

Population & Housing Census Mapping Solutions

Introduction

Population and Housing Censuses require current and detailed maps for the accurate delineation of enumeration area (EA) boundaries. *In most developing countries these maps are either dated or do not exist.* Modern satellite imagery and digital aerial photography base maps that are packaged in a GIS-based census mapping application is the answer to this problem. GeoSpace is a specialist GIS company focusing on spatial data capturing through remote sensing (airborne and satellite imagery) and GPS fieldwork.

Our track record

Since 1997 national statistical offices (NSOs) in more than 15 African countries have benefitted from our census mapping solutions, technical support and training. As a result, GeoSpace has established itself as a reputable company and the leading census mapping service provider in Africa. Our achievements confirming this include the following:

We have provided census mapping solutions to the censuses of Namibia (2001); South Africa (2001), Tanzania (2002); Lesotho (2006) and Southern Sudan (2008). We have provided technical support and training to the NSOs of the following countries: Botswana, Ethiopia, Ghana, Kazakhstan, Malawi, Nigeria, Seychelles, Swaziland, The Gambia and Zambia.

We are a member of the United Nation's Expert Group on Population and Housing Census Mapping.

We are the exclusive service provider to the World Bank's General Data Dissemination System (GDDS) module on GIS and small area statistics (GDDS1&2).

We are the exclusive census mapping technical solution provider to SPOT Image – the world's leading provider of satellite imagery.

We are proud to be associated with a number of symposia and conferences on statistics. The most significant has been

our sponsorship of the Africa Symposium on Statistics Development (ASSD). We have sponsored ASSD on every occasion since the first event was held in 2006.

What makes us unique?

The key to our success is our application specific knowledge.

We understand censuses and surveys and hence also the mapping requirements thereof. Some of our staff has managed census operations and large surveys prior to joining the Company.

We understand Africa and the unique challenges of the continent. We are an African company and the nature of our business brings us in contact with fellow Africans from all over the continent.

We understand the (appropriate) technology. Current national coverage maps that provide detailed colour images are usually a fundamental component of our methodology. SPOT5 2.5m pixel resolution natural colour satellite imagery provides a cost effective base map at national level. This is complemented by digital aerial photography (DAP) or very high resolution satellite imagery for dense urban settlements. GeoSpace operates two large format digital mapping camera systems (DMCs). This enables us to provide NSOs with high quality imagery for urban areas at very competitive prices and turn-around times second to none in the industry. This is especially important in dynamic informal settlements where changes often occur in a short period of time. The imagery is stored and manipulated in a GIS database that acts as the enabler of an appropriate solution.

We provide a total solution. Our edge lies in integrating our knowledge of census taking with modern remote sensing and GIS/GPS capability to provide a total solution that is realistic, cost effective, relevant (to the unique circumstances of a country). This guarantees superior results within the timeframe of the bigger census project.

Our approach

Although the same basic ingredients are used, the recipe for the solution for each country is different. No two countries are the same, hence the uniqueness of each country's solution. A project could typically entail the following steps:

Because of the uniqueness of different countries, we strongly recommend a *situational assessment* as starting point. This involves assessing factors such as: what was done in the past and lessons learned; current methodology; country specific requirements (e.g. the establishment of a dwelling unit frame); organisational capacity; status of available maps; time available; and budget.

The situational assessment is used as a key input to the next step, namely *methodology development and pilot testing*. This is done in close collaboration with our counterparts within the NSO, ensuring that the unique circumstances and requirements of the country are taken into account. Based on the agreed methodology a census mapping project document is prepared. This document covers the following: process flow; hardware; software; base map requirements (existing base maps plus satellite imagery and DAP); human resource requirements for office work and fieldwork; project scheduling and tracking; training; and technical support and budget.

Once the census mapping project document has been adopted we assist with the *implementation* thereof. Our level

of involvement depends on the requirements of the project and the internal capacity of the NSO. Although we can provide the full range of services including GIS office work and EA demarcation fieldwork we prefer to train local staff to do the production work. This ensures that capacity is built within the NSO. We provide the products and services that are required as part of the total solution but that are usually outside the scope of the normal functions and responsibilities of the GIS / Census Mapping office. This typically includes the following: establishment of the GIS infrastructure; database design and implementation; GPS application development; base map acquisition; technical support; and project management.

We prefer to be involved with the project from start to finish. In doing so we can optimally provide the support required to ensure the success of the project.

Conclusion

We have a proud record of successful delivery census mapping projects. We invite you to discuss your needs with us. Be it a simple technical question to a large-scale census mapping solution. Census mapping is our business – we are keen to be of assistance!

For more information on GeoSpace's census mapping solutions please contact Hennie Loots at: henniel@geospace.co.za



Over two decades of success in more than 15 countries

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