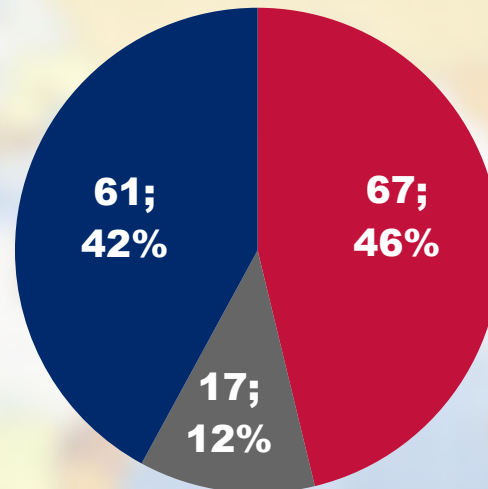
■ General Public

■ GISCorps

**Phase 1 Anticipated Number of Volunteers by Affiliation**



**Phase 1 Event Participation by Volunteer Affiliation**



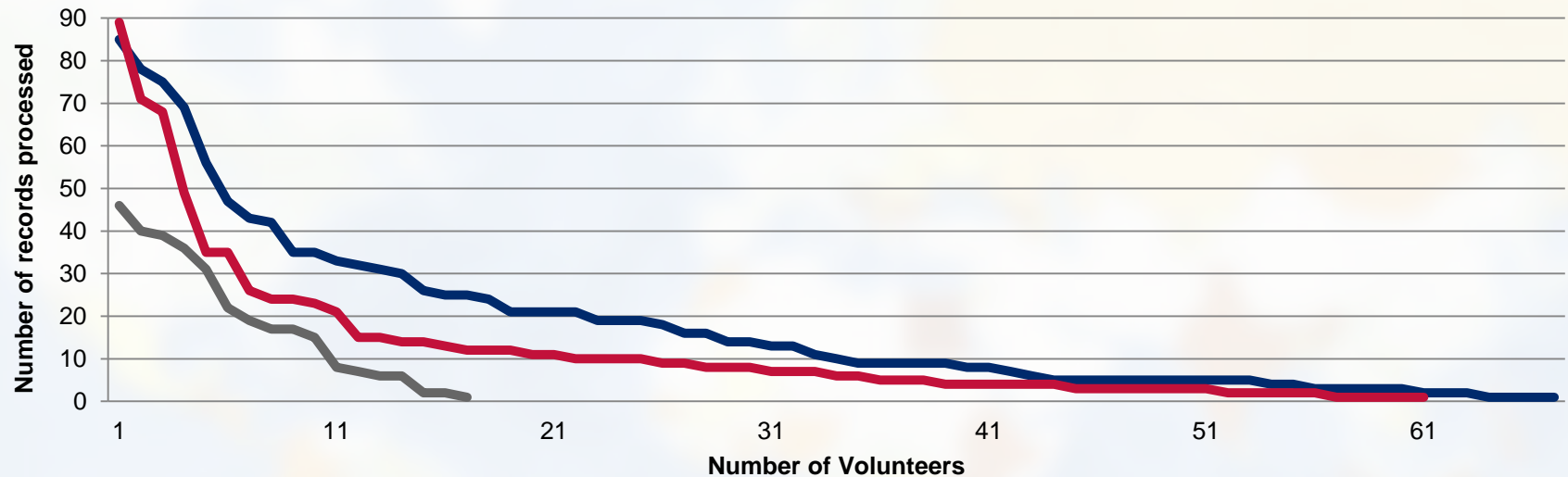
- Anticipated “Public” data comes from the DCA Facebook page, which likely included volunteers from each of the other groups.
- Data are for Phase 1 only and do not reflect GISCorps volunteers for Phases 2 and 3, nor volunteers who had signed up to work but could not due to early completion.
- “General Public” may include volunteers from either VTC who registered under a different e-mail address.



# Volunteer Innovation

■ Standby Task Force    ■ General Public    ■ GISCorps

## Records Processed per Volunteer by VTC Affiliation



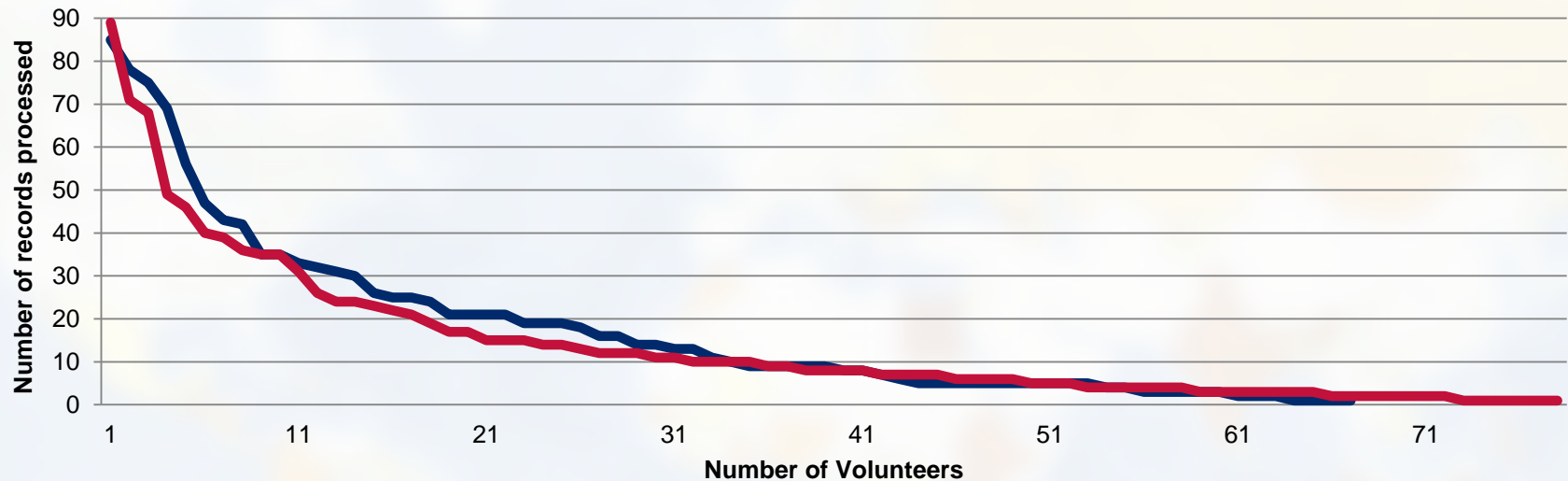
Data do not include Phase 2 & 3 GISCorps volunteers.

General Public participation may contain members of the other VTCs due to registering under different e-mail addresses.

# Volunteer Innovation

■ Standby Task Force      ■ USAID (SBTF assisted)

## Records Processed per Volunteer by Managment



Data do not include Phase 2 & 3 GISCorps volunteers.

General Public participation may contain members of the other VTCs due to registering under different e-mail addresses.



# Results

## **Automated**

- 107,000 records processed
- ~67,000 records with added ADM1
- 64% accuracy

## **Crowdsourced**

- ~10,000 records processed
- ~7,000 records with added ADM1
- 85% accuracy
- Completed in 16 hours by 145 volunteers

## **Ancillary Benefits**

- DCA Twitter increased by 20%
- DCA Facebook increased by 15%

# The Mapping Process

## The Mapping Process

- Choose to map at Admin1
  - Greatest number of records supported this
  - Admin1 data are widely available
  - Still have multiple scales
- Also created x/y point for IATI compliance
  - IATI is limited to communicate extent
  - Including more data gives users more options



# Mapping: “Admin1 Finder”

## Standardization

- FIPS Codes – no longer maintained but used
- FAO-GAUL, SALB, GADAM, GeoNames (NGA), ESRI, Google.
- USG does not maintain a standard dataset.
- Final Decision: use internal dataset under co
  - Needed to be derived
  - Not open data

# Mapping: Locators

- [http://tasks.arcgisonline.com/ArcGIS/rest/services/Locators/ESRI\\_Places\\_World/GeocodeServer](http://tasks.arcgisonline.com/ArcGIS/rest/services/Locators/ESRI_Places_World/GeocodeServer)
- <http://www.arcgis.com/home/item.html?id=991a730ac41248428b48584ccf77b583>
- <http://blogs.esri.com/esri/arcgis/2009/10/22/world-places-locator/>

ArcGIS Services Directory

[Home](#) > [Locators](#) > [ESRI Places World \(GeocodeServer\)](#)

## Find Address Candidates: Locators/ESRI\_Places\_World

Find Address Candidates:

PlaceName:

Single Line Input:

Return Fields (*Comma Separated*):

Spatial Reference

Format:

Find

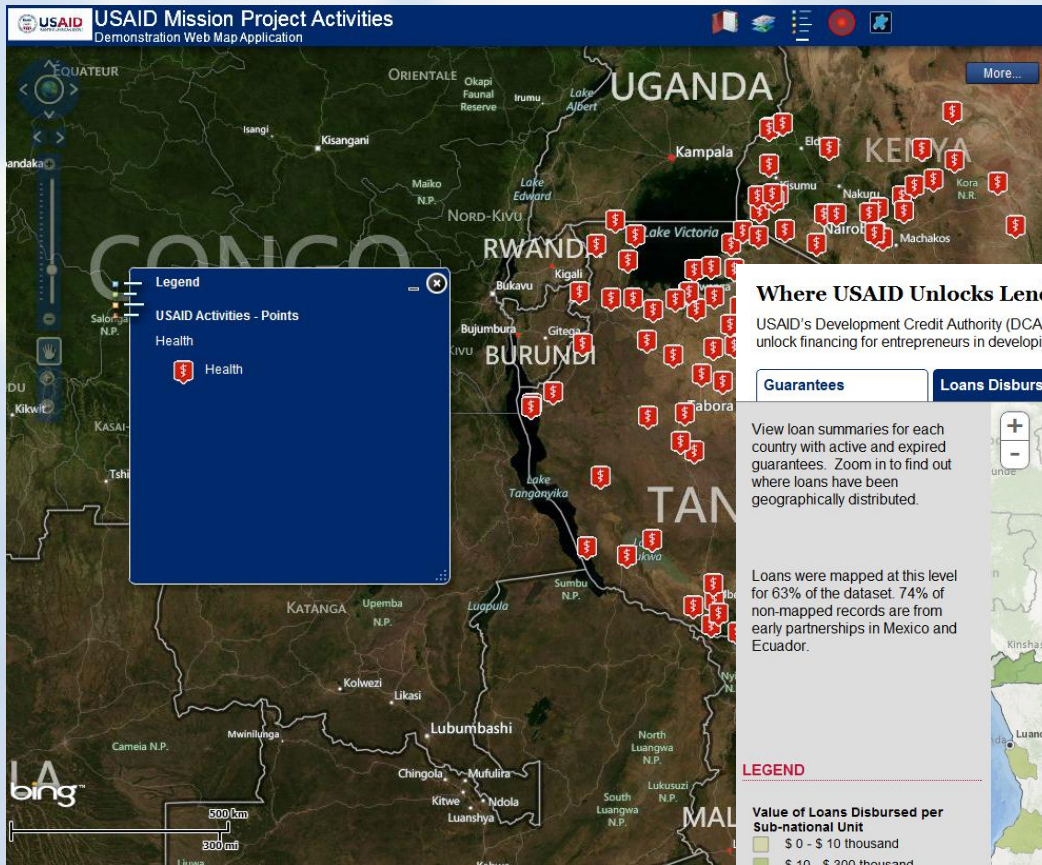


# Mapping with Story Map

## The Mapping Process

- What story you wanted to tell?
- Wanted to present a map as a table of contents?
  - Different tabs for different aspects of the data
  - Doesn't support queries
  - Doesn't support different views
  - Does tell a story and acts as a basic table of contents

# Mapping with Story Map



## Where USAID Unlocks Lending Around the World

USAID's Development Credit Authority (DCA) works with local financial institutions to design investment alternatives that unlock financing for entrepreneurs in developing countries.



Guarantees

Loans Disbursed

Available Financing

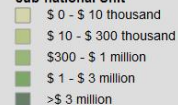
Stories & Evaluations

View loan summaries for each country with active and expired guarantees. Zoom in to find out where loans have been geographically distributed.

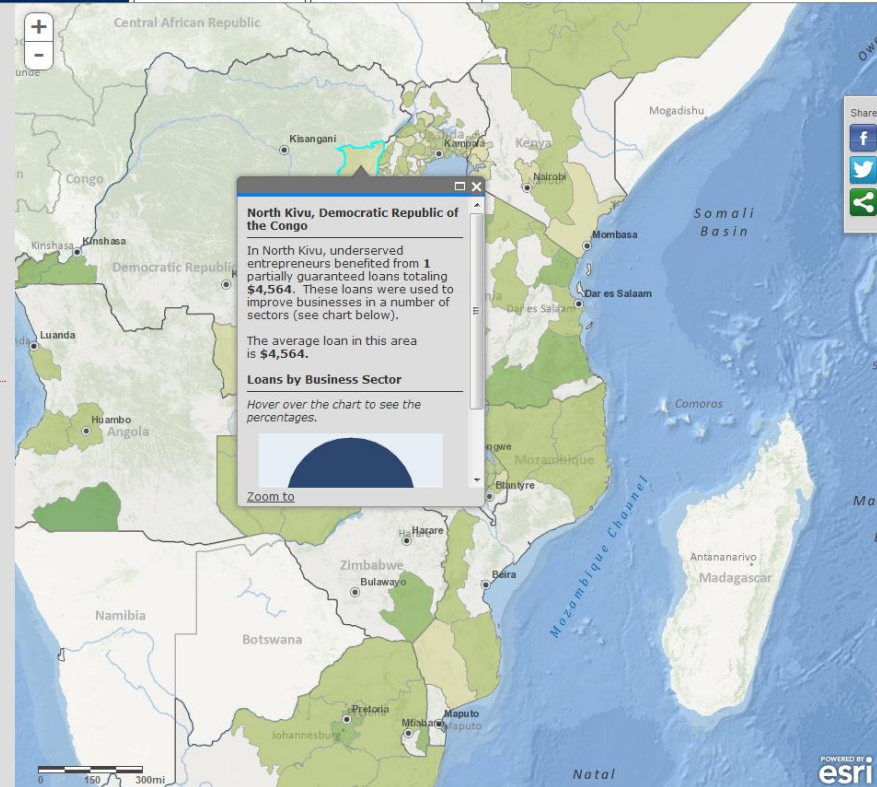
Loans were mapped at this level for 63% of the dataset. 74% of non-mapped records are from early partnerships in Mexico and Ecuador.

### LEGEND

#### Value of Loans Disbursed per Sub-national Unit



The boundaries and names used on this map do not imply official endorsement or acceptance by the U.S. Government.





# Challenges

## **USAID automated processing capacity**

- Partnered with DoD

## **Processing sensitive information**

- Work with General Counsel
- Pre-processing with DoD

## **Distributable updated global Admin 1 data**

- Derived internal USG resource
- Only open database: not geometry.

## **Standard geographic names**

- Using NGA GEOnet database

## **Concerns over accuracy of crowdsourced data**

- Spot-check monitoring
- Sampling for agreement
- Independent accuracy assessment



# Lessons

## **Automated processing**

- Improve algorithm!

## **Sensitive information**

- Prefer full-disclosure with volunteers: volunteered PII?

## **Admin 1 data**

- Greater investment in SALB, GAUL, etc.
- Clarification on “derived” – can we share simplified?

## **NGA GEOnet Names Server**

- Greater investment in content and usability

## **Crowdsourced data?**

- Couldn't be happier
- Accuracy in-line with current standards.
- Best practices?

# Lessons

## **The Social Aspect Matters**

- Skype chat helped build community

## **Crawl- Walk- Run**

- Two test runs helped hone the workflow

## **No Cost Solution**

- Budgets are restrained so this was the only solution as it had zero cost

## **Publically Identifiable Information is not Insurmountable**

- A common ID allows for deleting and later merging back columns that cannot be shared

## **Database Problem**

- Anyone with a database that includes a location field should confirm that standardized geographic data is being collected

## **Understanding Why People Volunteer**

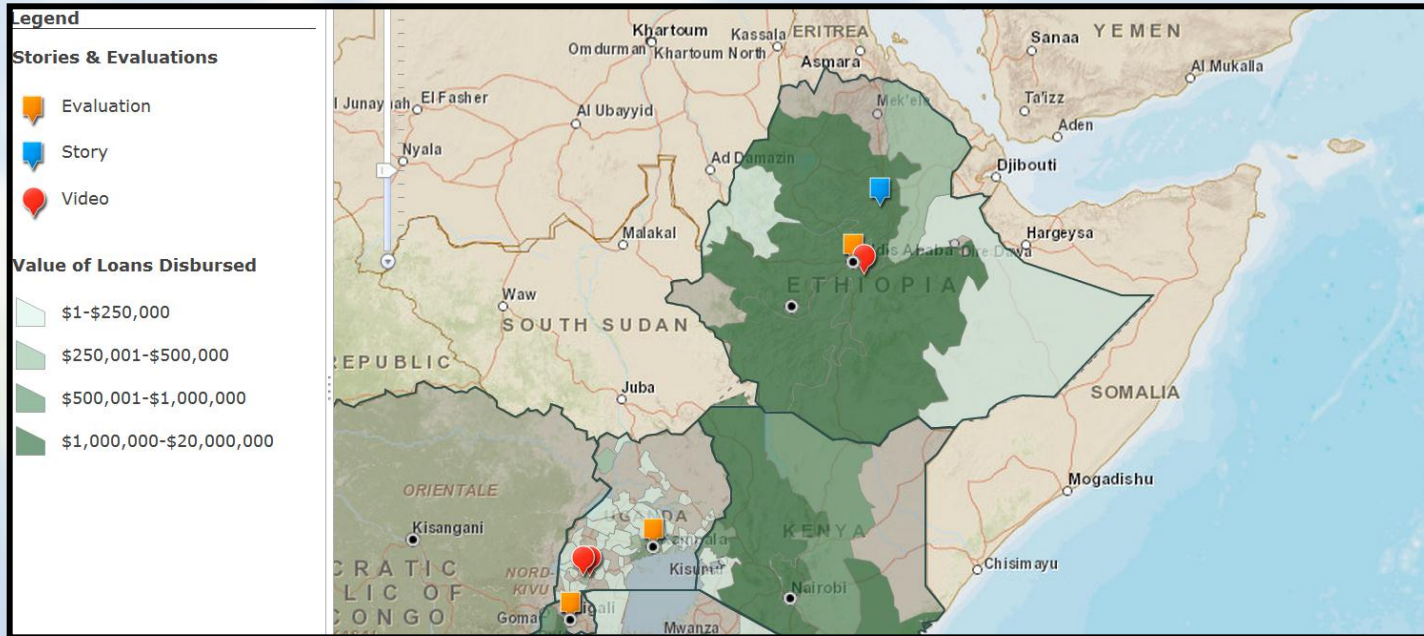
- People want to make a difference and connect. This mattered more than disclosing the exact nature of the data ahead of time.

# How is this generalizable?

- **We need to be working as hard to release relevant data we already have as we are to create it.**
- **The crowd is willing to do research, data mining, and data cleanup.**
  - People like figuring out where things are.
  - Micro-peer review?



# Finished Products



- This is just the beginning.
- Host ideation jams to do more with the data
- Not just a one-off. The map will be updated.
- Excited to see how lives are improved from the data release

Links at: <http://www.usaid.gov/results-and-data/progress-data/data/dca>

Map at: <http://storymaps.esri.com/stories/usaidcredit/>

# Massive Thanks to:

