



Evaluating the Use of Technology Partnerships to Modernize Land and Statistical Agencies Across the Global South

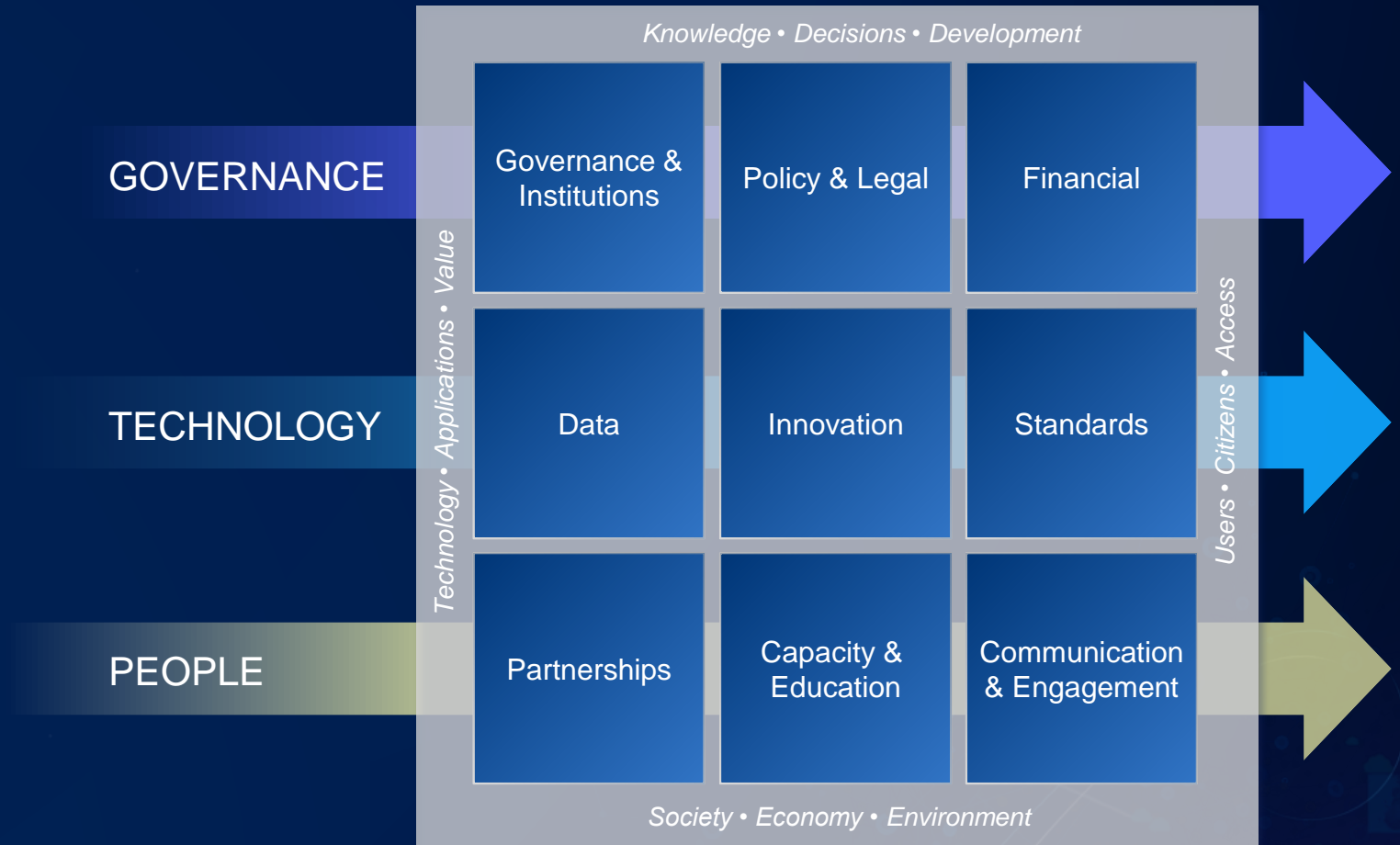
Matthew Pennells

Esri Inc.

UNGGIM – Integrated Geospatial Information Framework

A Framework for Implementing Modern SDI

The Integrated Geospatial Information Framework provides a basis and guide for developing, integrating, and strengthening geospatial information management.



9 Strategic Pathways

Strategic Pathway #7

Partnerships

Partnership Opportunities:

User Community for Geospatial Authorities

National Government Executive Forum

*Modernization Programs
(Land Administration, Health, and Official Statistics)*

SDG Grant Programs

Esri NonProfit Organization Program

Esri User Conference

Regional GeoPortals



User Community for Geospatial Authorities

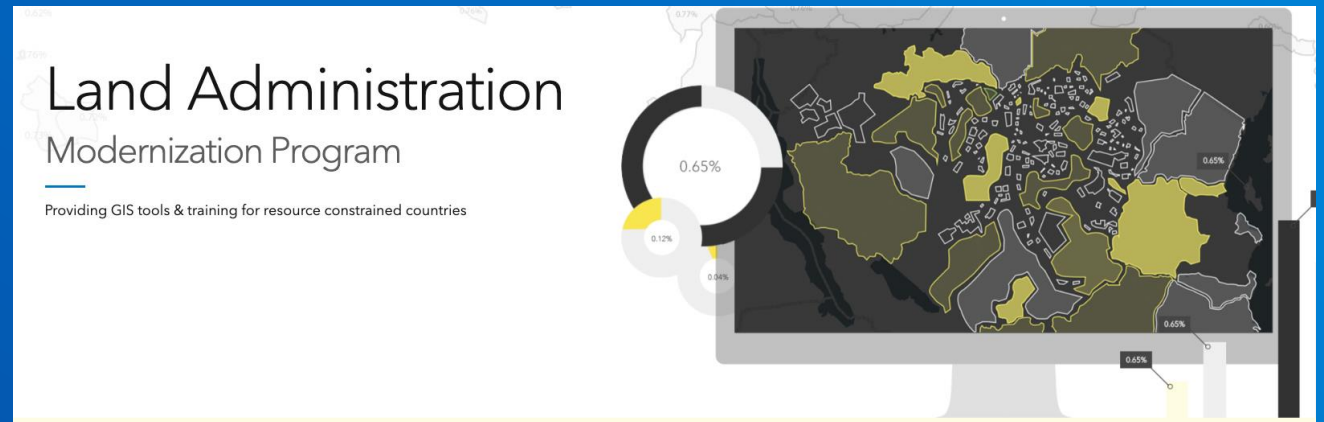


The User Community for Geospatial Authorities (UCG) exists to facilitate collaboration between key geospatial authority customers of Esri and Esri, to ensure Esri delivers the best GIS platform to meet the requirements of the community.

We focus on:

- Technology needs in the next 3 to 5 years and work to prioritize requirements of customers
- Regularly hear from Esri the planned roadmap for ArcGIS
- Collaborate with each other on shared goals to provide value to all

Esri Land Administration Modernization Program



- Who

- Countries include Least Developed Countries (LDCs) and Small Island Developing States (SIDS) plus others as agreed by Esri

- What

- ArcGIS Enterprise including ArcGIS Pro, server and online as well as access to learn lessons
- Perpetual licenses

- When

- Available now and for up to one additional 4-year renewal (total = 8 years)

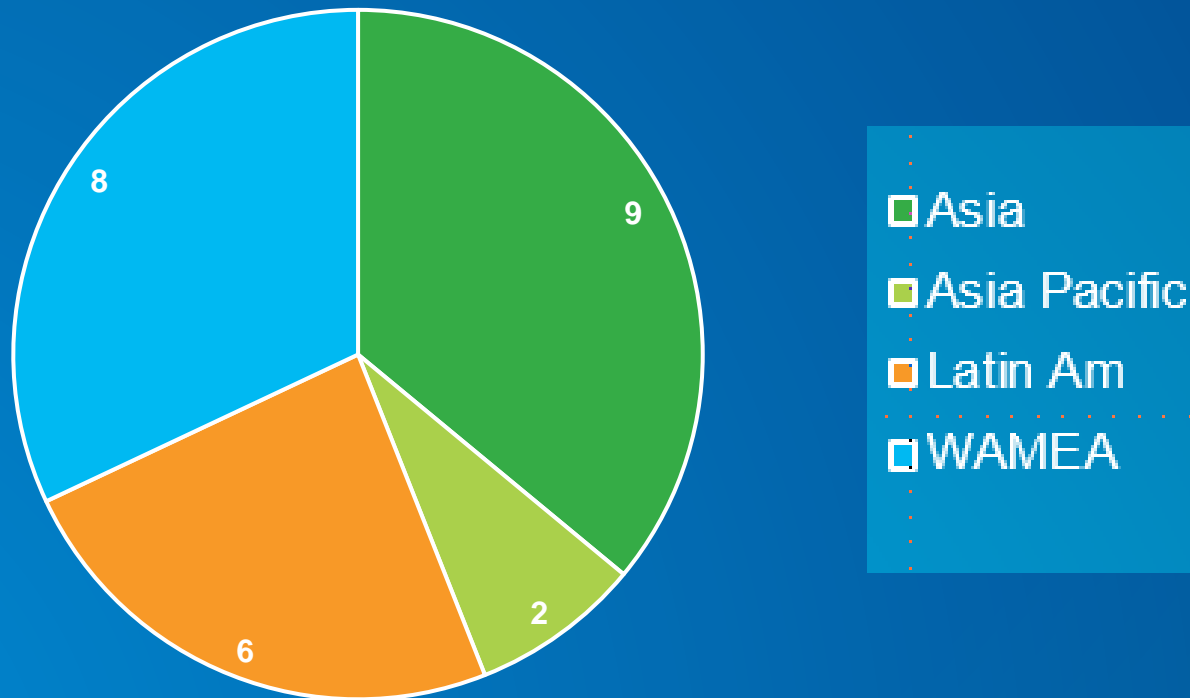
- How

- Application required from landing page
- Small admin fee, paid up front (\$10k per year e.g., 4 years = \$40k)

Land Administration Modernization Program

Updated Status September 2022

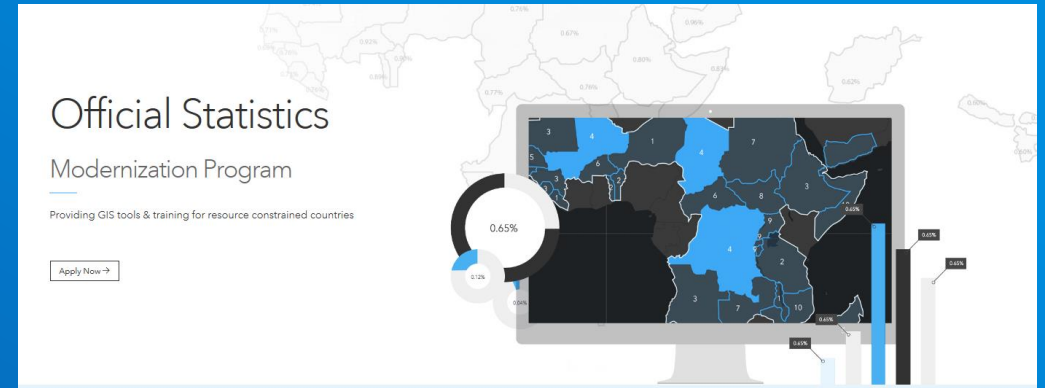
Country Adoption by Region



Program Highlights:

- Myanmar leveraged program to advance geospatial collaboration in support of land and NRM
- Rwanda used program to modernize LIS
- Guyana used web maps to monitor deforestation and collect data on drivers of deforestation
- Barbados developing end-to-end parcel fabric and GeoPortal for sharing of data

Esri Modernization Program for Official Statistics



- Who

- Countries include Least Developed Countries (LDCs) and Small Island Developing States (SIDS) plus others as agreed by Esri and UNFPA

- What

- ArcGIS Enterprise including ArcGIS Pro, server and online as well as access to learn lessons

- When

- Now! 2020 round and extended to 2030 round per MOU with UNFPA

- How

- Application required
- Donation of perpetual license - FREE in support of PHC
- Small admin fee, paid up front (\$10k per year e.g., 4 years = \$40k) renewable until 2034

Land Administration Learn Hub

Land Administration Modernization | Curriculum

SECTION 1 SECTION 2 SECTION 3 SECTION 4 SECTION 5

Language

Land Administration Modernization

This site contains hands-on tutorials, blogs, and videos to help land administration agencies modernize their workflows. Covering every stage of the process, these tutorials teach you how to plan your work, conduct field collection, monitor your operations, and disseminate your authoritative data, all using ArcGIS. The tutorials also explain fundamental GIS concepts and cover multiple ArcGIS software products.

CONTENT

- Pathways and lessons from beginner to advanced
- Content tailored to specific cadastral and land valuation workflows
- Open, freely accessible

1 - Introduction to GIS Fundamentals

- [Learn core ArcGIS functionality](#)
- [Migrate to ArcGIS Pro](#)
- [Understand coordinate systems](#)
- [Find and use spatial data](#)

EXPLORE

2- Field Operations and Management

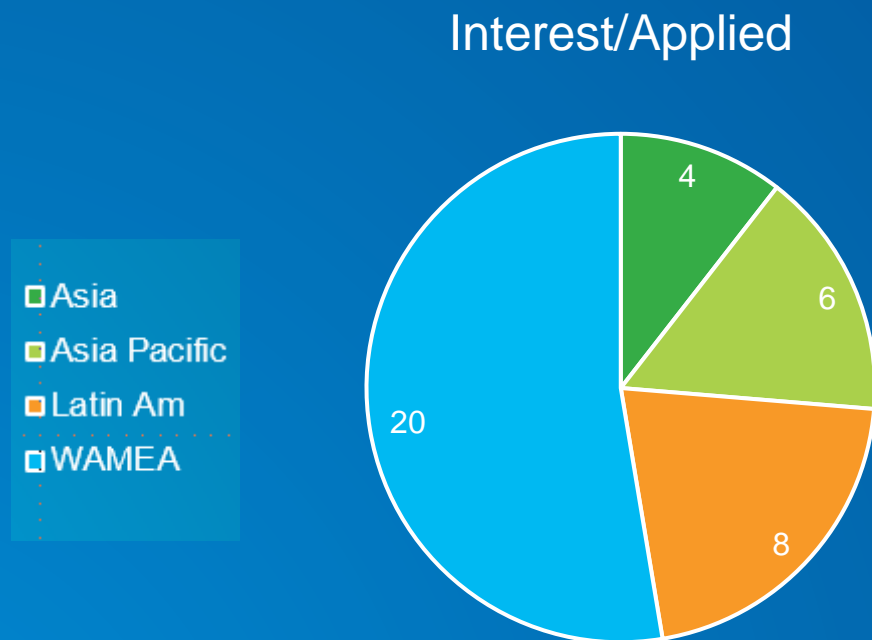
3 - Using GIS For Parcel Management

4- GIS for Land Valuation

Official Statistics Modernization Program

Status 2022

102 Eligible Countries



Supporting Activities

- Developed a standard approach for implementation with distributors and partners
- Aligning with UNFPA for direct purchase – agreement put in place April 2019
- Regional trainings completed in Caribbean 2020
- UNFPA/Esri MOU signed June 2022
- New national portals project launched to create templates for dissemination
- Regional trainings for Africa planned for 2023

Official Statistics Learn Hub

Official Statistics Modernization

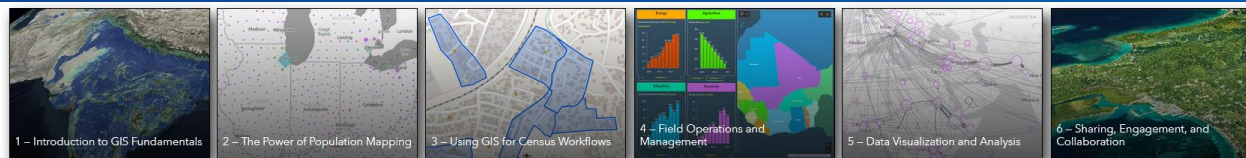
GIS CURRICULUM

A Learn ArcGIS Project

This site contains hands-on tutorials to help official statistics agencies modernize their population and housing census workflows. Covering every stage of the census process, these tutorials teach you how to plan your work, conduct field data collection, monitor your operations, and disseminate your authoritative data, all using ArcGIS. The tutorials also explain fundamental GIS concepts and cover multiple ArcGIS software products.

We look forward to receiving your [feedback and suggestions](#) as we continue to develop this project.

Table of Contents at a Glance

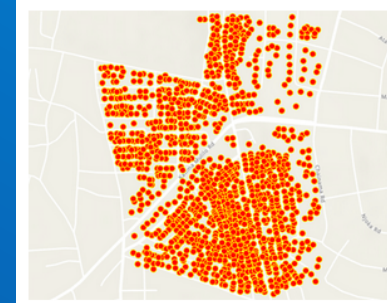


- Pathways and lessons from beginner to advanced
- Content tailored to specific Census workflows
- Open, Freely accessible and in multiple languages

Convert a paper census form to a digital survey: Create a form in ArcGIS Survey123 to collect census data from mobile devices.

- **Type:** Exercise based on real-world scenario
- **Level:** Beginner
- **Software:** ArcGIS Survey123 Connect
- **High-Level Tasks:** Create a survey in ArcGIS Survey123 Connect. Add census and demographic questions. Publish the survey for field workers to use.

⌚ 45 minutes



Enable an inbox for a census survey: Use the inbox feature in ArcGIS Survey123 to create assignments for census enumerators.

- **Type:** Exercise based on real-world scenario
- **Level:** Intermediate
- **Software:** ArcGIS Survey123 Connect, ArcGIS Pro
- **High-Level Tasks:** Publish a survey in ArcGIS Survey123 Connect. Append building points to the survey layer in ArcGIS Pro. Enable the survey inbox and test its functionality.

⌚ 45 minutes



Conduct a pre-enumeration survey: Enable census workers in the field to create and validate enumeration areas.

- **Type:** Conduct a pre-enumeration survey
- **Level:** Intermediate
- **Software:** ArcGIS Online, ArcGIS Survey123
- **High-Level Tasks:** Create a web map of enumeration areas. Link the map to a pre-enumeration survey. Test the survey and review your results.

⌚ 2 hours

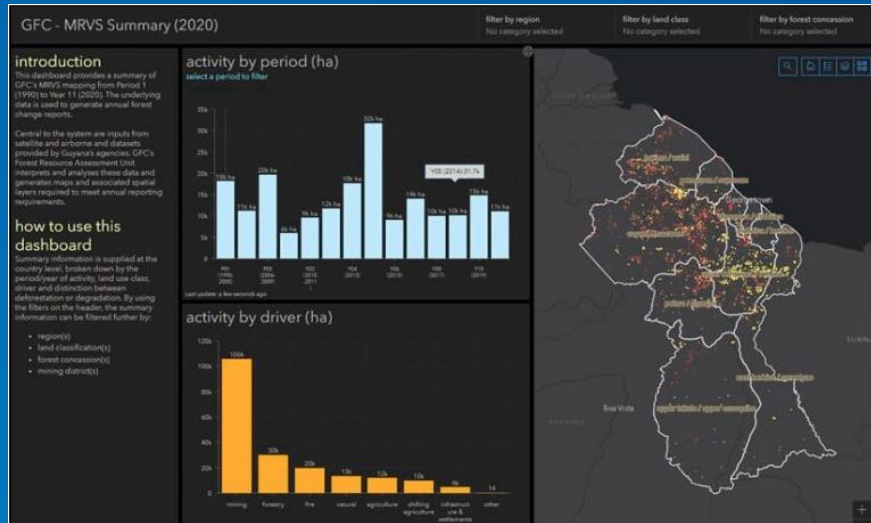


Edit features to create enumeration areas: Create and modify features that will guide census workers in Zambia.

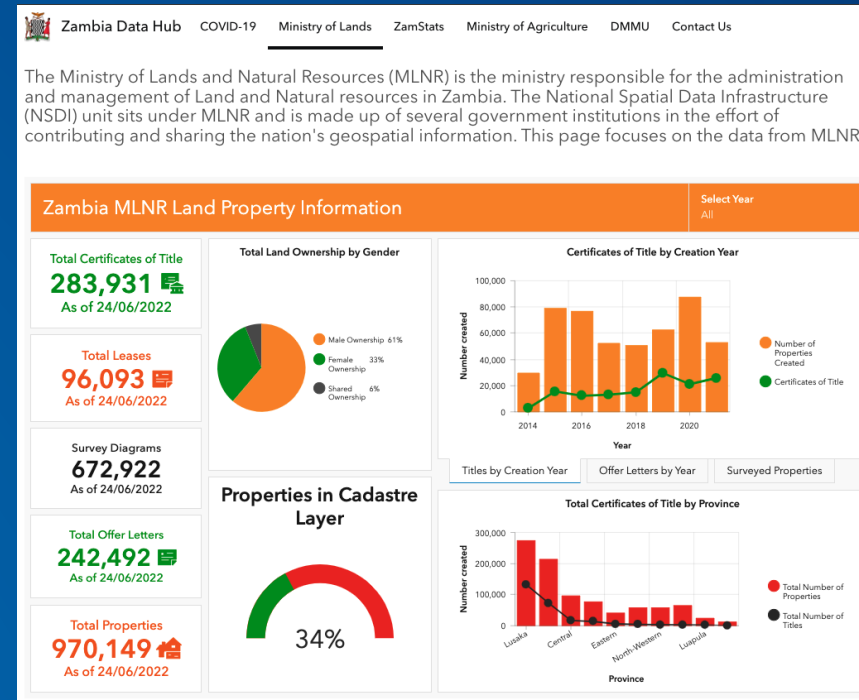
- **Type:** Exercise based on real-world scenario
- **Level:** Intermediate
- **Software:** ArcGIS Pro
- **High-Level Tasks:** Create a new feature for geolocation points. Add, modify, and delete point features. Add and modify enumeration area features.

⌚ 1 hour

Results and Impacts in Land



Guyana MRVS Dashboard



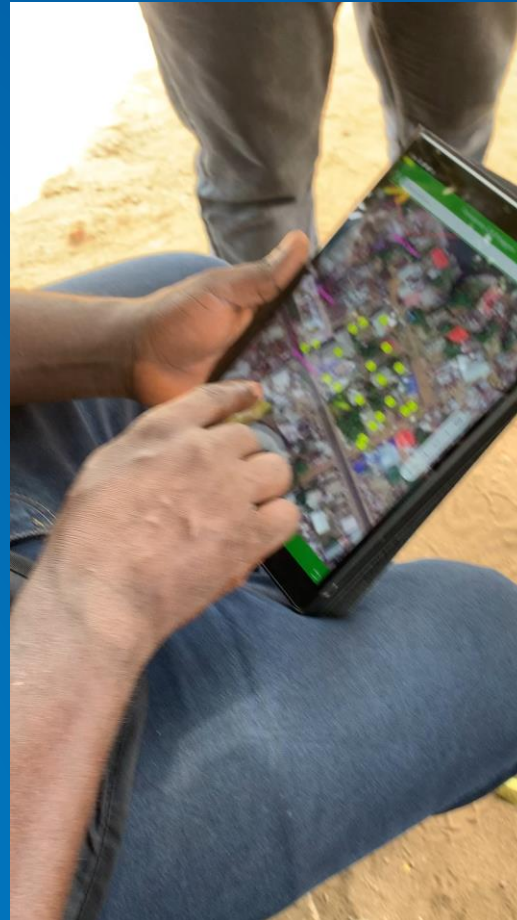
Zambia MLNR Land Property Data Hub



Rwanda LAIS Dashboard

Results and Impacts in Statistics and Census

Liberia Institute of Statistics Using Survey123 for Demarcation



Anguilla Statistics CAPI Survey in Survey123

Visitation Record

Government of Anguilla
Anguilla Population and Housing Census 2022
Census Day - June 15, 2022

Identify the building type using the following criteria:

Partially completed building:
A partially completed building is one where the building construction has started and can be continued but the building has not reached the stage of construction where it can be occupied.

Business
A business building is one where only business is conducted and no one lives there for more than 6 months of the year.

Business & Residential
A hotel, inn or villa is considered a business and residential building because people normally live there unless the hotel is closed.

Residential
A villa is a house or other type of home, which was built for the purpose of renting to tourists for periods of less than 6 months. As villas are likely to be vacant in May, you will need to inquire from neighbours whether the home was built for this purpose. If there are people living in them for less than 6 months, they are temporary residents and they do not need to complete a full questionnaire. They should be noted in column "no. of temporary persons visiting" of the VR form.

Government
These include government owned buildings which may include community centres, hospitals, schools etc.

Derelict
If the building is abandoned, ruined or dilapidated this code should be used.

Non building structure/Object/Unable to classify
These may be items captured on the imagery that when inspected on the ground maybe a pile of bricks, container or any animal barns etc.

VISITATION RECORD

ED Number: *
5

ED Name: *
Crocus Hill

District Number: *
10

District Name: *
Stoney Ground

Enumerator name:
Supervisor name:

Enumerator number:
Supervisor number:

Date of first visit:
Time: *
Date: *

Building Number: *

Visitation Record

Building Number: *
70

Building Type: *
☒ Residential
☐ Business
☐ Business/Residential
☐ Government
☐ Non building structure/Object/Unable to classify

Building Status: *
☒ Opened
☐ Closed
☐ Vacant
☐ Partially Completed
☐ Derelict

Residential Dwelling Questions

Dwelling Number: 1

Dwelling Status: *
☒ Occupied
☐ Closed
☐ Vacant
☐ Partially Completed
☐ Derelict

State Owner Name
Description and Location: *

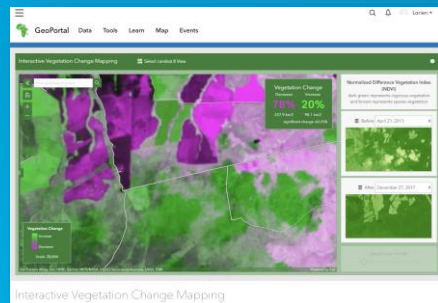
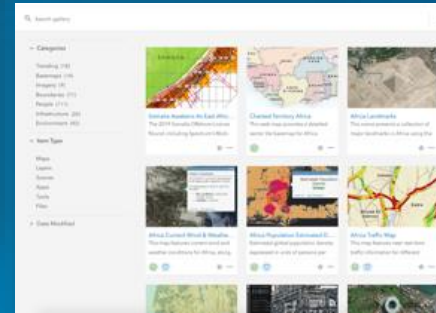
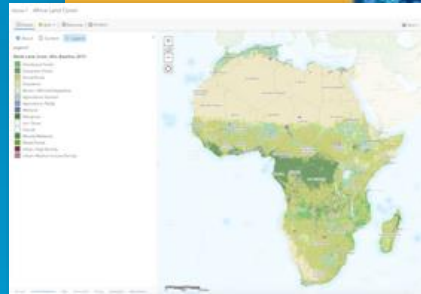
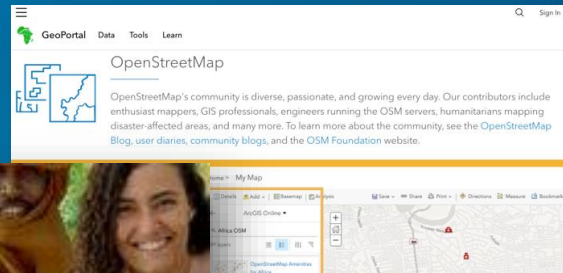
Building Number ID: 100507001000
Select + below to record an additional dwelling within this building.

Date enumerated:
Date

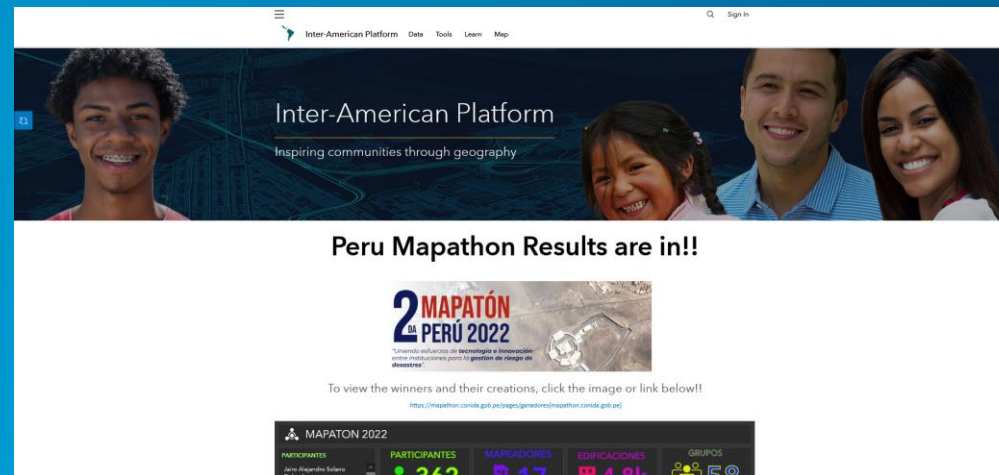
Status:
☒ Completed
☐ Partially completed
☐ Refusal

Coordinates:
18°13'N 63°4'W

Regional GeoPortals



Interactive Vegetation Change Mapping



Challenges and Lessons Learned

- Need for executive support, vision, and alignment with country priorities
- Value of geospatial strategy and IGIF country action plans
- Importance of partnerships (e.g., UNFPA, World Bank, WorldPop, Flowminder, UNECA, etc.)
- Need for long-term capacity building and related services
- Long-term support contributes to success
- Adopt an incremental approach to enterprise GIS
- Early wins are important to get visibility and buy-in from management

Summary

- **Partnerships are critical to implementing the IGIF**
- **Geospatial strategies and country action plans are important to align technology with national priorities**
- **Don't underestimate the importance of long-term capacity building**
- **It's a journey and progress takes time**

Call to Action

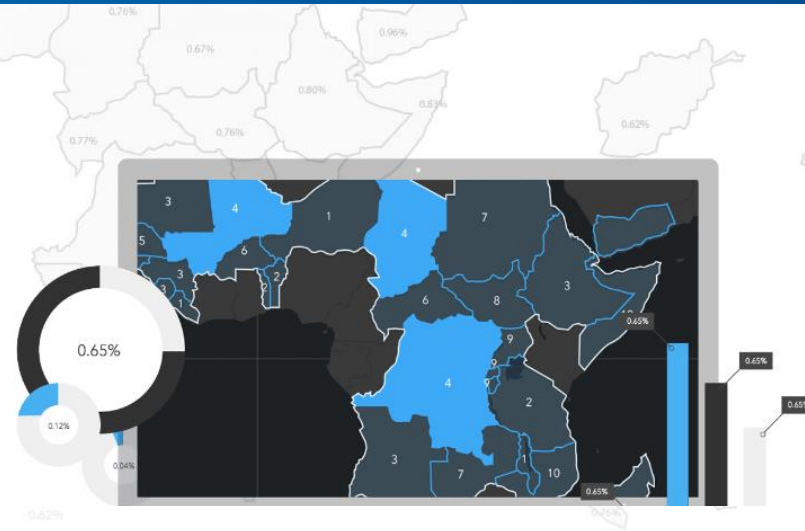
If not already participating, apply today

Official Statistics

Modernization Program

Providing GIS tools & training for resource constrained countries

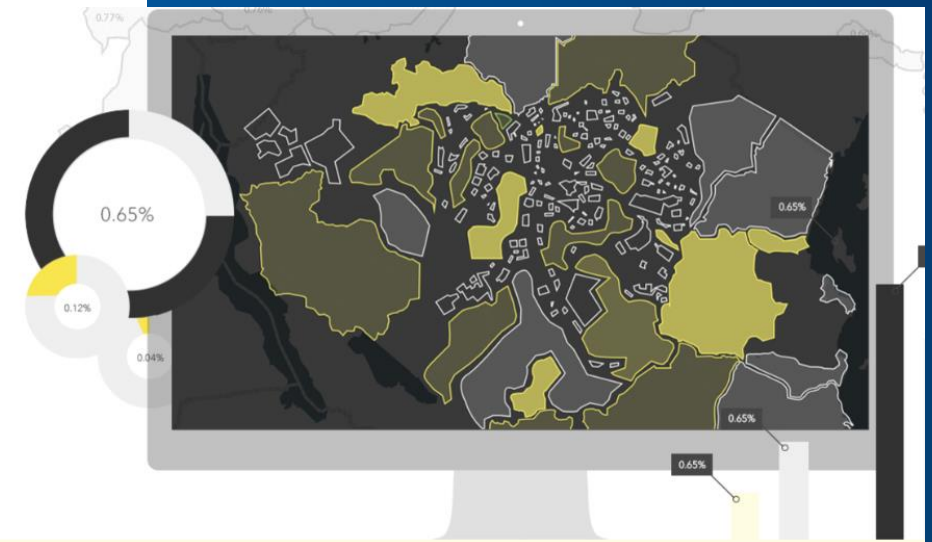
[Apply Now →](#)



Land Administration

Modernization Program

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SCIENCE
OF
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