Practical Application of GIS Methods and Tools to Guide Spatial Targeting and Micro-planning

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GIS and Planning
Right to Care (Group)
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A FEW QUICK NOTES

1. Welcome Local Partners – In the chat, tell us where you’re from.

2. Please use the Q&A box to ask questions and the chat box for answering questions asked by the presenters.

3. We have a few polls during the webinar today. They will pop up on your screen.

4. The presentation for today’s webinar will be saved on ASAP’s website at www.intrahealth.org/asap-resources
1. Strengthen local partners to comply with regulations as they transition to receive PEPFAR funding as a USAID prime partner.

2. Prepare local partners to directly manage, implement, and monitor PEPFAR programs, and maintain consistent PEPFAR program achievement and quality.

Rapidly prepare local partners to have the capabilities and resources to serve as prime partners for USAID/PEPFAR programming, in compliance with USAID and PEPFAR procedures, for PEPFAR program implementation in FY 2022 and 2023.

70% of USAID PEPFAR funding to local prime partners.
KEY RESULTS from ASAP I & II

ASAP has supported
126 local organizations in 18 countries

113 local partner organizations

13 local government partners
<table>
<thead>
<tr>
<th>ASAP II-SUPPORTED COUNTRIES</th>
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<tbody>
<tr>
<td>Angola</td>
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<td>Cameroon</td>
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<td>Côte d’Ivoire</td>
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<td>DRC</td>
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<td>eSwatini</td>
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<td>Ethiopia</td>
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<td>Lesotho</td>
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<td>Malawi</td>
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<td>Namibia</td>
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<td>Nigeria</td>
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<td>South Sudan</td>
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<td>Uganda</td>
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<td>Zimbabwe</td>
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</table>

ASAP I additional countries:
- Kenya
- Mozambique
- South Africa
- Tanzania
- Zambia

18 total countries
USAID/ASAP has broadcasted 90 webinars for more than 20,000 attendees in 76 countries.

Find past webinars on ASAP’s web page www.intrahealth.org/asap-resources
AVAILABLE IN 3 LANGUAGES

Choose your language or topic.

Webinars in French, English, and Portuguese.
Download a pdf of the presentation.

Watch a recording of the webinar.
Dr. Dorman Chimhamhiwa & Victor Bangamwabo

Right to Care, a South Africa-based USAID local partner and ASAP II Consortium Partner
1. Orient participants on using GIS systems and tools for spatial targeting and micro planning.
2. Present a practical example to demonstrate the setting up, analysis, visualization, and decision-making support from GIS.
Outline

Webinar will comprise two main parts, in line with the objectives.

PART A: Participants’ Orientation:
1. Why GIS?
2. Defining the geolocation of your points of interest
3. Setting up your GIS system:
   ▪ GIS data collection systems
   ▪ Integrating locational and non-locational data in a GIS environment.
   ▪ Analyses and visualization in support of enhanced program implementation, targeting and microplanning
   ▪ Some examples

PART B: GIS Practical Demonstration
Why GIS?

Unlike other systems, GIS helps to:

a) Identify problems – illuminate issues that are driven by geography
b) Monitor change – visualize locations where change is happening and communicate the change
c) Manage and respond to events – deliver situational awareness in a unique manner (sometimes in real time)
d) Forecast – support analysis of “what if” scenarios
e) Set priorities
f) Understand trends – visualize data to gain insights that might be missed in a spreadsheet
Before we start, let's get to know a bit about your work.

**Question 1:** Use the Zoom meeting chat box to write down the kind of work your organization does.

**Examples:**
1. Nutrition support for children in Zimbabwe
2. Support for adolescent girls and young women in Burkina Faso
Deciding what geolocational information to collect and how, is a critical step as you set up your GIS

Examples of program support areas and the GIS data that could be collected:

- Health Systems
- Nutritional Support
- Emergency Response
- School-based Interventions

Geo location data defined as:

- GPS coordinates (latitude, longitude)
- Addresses
  - Street, suburb, settlement/town
  - Village, settlements,
- Health facility that provides care/school where nutritional services are based, etc.
- Landmarks
- Mapped points; water points, village headmen homestead, etc.
- Service routes
- Other mechanisms for defining location
Simple to complex GIS data collection systems can be set up

- Real Time
- Mobile Application based
- Online/Offline synchronization

- Create simple to complex systems, depending on needs and resources.
- Deploy the data collection tool onto a tablet/cell phone.
- Have the capability to collect data that is both online and offline.
- Support single-use and multiple users.
Key program and non-program data is geo-mapped in appropriate GIS software

Key Steps:
- Downloading data from data collection tools
- Structuring, formatting, and cleaning data
- Pulling and preparing other program data for GIS
- Integrating data in GIS
- Conducting simple spatial analytics
- Conducting complex/advanced spatial analytics
- Visualizing
Example 1: 
Supporting HIV programming by using GIS

1. First 95: Testing

Geo spatial mapping of:
- where we should be testing in the community
- where hotspots are
- where the target population is highly concentrated
- Facility and community level driven participatory mapping of disease burden and risk profiling
- Integrated analyses using multiple datasets

2. Second 95: Treatment

- Mapping spatial patterns of ART uptake to identify areas with greatest gap in care
- Monitoring spatial patterns of ART coverage over time
- Supporting community tracking of LTFUs through track and trace tools

3. Third 95: Suppression

- Visualize spatial distribution of retention and viral suppression to identify areas with poor retention and suppression that require targeted interventions
- Identify areas with high rates of viral suppression, where patients can be treated in the community
- Visualizing facility level viral suppression and access
- Planning for viral load scaling up (Strengthening specimen transportation and resource optimization)
- **where should we place what resources** - e.g. pickup points, viral load analyzers etc
Data-driven analysis supports identification of potential high-yield areas

- Analyzed community testing data to determine where we still see potential for high-yield testing, so we can prioritize team deployment
Geo analysis of health facility testing vs community testing to inform best resource deployment

How do the clinic results compare to the community testing results?

Should testing and treatment programs be continued in the area, or should resources be deployed elsewhere?
Participatory Mapping strengthens targeting of Community Testing areas

“In its broadest sense, participatory mapping means creation of maps by local communities.”

We use participatory mapping to understand:

a) How health facilities perceive their population
b) Where the catchment area is
c) Where the Key Populations are
d) Where community testing has been done

Then, additional, third-party data is overlaid to get a better picture.
Using GIS to support Planning of Viral Load scale up activities in Zambia

**Facility level assessments done**

a) Mapping of geo-locations of 2500+ health facilities in Zambia’s 10 provinces

b) Assessment of availability of key infrastructure at health facilities, using a Survey123 GIS tool deployed on tablets

c) Mapping of specimen transportation routes and road networks to be used

**Secondary data**

<table>
<thead>
<tr>
<th>Data set</th>
<th>Data elements</th>
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<tbody>
<tr>
<td>Clinical data</td>
<td>Clinical data, HIV burden spread, ART, facility catchment population</td>
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<tr>
<td>Census data</td>
<td>Population</td>
</tr>
<tr>
<td>Roads data</td>
<td>Transport network, roads classification (supplemented with GPS tracked data)</td>
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<tr>
<td>Administrative boundaries, Town and cities</td>
<td>Provincial and district boundaries, Town and cities</td>
</tr>
<tr>
<td>Hydrology and topography</td>
<td>Rivers, lakes and other natural features</td>
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**GIS-based analyses**

Undertake comprehensive analyses in support of (a) specimen transportation, route optimization, resource placement, and coverage of health care; (b) implementation of programs.
Some results from the Zambia EQUIP work
Example 2:

Supporting Covid19 vaccination using GIS - South Africa
1. GIS dashboards: help understand coverage at local level, and monitor weekly progress at settlement and ward level.

2. Use GIS dashboards and printed maps to conduct micro-level planning, targeting, and planning ideal outreach locations.

3. Ramp up targeted interventions (e.g., create demand using appropriate tools).

4. Vaccinate in identified critical wards and settlements.

5. Field/survey to capture and monitor direct vaccination daily.

GIS tools are used to strengthen implementation and achieve better results.

A mobile public-facing app/tool for finding nearest vaccination sites.

Mobile app/tool for supporting social mobilization.
Data & tool triangulation to enhance an integrated use of GIS tools

(i) Vaccine coverage provincial dashboards:
Identify where the gaps are

(ii) Social Mobilizer App:
Capture efforts at social mobilization in areas identified in (i)

(iii) Daily monitoring tool:
Reflect what demand identified in (ii) has been mapped. Reflect change on next weekly analysis in (i)
Use GIS tools to assess the readiness of public health facilities to integrate COVID-19 vaccines into their routine health services (1)
Assess readiness of public health facilities to integrate COVID-19 vaccines into their routine health services (2)
PART B
Using GIS to analyze data and communicate results with maps - A Practical Demonstration
Question and answer session

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