

# History and Potential of National and Regional Atlas Issues in East Africa

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## Abstract:

National atlases provide synthesised spatial knowledge of a particular country in the form of maps and textual descriptions. The three East African Countries gained independence at around the same time and most of their topographic mapping programmes were supported by the Directorate of Overseas Surveys (DOS). Similarly, the first editions of their national atlases were created and published around the same time. However, for various reasons, the national atlases have not been updated for quite some time. The same reasons advanced for the delayed revisions of the topographical are also applicable to the national atlases. The development of web mapping technology, Spatial Data Infrastructure (SDI) and the Volunteered Geographic Information (VGI) paradigms have changed how national atlases are prepared and used. SDI and VGI provide a great opportunity for the East African Countries to revive the National Atlas - although the SDI development in East African Countries remains low.

## Introduction

An atlas is a book of a homogeneous collection of maps that captures information about national resources and covers a wide range of themes covering a single country (national), a group of countries (regional), a whole continent, or the whole world. National atlases provide synthesised spatial knowledge of a particular country. They usually contain comprehensive combinations of spatial datasets represented by maps covering a country completely, with an added narrative function (Kraak et al., 2009).

In the late middle ages (1300 -1500 AD), cartographers compiled groups of maps of the known world in bound books (codices). Ptolemy's Geography map book (atlas) and later editions served as the model atlas. Abraham Ortelius of Antwerp was the first to compile and publish a modern atlas as a systematic bound collection of maps (Malenkov et al., 2008). These atlases were produced for the palaces (Kings) and homes of the wealth – providing knowledge of the world's geography that was known around that time. During the renaissance period, the atlases were also meant to serve as travel guides. Atlases general serve the following functions i) improve knowledge about a country locally and internationally; ii) provide reference material for education and research on natural, cultural, social and other conditions of a nation; iii) to form an information resource base for environmental and natural resource management; iv) project a nation's true identity on a global scale; and v) serve as a material for economic planning and development.

An atlas can be grouped or classified according to the geographical area represented, the information portrayed, or the purpose for which it was created. In this manner, the atlas is broadly categorized based on the territorial extent or content (Figure 1). Atlases will vary by the territorial extent or spatial area they cover and may be classified as either international, regional or national. An "international" atlas will cover all countries of the world. In contrast, a regional atlas covers more than one country or a region of a continent, for example, a Regional Atlas for East Africa or a region within a country. A national map covers only one country.

Based on content, atlases can be classified according to their maps' general or specialist themes. General atlases are the most popular form of atlases, which normally incorporate a comprehensive range of maps to portray all aspects of the physical environment. A general atlas gives an overview of a geographical area at a certain time for users such as planners, researchers, scholars and students. The typical general atlases include the national atlases that include the physical environment (geology; soils; climate; relief; hydrology etc.). The natural environment maps portray biogeography (flora and fauna; conservation; natural resources etc.) and human geography (population; culture; industry; commerce; communications etc.). Educational or school atlases, for example, the *Oxford Atlas for East Africa*, are derived from general or national atlases and adapted to the educational requirements of different levels of learning. Thematic atlases normally contain maps portraying a more specific range of topics or themes. Thematic atlases convey a more detailed view of a topic or subject area with maps of an analytical nature instead of factual representations of data. In Africa, the production of atlases began in the late 19th century during the colonial period. A large percentage of atlases were published in two decades: 1955-1975 when almost 80% of the countries in Africa became independent sovereign nations

(Shand and Silayo, 1996). The paper will focus on the Kenya and East Africa national atlases, developments, and future prospects.

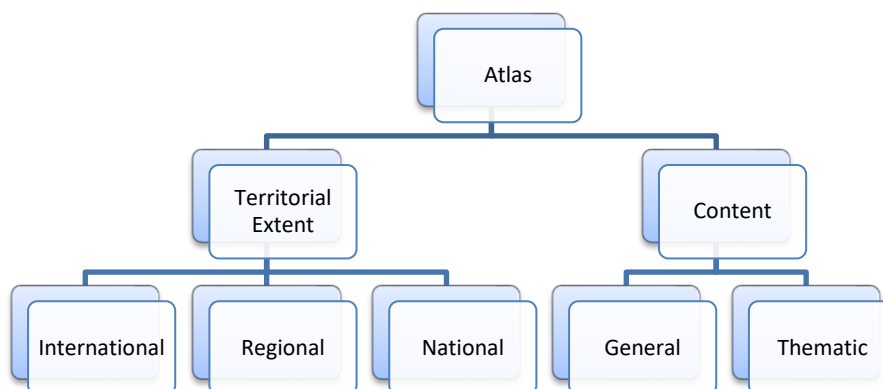


Figure 1: Classification of Atlases

### Atlases in East Africa

East Africa covers the countries of Kenya, Uganda and Tanzania, which initially constituted the East African Community. Currently, however, the East African Community includes the countries of Rwanda, Burundi, South Sudan and now the Democratic Republic of Congo. This article focuses on the original three countries of the East African Community – Kenya, Uganda and Tanzania, highlighting their historical developments in Atlas production.

#### i) Tanzania

The first atlas of Tanzania (Deutsch-Ost-Afrika Atlas) was published in 1906 by the German administration, and subsequently, in 1942, 1948 editions of the national Atlases of Tanganyika Territory. The atlas was updated in 1956 and renamed Atlas of Tanganyika. After Tanganyika gained independence in 1961 and its subsequent union with Zanzibar and Pemba to form the United Republic of Tanzania in 1964, the first edition of a national Atlas of Tanzania was published by the Surveys and Mapping Division in 1967. A fully revised and extended second edition of the National Atlas of Tanzania was published in 1976 and is considered the latest edition (Liwa, 2013). These six atlases editions attempted to portray all aspects of Tanzania's physical and natural environment. They were published within and without Tanzania by both government and non-government organizations (ibid.). A revised and extended second edition of the National Atlas of Tanzania was published in 1976 by the Surveys and Mapping Division, Ministry of Lands and Housing and Urban Development. The base maps used for all editions of the national atlas were compiled and derived from the 1:2,000,000 scale topographic, the largest published scale covering the whole of the country on a single sheet available at the time. Besides the national atlas, thematic atlases were also produced for various applications.

#### ii) Kenya

The first edition of the National Atlas of Kenya was published in 1959, comprising 44 pages of maps, text and gazetteer; the atlas was based on comprehensive basic topographical mapping to cover the whole of Kenya in 1949. The second was published in 1962 and had 46 pages (GoK, 1962).. The third edition was published in 1970; it was completely re-organized and rewritten and comprised 103 pages (GoK, 1972). The work on the 4th edition was published in 1991 with 160 pages, including 80 pages of maps and 80 texts. The fifth edition, also the “latest” edition of the National Atlas of Kenya so far, was published in 2003, comprising 245 pages (Survey of Kenya, 2003). The fifth edition is organized into 21 chapters: Geography of Kenya; History of Kenya; The geology of Kenya; Weather and climate; Water resources, environment and forests; Land and soils; Agriculture, livestock and co-operative development; Energy; Regional development; Land information and management; Population and human resource; Tourism and wildlife-- Education and training; Health services; the economy, banking and finance; Trade and industry; Transport, communication and broadcasting; International relations; Gender, sports, culture and social services; Democracy governance and politics; and Law justice and security.

The policy was to produce the national atlas every ten years to capture data graphically from every national census. The policy, however, has not been implemented since the last edition was published almost 20 years ago. Some of the reasons for this are the pervasiveness of the digital mapping technology that makes it possible for other government Departments to publish their thematic atlases, for example, the Socio-economic Atlases of Kenya (Wiesmann et al. 2016).

### iii) *Uganda*

The first edition of the national atlas of Uganda was published in 1962, comprising 35 maps and two city plans – all printed in colour. The Atlas of Uganda was produced entirely in the short space of nine months to make the work available at the time of Uganda's independence in October 1962. Although compiled in 1967, the second edition was published early in 1969. This edition was an improvement on the first edition, showing several changes, particularly in the Political Boundaries. Like the first edition, the Atlas gives useful information on the Physical, Flora and Fauna, Human Geography, Rural Economy, Industry, Trade and Historical information. The collection of materials for the third edition started in 1971, but the programme stalled after the Military coup.

#### **From National Atlases to SDI to VGI**

The national atlases in the three East African countries were published roughly around the same time. Moreover, until the independence of the East African Countries in 1961, 1962 and 1963, for Tanzania, Uganda, and Kenya, respectively, and as late as 1970, technical and operational assistance was provided by the British Directorate of Overseas Surveys (DOS), not only for the establishment of the country's basic surveying and mapping control but also for the preparation, compilation and printing of the country's topographic and unique purpose/subject maps. The national atlases have not been updated within the required period of ten years. For example, in Kenya, the national atlas must be updated every ten years following the National population census. However, the national atlas was last updated in 2003 - and two rounds of the national population census have been conducted and the atlases have not been updated.

The key question is whether the national and regional atlases are any more relevant and necessary in this era when large private sector companies have fully embraced virtual globes and online mapping services to produce a new generation of world atlases that even rely on a range of public data. For example, the national map (<https://www.usgs.gov/programs/national-geospatial-program/national-map>) now replaces the national atlas. There is also the Esri living atlas (<https://livingatlas.arcgis.com/en/home/>) - where users can easily find information of interest without depending on the officially prepared national atlas.

First, updating atlases depends on topographic maps that haven't been updated in East Africa in a while, undermining any effort to rewrite national atlases. Updating the atlases issue is one of the key reasons why national atlases in East Africa haven't been updated. Secondly, the developments in digital cartographic technology that include web mapping services, in which different departments within government are able to create and publish their thematic atlases; the Spatial Data Infrastructure (SDI) and the Volunteered Geographic Information (VGI) paradigms – have made much of geospatial data and information readily available to the users – and therefore with little interest in a national atlas. A national atlas can automatically be created and revised from datasets available from national data providers (NSDI). These paradigm shifts have changed the meaning and manner in which national atlases are prepared and used. The developments around the SDI and VGI provide a great opportunity for the East African Countries to revive the National Atlas - although the SDI development in East African Countries remains low. In reviving the national atlas, the countries should consider electronic online atlases instead of hardcopy ones.

The needs of atlas users vary broadly from basic locational reference to in-depth research – it would be useful to conduct user-centered requirements studies, engage focus groups and capture feedback through various online surveys, interviews and usability analyses with respect to the content and user interface of the online atlas.

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