



Self-help Initiative Support Services

SISS

Urban Life Line Project
GIS Slum Mapping



Overview:

Urban Lifeline Project (ULP)

is a four-year project being organized by
Self-Help Initiative Support Services (SISS)
in partnership with
African Outreach, UK
with sponsorship from
Comic Relief ,UK

ULP Core Target:

helping improve the livelihoods of people
residing in urban slums

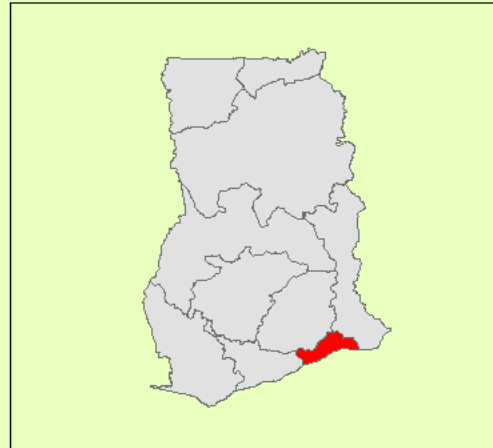
Area of Interest: Agbobloshie Slum

Location Maps

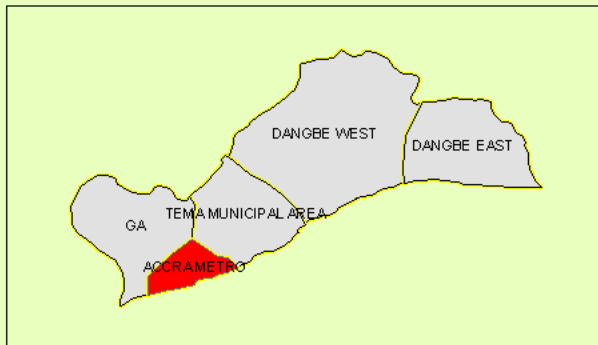
Ghana within Africa



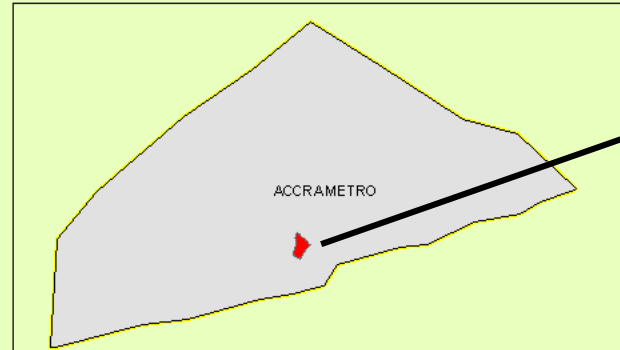
Greater Accra Region within Ghana



Accra Metro District within Greater Accra Region



Agbobloshie Slum within Accra Metro District



Key Attributes

- in the heart of the capital city, Accra
- Unplanned
- overcrowded
- Busy
- scanty social amenities



2010

Agboblshie Slum



ULP Current Activities



*Hardware



Hairdressing



Batik/ tie and dye



Bead making



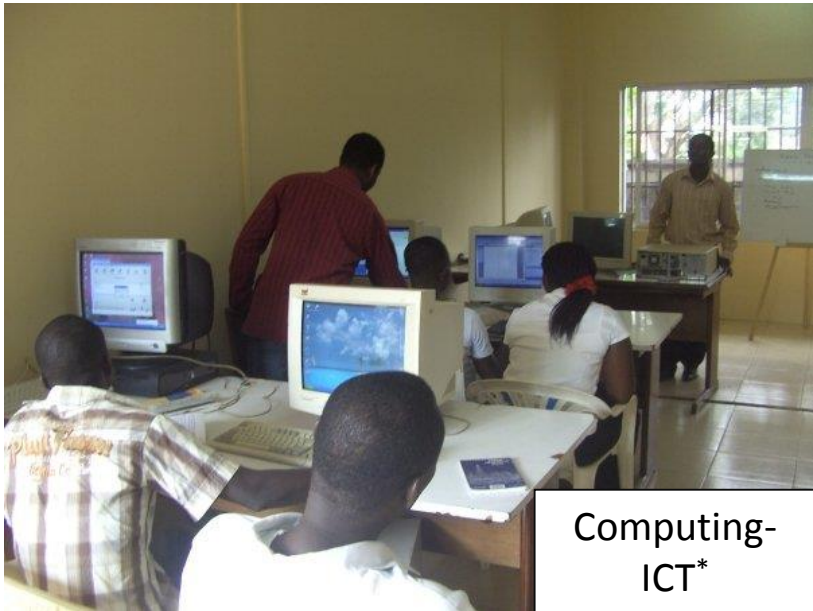
ULP Current Activities



Advocacy



Micro-lending



Computing-
ICT*

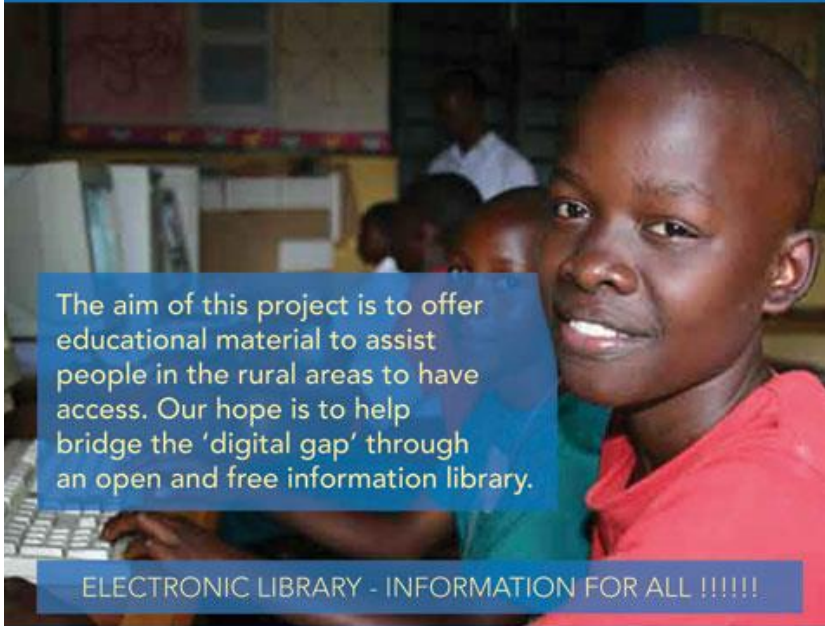


Catering

* Microsoft Word, Excel, Publisher, PowerPoint and Access, Corel Draw, Hardware)

 Self-help Initiative Support Services (SISS)

THE ELECTRONIC LIBRARY PROJECT (ELP)



The aim of this project is to offer educational material to assist people in the rural areas to have access. Our hope is to help bridge the 'digital gap' through an open and free information library.

ELECTRONIC LIBRARY - INFORMATION FOR ALL !!!!!

Features:

- Access to the World Wide Web
- Access to digital and electronic material
- Information literacy programs
- Civic participation
- Vacation school programs
- Youth programs
- Research assistance

Please contact tel: 233-21-520-327 email: sisgh@yahoo.com/sisgh@gmail.com

www.sisghana.org

 Self-help Initiative Support Services (SISS)

INTERNSHIP PROGRAMS



SISS collaborates with academic institutions to offer internship opportunities to students in Universities and Colleges.

Areas:

- Community Development
- Grass-Root Mobilization
- Organization Of Groups
- HIV Service Delivery
- Mentorship
- Volunteering
- Vacation School Project

Please contact tel: 233-21-520-327 email: sisgh@yahoo.com/sisgh@gmail.com

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Need for location based (spatial data)

Presently no detailed maps or location based data exists for the area. This is a hindrance in developing and implementing support schemes and further in evaluation of work done

Aims

- To better manage SISS' resources via location based knowledge and carry out estimations and projections
- To understand underlining trends that are prevalent to the area

GIS as a solution model

Objectives

- To spatially reference facilities and other point of interest within and near the urban slum (Agbobloshie)
- To link past, present and future activities, understand and better plan future activities.
- To affirm assumptions made during planning of previous projects
- To create a system that can integrate data from diverse sources (aerial images, GPS location data, pictures, files, documents, Excel etc. etc.) and create up-to-date dynamic maps and assist staff in generating reports that will facilitate intervention, planning and implementation
- To compare actual (on the ground) demographics to estimates provided by government and private agencies*
- To create spatial queries on population, proximity, density, housing schemes and sleeping patterns *

Workflow

1. Slum dwellers were trained to pick *GPS data



Roads banks health posts cinemas
 schools prostitution rings sanitation
 religious bodies Micro finance beneficiaries
 location of trainees

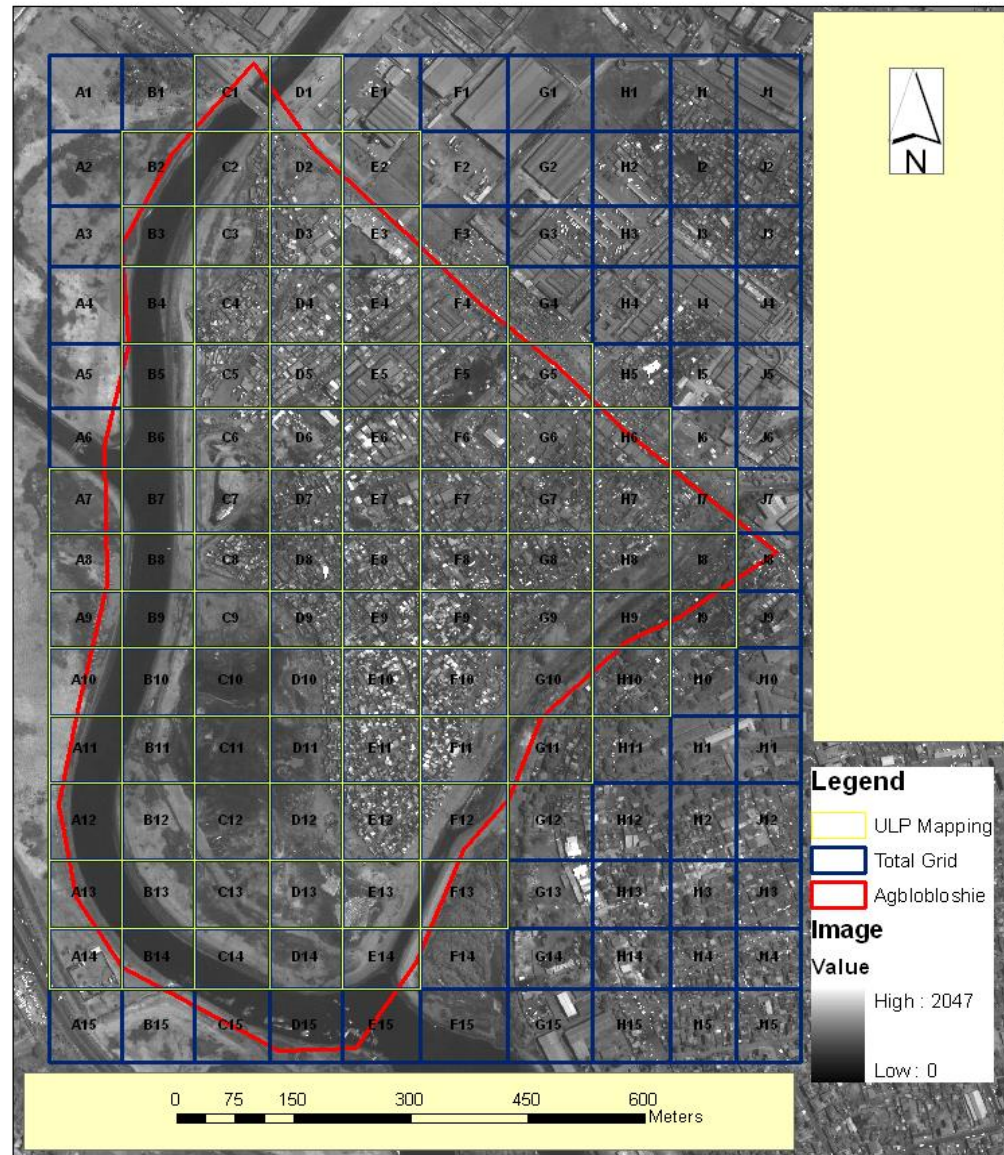
data collected by 6 trainees and two volunteers

* Global Positioning System

Workflow

SISS used a Panchromatic satellite image to grid the slum area. The grids were then used to plan field work

Agblobloshie Grid



Workflow

2. Data Entry (by trained slum dwellers)

Category	Facility
AE	Artisan Enterprises
BAR	Bar/Drinking Spot
BH	Bath House
BK	Bank
CC	Communication Center
CH	Church
CN	Cinema
DB	Dump Site
FJ	Food Joint
H	Health Post
KVIP	KVIP
LP	Lorry Park
MKT	Market
MSQ	Mosque
ORG	Organisational body
PB	Public Bath
PE	Private Enterprise
PI	Public Institutions
PT	MasterFacility
SCH	
WS	



ID	FacilityName	N	W	FieldOfficer
1	Dump Site	5.5532	-0.22361	Samari Patrick
2	Bamsun Company Ltd	5.55258	-0.22269	Samari Patrick
3	Fudzico Agency	5.55521	-0.22546	Samari Patrick
4	J'Piter Printing Press	5.55545	-0.22573	Samari Patrick
5	Great Overcomers	5.54793	-0.21948	Teni
6	Public Toilet	5.54755	-0.21979	Teni
7	All Blessing From Jehovah	5.54738	-0.22024	Teni
9	Bath house	5.54698	-0.22064	Teni
10	Public Toilet	5.54576	-0.22139	Asante Samuel (Kofi)
11	Hair Dresser's Salon	5.54555	-0.22196	Teni
12	Pharmacy	5.54543	-0.22218	Aginkwa
13	Drinking Spot	5.54674	-0.22135	Teni
14	Mosque	5.5452	-0.22143	Alem Mumuni (Baw)
15	Church	5.54867	-0.22148	Teni
16	Bob's Business and Communication Centre	5.54469	-0.22287	Alem Mumuni (Baw)
17	Bath and Toilet house	5.544	-0.22248	Aginkwa
18	Bath house	5.54395	-0.22187	Teni
19	Your best friend	5.54648	-0.22172	Alem Mumuni (Baw)
20	Mosque	5.54535	-0.22212	Alem Mumuni (Baw)
21	Bath house	5.54459	-0.22281	Alem Mumuni (Baw)
22	Mosque at the river bank	5.54405	-0.222	Alem Mumuni (Baw)
23	Bath house at the river bank	5.54545	-0.2213	Alem Mumuni (Baw)
24	Bath house	5.54502	-0.22142	Alem Mumuni (Baw)
25	Communication Centre	5.54763	-0.21995	Alem Mumuni (Baw)
26	Food joint	5.54596	-0.22133	Alem Mumuni (Baw)



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Workflow

3a. The data was structured and processed in *ArcGIS and published to **ArcReader

The screenshot shows the ArcReader interface with several key components highlighted by yellow brackets and arrows:

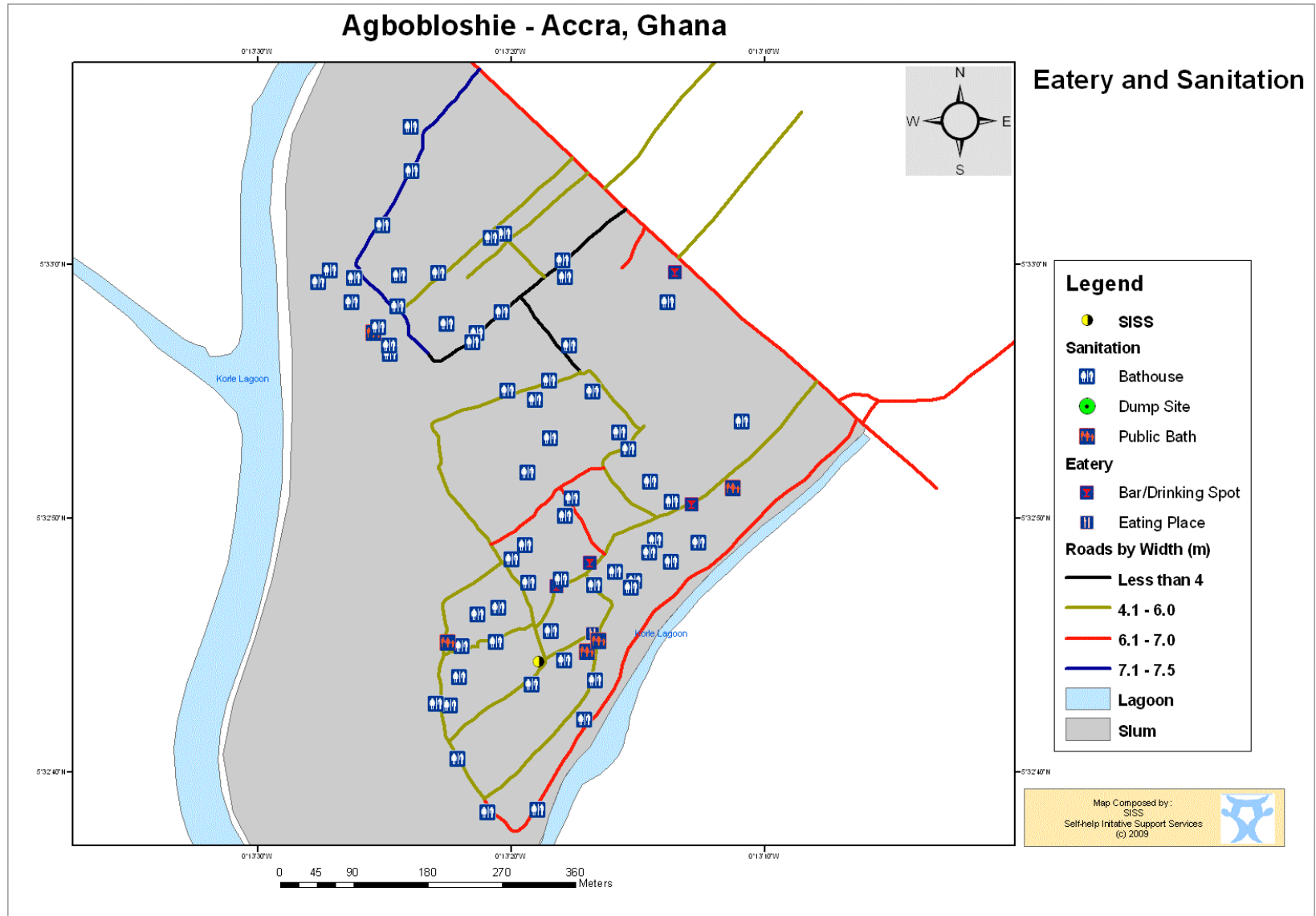
- Navigation Tools:** A bracket above the top toolbar icons.
- Information and Query tools:** A bracket above the top toolbar icons, overlapping with the navigation tools.
- Viewing and insertion tools for planning:** A bracket above the top toolbar icons, overlapping with the information and query tools.
- Table of content for layers:** A yellow box around the left-hand 'Urban Life Line Project Layers' panel.
- Map viewing:** A yellow box around the central map area.
- Feature information returned by spatial database (Attributes):** A yellow box around the 'Identify' window on the right, which displays a table of attributes for a selected 'Communication Center' feature.

Field	Value
Facility_FID	6
Facility_Shape	Point
Facility_ID	16
Facility_FacilityWa	Bob's Bus. Centre
Facility_Number	6
Facility_N	5.54469
Facility_W	-0.22287
Facility_FieldOffic	Alem Mumuni (Bawa)
Facility_FacilityCa	CC
Facility_Picture_1Nu	
Facility_Picture1	
Facility_Picture2	
Facility_Picture3	
Facility_Picture4	
Facility_Comment	
Facility_NEW_NUMBER	54
Facility_POINT_X	-0.22287
Facility_POINT_Y	5.54469

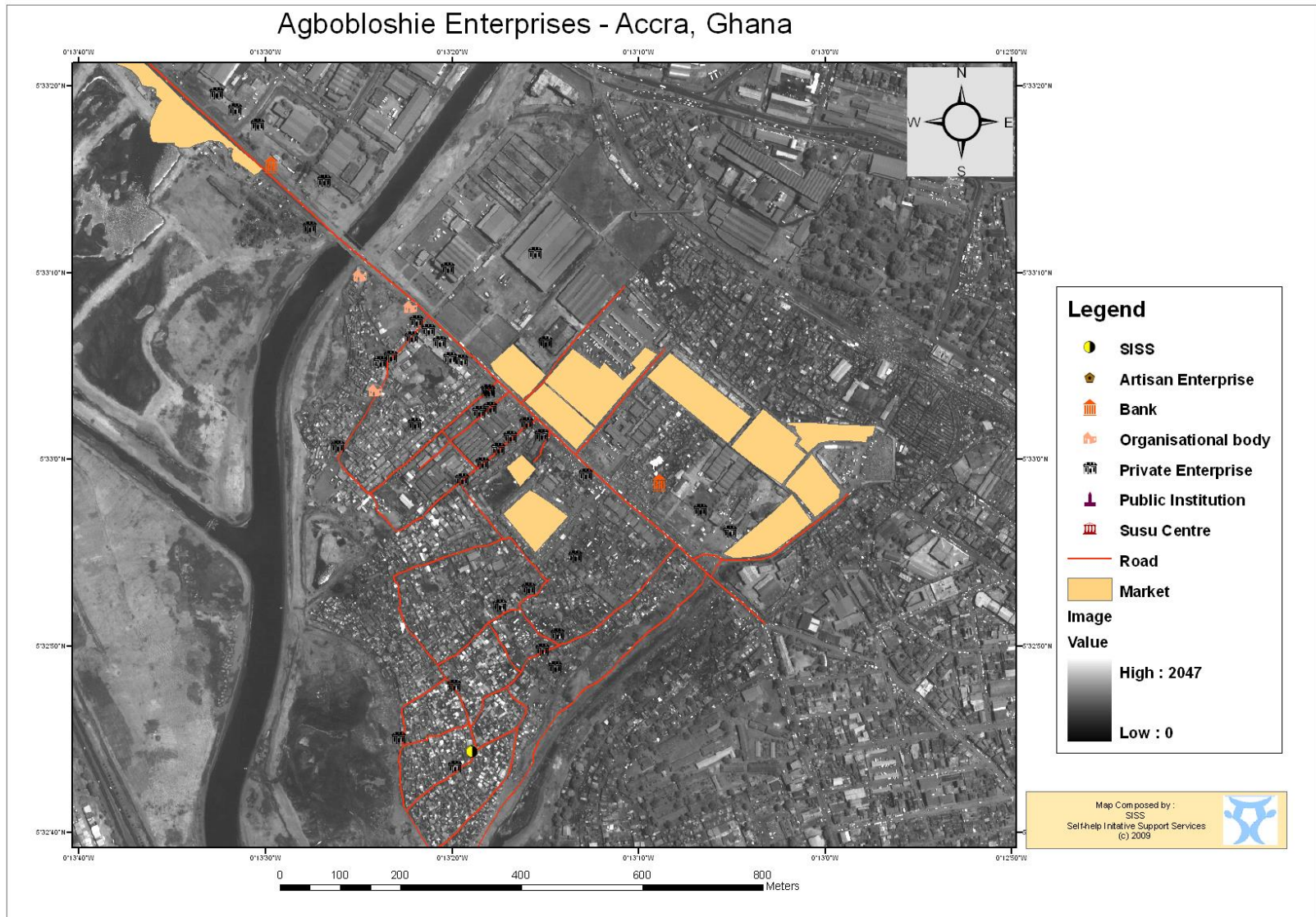
* A leading GIS suite developed by Environmental Systems Research Institute (ESRI)

**free viewer

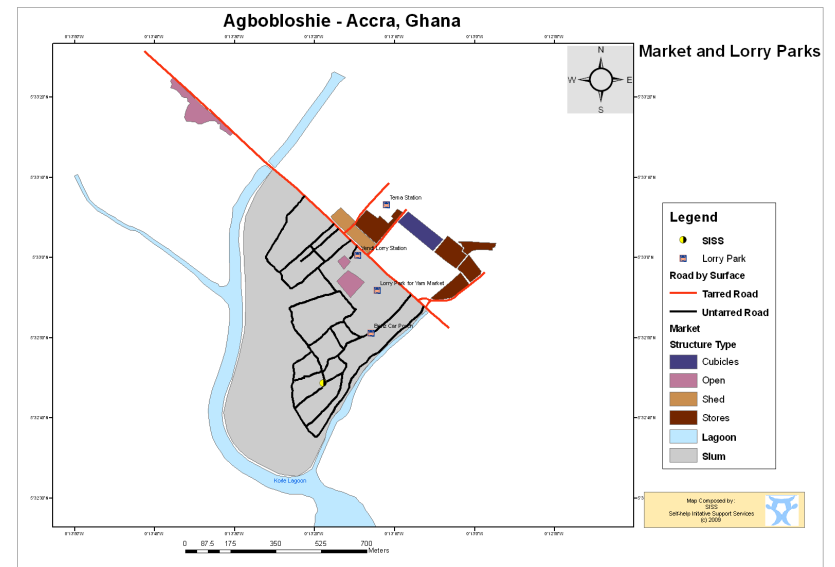
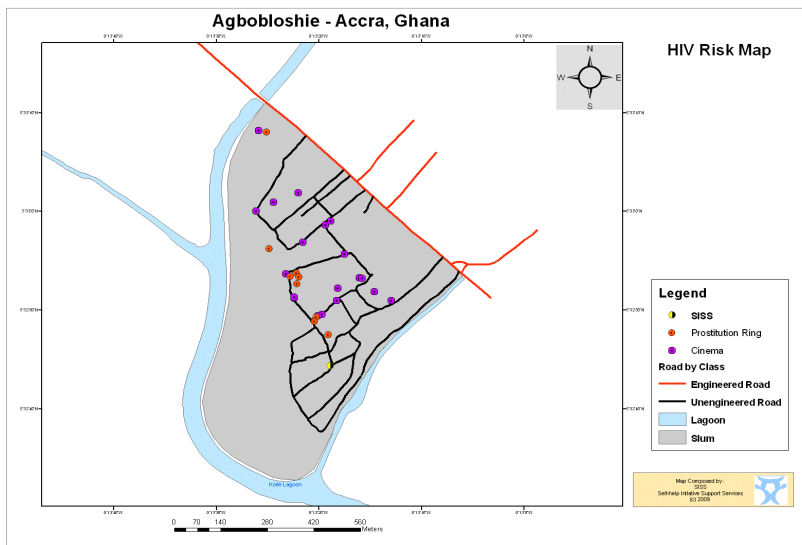
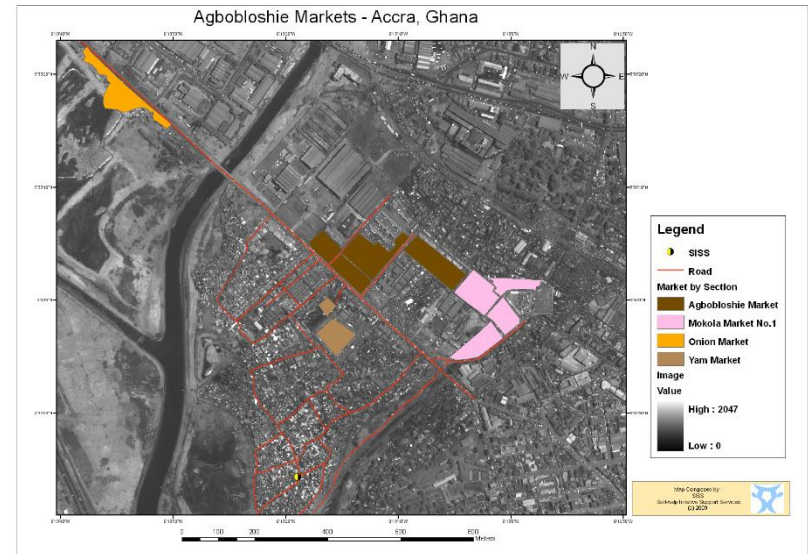
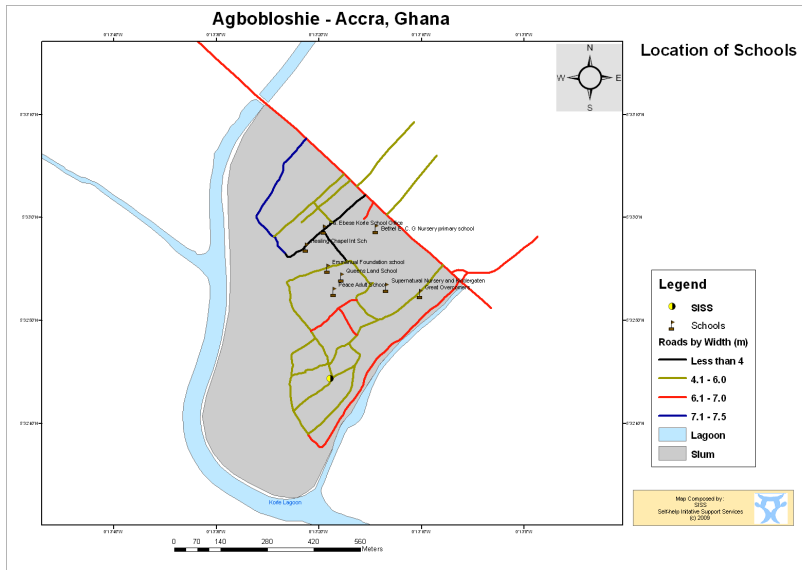
3b. maps are made by the office team and checked on site by trained slum dwellers and social workers



3c. maps are made by the office team and checked on site by trained slum dwellers and social workers

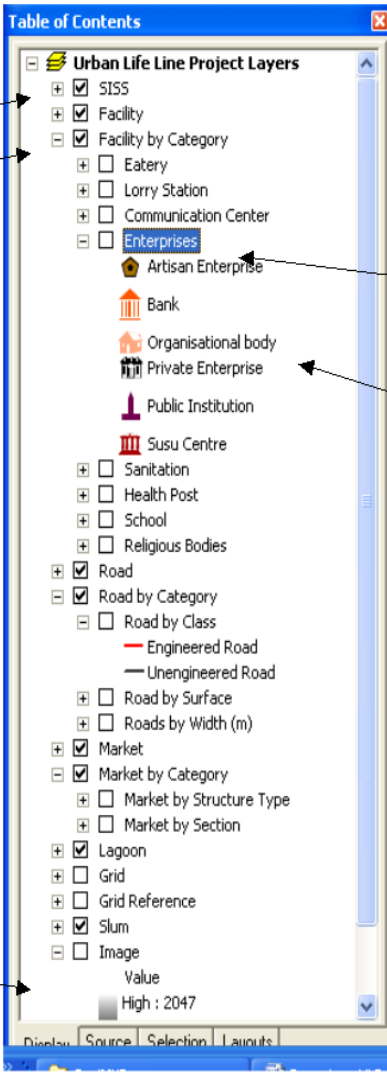


3d. maps are made by the office team and checked on site by trained slum dwellers and social workers



3e. maps are made by the office team and checked on site by trained slum dwellers and social workers

The system can produce multiple map outputs (>100 combinations) from the pairing of GIS layers



The screenshot shows a 'Table of Contents' window for the 'Urban Life Line Project Layers'. The window is annotated with several callouts:

- Docked**: Points to the top of the Table of Contents window.
- Undocked**: Points to the bottom of the Table of Contents window.
- Expanded layer**: Points to the 'Enterprises' layer, which is expanded to show sub-categories like 'Artisan Enterprise', 'Bank', 'Organisational body', and 'Private Enterprise'.
- Feature category**: Points to the 'Private Enterprise' sub-category.
- Satellite Image**: Points to the 'Image' layer at the bottom of the list, which includes a 'Value' legend showing a grayscale gradient from 'High : 2047'.

The Table of Contents list includes the following layers and sub-layers:

- Urban Life Line Project Layers
 - S155
 - Facility
 - Facility by Category
 - Eatery
 - Lorry Station
 - Communication Center
 - Enterprises
 - Artisan Enterprise
 - Bank
 - Organisational body
 - Private Enterprise
 - Public Institution
 - Susu Centre
 - Sanitation
 - Health Post
 - School
 - Religious Bodies
 - Road
 - Road by Category
 - Road by Class
 - Engineered Road
 - Unengineered Road
 - Road by Surface
 - Roads by Width (m)
 - Market
 - Market by Category
 - Market by Structure Type
 - Market by Section
 - Lagoon
 - Grid
 - Grid Reference
 - Slum
 - Image
 - Value
 - High : 2047



2010

Workflow

4. Updating the ArcReader system

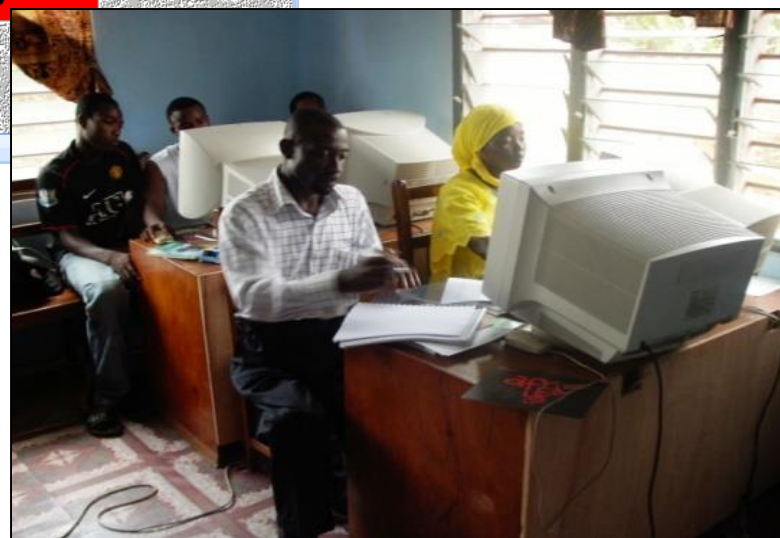
SISS: MasterFacility

ID	1	Picture1	97
FacilityName	Dump Site	Picture2	98
Number	8A	Picture3	
N	5.5532	Picture4	
W	-0.22361	Comment	
FieldOfficer	Samari Patrick	FacilityLoad	
Facility Category	DB	Date	
Picture Number			

NEW NUMBER: 68

Record: 1 of 134 No Filter Search

A snap shot of one of the entry forms in MS Access.



Updates to the system are made by SISS staff /trained slum dwellers



Current Studies Aided By GIS System (2010)

- HIV studies
- Evacuation & disaster management studies
- Demographic and sleeping pattern data (according to a grid system created)
- Slum dweller need assessment
- Slum dweller need assessment



Future Plans

- enable online access to live data via Web mapping.
- use GIS to create weighted models to automate the need index determination of dwellers in the slum. The aim is to provide skills training and loans to those who need it the most.
- carry out dweller migration analysis and determine underlying trends



Major Setback

Funding

THANK YOU

Daily Graphic, Tuesday, September 29, 2009.



• A slum in Accra

25 Slums in Accra

Story: Lucy Adoma Yeboah

A REPORT by the UN Committee on Economic, Social and Cultural Rights (CESCR) has stated that there are more than 25 slums in Accra alone.

The report revealed that residents of slums rarely had security of tenure, which placed them at constant risk of forcible eviction.

This was contained in a statement by Amnesty International Ghana as a prelude to the launch of the "Demand for Dignity Campaign" on World Habitat Day scheduled for October 5, 2009.

World Habitat Day, which is celebrated on the first Monday of October each year, is designated by the United Nations (UN) to reflect on the state of towns and cities and the basic human rights to adequate housing.

The statement, which was signed by the Director of Amnesty International Ghana, Mr Lawrence Amenu, said, "Slum neighbourhoods are also, like all urban communities, places where residents live, work, eat, sleep and raise their

children and they deserve dignity."

It noted that those neighbourhoods shared common characteristics such as inadequate housing, sanitation and drainage, poor water and electricity services, overcrowding, as well as high levels of violence.

"Without adequate housing, employment is difficult to secure and maintain, physical and mental health is threatened, education is impeded, violence is more easily perpetuated, privacy is impaired and relationships are strained," it stressed.

Amnesty International said under the right to adequate housing, everyone should have a degree of security of tenure, protecting him or her from forced eviction, harassment and other threats.

The statement pointed out that globally, more than one billion people lacked adequate housing, while more than 100 million were homeless.

"Housing should be accessible to all, including the poor, and priority should be given to the most vulnerable," it pointed out.

Q & A



Technical Specification

Geko hand-held GPS receiver (Garmen Geko 201) units were used as the primary data collection tool.

The GPS units were set to the following parameter:

- Angular Unit: Degree (0.017453292519943299)
- Prime Meridian: Greenwich (0.00)
- Datum: D_WGS_1984
- Spheroid: WGS_1984
- Semi major Axis: 6378137.00
- Semi minor Axis: 6356752.3142451793
- Inverse Flattening: 298.25722356300003

The accuracy of the total mapping is estimated to be within 3-10m.
The areas with the least accuracy were very built up with limited visibility.



Sample Field Questionnaires





FACILITY DATA

_____ FIELD OFFICER: _____

1. Facility Name

2. GPS Location (Lat/Lon) N W

3. Picture Number (i) (ii) (iii)

4. Estimated Number people who use the Facility

Facility Types: Bank, Health Care Provider, School, Water Facility,
Telecommunication, Dump Site, Sanitation Facility, Lorry Park, Market,
Office/Institution/Organization.

[SISS - ULP DATA COLLECTION
QUESTIONNAIRE]

HOUSING SCHEME AND
SLEEPING PATTERNS



HOUSING SCHEME AND SLEEPING PATTERNS

_____ FIELD OFFICER: _____

1. Household Head

2. Total Household Size

3. Number of rooms

4. Maximum number in a Single room

5. Structure Type. Please tick the appropriate option:

- Block/Cement
- Mud House
- Veranda
- Shed

6. GPS Location (Lat/Lon) N W

7. Picture of Structure (i) (ii) (iii)

[SISS - ULP DATA COLLECTION QUESTIONNAIRE]

PERSONAL DEMOGRAPHICS



PERSONAL DEMOGRAPHICS

_____ FIELD OFFICER: _____

1. Name

2. Age

3. Gender [M] / [F]

4. Highest Level of Education. Please tick the appropriate answer:

- Tertiary
- Senior High School
- Vocational School
- Junior High School
- Elementary
- None

5. Occupation Unemployed

6. Monthly Income None

6b. If an amount entered in (6) above but Unemployed (5), then state the source of Monthly Income?

7. Financial Affiliation. Please tick the appropriate option:

- Bank
- Credit Union
- SSS
- None

7b. If Bank, Which bank(s)? (i) (ii)
(iii)