DEVELOPING AN ORGANISATIONAL GEOSPATIAL DATA FRAMEWORK:

A CASE STUDY OF KENYA NATIONAL BUREAU OF STATISTICS, MINISTRY OF DEVOLUTION AND PLANNING

HELLEN MUTHONI WANYOIKE

MASTER OF SCIENCE

(GEOSPATIAL INFORMATION SCIENCE AND REMOTE SENSING)

DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY

2016

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

Signature: HELEN MUTHONI Date: 2/2/16

Hellen Muthoni Wanyoike

This thesis has been submitted for examination with our approval as the university supervisors.

Signature:..... Date: 2/2/16

Prof. David Kuria

Dedan Kimathi University of Technology.

ABSTRACT

Many organizations across the world use the same basic geospatial data for their application but due to lack of a platform where they can identify this data, the organizations spend a lot of resources duplicating the same data which is very expensive. In Kenya geospatial data is produced and used by both government and private organizations. These organizations duplicate this data due to lack of a systematic way of accessing and sharing it. KNBS also duplicate geospatial data every time it is carryout a census. The main objective of this study was to develop an organizational geospatial data framework where the Kenya National Bureau of Statistics (KNBS) is used as a case study. The study addresses major components of the framework as guided by the Federal Geographic Data Committee which include information, technical, operational and business contexts and the institutional roles. A lot of consultation and working together with the Manager and staff of the KNBS Cartography\GIS is involved in order to come up with the various framework components. The data standards are generated and documented guided by the FGDC Data Standards. ArcGIS software is used to transform the data into the framework standards and in integrating the geospatial and statistical data. OpenGeo Suite software is used to create the Nyeri Database and publish the data in the web. JavaScript, HTML and CSS files are used to configure the KNBS geoportal and are created using Notepad++ and opened using any browser.

The results shows KNBS has eight most commonly used geospatial data themes and one non-geospatial theme. Two Standards are provided which makes it easy to integrate the various data themes. The data standards comprising data specifications, unique identification code and coordinate system are documented in the KNBS Map production and Specification Manual which is awaiting approval for use in the organization. Also included in the data standards is the framework coordinate system and the unique identification code. The metadata standard adopted is the existing ISO 19139 Geographic Information Metadata - XML Schema Implementation. A geoportal is also developed where users can access the KNBS geospatial data. It is recommended other organizations come up with their own frameworks for identification of geospatial data available to avoid duplication. Data sharing should also be encouraged.

Key words: Geospatial Data, Geospatial Data Framework, Kenya National Bureau of Statistics and Statistical Data.