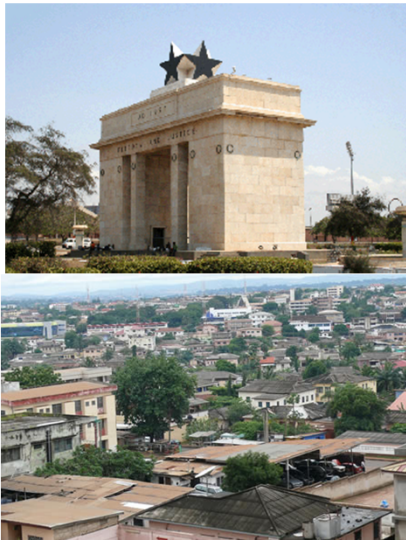


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Commission 8 Seminar
Peri - Urban Development
The Role of Traditional Authorities and Land Professionals
25th February 2010
Accra, Ghana

Technology and the
profession
Reach to Reality

Bob Owen
Infoterra Ltd

What do Surveyors do ?

Manage

Collect

Process

Analyse

Present

Project manage Organise Resources Timings PARTNERS Consultancy Communicate Expectations Specifications Standards Training	Procurement Satellite Aerial Terrestrial Photogrammetry Field GPS Survey control Digitising Scanning Key punch Attributes Mobile phones	INTEGRATE Software apps Quality assurance Business rules Databases Procedures Storage Security	Categorise Standardise Indexing Statistics Patterns Relationships Completeness Trends Future	Printing Selling Licences Maintenance Media & formats Services Marketing Data hosting Revenue generation Mash ups Contracts Security
-------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------

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Characteristics of urban areas



- “San Francisco used to be a shanty town. All the world’s cities used to be shanty towns in their early days. The process by which they became proper cities is being recapitulated now in the world’s squatter cities, only much faster this time and on larger scale. All that the keepers of the formal economy have to do is to meet the squatters half way – help them secure their tenure and give them time to join the formal world”
- But the squatter cities are vibrant. Their streets are bustling markets, with food stalls, bars, cafes, hair salons, dentists churches, schools health clubs, and mini-shops trading in cellphones, tools, trinkets, clothes gadgets, and bootleg music and videos. This is urban life at its most intense . . . What you see up close is not a despondent population crushed by poverty but a lot of people busy getting out of poverty as fast as they can

Characteristics of peri-urban areas

Characteristic	Survey Activity
Fast and unplanned growth	Spatial Planning, monitoring change over time
Diverse development in social environmental and physical infrastructures	Land use planning, environmental data, mapping, remote sensing
Inadequate service infrastructures	Mapping, engineering surveying
Insecure tenure	Land administration
Jurisdiction is unclear	Land use planning, land tenure and land transfer
Unplanned settlements	Land valuation

What does this mean in reality to users of Geographic Information?

National Government

Oil, Gas & Mineral

Defence & Security

Utilities & Transport

Agriculture & Farming

Forestry Management

Telecoms Planning

Insurance & Risk

Topographic Engineering

Land Administration

Enterprise Service Bus

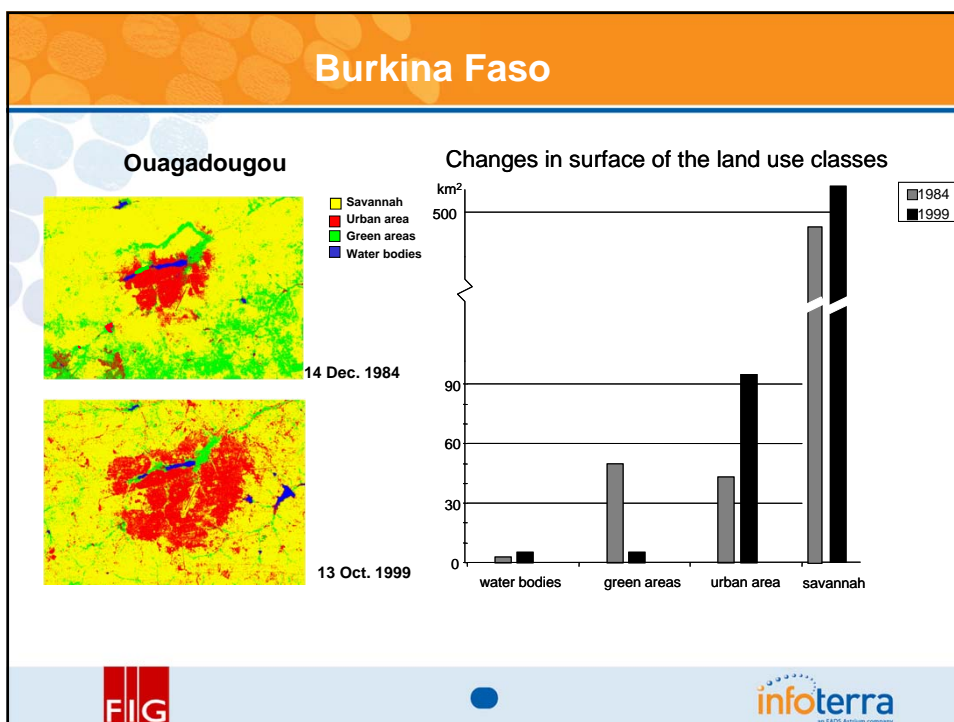
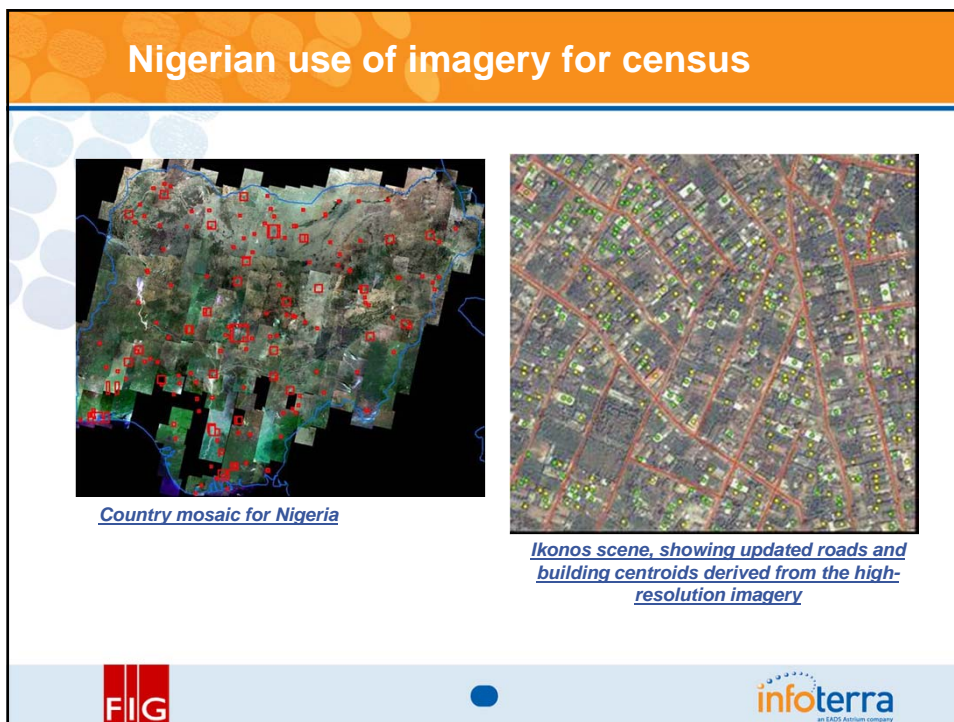
The principles of good spatial data are:

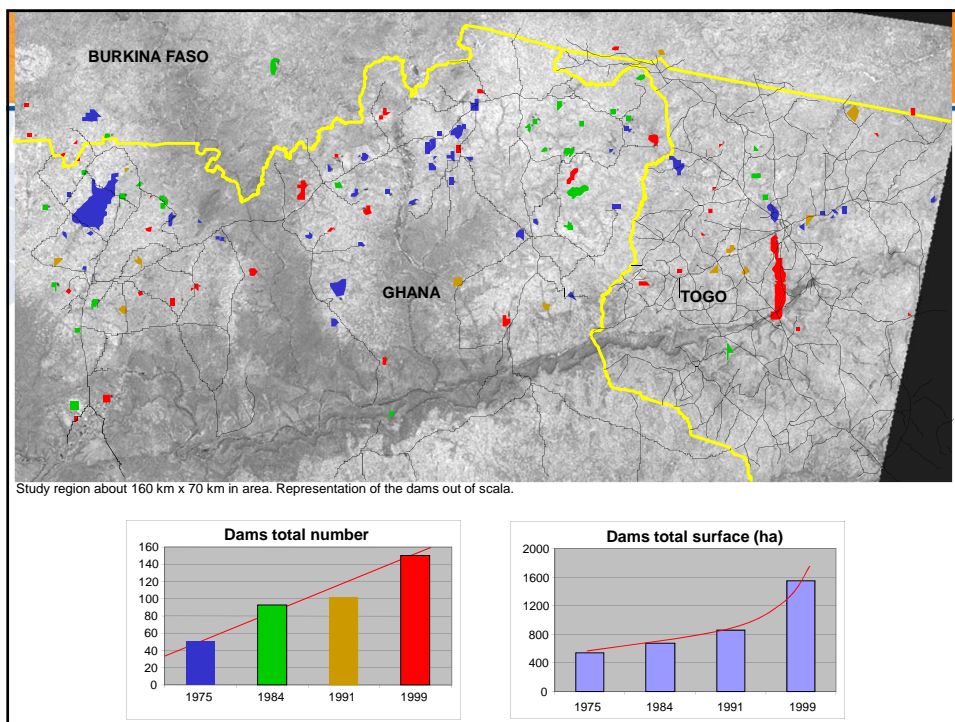
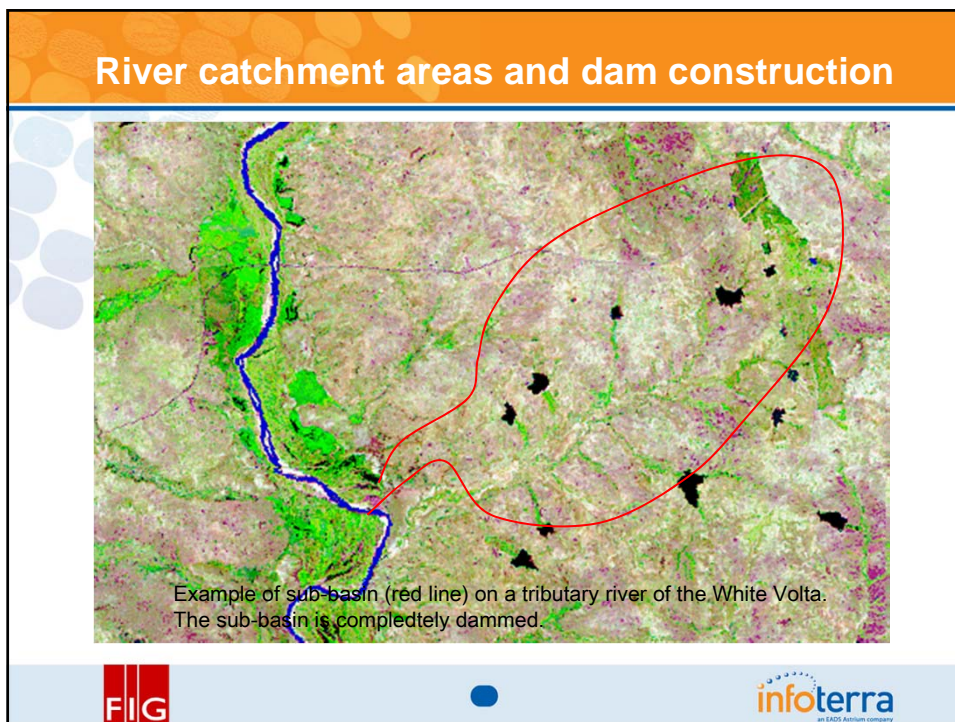
- Capture information **once** and use many times
- Capture at the **highest** resolution possible
- **Publish** lower resolutions from this data – if required
- Use existing proven **standards**

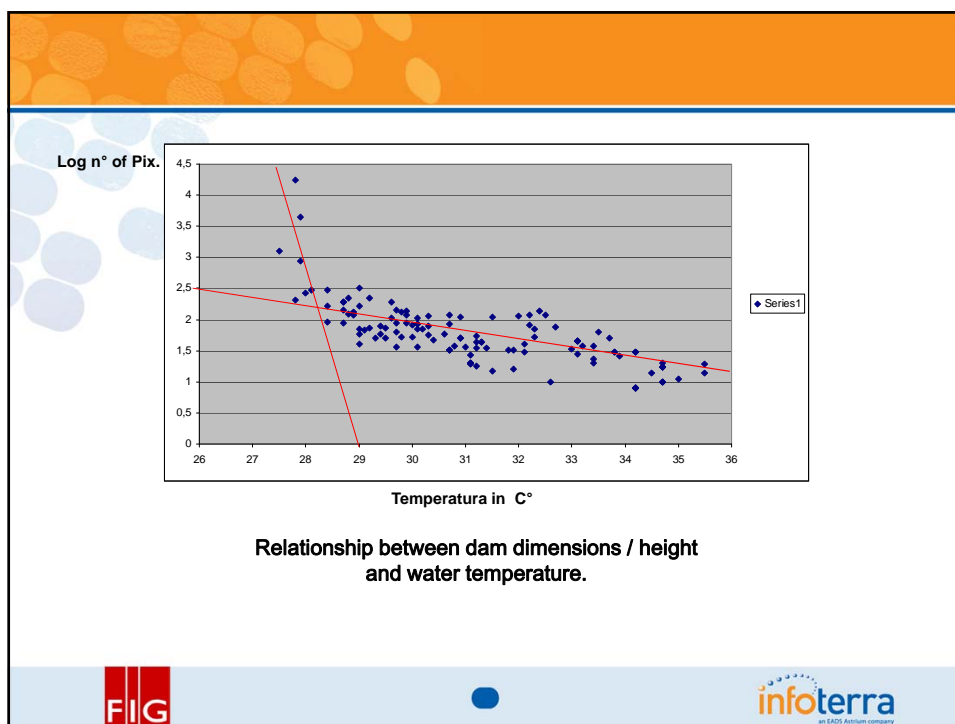
5

Reference data - satellite imagery

●







ICF Land Registration Project – Sierra Leone

ICF
The Investment Climate Facility for Africa

Specific Goals

- Confidence in Land Ownership
- Improved Transaction Times

Overarching goals

- Improved Land Management and Planning
- Improved Natural Resource Management
- Poverty Alleviation through greater Investment in Sierra Leone

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Land Registration Map (LRMAP)

- **A Graphical Representation of Land Ownership**
- **Textual Information from the Land Records underpin the Map**
- **Staff may query Property Ownership information by simply 'clicking' on an area of interest on the map**

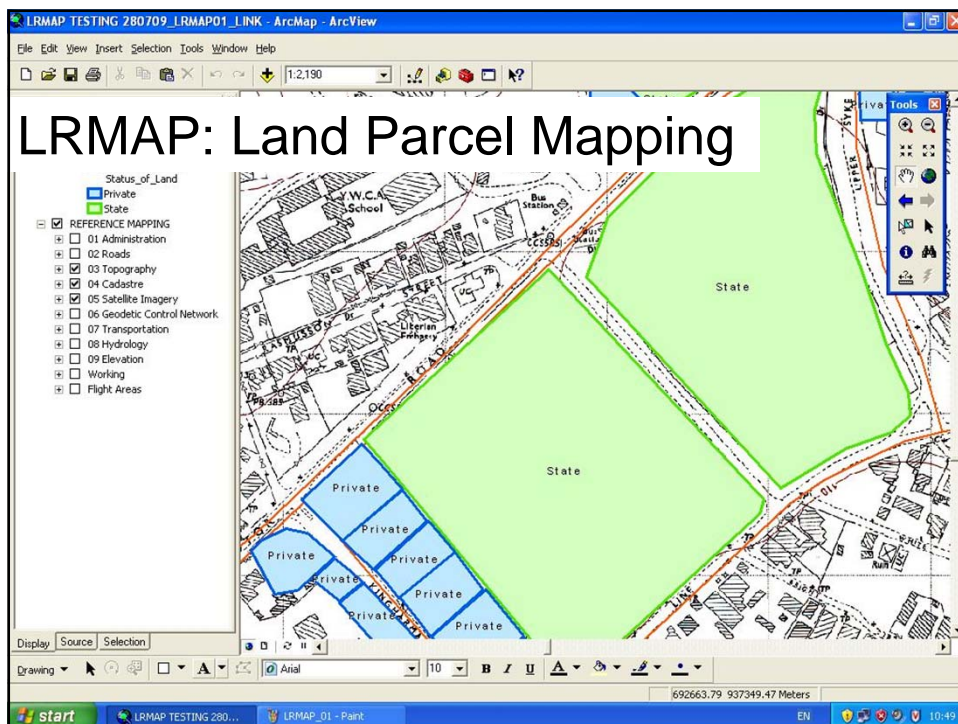
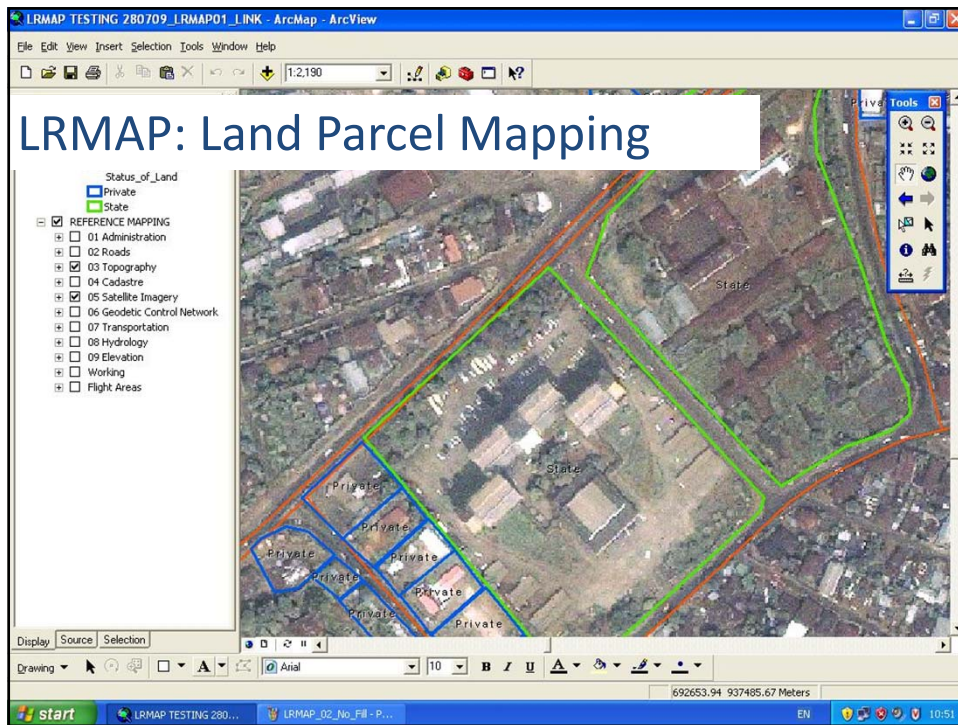
LRMAP
Cadastral Index
Map System

Geodatabases & Spatial Infrastructures

Parcel Features and Ownership Textual Information


Reference Data:

- Land Information System
- NIMA Topographic Data
- Satellite Imagery

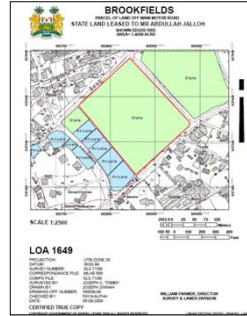




LRMAP: Property Attributes

- Parcel Identifiers, Land Status
- Survey Plan Details
- Surveyor Details
- Application Forms / Offer Letters, etc.
- Instrument (Conveyance) Details
- Scan of Instrument (Hyperlinked PDF)
- Owner (New Owner) Details
- Disponsor (Vendor) Details





↓



Success Factors

- **ICT Capacity Building in Ministry**
- **GIS Training Laboratory – Training**
- **LRMAP Spatial Database – Ready to start entering property information**
- **Pilot Project Site at Yams Farm – GPS data collection and scanning of records**
- **Master Cadastral Map Sheets – Scanning of State and Private land index maps**

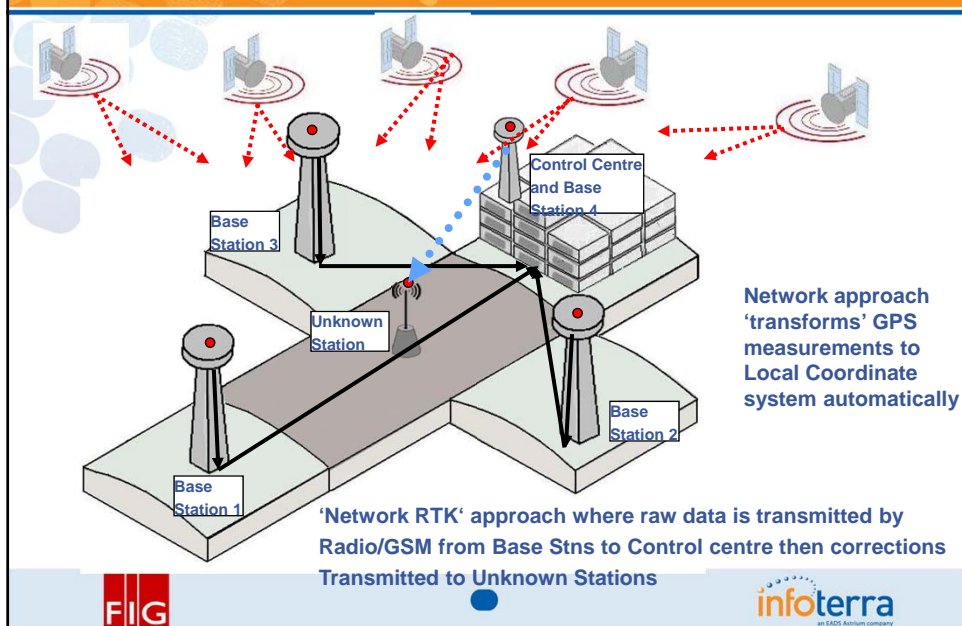
Challenges

- Skills base and computer literacy
- Complexity of GIS/GPS technology
- Public land and property services
- IT networks and software security
- Secure data management
- Project ownership by Ministry staff

FIG

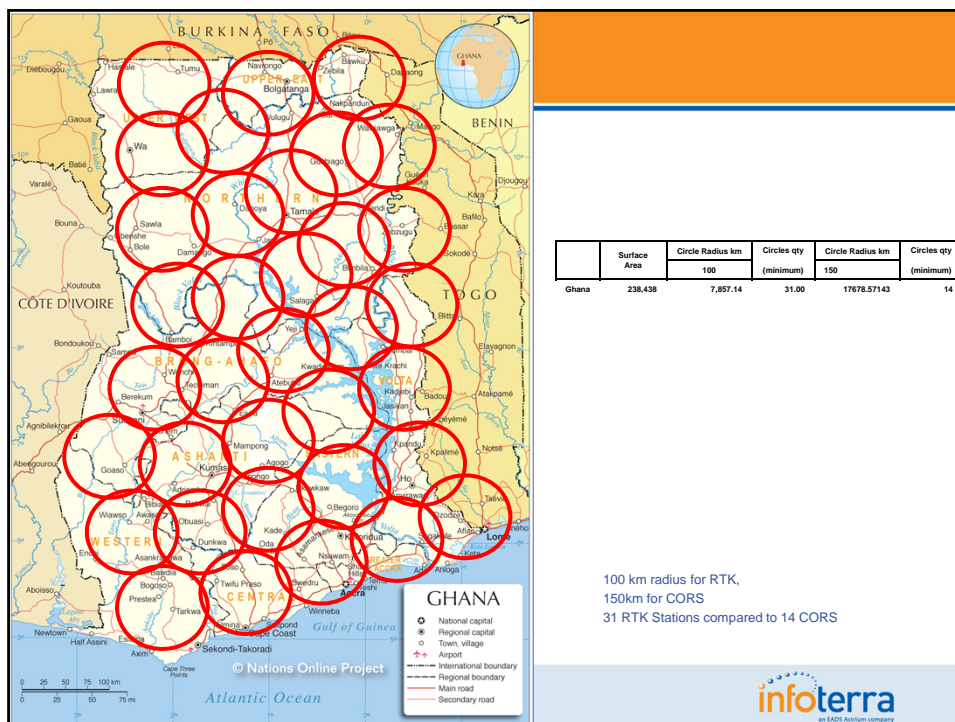
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What can hold it all together - GPS



FIG

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Community Mapping - Accra

OpenStreetMap
The Free Wiki World Map

OpenStreetMap is a free editable map of the whole world. It is made by people like you.

OpenStreetMap allows you to view, edit and use geographical data in a collaborative way from anywhere on Earth.

OpenStreetMap's hosting is kindly supported by the [UCL VR Centre](#) and [bytemark](#). Other supporters of the project are listed in the [wiki](#).

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[News blog](#)
[Shop](#)
[Map key](#)

Search

View Edit History Export GPS Traces User Diaries

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page discussion view source history

Mapping projects

Available languages

- English

Missing languages

The OpenStreetMap community are working on the following mapping projects.

The projects are collaborative efforts by one or more people who have a common interests or goals. By working together effort can be focused and formidable milestones become achievable. Please help by getting involved.

Contents (new)

- 1 By Country
- 1.1 Africa
- 1.2 North America
- 1.2.1 Caribbean
- 1.2.2 Central America
- 1.3 South America
- 1.4 Asia
- 1.5 Europe
- 1.6 Oceania
- 1.7 Others
- 2 Specialised Mapping Subjects
- 3 Other projects

The OpenStreetMap community is working on the following mapping projects. The projects are collaborative efforts by one or more people who have a common interest or goals. By working together effort can be focused and formidable milestones become achievable

By Country

Africa

East Africa

- Burundi
- Ethiopia
- Kenya
- Rwanda
- Tanzania
- Uganda

West Africa

- Benin
- Burkina Faso
- Cameroon
- Ghana
- Ivory Coast
- Nigeria
- Niger
- Senegal
- Sierra Leone
- Togo

Southern Africa

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News | Sport | Comment | Culture | Business | Money | Life & style | Travel | Environment

Business > Technology sector

Developing countries drive explosion in global mobile phone use

Buzz up!
Digg it

Chris Tryhorn
guardian.co.uk, Monday 2 March 2009 09.40 GMT

More than half the world's population now pay to use a mobile phone and nearly a quarter use the **internet**, as developing countries rapidly adopt new communications technologies.

By the end of last year there were an estimated 4.1bn mobile subscriptions, up from 1bn in 2002, according to a report published today by the International Telecommunications Union (ITU), an agency of the UN.

That represents six-in-ten of the world's population, with developing countries accounting for about two-thirds of the **mobile phones** in use, compared with less than half of subscriptions in 2002.

Over the same period, fixed-line subscriptions rose more modestly, from 1bn to 1.27bn, indicating that many people in the developing world are bypassing the older technology altogether.

FIG <http://www.greenmap.org/> **infoterra**
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larger | smaller

Business
Technology sector

Technology
Mobile phones · Telecoms · Internet

World news

Politics
Development

More news

GMES (Global Monitoring for Environment and Security)

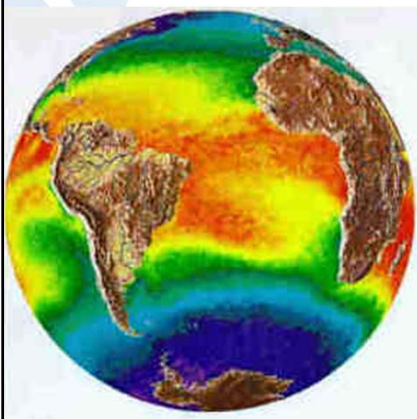
- **GMES** (Global Monitoring for Environment and Security) is a **European initiative** for the implementation of **information services** dealing with **environment and security**. It's part of the **GEO** system of systems.
- GMES uses images from **Earth observation satellites** as well as **ground-based information**. These data are coordinated, analysed and prepared to provide **services for a variety of end-users**.




2 **FIG** **infoterra**
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What services are being provided by GMES?

Three major categories of services



- Mapping**, including topography or road maps but also land-use and harvest, forestry monitoring, mineral and water resources. This service generally requires exhaustive coverage of the Earth surface, archiving and periodic updating of data.
- Support for emergency management** in case of natural hazards and particularly for civil protection. This service concentrates on the provision of the latest possible data before intervening.
- Forecasting** is applied for marine zones, air quality or crop yields. This service systematically provides data on extended areas, permitting prediction and modelling.

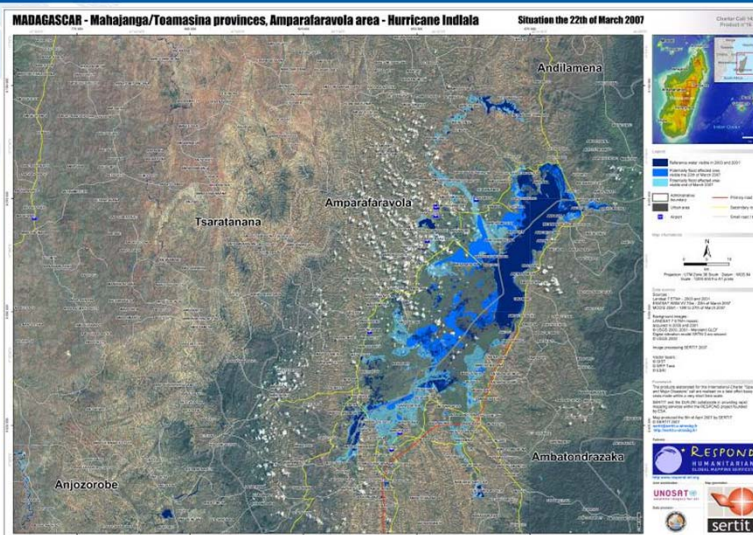
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FIG

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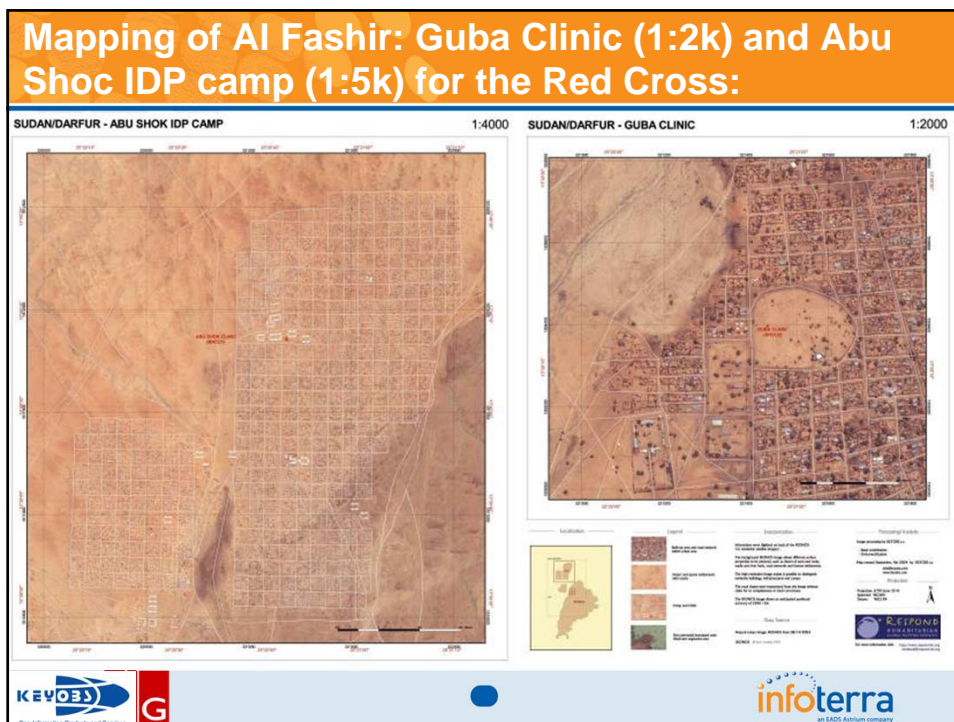
Madagascar Flooding, Mar - Apr 2007:

An example of a map produced using ESA's Envisat Satellite



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GMES and Africa Heritage in Emergency Response:

Al Fashir
CC017065
Scale: 1:200,000

FIG **infoterra**

- Now, moving beyond **GMES**, the European EO Emergency community is looking for further engagement with African organisations.
- We aim to improve the services and to move closer to a sustainable production and delivery solution.

GMES and Africa: The GARNET-E network

GARNET-E: The GMES and Africa Regional Network for Information Exchange and Training in Emergencies.

● 17 Partners - led by Infoterra from the UK, supported through €1 Million EU funding starting in early-2010, with:

- | | |
|-----------------------|------------------------------|
| ● AARSE | □ Arsenale Novissimo, France |
| ● CRTS, Morocco | □ DMCii, United Kingdom |
| ● CSIR, South Africa | □ EDISOFT, Portugal |
| ● EIS-Africa | □ ITC, Netherlands |
| ● GeoSAS, Ethiopia | □ Keyobs, Belgium |
| ● RCMRD, Kenya | □ Metria, Sweden |
| ● RECTAS, Nigeria | □ PLUS, Austria |
| ● SNPC-CV, Cape Verde | □ Vito, Belgium |

● Working in concert with partners: UNITAR/UNOSAT, UN-SPIDER and UNEDRA



GMES and Africa GARNET-E network: Strategy

Overall strategy:

□ *engage the key players in Europe with corresponding African stakeholders; and*

□ *enable them to work together with common goals...*

specifying and improving a potential African implementation of the GMES Emergency Service.



GMES and Africa GARNET-E network: Objectives

□ To re-align the “GMES Emergency Response in Africa” agenda:

- **from** technical activities focussed purely on risk reduction and response using European resources,
- **to** activities much more directed to building sustainable local capacities, leading to real wealth creation in Africa.



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GMES and Africa GARNET-E network: Objectives



Two technical objectives:

- exchange information, through training exercises, on:
 - GMES Emergency Response Core Service; and
 - the International Charter Space and Major Disasters.
- improve the quality of the GMES Service, through:
 - requirements gathering exercises; and
 - the ingestion of *in situ* data.

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GMES and Africa: Emergency Network Activities

- **Knowledge/Information Exchange**
 - Provision of workshops, seminars, etc.
 - Provision of training:
 - Use of EO in Emergency response;
 - Use of GMES Emergency Response Core service;
 - Use of the Charter.
 - Provision of Web-based information services.
- **Engagement, between European and African service providers:**
 - Increased understanding of respective needs.
 - Exchange of products/data/methodologies, etc...
- **Consolidation, through use of existing networks in Africa:**
 - AARSE, EIS-Africa (reaching a wide community of EO and geo-information experts and users).



only
It's not about technology
^

Land measurement to land management

"It doesn't mean that measurement is not important. It is just that technology has now developed to a stage that an average person can just undertake Surveying. Satellite, space technology, etc have replaced the previous rigorous demands of Surveying. You no longer need to climb the mountains to practice astronomy."

*Guardian Newspaper – 28 December 2009
Interview with Prof. Stig Enemark, FIG President*





Thank You!

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