Mapping financial inclusion

Kenya Geo-spatial Data Launch

13 March 2014
Need to take a diagnostic approach to impact

1. access
2. adoption
3. usage
4. impact

We need to also measure here...
And here...
Example use cases

• Agent network optimization → ‘Where should I put my next point?’

• Social payments → ‘Who should I choose as a partner?’

• Enabling regulation for access → ‘Where are there gaps in access?’

• Standardized metrics for grants → ‘Is grantee reaching rural areas?’
Kenya is far ahead of other countries
Geo-Spatial mapping project components

Mapping engine

Access point data collection

Population and other layers
Data Sources

- MODIS Global Urban Areas – 500m resolution showing urban, built up and settled areas
- Access Points - Financial Service Locations, by type, mapped very accurately using GPS coordinates by Brand Fusion
Maps
Submission Example

View Submission

**Capturer:** Brian Chenze
**Date Submitted:** 2013/06/07 12:52:35 PM
**GPS Latitude:** 2.33827
**GPS Longitude:** 40.43059
**GPS Accuracy:** 44
**KENYAN Financial Services Study:** Savings and Credit Co-operative Society (SACCO)

**IDENTIFICATION OF INSTITUTION**
- **In what region is the outlet?:** Malindi town
- **What is the street address?:** Witu
- **Is the institution OPERATIONAL?:** Yes
- **What type of financial institution is it?:** Savings and Credit Co-operative Society (SACCO)
- **How is record keeping done at this outlet?:** Independent computer
- **Is the establishment regulated?:** Yes
- **Under which regulatory body?:** SASRA

**SAVINGS AND CREDIT CO-OPERATIVE SOCIETY**
- **What is the name of the establishment?:** Lamu Teachers SACCO Society Ltd
- **Branch:**
  - **In what year did this establishment begin its operations?:** 2000/11/04 00:00:00
- **What services are offered at this establishment?:**
  - Member Recruitment:
    - Yes
  - Cash-in:
    - Yes
  - Cash-out:
    - Yes
  - Account Opening:
    - Yes
  - Personal Loans:
    - Yes
  - Business Loans:
    - Yes
  - Other:
    - Training Of Members On Financial Management In Investment Decisions:
      - Yes
- **Is there visible guidance on how to use these services?:** Yes
- **Is there visible guidance on how to make complaints about the service?:** Yes
- **Is there a visible tariff guide?:** Yes

**PHOTOGRAPHS**

[Images of the outlet shown in the document]
Methodology

• Quality Control Process / Audits
  • Real Time System Monitoring
  • Field Audits
  • Data Validation
  • Data Quality checks

AUDIT SHEET

County Name: Nairobi
Date: 5 September 2013
Town name: Kayole
Streets Covered: Kayole, Spine, Saba Saba

Name of the Establishment | Agent Name | Details Confirmed | Comments
---|---|---|---
1 Tripple X communication | Mobile Money
2 Post Office Kayole | Post Office
3 Post Office Kayole | Mobile Money
4 Gateway Old Kg | Mobile Money
5 Free Zone Mobile | Mobile Money
6 Waka Spine Road | Mobile Money
7 Bag Services | Mobile Money
8 Cooperative Bank of Kenya | Commercial Bank
9 Charcon Properties | Mobile Money

Conducted by: Victor Lazaro
Challenges & Highlights

TO ALL CHIEF EXECUTIVE OFFICERS OF COMMERCIAL BANKS, DEPOSIT TAKING MICROFINANCE INSTITUTIONS AND OTHER FINANCIAL SERVICE PROVIDERS IN KENYA

MAPPING FINANCIAL SERVICES ACCESS POINTS IN KENYA

The Bill and Melinda Gates Foundation in collaboration with the Central Bank of Kenya (CBK) and the Financial Sector Deepening (FSD) Kenya are carrying out a joint Geographic Information Systems (GIS) mapping of all financial services access points in Kenya during the period of 29th April 2013 to 31st August 2013 across the country.

The key objective of the project is to capture and document GIS coordinates of all financial service access points countrywide to enable a better understanding of the physical financial access landscape that may benefit policy initiatives aimed at enhancing financial inclusion.

The Bill and Melinda Gates Foundation have contracted Brand Fusion Limited, an international research firm to conduct the fieldwork. Brand Fusion Limited researchers will physically geo-reference all financial service access points, take photos of the premises and collect background information including but not limited to commercial banks, microfinance institutions (MFIs), SACCO societies, hire purchase companies, mobile financial service providers agents, money transfer service providers, Postbank, POSTA, development finance institutions especially AFC, insurance service providers, ASCAs & ROSCAS, among others.

All financial service providers, their staff and agents are humbly requested to accord Brand Fusion Limited staff and researchers all the necessary support and cooperation for the Project’s success. The Brand Fusion staff and researchers will be in branded corporate wear and carry identification name badges, and may be accompanied by CBK and/or FSD, Kenya staff.
## Mapping Results

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Money Service Providers</td>
<td>49,417</td>
<td>75.62%</td>
</tr>
<tr>
<td>Bank Agent</td>
<td>8,083</td>
<td>12.37%</td>
</tr>
<tr>
<td>Money Transfer Service</td>
<td>2,484</td>
<td>3.80%</td>
</tr>
<tr>
<td>Commercial Bank and Finance Mortgage</td>
<td>1,313</td>
<td>2.01%</td>
</tr>
<tr>
<td>Insurance Service Provider</td>
<td>878</td>
<td>1.34%</td>
</tr>
<tr>
<td>Savings and Credit Co-operative Society</td>
<td>706</td>
<td>1.08%</td>
</tr>
<tr>
<td>Bus Stands</td>
<td>613</td>
<td>0.94%</td>
</tr>
<tr>
<td>Stand Alone ATM</td>
<td>503</td>
<td>0.77%</td>
</tr>
<tr>
<td>Microfinance Institution</td>
<td>500</td>
<td>0.77%</td>
</tr>
<tr>
<td>Post Office</td>
<td>364</td>
<td>0.56%</td>
</tr>
<tr>
<td>Capital Markets Service Provider</td>
<td>139</td>
<td>0.21%</td>
</tr>
<tr>
<td>Forex Bureaus</td>
<td>121</td>
<td>0.19%</td>
</tr>
<tr>
<td>Pension Providers</td>
<td>93</td>
<td>0.14%</td>
</tr>
<tr>
<td>Leasing/Hire purchase/Factoring Company</td>
<td>82</td>
<td>0.13%</td>
</tr>
<tr>
<td>Development Finance Institution</td>
<td>57</td>
<td>0.09%</td>
</tr>
</tbody>
</table>
Traditional measures of financial access are insufficient

**PERU**

After 4217 bank agents were opened, Peru went from 5.8 points per 100,000 to 37 points per 100,000, increasing access more than six times.

However, from a geospatial perspective, the population within 5 km of a financial access point only increased 1.6%.
Bank Branches
Bank Branches and Mobile Money Agents
All Service Types
Access to Financial Service Locations

Population within 5km

Population within 3km
Population Density vs. Access

Population

Population within 3km
The Rural – Urban Divide

Population within 3km

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Population</th>
<th>Access Points</th>
<th>Pop within 3km</th>
<th>Use Formal Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>75</td>
<td>75</td>
<td>100</td>
<td>75</td>
</tr>
<tr>
<td>Urban</td>
<td>25</td>
<td>25</td>
<td>0</td>
<td>25</td>
</tr>
</tbody>
</table>

Population within 3km

20% or less: Red
21% - 30%: Dark Red
31% - 40%: Orange
41% - 50%: Yellow
51% - 60%: Light Yellow
61% - 70%: Light Green
71% - 80%: Green
81% - 90%: Light Green
> 90%: Green
Poverty vs Access

<table>
<thead>
<tr>
<th>Income area</th>
<th>Pop %</th>
<th>Points %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest</td>
<td>13.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Middle</td>
<td>57.2</td>
<td>30.0</td>
</tr>
<tr>
<td>Wealthiest</td>
<td>29.6</td>
<td>68.7</td>
</tr>
</tbody>
</table>

March 13, 2014
Arid Areas vs. Access

Agro-Climatic Zones

Population within 3km
Exclusion
Exclusion vs Distance
Mobile Money – access vs uptake

Currently uses Mobile Money

Population within 3km
Mobile Money

ISIOLO
Use Mobile Money: 21.2%
Mobile ownership: 39.5%
Pop within 3km: 35.5%

WEST POKOT
Use Mobile Money: 27.5%
Mobile ownership: 28.2%
Pop within 3km: 24.4%

NYERI
Use Mobile Money: 80.7%
Mobile ownership: 75.9%
Pop within 3km: 86.7%
Supply vs Proximity in Western Kenya

Locations per 100,00 persons

3km Access
Uptake vs Proximity in Western Kenya

Service Use

3km Access

Bomet
Use of Informal Services vs Distance

![Graph showing the relationship between use of informal services and distance from financial service location. The x-axis represents mean distance from financial service location, while the y-axis represents the percentage of people using informal services only. The graph shows a negative correlation, indicating that as distance increases, the percentage of people using informal services decreases.]
Portfolio of Services vs. Proximity

Use multiple services

Population within 3km
Portfolio of services (informal & formal) vs. access

Population within 3km

Portfolio Use

0% 20% 40% 60% 80% 100%

0% 20% 40% 60%
Case Study: Kitui

Population: 963,253
Financial Service Locations: 776
Population within 5km: 52.7%
Population within 3km: 33.5%
Bank Usage: 19.8%
Mobile Money Usage: 56.6%
Use Informal Services Only: 15.1%
The Question:

Determine the total population within a 5km distance of financial access locations, with a breakdown by Urban and Rural areas.
The Analysis Process, using GIS Software

Step 1. Buffer each financial access point by a distance of 5 kilometers

Step 2. Merge the buffered areas for each type and combination of types
The Analysis Process, using GIS Software

Step 3. Overlay the combined areas with the population data

Step 4. Overlay the selected population data with the urban / rural layer
FSPMaps.com - Overview

All functions accessible in one view
Using FSPMaps.com

Show only MFIs and SACCOs
Using FSPMaps.com

Calculate 3 km access to MFIs and SACCOs
Using FSPMaps.com

White areas are within 3 km of the selected access points
Using FSPMaps.com

Output statistics for MFIs and SACCOs

### ACCESS ANALYSIS FOR KENYA

#### Summary

<table>
<thead>
<tr>
<th>Location</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>301</td>
</tr>
<tr>
<td>Rural</td>
<td>905</td>
</tr>
<tr>
<td>Total</td>
<td>1,206</td>
</tr>
</tbody>
</table>

#### Access to Financial Services

<table>
<thead>
<tr>
<th>Location</th>
<th>Percentage</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>93.2%</td>
<td>2,781,543</td>
</tr>
<tr>
<td>Rural</td>
<td>22.4%</td>
<td>8,285,932</td>
</tr>
<tr>
<td>Total</td>
<td>27.6%</td>
<td>11,147,494</td>
</tr>
</tbody>
</table>
## Output statistics, by county

<table>
<thead>
<tr>
<th>County</th>
<th>Total Population</th>
<th>% Pop w/ Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baringo</td>
<td>567,260</td>
<td>22.0%</td>
</tr>
<tr>
<td>Bomet</td>
<td>917,319</td>
<td>24.8%</td>
</tr>
<tr>
<td>Bungoma</td>
<td>1,742,160</td>
<td>57.5%</td>
</tr>
<tr>
<td>Busia</td>
<td>718,736</td>
<td>48.6%</td>
</tr>
<tr>
<td>Elgeyo Marakwet</td>
<td>381,194</td>
<td>33.4%</td>
</tr>
<tr>
<td>Embu</td>
<td>532,838</td>
<td>58.6%</td>
</tr>
<tr>
<td>Garissa</td>
<td>644,767</td>
<td>15.7%</td>
</tr>
<tr>
<td>HomaBay</td>
<td>1,047,843</td>
<td>43.1%</td>
</tr>
<tr>
<td>Isiolo</td>
<td>149,319</td>
<td>31.6%</td>
</tr>
</tbody>
</table>
Using FSPMaps.com

Access Point Summary Graphic with rural urban split

Access Point Summary
Number of Access Points by Type and Location

Total Numbers of Access Points

- Bank Agent (58%)
- Bank and Mortgage (11%)
- Insurance Providers (7%)
- SACCOs (6%)
- Bus Stands (5%)
- Offsite ATMs (4%)
- MFIs (4%)
- Post Office (3%)
- Money Transfer Service (2%)
Using FSPMaps.com

Access point photos
Using FSPMaps.com

Drop Pin Tool – determine competition and potential reach
FSPMaps.com – great response so far

- 7,638 unique visitors
- 41% return rate
- Users from 121 countries