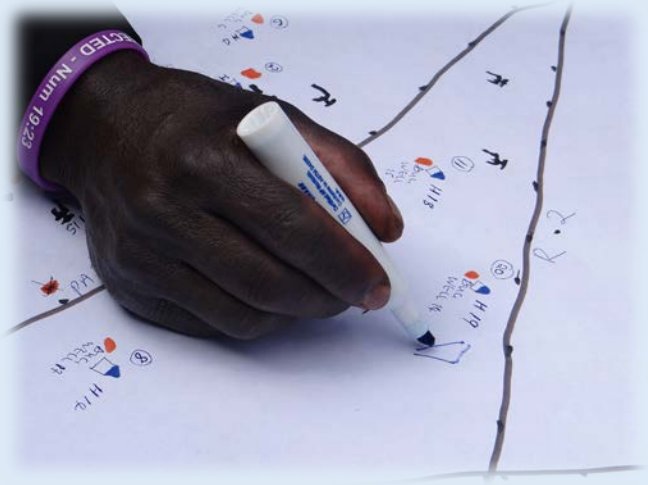
Water is Life: Mapping Water Access in Peri-urban Malawi



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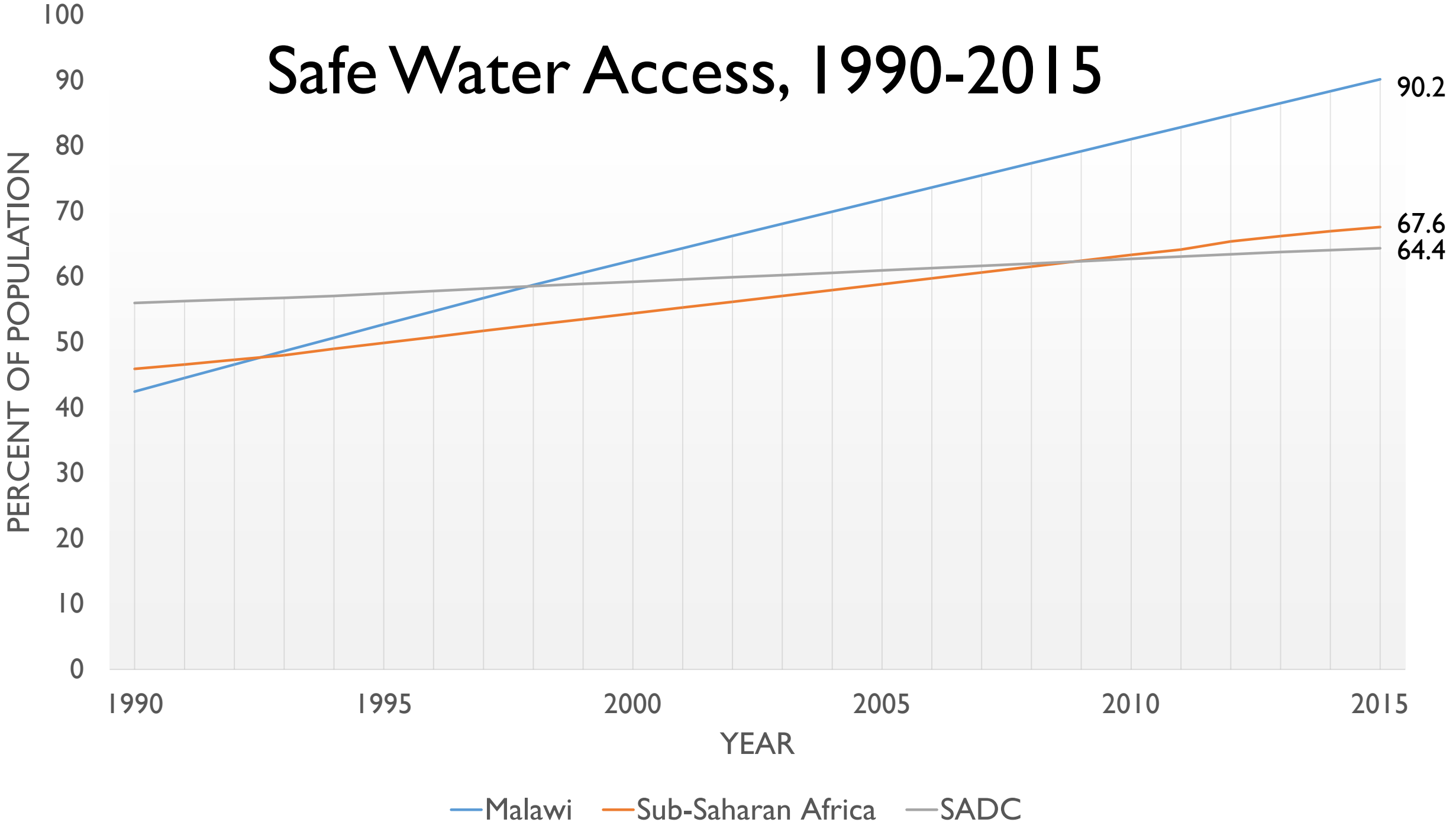
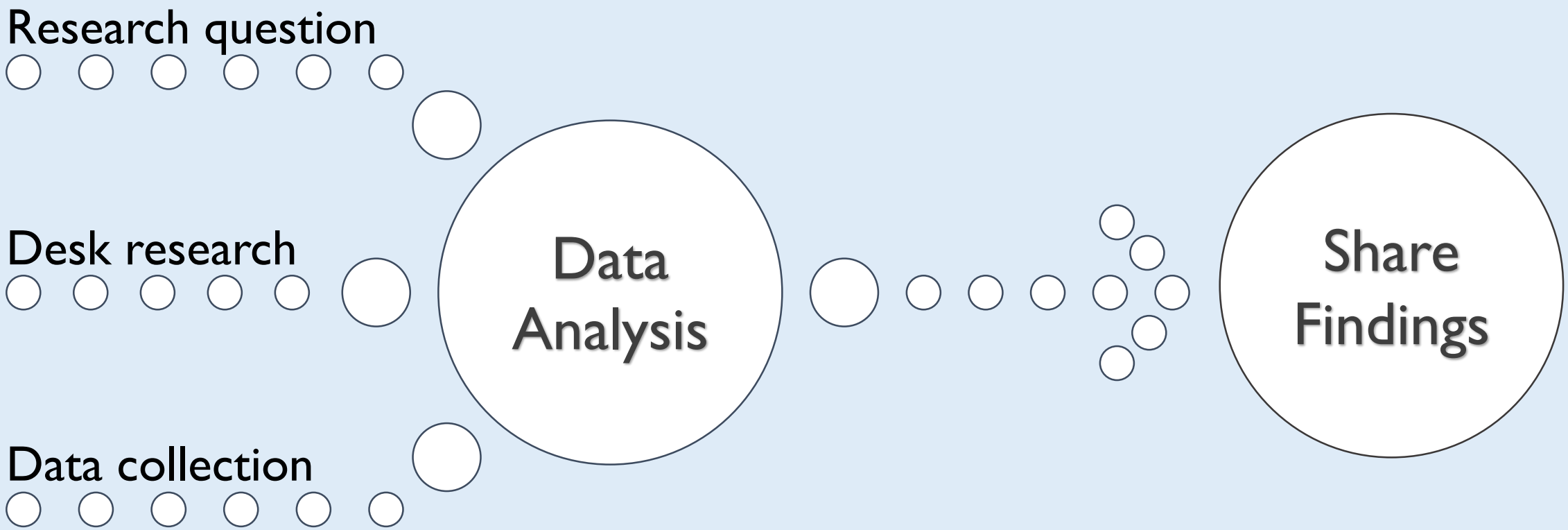
Safe Water Access, 1990-2015



WASH-Related Indicators for Children Under 5

- Underweight prevalence – 17%
- Stunting prevalence – 42%
- Diarrohea (last 2 weeks) – 24%
- Mortality rate – 9%

Evidence-based Decision Making



Research Objectives

Research question

What is the reality of water access in peri-urban Malawi?

Hypothesis

Qualitative indicators may provide a more accurate depiction of water access in communities than coverage-based indicators

Methodology

Data Collection

- Participatory mapping
- Focus groups
- GIS mapping of community
- Semi-structured interviews
  - Households & water points
  - Decision makers

Site Description

- Peri-urban area north of Mzuzu City located at Area 1B-Block 23 in Luwinga
- Area is 11.56 hectares
- Originally founded in 1981 by 8 families
- Approximately 193 households
- House density is one household per .06 hectares

Development Challenges

Safe water access

No summer or after school activities

Food contamination in the market

Pit latrine stability and quality

Distance from health facility and secondary schools

Hunger and undernutrition

Quotes

"Many children do not receive education beyond secondary school because they need to find jobs because of lack of finances to pay for water."

"There are many challenges in the community. Because of disease, malnutrition and distance from health facilities, there is a lot of death in the area."

Income in Area 1B

Area 1B appears to have mixed levels of income, which was indicated by the following household attributes:

- Roofing materials
  - Thatched Roofs 14%
  - Iron Sheets 79%
  - No Roof 8%
- Electrical access
  - Electricity 42%
  - Without Electricity 59%

Income Con't

- Sharing of sanitation facilities
  - Shared Latrines 50%
  - Private Latrines or Flush Toilets 39%
- Ownership
  - Owned 42%
  - Rented 43%

Types of Water Sources on Site

"Improved" Sources

Community Tap: 10% of surveyed households use

Private Tap: 61% of surveyed households use

"Unimproved" Sources

Partially Covered Well: 43% of surveyed households use

Unprotected Source: 0.6% of surveyed households use

Types of Sanitation Facilities on Site

"Improved" Facilities

Flush Toilets with Septic Tank: 8% of surveyed households use

Latrine slabs for sale in local market

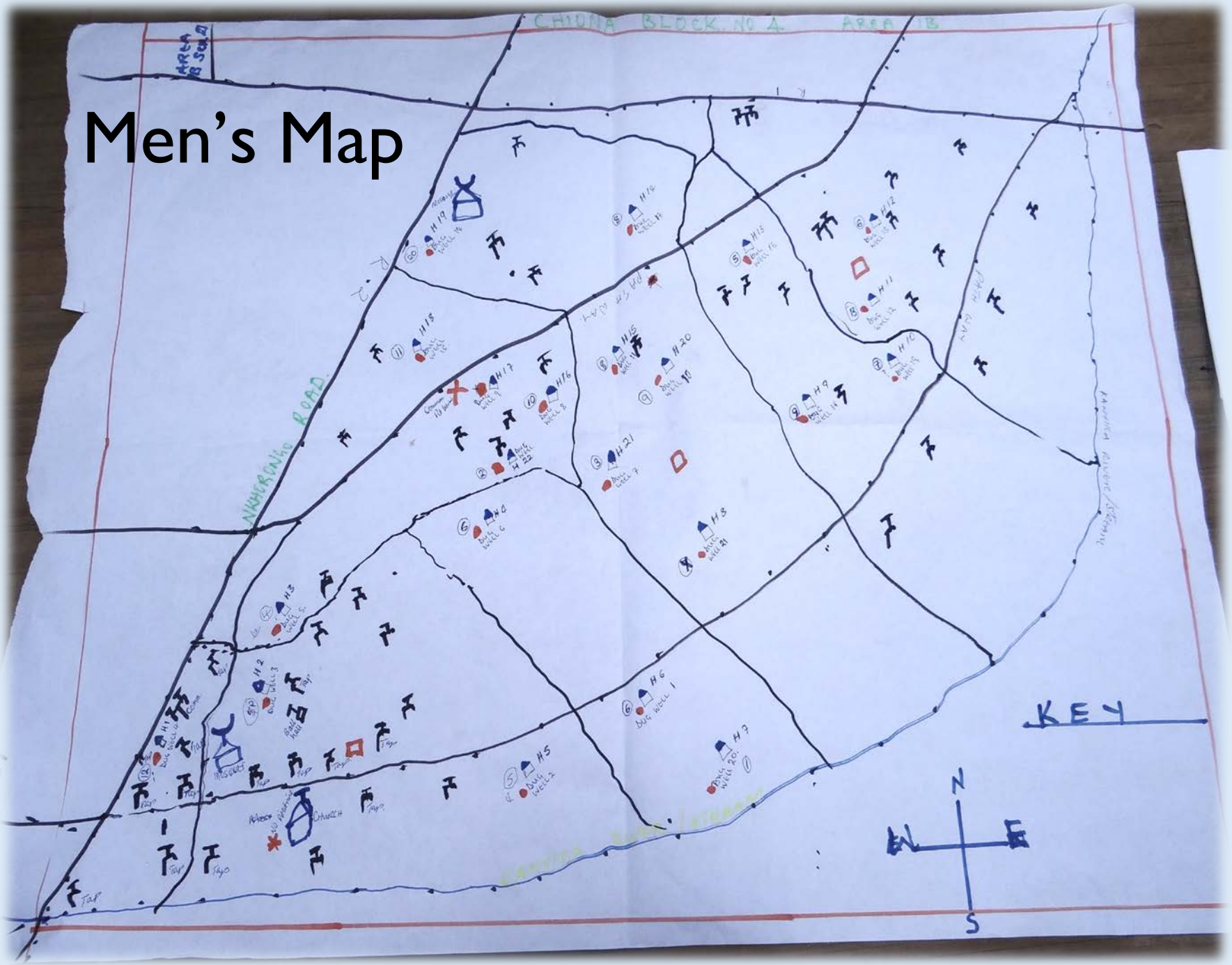
"Unimproved" Facilities

Shared Pit Latrines: 56% of surveyed households share pit latrines

Women's Map

- 31 hand dug wells, 4 non-operational
- 3 operational communal taps, 1 non-operational communal tap
- Drew the church, mosque, and the mill
- Indicated more dug wells

Men's Map



- 22 hand dug wells, 2 non-operational
- 3 operational communal taps
- Men drew a church and a mosque
- Indicated fewer wells to upper side of the map

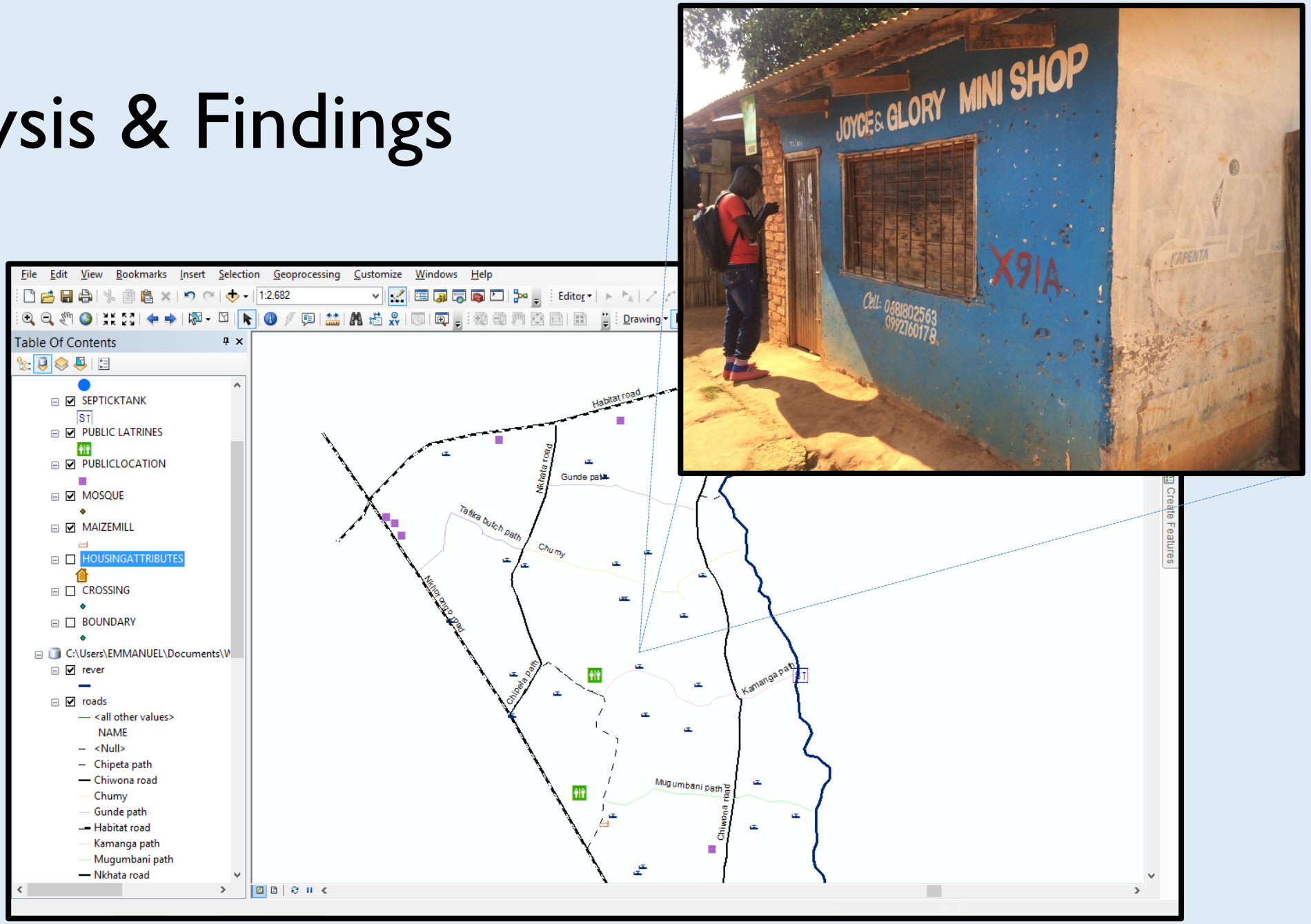
Main Takeaways

- Cost
- Reliability
  - Seasonality
  - Functionality
- Management
  - Trust in committees
  - Poor financial management
  - Importance of social relations
- Use of multiple sources
- Poorly constructed infrastructure
  - Wells
  - Latrines

Data Analysis & Findings

Data Analysis:

- Spatial
- Quantitative
- Qualitative



Spatial Data Analysis

GPS

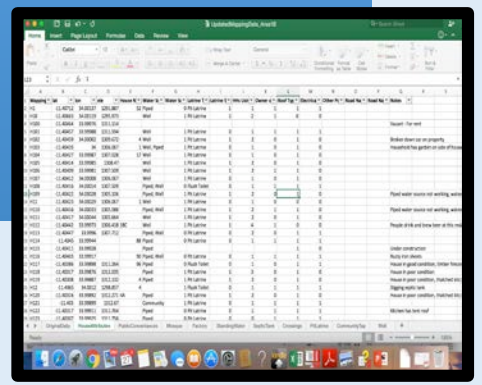
- Collect & Input Information collected from Area 1B Block 26

BaseCamp

- Import & Organize Data

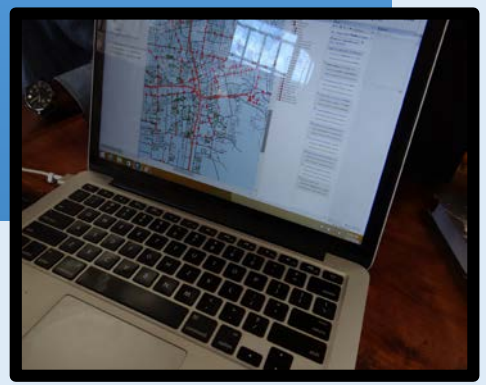
Excel

- Clean Imported Data & Convert Necessary Tracking Coordinates



ArcMap

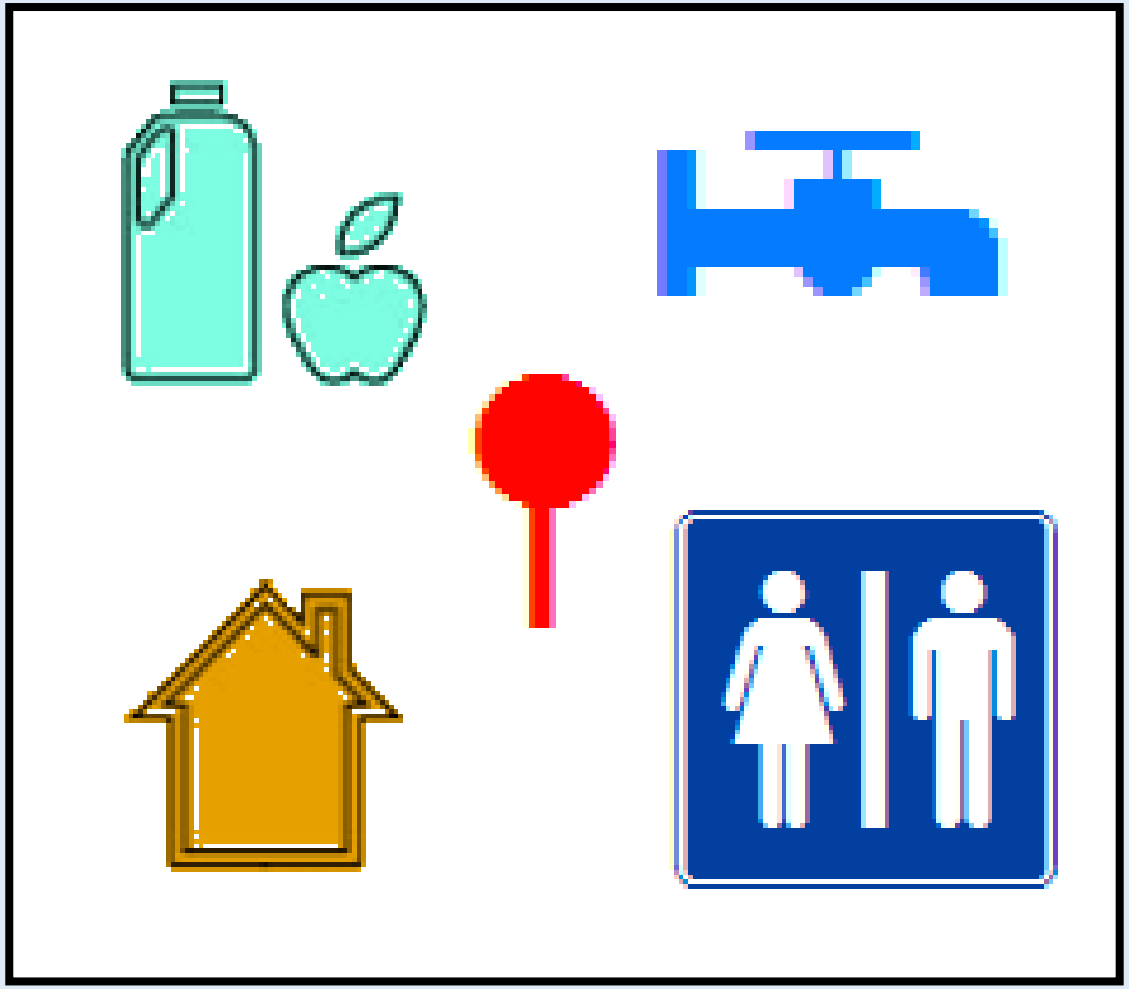
- Develop Map and Perform Spatial Analyses



Map Features

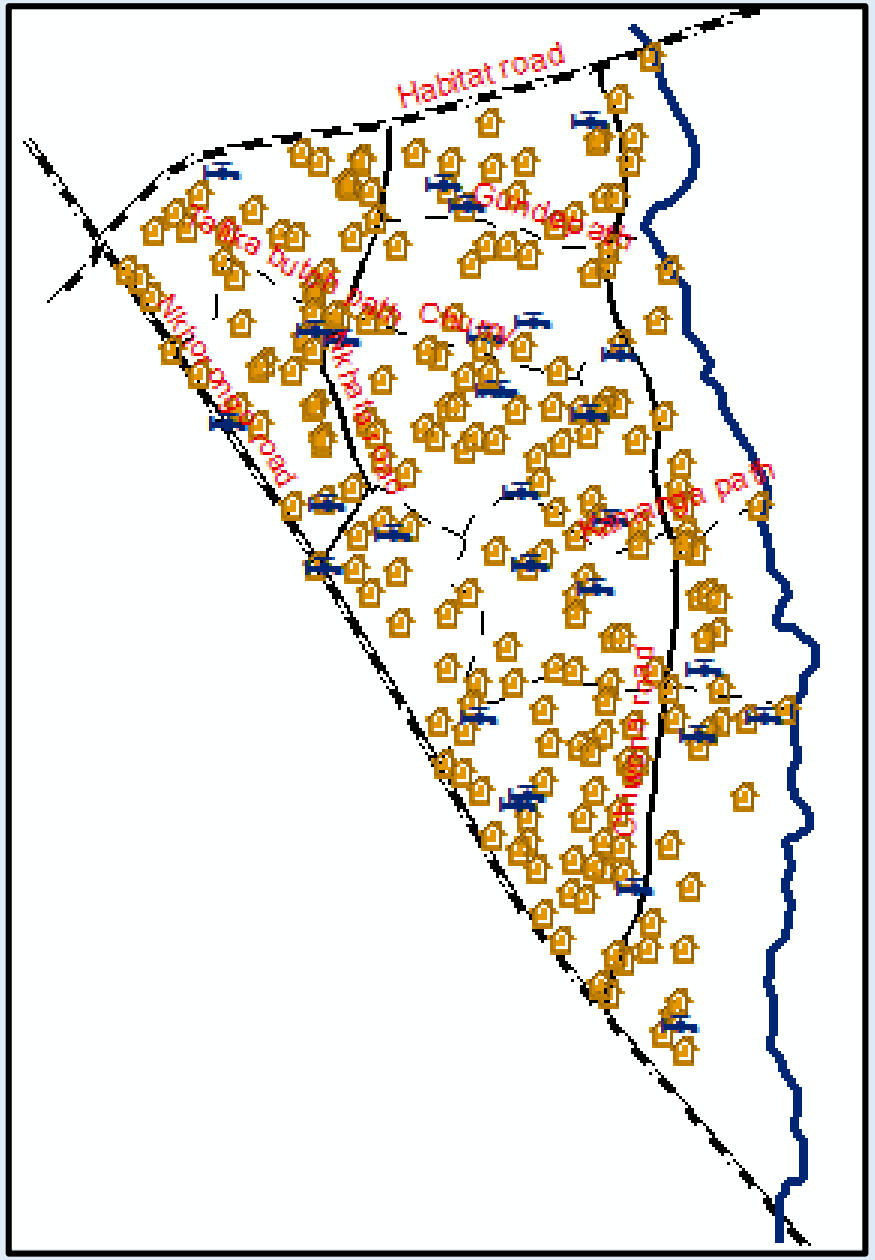
- Community Map:
  - Community Taps
  - Septic Tank
  - Standing Water
  - Public Latrines
  - Wells
  - Shops & Community Conveniences
  - Mosque
  - Roads and Paths
  - Stream/River

- Interactive Map:
  - Community Map Features
  - Satellite Image of Area 1B Block 26
  - Spatial Analysis Layers of Attributes

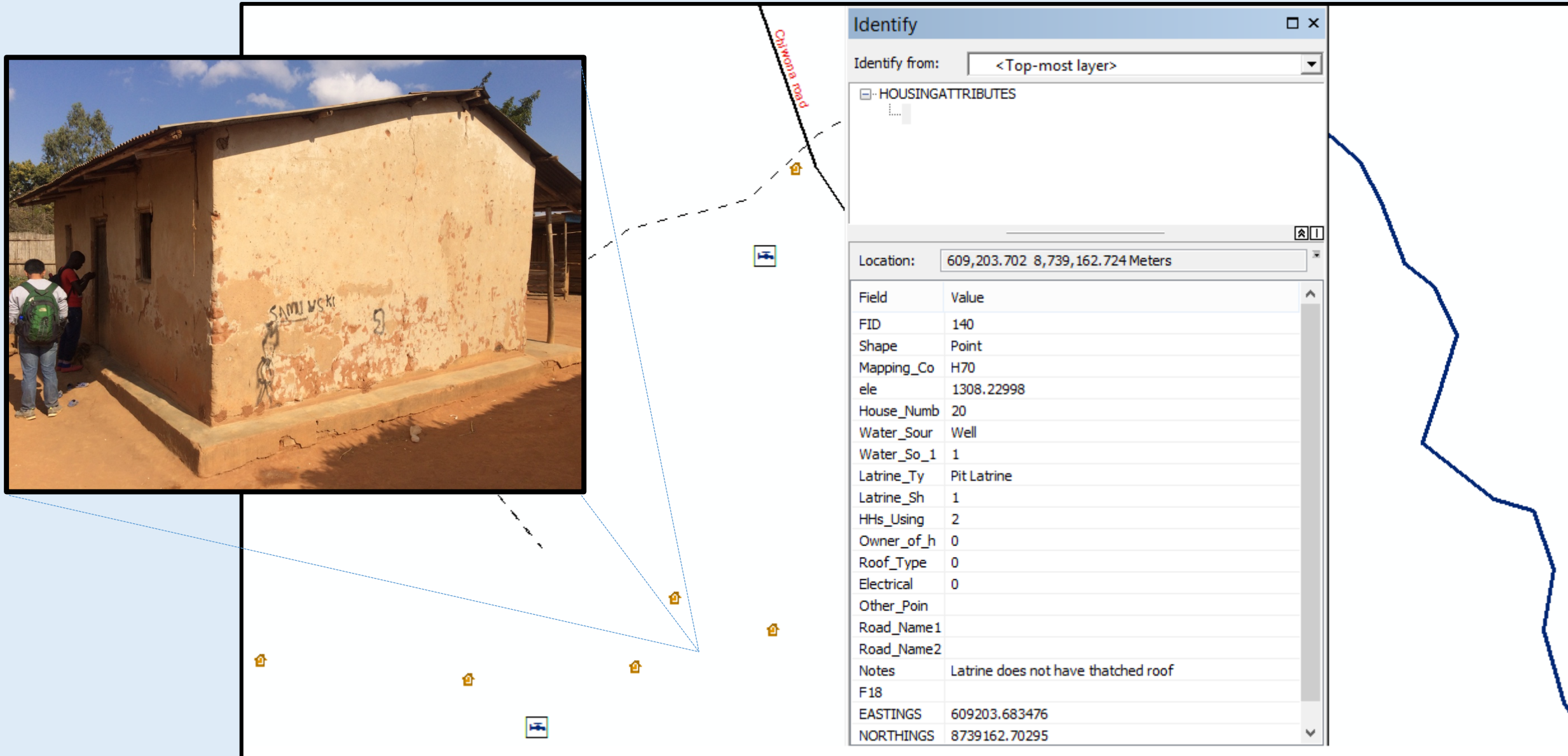


Households

- Features In Map:
  - Households
  - Roads and labels
  - River/Stream
  - Water Points

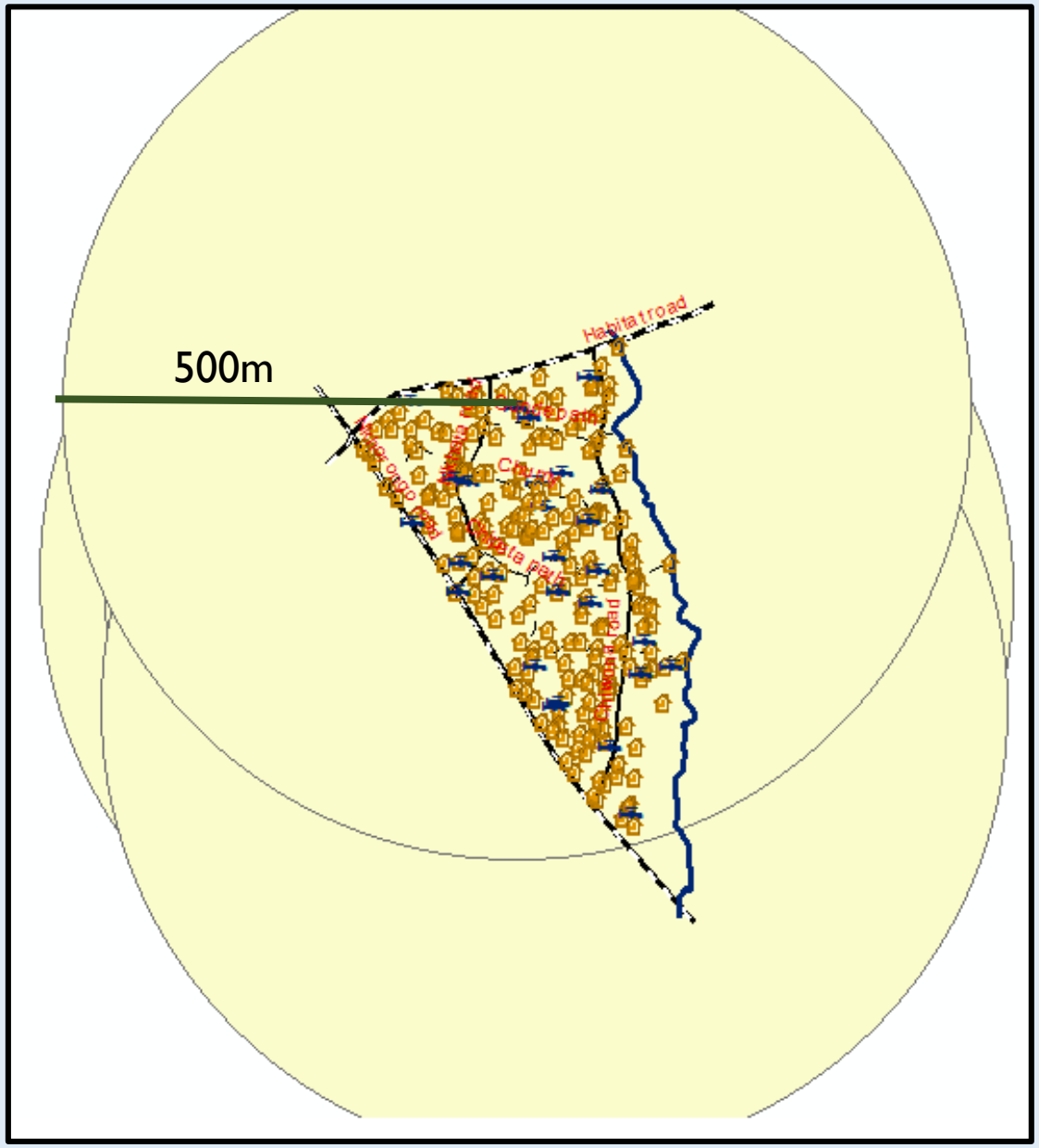


Households cont.

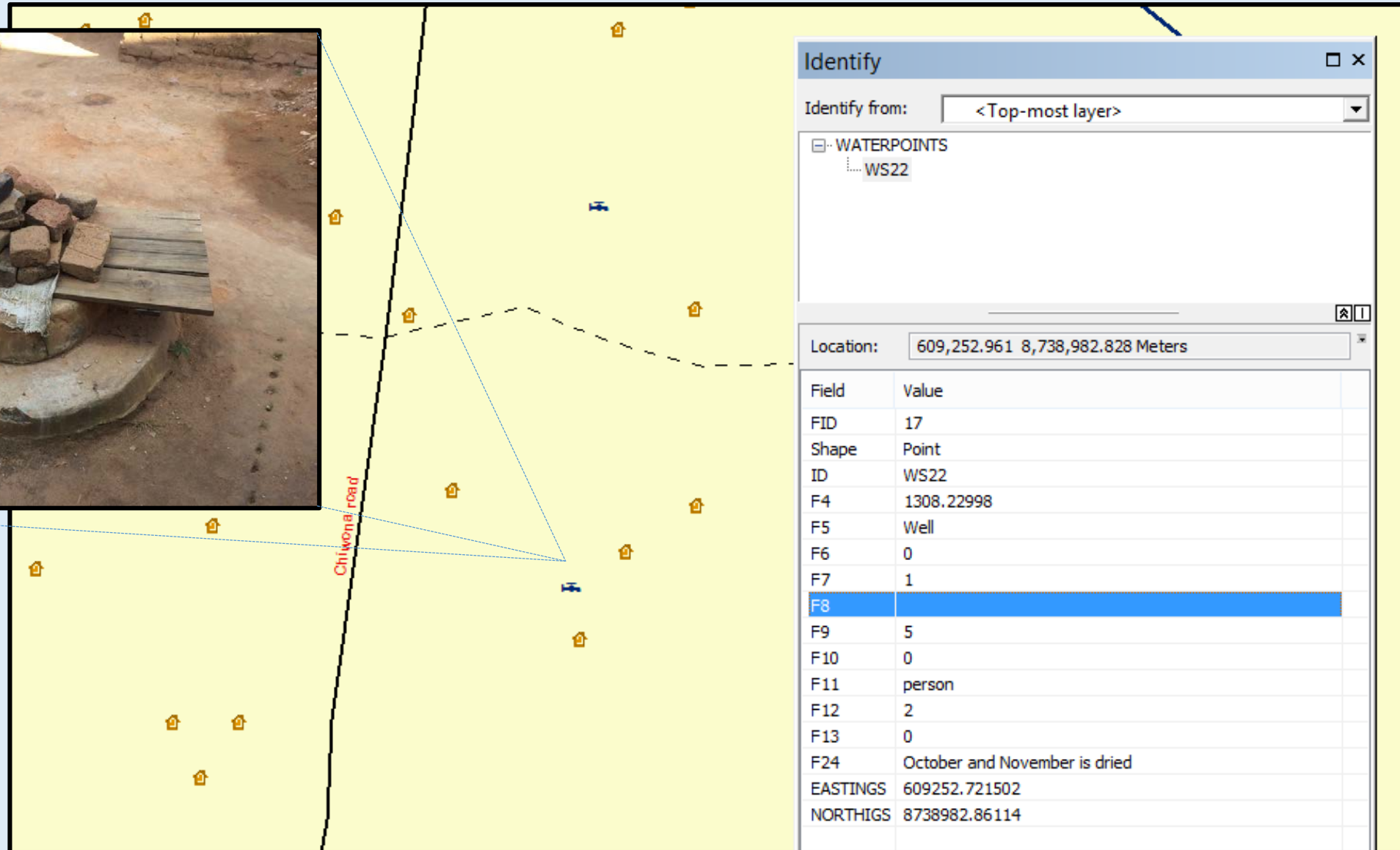


Public Water Points

- Features in Map
  - Water Points
  - Households
  - Roads
  - River/Stream
- Findings
  - All households are within 500 meters of public water points

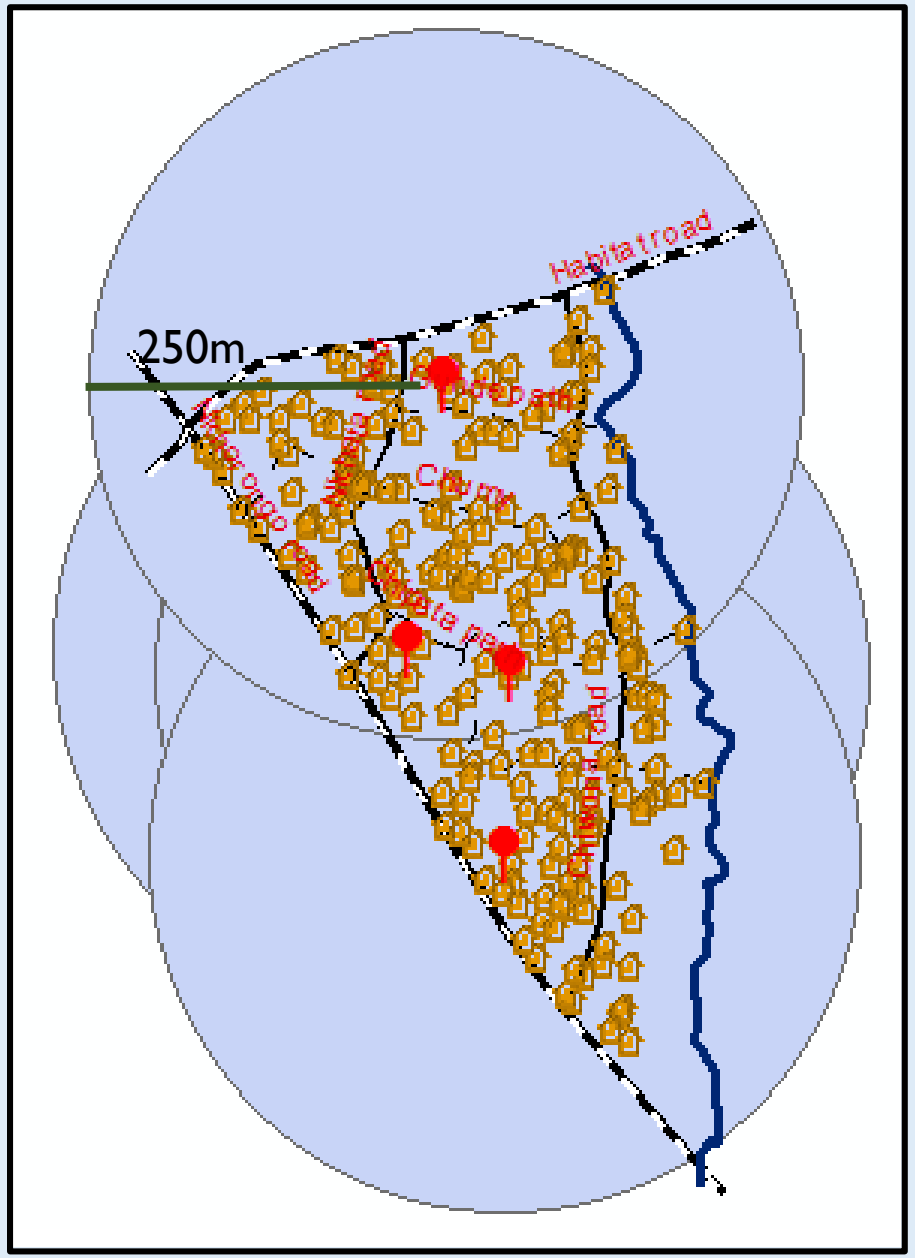


Public Water Points cont.

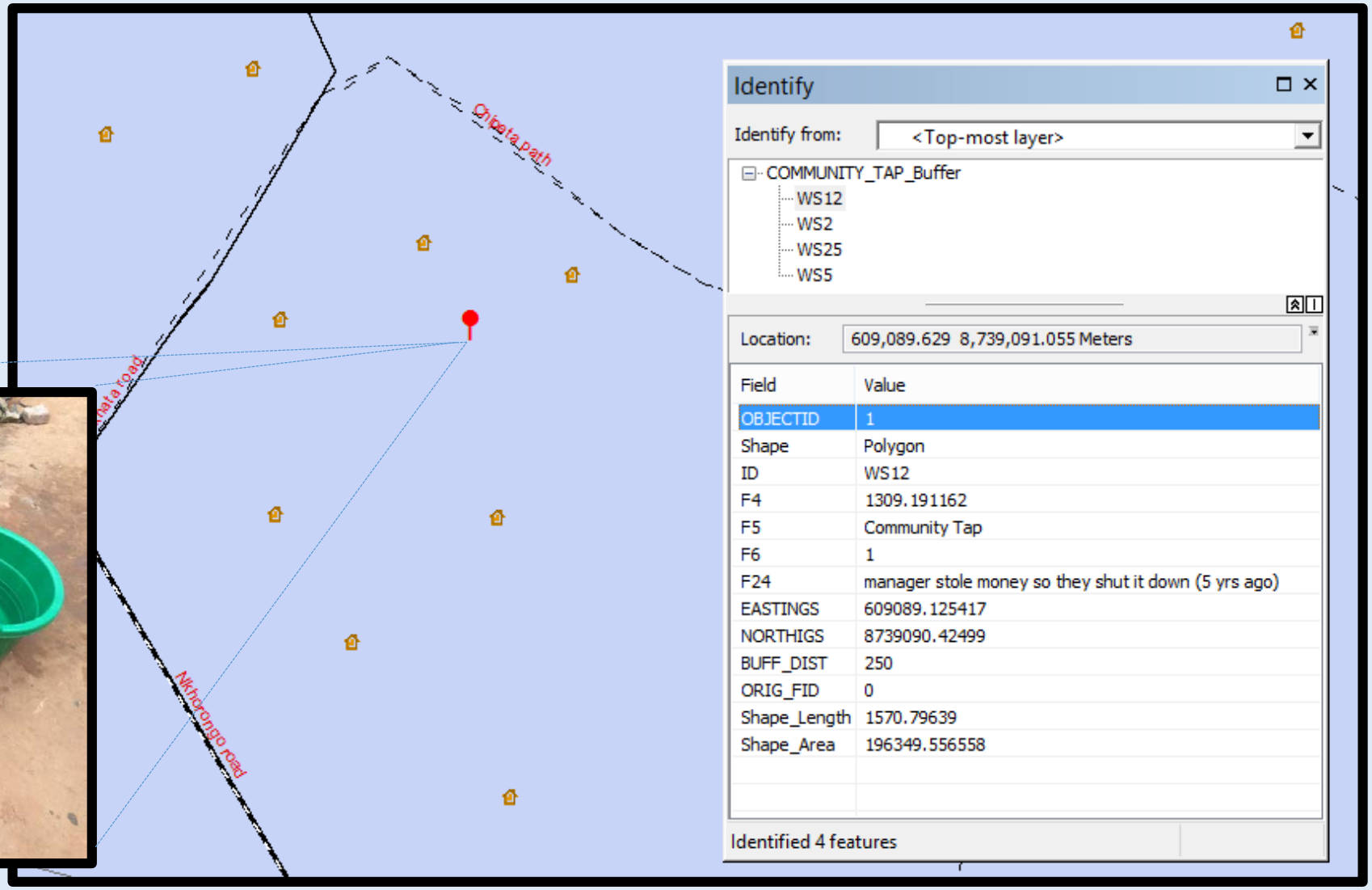


Community Taps

- Features in Map
  - Community Tap
  - Households
  - Roads
  - Rivers/Streams
- Findings
  - All community taps are within 250 meters of households

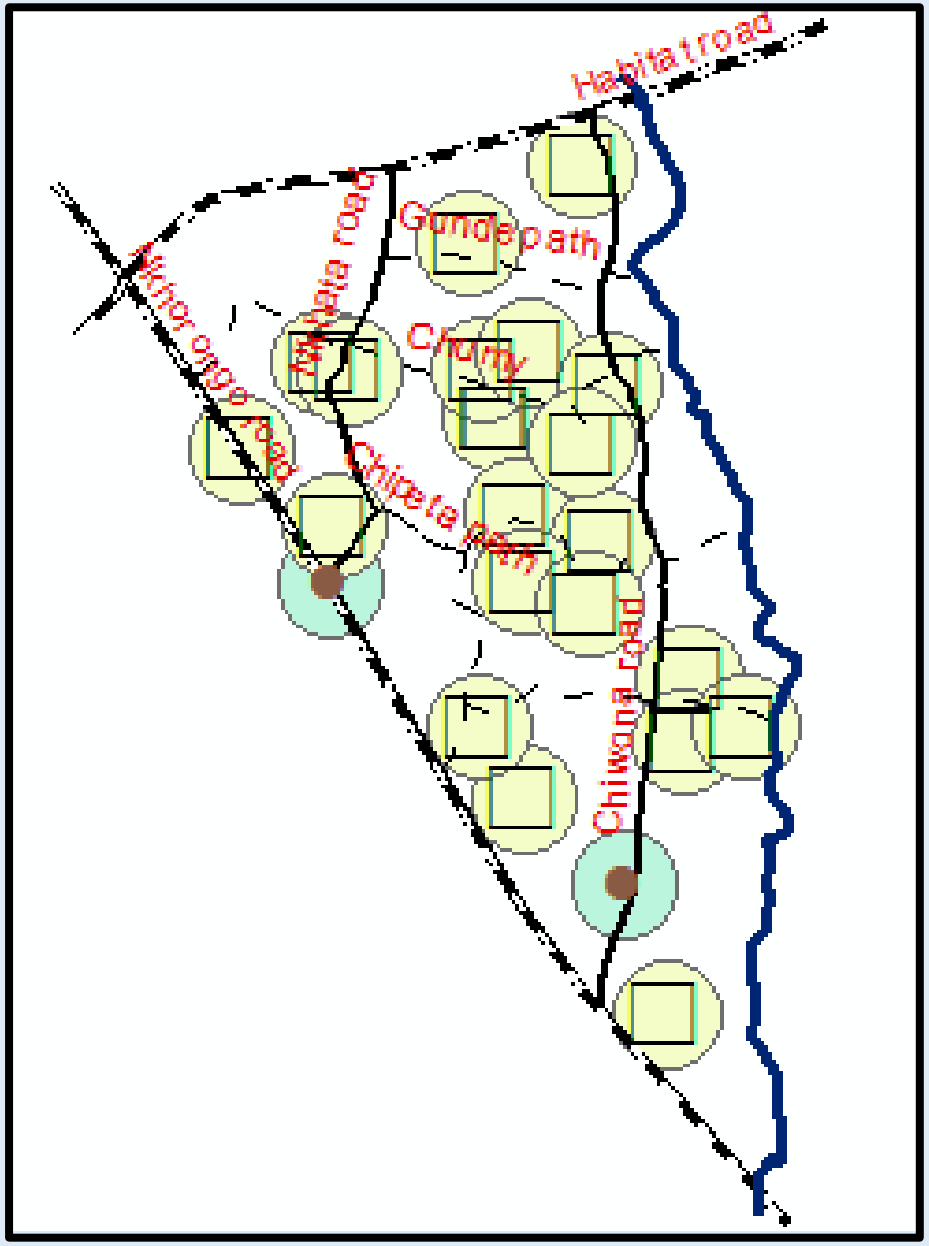


Community Taps cont.

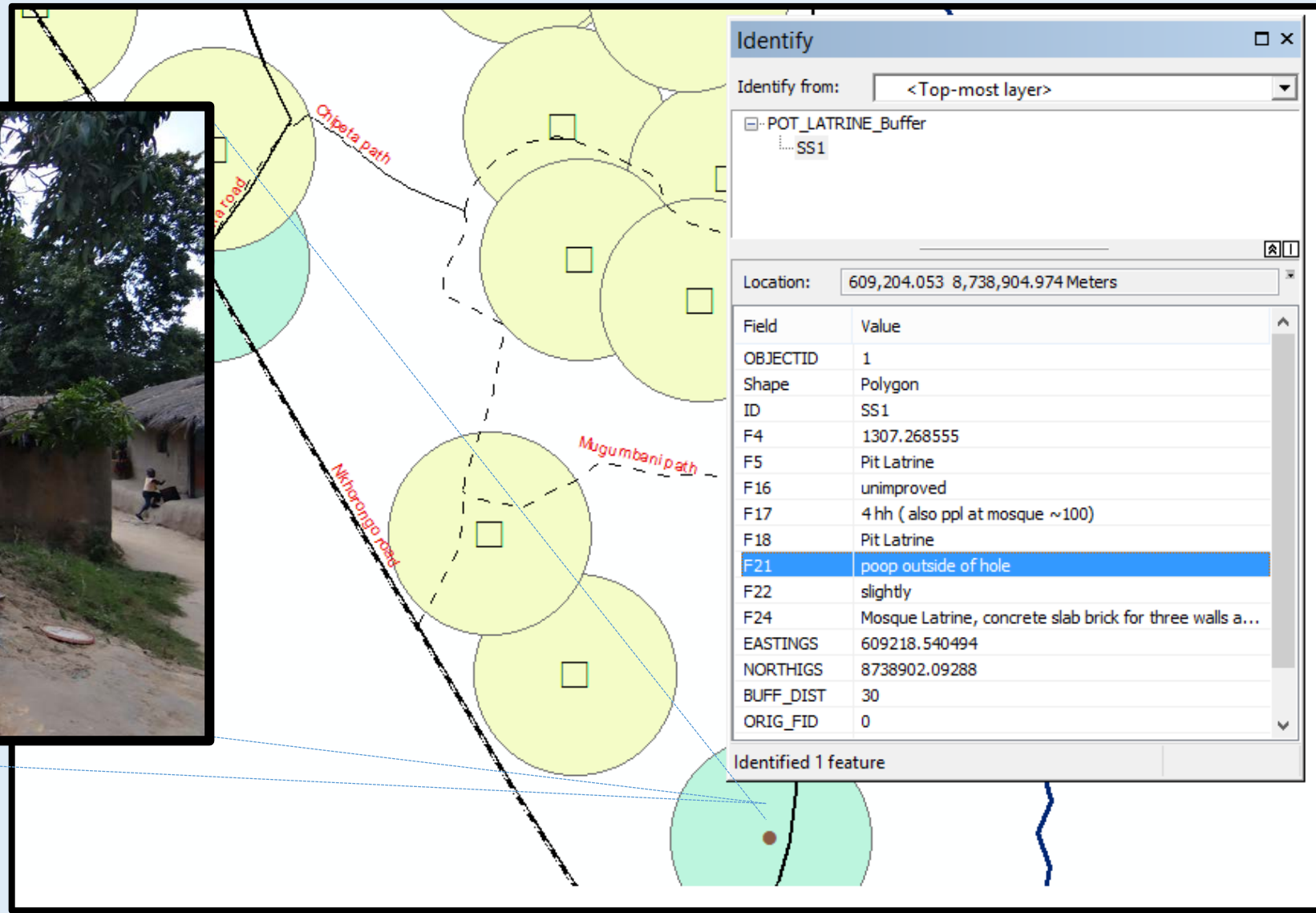


Public Pit Latrines

- Features in Map
  - Public Pit Latrines
  - Public Water Points
- Findings
  - Only 1 out of 4 pit latrines are outside of the required 30 meter radius of public water pointsd

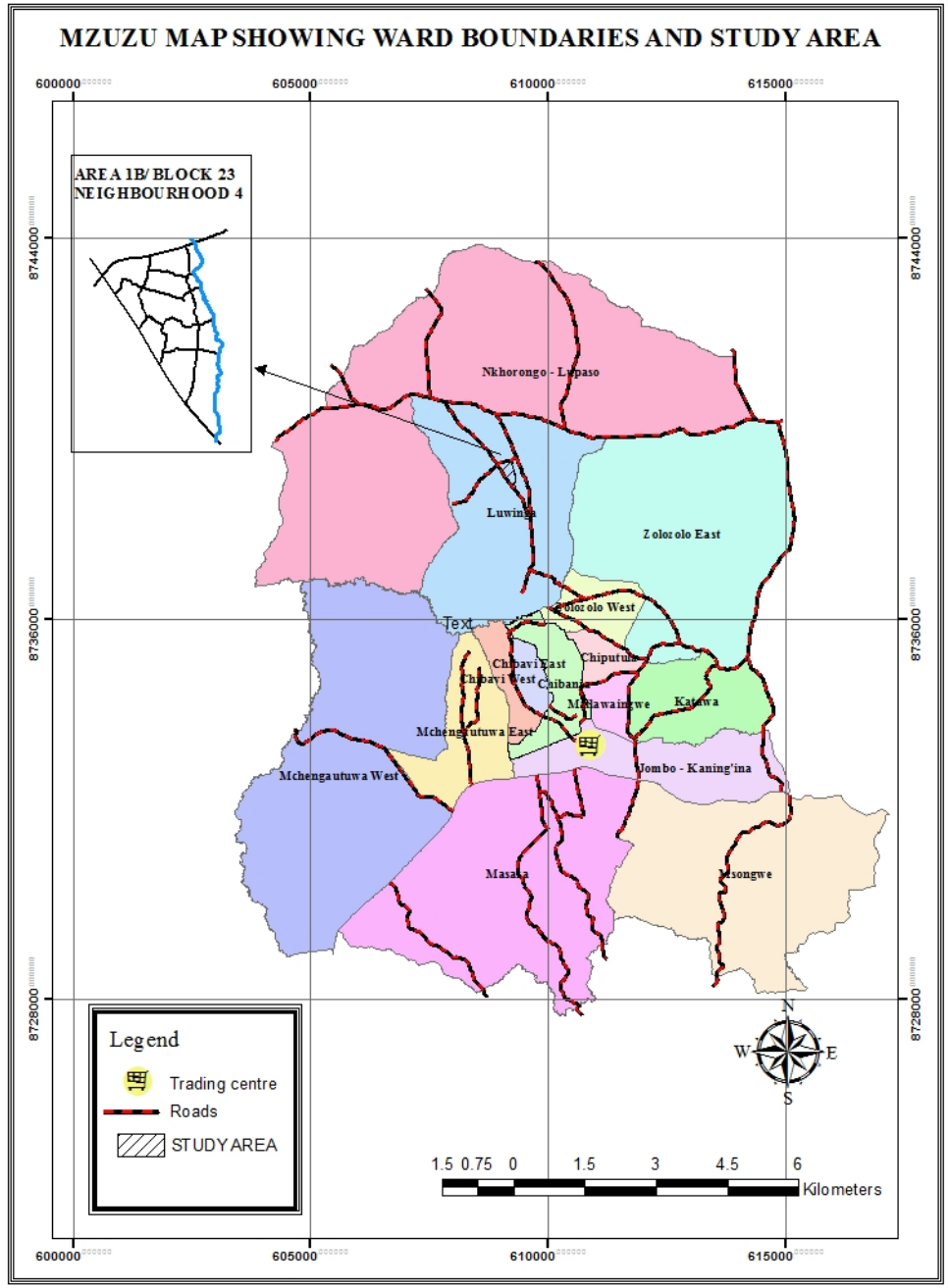


Public Pit Latrines cont.



Main Takeaways

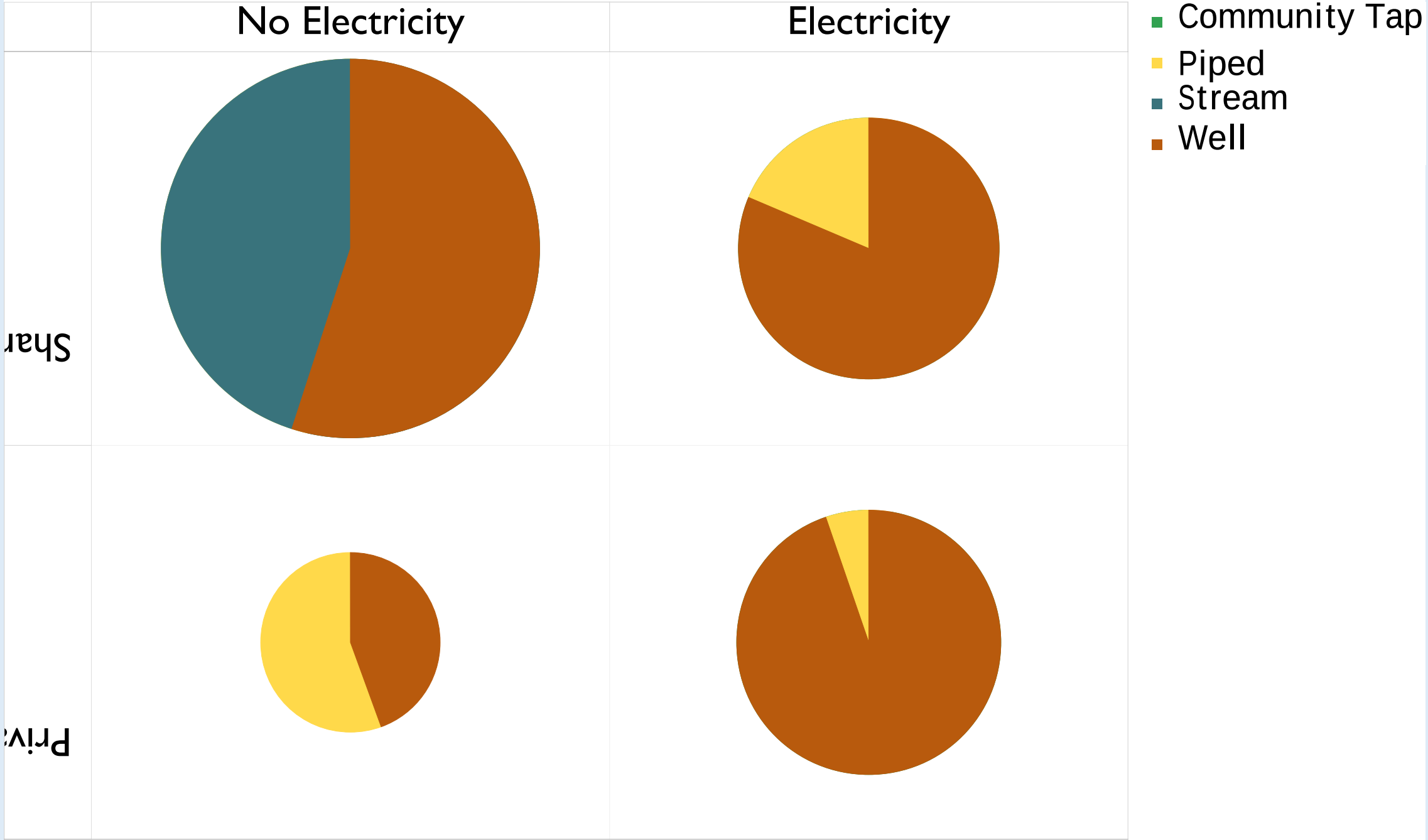
- Community is 100% covered
- Community receptive and engaged
- Accuracy of participatory maps
- Contamination from latrines threatens safe water sources
  - Population density



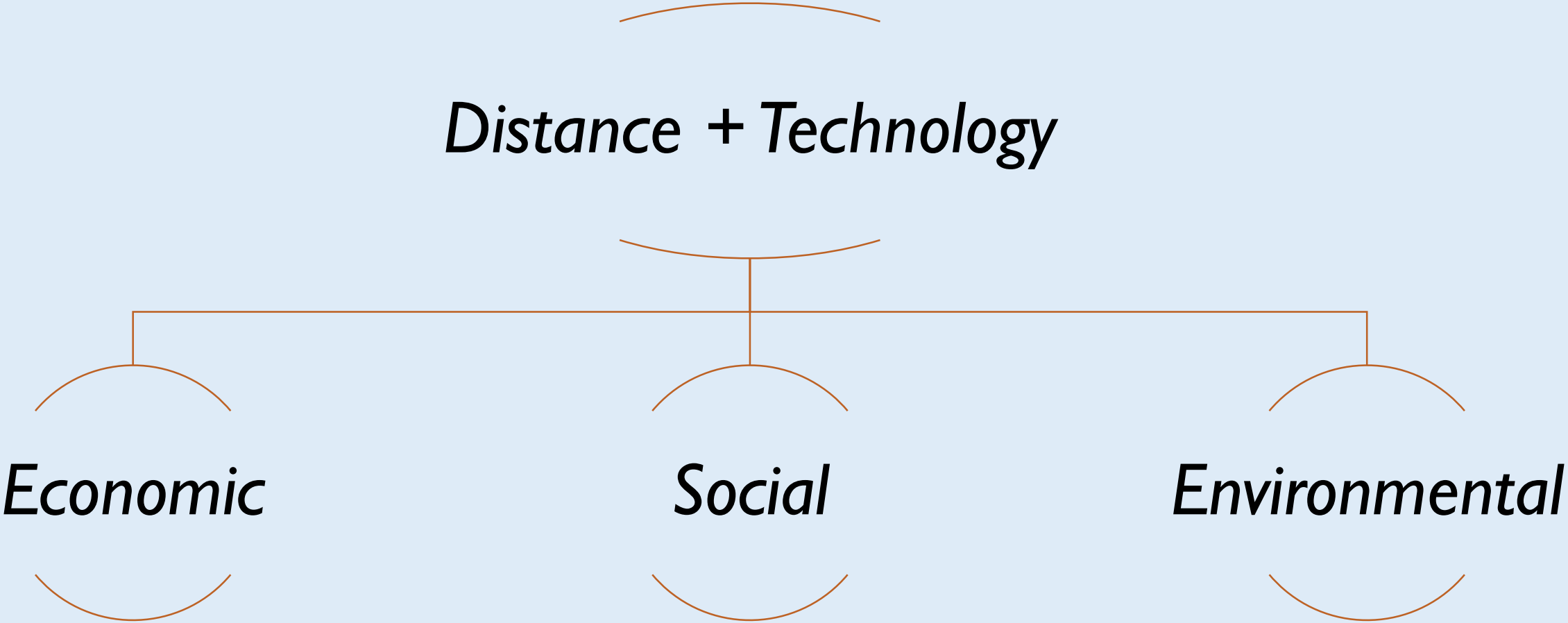
Primary Finding: Water Access in Block 1B

JMP improved access	100%
Piped water access	69%
Piped water sole source	46%

Matrix of Water Sources by Wealth Indicators



Reality of Water Access in Peri-urban Malawi



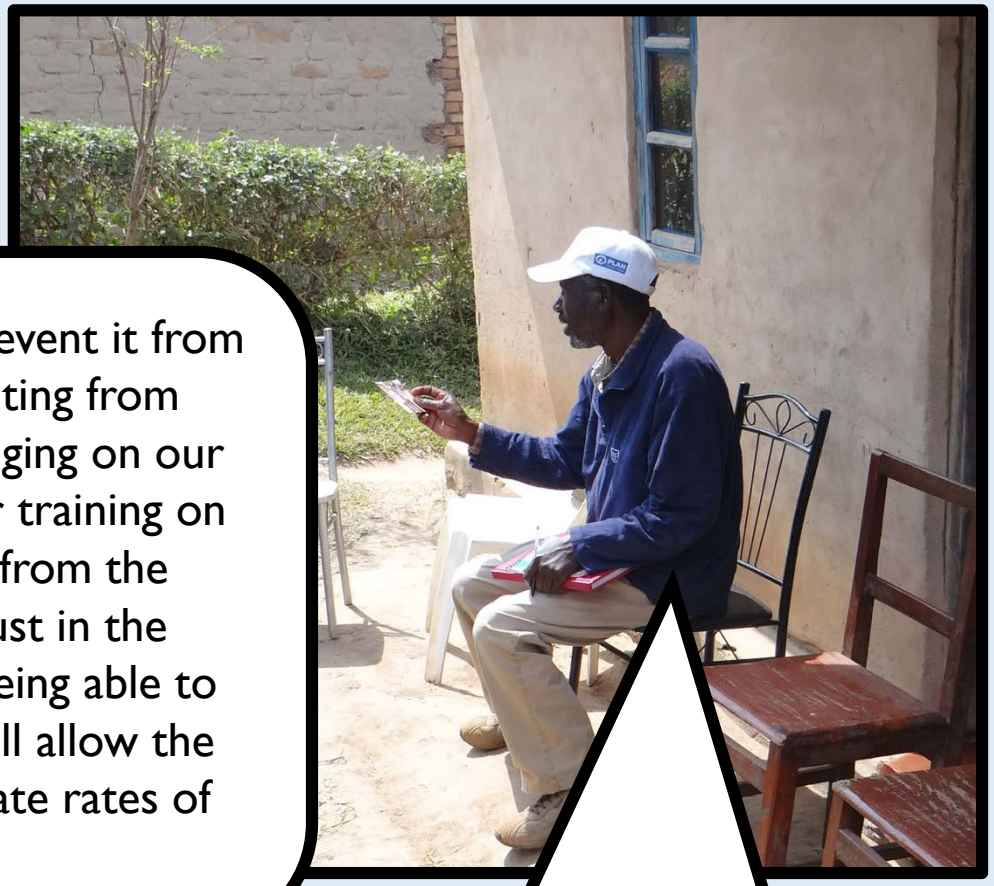
Sharing Findings with the Community

Presenting findings to community for discussion and feedback

Reviewing map accuracy

Discussing future use of map and possible research projects

Quotes



"We want to pre-pay for our water to prevent it from being stolen. The Water Board is profiting from privatizing the community taps and infringing on our access and use of water. We want better training on how to use the meters for the water from the community taps. There is a lack of trust in the community towards the Water Board. Being able to better keep track of our own meters will allow the community to advocate for more accurate rates of water use and charges."

"We want the gap between the community and Water Board breached. We want a mediator between the community and the government. The community wants water quality testing. There is a lack of funds to cover the cost for testing. We need the technology and expertise to use the water quality testing equipment ."

Summary of Findings

- Definition of access impacts results
- Affordability main barrier
- Importance of community participation in evidence-based decision making
- Qualitative research complements GIS data

Recommendations

- Affordability assessment
- Explore misunderstandings between water users and Water Board
- Water quality testing of unimproved sources
- Expand mapping scale
- Integrate with existing data collection efforts

Thank you | Zikomo kwambiri | Tawonga chomene