

## **StatsTalk-Africa: Demystifying Geospatial Information for Official Statistics in Africa**

**Tuesday, 10 October 2023**

### **Concept Note**

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#### **Background**

Geospatial Technology is an invaluable tool for collecting and organizing geographic data and associated characteristics which includes but not limited to physical and socio-economic phenomena. It combines the power of both Geographical Information Systems (GIS) and remote sensing tools to generate data specific to a location or geography. Furthermore, Geospatial Technology promotes interoperability of data, making it an essential tool for strategic decision making.

For many years, African Statistical Systems have been struggling to make use of location-based data in their collection, analysis, and dissemination of data. However, thanks to recent advances in geospatial technology and data science, Africa is now presented with the exciting prospect of being able to address its discrepancies in statistical data. Geospatial technology has enabled a much more efficient method of data collection from a range of sources, such as satellite imagery, mobile phones, and drones. This data can be instantly analyzed to provide meaningful insights and can be shared online in real-time with those who need it, revolutionizing the way African countries are obtaining information for decision-making. This will help create a much more accurate picture of life on the continent.

Navigating the complexities of Africa's varying socio-economic landscape without the help of geospatial technology is a bit like walking through an intricate maze without a map. As the 21st Century unfolds, the demands placed upon statistical systems require a new, dimensional approach to understanding local distributions and trends. In the advent of improved geospatial technology and data science, the possibilities have grown significantly. Satellite scans now capture atmospheric data, usage patterns from mobile devices paint a picture of living patterns, and drones provide detailed images of the most remote locations. All this data is used to generate geostatic maps that provide a much more complete and intricate understanding of the area. This helps government agencies, NGOs, researchers, and policymakers gain a valuable level of depth and dilation of perspective.

With the democratization of data access, geospatial technology is ushering in an era of endless possibilities centered around the enrichment, and exploitation of spatial datasets. This has marked the beginning of a revolution, with data analysis, once restricted to tech giants and specialized agencies, now made available to citizens, advocates, and researchers, offering them the insights needed for effective initiatives. In Africa, geospatial tech is a potent tool as it helps to unravel the social, economic, and cultural patterns that are present in the subtle shifts of its terrain. From mountains to water bodies, geospatial tech helps to piece together an image of the continent, offering valuable insights that can help to get ahead of the statistical anomalies.

Geospatial technology is revolutionary in its ability to break down traditional systems and link each statistical data point to a precise location on Earth. This location-based data provides a level of clarity and detail that was previously unimaginable – it's not just about the 'what' and 'why', but also the 'where'. Consider the example of a development project that seeks to provide access to clean water in a remote area. With traditional datasets, one might find a few scattered numbers on water scarcity, but without the depth of geospatial data, it's difficult to narrow down exactly where the solution lies. Geospatial technology allows us to pinpoint exactly where the wells should be dug, which communities are in dire need, and where pipelines should be constructed. In short, geospatial data enables us to move beyond simply understanding the problem, to providing a solution.

As we move further into the 21st century, the development of Africa is no longer only determined through conventional number crunching, but also through the analysis of diverse geographic scales. With the advances of geospatial technology, the potential of the future can be unlocked, allowing us to transform abstract ideas into tangible action. Not only does this allow us to identify problems, but also to devise solutions. The geospatial revolution has the capability to correct statistical discrepancies and reshape the future of Africa; each piece of data is vital for this goal. With this technology, we are granted the freedom to create a brighter future for the continent.

### **Application Geospatial Information to Official Statistics: Case Study of Burundi's 2024 Population, Housing and Agricultural Census**

ECA's intervention in the Burundi's 2024 Population, Housing and Agricultural Census demonstrates the potentials Geospatial information holds in the domain of official statistics, particularly to enhance the accuracy and effectiveness of censuses. Its application in the 2020-Round of censuses in Africa illustrates this potential distinctly. ECA with partners developed a Dwelling frame a geodatabase for the country which plays an integral role in census cartographic planning. As part of preparation for population and housing censuses, a dwelling frame provides a listing of all dwelling units within defined boundaries (enumeration areas). It serves as a critical enumeration tool, ensuring a complete and accurate count during the Census exercise.

For a diverse and vast continent like Africa, and Burundi in particular, where a scattered population across various terrains is common, the use of dwelling frames acquires even

greater importance. It allows for precise identification and mapping of where people reside, facilitating efficient planning and deployment of census resources.

Geospatial technology and machine learning techniques aids in creating more accurate and comprehensive dwelling frames. Using geographic information systems (GIS), detailed maps illustrating the geographical distribution of dwellings can be constructed. By incorporating topographical features, road networks, landmarks, and administrative boundaries, these maps help in organizing and conducting Census operations, since they allow data collectors to establish the most efficient routes for data collection and ensure no dwelling unit is overlooked. In Burundi over 2.5 million dwellings were identified and integrated into a geodatabase, pre-enumeration areas were created to facilitate the census cartographic operation. The cost of the census cartographic operation was reduced as well as the previewed timeline from 18 months to 5 months.

In Burundi, this approach contributed significantly to overcoming challenges like difficult terrains and inaccessibility of certain areas. Additionally, updated, and accurate dwelling frames will also support post-census area-based activities like planning development projects based on population characteristics and trends. Undoubtedly, the use of dwelling frames, supported by geospatial technology, in census cartographic planning introduces a level of precision and efficiency that uplifts the overall quality and utility of Census data in Burundi.

### **Challenges:**

Multiple challenges are faced in incorporating Geospatial Information in Official Statistics in Africa, including lack of adequate infrastructure, persistent data silos, inadequate skilled personnel, and low levels of awareness on the importance and potential uses of GIS and remote sensing data.

### **Way Forward:**

Taking proactive measures to improve awareness on the potential relevance and application of GI technologies in official statistics production, policy formulation, and decision-making is crucial. Fostering undertakings on the integration of geographic with statistics using the approved UNGGIM framework. Promoting partnerships for data exchange, facilitating continuing professional development through training in GI technology, and advocating for investment in relevant infrastructure can all play a part in demystifying this technology. Africa should share best practices and learn from experienced global players in the field. The development of proper legal and institutional frameworks can encourage the right conditions for effective geospatial statistics growth.

Aiming to put into perspective the importance of Geospatial Information for Official Statistics, this concept proposes planning effective measures for advocacy, skills training, infrastructure development, and data collection improvement. Emphasizing on GI will help pave the path to a promising and robust data-centric strategy to address Africa's pressing problems.

## Objective

The ACS is convening the monthly webinar series – **StatsTalk-Africa** – to provide a space for a dialogue about data, statistics, and innovative tools with data experts and users. Specifically, StatTalk-Africa aims to:

1. Serve as a knowledge-sharing and exchange platform.
2. Demystify and promote greater understanding of key statistical concepts and alternative data sources that could be harnessed in the African context.

## Date and Time

The Webinar is scheduled for **Tuesday, 10 October 2023**, from **11:00 to 12:00hr (EAT)**.

## Language

English will be the official form of communication for this webinar series.

## Registration link

Register in advance for this meeting [HERE](#)

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