

Developments of the Digital World of Remote Sensing and GIS, Their Comparison to, and the Importance of the Human Side of Information Reference Services



Joyce Gosata Maphanyane

University of Botswana, Botswana

INTRODUCTION

This article is about the essence of data sources specific for *geo-spatial science* (Bossler et al., 2002) information for land cover mapping. The use of geospatial science techniques provides opportunities and challenges in many aspects of life including for land cover, forestry for climatic change measurements and agricultural engineering which is vital for food security (Opara, 2003).

First, it elaborated about developments of digital world in *remote sensing* and *geographical information system (GIS)* as modern day techniques for Earth surface monitoring (Mather & Koch, 2011). Satellites whose data has widespread international applications for the past four decades are discussed in details and compared (Figure 3). Second, it puts emphasis on the importance of the human side of information reference services that is essentially the brain behind machine based data. The human thinking is applied in the interpretation of this machine data and it acts as knowledge substitute where the remote sensing and GIS data are inadequate or unavailable. The 2012 study on *the reconstruction*

of historical landscape for the investigation of land cover change in (Maphanyane, 2012), the human side of information reference services based method on Ramotswa, Botswana case, had sufficiently proved that it can be applied to fill in the gap where modern technology is inadequate or unavailable (Figure 1 and Table 1). For emphasis, graphical examples are given, where the aerospace based Ramotswa digital data; its analytical techniques and their resultant information are compared to the same area data, but those that had been derived from the systems based on the human side of information reference services (Figure 2). This too has shown that the human side of information reference services was complementary.

BACKGROUND

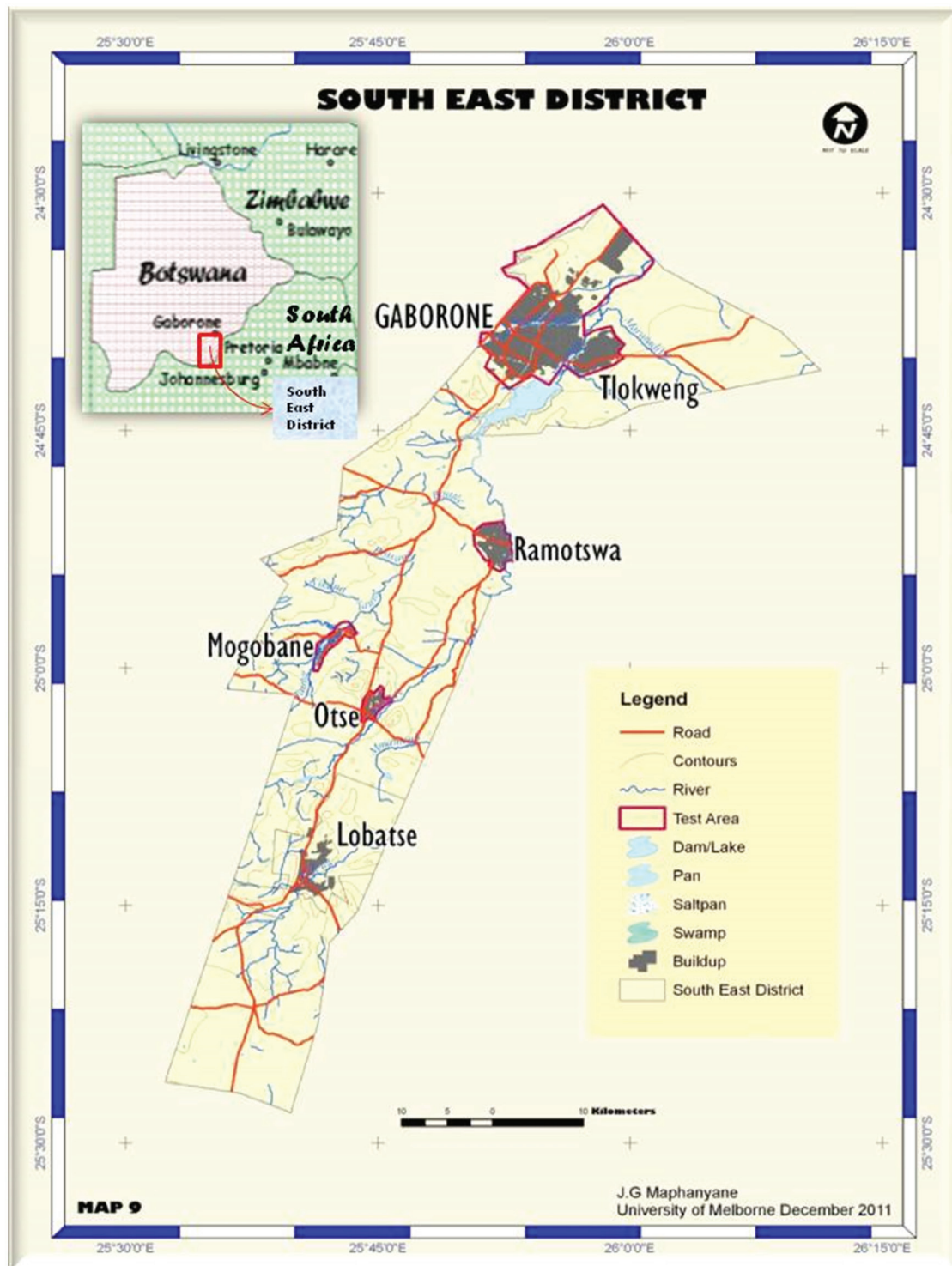
The essence of this study hinges on technological developments of robust data collection tools. Remote sensing is one such. It shows the importance of human side of information reference services and the role it

Table 1. Botswana – south east district data, comparison of the two methods for the investigation of land cover change

Analysis of the results on how reconstruction of historical landscape compares to remote sensing method(Maphanyane, 2012)				
No.	Test Area	1973	1990	2002
1	Gaborone/Tlokweng	66.94%	66.13%	77.42%
2	Ramotswa	80.00%	71.79%	71.88%
3	Otse	65.27%	65.87%	67.07%
4	Mogobane	77.88%	70.72%	67.31%

DOI: 10.4018/978-1-4666-5888-2.ch305

Figure 1. Botswana: south east district locational map



13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/developments-of-the-digital-world-of-remote-sensing-and-gis-their-comparison-to-and-the-importance-of-the-human-side-of-information-reference-services/112739

Related Content

Transmedia and Transliteracy in Nemetical Analysis

Michael Josefowicz, Ray Gallonand Maria Nieves Lorenzo Galés (2018). *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 6488-6497).

www.irma-international.org/chapter/transmedia-and-transliteracy-in-nemetical-analysis/184344

Rough Set Based Similarity Measures for Data Analytics in Spatial Epidemiology

Sharmila Banu K.and B.K. Tripathy (2016). *International Journal of Rough Sets and Data Analysis* (pp. 114-123).

www.irma-international.org/article/rough-set-based-similarity-measures-for-data-analytics-in-spatial-epidemiology/144709

A Systematic Framework for Sustainable ICTs in Developing Countries

Mathupayas Thongmak (2013). *International Journal of Information Technologies and Systems Approach* (pp. 1-19).

www.irma-international.org/article/systematic-framework-sustainable-icts-developing/75784

Chemistry Learning Through Designing Digital Games

Kamisah Osmanand Ah-Nam Lay (2018). *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 3248-3259).

www.irma-international.org/chapter/chemistry-learning-through-designing-digital-games/184037

The Role of Innovative and Digital Technologies in Transforming Egypt Into a Knowledge-Based Economy

Sherif H. Kameland Nagla Rizk (2019). *Handbook of Research on the Evolution of IT and the Rise of E-Society* (pp. 386-400).

www.irma-international.org/chapter/the-role-of-innovative-and-digital-technologies-in-transforming-egypt-into-a-knowledge-based-economy/211624