

# **DEVELOPMENT OF NATIONAL DIGITAL SPATIAL DATABASE STANDARDS AND TOPOGRAPHIC BASE MAPS FOR ENVIRONMENTAL AND NATURAL RESOURCE MANAGEMENT IN ZAMBIA**

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**Key words:**

## **ABSTRACT**

The Survey Department of the Ministry of Lands (ZSD) is the official mapping agency in Zambia. Over many years the Department has traditionally maintained a national mapping series at 1:50,000 and derivative scales in analogue format i.e. printed paper maps. The national mapping series has been of significant benefit to general map users and provided diverse specialists with base mapping data for their applications. It is evident that most countries globally have been developing or desire to develop national spatial database infrastructure (SDI) in response to the ever increasing demand for geographic and land information at national level for social and economic growth – Zambia is no exception. There are clear mandates supporting initiatives to rapidly develop national SDIs and to integrate these into regional and Global SDIs.

ZSD is currently leading various stakeholders within National Environmental Information Network and Monitoring System FORUM (EINMS) to develop digital topographic database standards and based on these standards digital topographic base maps at 1:50,000 and derivative scales. The database standards and base maps are to be utilized to develop environmental information systems for various environmental and natural resource management applications for selected areas in Zambia i.e. wildlife habitat management, forestry resource management, soil degradation, industrial air pollution, water quality and sanitation.

ZSD is leading the development of the topographic database standards into a nationally accepted standard through a consultative process that will yield consensus among the stakeholders and users of environmental and natural resource information. The national standard along its development makes reference to the ISO/TC 211 Standardization of Geographic Information, FGDC standards development process and other global initiatives. The production of digital topographic base maps is to be extended to the rest of the country in order to achieve national coverage and seamless database structures.

The paper presents the background and current status of the development of digital spatial database standards and base maps in Zambia. The paper discusses some design and

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development aspects and the implementation process since June 2000. Examples of digital spatial datasets and applications developed so far are illustrated.

## **BIOGRAPHICAL NOTES**

Raynold Moyo is Assistant Surveyor-General. He heads the Mapping Services Branch of ZSD - responsible for national mapping development and production in Zambia. He has 16 years work experience as a professional Land Surveyor undertaking technical and managerial assignments. He has focussed on national mapping for topographic and thematic applications; project mapping in support of applications in utility facilities management, natural resource management, physical and infrastructural planning. He is currently active with the development of national digital spatial data infrastructure.

He is a Registered and Licensed Land Surveyor and holds a Bachelor of Engineering Degree in Land Surveying and a Post Graduate Diploma in Photogrammetry and Remote Sensing.

Bwalya Chuba is Senior Land Surveyor and Head of Photogrammetry at the Zambia Survey Department. Bwalya specializes in mapping development and production - employing analogue and digital techniques for the delivery of diverse mapping products. He is actively designing digital production systems.

He has taken part in various GIS and LIS projects undertaken by the Zambia Survey Department. He is currently actively developing standards for national digital spatial databases.

He holds a Bachelor of Engineering in Land Surveying and a Professional Masters in Geoinformatics.

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