Geoinformation Policy in East Africa

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Key words; Geoinformation, Policy and Legislation

SUMMARY

Triggered by global trends, economic and political reasons, the republics of Kenya, Tanzania and Uganda signed the East African Cooperation treaty in 1999 thus bringing the East African Community into being. This has led to considerable increase in demand for cross border Geoinformation (GI) exchange in the regional bloc. Infrastructure (Railway and road network, airports and coastal ports), Natural resources (Lake Victoria, tourists sites), telecommunication (common mobile providers and subscribers), Institutions (hospitals, banks, schools and colleges) just to mention a few are now legally and commonly shared by the citizens of the 3 member states.

Coping with this increased demand for cross border GI amidst the numerous challenges in the effective generation, management and use of GI in decision making in the region dictates that GI policies for the candidate member countries be harmonized to agreed standards before integration. Questions then arise; do these countries on individual basis have Geoinformation policy in place? Where not in existence, what efforts are being made and at what level? Are there any efforts in coming up with a regional policy? The paper highlights the current status of GI policy in Kenya, Uganda and Tanzania, the efforts and possibilities in coming up with a regional GI policy.

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1. INTRODUCTION

Geoinformation is information that has spatial context encompassing a growing number of datasets, many of which are combined to provide information requirements for the end user. This include for instance the distribution of natural resources, the incidence of pollutants, descriptions of infrastructure such as buildings, utility and transport services, patterns of land use and health, wealth, employment, housing, voting habits of people etc (Oxera ,1999). Geographic Information is recognised as a key component of Public Sector Information (PSI) on two main grounds (GINIE, 2003). First Geographic Information (GI) has a significant *economic* value and secondly Geographic Information has a significant *policy* value because it enables the integrated assessment of policies in different sectors (agriculture, transport, regional development, and environment).In recognition of the economic and societal value of GI, many countries have been developing national and/or regional Spatial Data Infrastructures (SDI), that is, frameworks of policies, institutional arrangements, technologies, data, and people that makes it possible to share and use effectively GI.

Creating, maintaining and using GI usually require collaboration and cooperation of several user groups and professional disciplines. With the increasing integration of national economies into regional intergovernmental economies worldwide, such collaborations of community of users now extends far much beyond national boundaries. For instance in East Africa (figure 1), a regional intergovernmental organization of republics of Kenya, Uganda and Tanzania; Infrastructure (Railway and road network, airports and coastal ports), Natural resources (Lake Victoria, tourists sites), telecommunication (common mobile providers and subscribers), Institution (hospitals, banks, schools and colleges) etc are now commonly shared by the citizens of the 3 candidate member states. The result of this increase in cross border GI exchange has been the birth of a myriad of geographical data producers, vendors and users many of whom do not know about each other's data holding or data needs. The result is much duplication of data production efforts, poor data quality control, inefficient use of the available data resources, suppression of the geoinformation market and frustrated data users (Mulaku and Siriba, 2004). This *ad hoc* generation and interchange of GI in EAC definitely needs to be contained. This can best be done by the formulation and implementation of not only a sound regional GI policy but also sound national GI policies in the member states.

Figure 1; The East African Community

A GI Policy should address among others the following basic issues; First, Data and Metadata with respect to; production, ownership, archiving, maintenance, security, standardization, transfer and exchange, copyright and pricing issues. Secondly, should consider, Software and Hardware standards issues. Thirdly modalities for the organizational arrangement of NGDI; funding; commercial aspects; capacity building and the promotion of synergy among GI related national and international bodies. Public Sector Information and Telecommunication Legislation should as well be addressed.

To illustrate the extend to which accession countries to the EAC are taking the formulation and implementation of GI policies strategies, the three member states are presented in a similar format. The format is based on the framework used by in the comparative analysis of GI policies in Australia, Britain, the Netherlands, United States, Lithuania, Bulgaria, Slovenia and Hungary (Craglia, 2000 and Craglia and Messer, 2002).The format used first lays ground by highlighting the status of NSDI in each member states and then highlights the Public Sector Information and relevant pieces of legislation. This is followed by integration of the key component of a GI policy into; public sector information legislation, coordination, core data, Metadata, pricing of GI and copyright and licensing issues.

2. GEOINFORMATION POLICY IN EAST AFRICA

2. 1 Kenya

2.1. 1 Status of NSDI Initiative in Kenya

Kenya is a presidential democracy with a unicameral National Assembly. Public administration is organized in 8 Provinces, 210 Constituencies and 176 Councils (City, Town, and County Councils).

The Kenya National Spatial Data Infrastructure (KNSDI) initiative became active in 2001. It is currently being funded by the Kenyan Government and the Japan International Cooperation Agency. A number of KNSDI workshops have been organized in collaboration with JICA, see table 1 below.

Workshop	***Date***	***Highlights***
1	12-11-2001	Survey of Kenya chosen as the lead agency, 30 institutions represented
2	26-04-2002	Working groups formed
3	10-09-2002	Nairobi
4	30-11-2005	KNSDI draft policy launched- included the national institutional framework
5	14-03-2006	Review of the working groups progress and the draft policy

Table 1-Review of KNSDI workshops

2.1.2 Public Sector Information Legislation and the GI policy

In relation to public sector information, the Kenyan Constitution states that everyone has a right to know and to disseminate data of public interest. On the basis of this fundamental right, all

government agencies must facilitate access to information in their possession and regularly publish or make accessible data concerning their activities. Concerning the provision of digital data, there is no government policy that defines which organizations have a right for providing such data. According to the current state policy, part of the data is classified or restricted for use. In Kenya, the process of establishing an NGDI and the formulation of the GI policy are going on concurrently. There are three on going notable efforts in the formulation of the GI policy, though not without a number of problems.

In the first instance, the Government of Kenya (GoK) in its current national development plan 2002-2008 has incorporated in its policy paper on ICT an action plan to establish NGDI for efficient management of Geospatial information (Owino, 2005). The current ICT draft policy, apart from not being readily available to the general public is lacking in many areas including geoinformation.

In a second notable effort, the land policy secretariat has drawn up a draft land policy (see www.Landpolicy.or.ke). The Land Policy recognizes the role of NSDI as that of facilitating data dissemination and sharing. It proposes the development of a Land Information Management System (LIMS). The proposed LIMS will be a major node in the NSDI. The National Land Policy formulation process has been going on for the last 2 years. Issues and recommendations report has been finalized. The report is currently being converted into a draft policy, a cabinet paper will be prepared for cabinet deliberation and if adopted by the cabinet, a sessional paper will be written for presentation to parliament (Murugu, 2005). It is however not certain that the land policy shall successfully be pushed through parliament because it had been formulated to closely march the then proposed new constitution that was overwhelmingly defeated in the November 2005 referendum.

The third notable effort in the formulation of GI policy has been initiated and driven by the KNSDI secretariat. The KNSDI secretariat has come up with the KNSDI draft policy that was subjected to scrutiny in the 5th KNSDI conference before it was revised. According to the KNSDI draft policy implementation plan, the KNSDI draft policy has a number of steps to go through before being implemented. First it has to get the government approval with commitment from the KNSDI stakeholders. Secondly formulation of the KNSDI bill has to take place before being taken through the parliamentary process to have it enacted. Both the mission and vision of the KNSDI policy does not mention issues concerning international access thus reducing the chances of addressing the cross border GI issues in East Africa.

On the regional front, Kenya has not been active in regional and global bodies dealing with GI. It was noted during the last KNSDI conference that, though a member of CODI[*1], AFREF[*2] and

AFRICOVER[*3], these organizations were not involved in the formulation of the GI policy and had very little knowledge of the GI activities in Kenya.

2.1.3 Coordination

The lead agency and the major producer of GI in Kenya is the National Mapping Agency-Survey of Kenya (SoK). SoK has the national responsibility of provision of spatial products and topographical mapping as well as servicing national land administration and administrative boundaries both elective and non-elective. Sok national network includes 67 district survey offices. Other key providers of GI are the Electoral Commission of Kenya, Central Bureau of statistics, City/Town Councils, Private and Non governmental Organizations.

Many of these organizations have invested heavily in installing GI equipment and are keen to use but find there is no common user framework to unify and support diverse core data sets (Kombo, 2005). As a result, a number of important institutions expected to fully participate in the implementation of GI have de-linked themselves from the process. Though an official list of institutions participating in NGDI does not exist, an analysis of the lists of attendance of institutions in the three NGDI workshops held so far indicates that out of the 38 organizations that were represented in the first NGDI workshop, only 15 managed to attend the latest workshop thereafter (Mulaku and Siriba, 2005). The KSDI draft policy addresses the coordination and the partnership issue under custodianship, ownership and the organizational structure.

2.1.4 Geospatial datasets

Key data sets acting as foundation of National GI Infrastructure is already in place, though not fully digital. They include topographic map sheets at scales 1:50,000 which cover about 67% of the entire country with the remaining North Eastern parts of the country covered by a scale of 1:100,000 (Mulaku and Siriba, 2005 and Owino, 2000) . The Sok is in the process of digitizing these fundamental sets. As to the end of June 2006, for the 1:50,000, out of the available 506 sheets, 93 had been vectorised, 363 had been scanned but not vectorised and 50 had not been scanned. For the 1:100,000, out of the available 49 sheets, 3 have not been vectorised, 18 have been completely vectorised, 24 have more than 50% of the information on it vectorised while two of the sheets have less than 50% of the information on it vectorised .

[*]1 Committee on Development of Information.[*]2 African Reference Frame. [*]3 African Inventory &Comprehensive Observation of Vegetation/Cover and Environmental Resource

In a survey carried out in 2004 (Siriba, 2004)' that considered all these data sets, it was established that there were almost an equal number of data sets that were as suitable as those that were unsuitable. The geospatial data types used in the survey that was carried in a number of 115 organizations were Foundation data sets- geodetic control, Digital Elevation Models, orthoimagery, international and administrative boundaries, topographic maps, and gazetteers of geographical names. Framework data-cadastral, transportation, land use/land cover, forests, soils, and hydrology. Application data sets covered such diverse themes as wildlife, meteorology, desertification, tsetse distribution, malaria distribution etc.

The KNSDI draft policy clearly defines the categories of data that exist and the organizations that shall be expected to produce what data sets. It stresses the issue of data standards. Important aspects of standardization specified by KNSDI include; production standards, presentation standards, data transfer/exchange standards and hardware (KNSDI, 2006)

2.1.5 Metadata

SoK the lead agency in the implementation of GNDI in Kenya is the body charged with the responsibility of developing and maintaining the metadata. SoK has no metadata in place. There are a number of individual efforts in establishing a metadata .The most successful and done to some standards was done in a research carried out in the University of Nairobi (Siriba 2004). It covered only 115 organizations. Other metadata that exist are developed and maintained by individual organizations based on their interaction with the other GI producing institutions/organizations. These kinds of metadata are private and not done up to the expected standards.

The KNSDI draft policy clearly defines what a metadata is; it spells out its benefits and stipulates that each GI producer shall be expected to produce a metadata. It also clearly spells the metadata standards to be adhered to (Ibid). However it fails to point out issues regarding its accessibility, pricing and servicing.

2.1.6 Data Pricing

The survey regulations (subsidiary legislation) in the survey act Cap 299 of Kenya- the Director of Survey (DS) may review the prices of products and services from time to time. Discretionary powers are also given to the DS to waiver up to 50% of survey service and products fees. The director of surveys therefore publishes data prices every time they are revised. The latest edition of the data prices was published in 2003 and includes prices for; Topographical maps, special

maps, township maps and plans, digital data pricing and prices for various services offered (CM, 2003).

In the private sector, GI data is sold and bought in Kenya to an extent that some institutions have taken advantage of the ignorance of their customers about the actual prices of digital data to charge exorbitant prices. It was noted from a survey carried out in a number of organizations that there was serious reluctance by GI producers to reveal their GI products prices (Siriba, 2004). Prices were only given for 8% of the datasets.

The KNSDI draft policy partially addresses this but only in the public domain, it specifies-For publicly funded GI and GI services, the aim is not to achieve the cost recovery but to make the more accessible, affordable, effective and efficient, with uniform pricing policy (Ngomo, 2005). The draft policy does not completely address pricing of GI products from private firms and the privately funded GI.

2.1.7 Licensing and Copyright Issues

The copyright law of 1964 is not clear as regards to the extend GI products have been copyrighted. The government has a copyright of all maps published by the DS and all the plans and computations deposited in SoK (Cap 299, 2000). Further, there exist, the copyright charges, they were last revised in 1998, a committee was set up by the director 1n 2005 and is currently reviewing them (CAM, 1998).These pieces of legislation are not clear on GI. There are therefore several acts of GI manipulations for own use in Kenya because plagiarism is followed.

Under Legal Framework, KNSDI draft policy seriously addresses the copyright issue concerning original data sets; value added data and integrated datasets. For the original data, the data custodian shall own the copyright of the data. For value added data, the producer shall own the copyright of the new data and acknowledge the source of the original data. For integrated datasets, the producer shall own the copyright subject to permission from the copyright holder(s) of the individual base data (Ngomo, 2005).

No licenses have been granted to private organizations to access, process and exploit the data banks (keen not call them databases because they are non existent in SoK) or any data sets owned/produced by the National Mapping agency. There is also no legislation in place guiding licensing agreements between private companies. The KNSDI draft policy under the article copyright, states that a data custodian shall, enter into a licensing agreement prior the utilization of any geospatial data set.

2.2 Uganda

2.2.1 Status of NSDI Initiative

Efforts to establish SDI in Uganda have been underway with several initiatives such as the Uganda Spatial Data Infrastructure Concept paper, a study carried out by the European Union in 2001 but stopped at the proposal stage, U-Consult Sweden 2004, Environment Information Network (EIN), and finally the National Integrated Monitoring and Evaluation Strategy (NIMES) which is the most recent (Tukugize, 2005 and Nasirumbi 2006). Under NIMES is the Poverty Eradication Action Plan (PEAP) 2004/5-2007/8. PEAP has a number of objectives, which notably include the development of a National Spatial Data Infrastructure. Under this objective, the plan underscores spatial data as the most basic requirement for any policy intervention. It sets out five specific objectives, all aimed at creation of NSDI to support planning and policy formulation.

A number of efforts all aimed at seeing the fulfillment of this vision is going on in Uganda. The relevant players in Uganda National Geoinformation Data Infrastructure (UNGDI) have been identified and categorized into core, supporting and peripheral institutions. The Uganda Bureau of Statistics (UBOS) is the lead agency. Mandated by Act of Parliament of June the 11th 1998, UBOS's main task is "to provide high quality central statistical information services on social environment and economic conditions of the country" (Muhwezi, 2004).

A series of SDI workshops have been held in the last 5 years with most recent that had participants drawn from; academia, research institutions, ministries, NGO's, private sector, security organizations, media, local governments and international relief and emergency organizations taking place on the 7TH June 2006. The workshops have been in some instances followed by some commitments to implement prioritized SDI activities. The core issues of SDI have identified through three studies. The last workshop's objectives included; promoting the understanding of SDI in the context of policy evaluation and usability; bringing professionals, practitioners and users of spatial information under a forum through which current experiences and ideas on SDI would be discussed; establishing a Working Group comprising of policy, users and technical stakeholders for harmonization of data, data standards, access, ware housing and information exchange; establishing an interim National Steering Committee for the institutionalization and operationalization of a NSDI and launching a process of institutionalizing a professional body of GI practitioners and professionals that would enable geospatial practitioners have an umbrella organization under which ideas and knowledge can be exchanged. (Lwasa, 2006a).

During the last meeting a number of challenges to the USDI initiative were singled out. This included; NIMES the lead agency of USDI is its current 'data view' targeting poverty and thus may not meet the data requirements of several sectors such as natural resource management, security and some research institutions. There are also issues of data integration due to non-standardized templates for data collection and development as well as the issues surrounding capacity building and development in management of spatial data. The presentation pointed out three critical issues for the current SDI development; institutional framework for partnership, stakeholder involvement and the policy framework. The presentation concluded by outlining some strategic positioning of USDI through partnerships, cooperation and networking which can be built on commitment for data access. During the discussions, participants reiterated the need to view SDI development as a process to ensure involvement, engagement and institutional communication and networking (Lwasa, 2006b).

2.2.2 Public Sector Information Legislation and the GI policy

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The 1995 Uganda constitution provides in part: "Every citizen has a right to access information in the possession of the state or any other organ or agency of the state except where the release of the information is likely to prejudice the security or sovereignty of the state or interfere with the right to the privacy of any other person....." (Tukugize, 2005). However, there is no national policy for data exchange though some institutions have a memorandum of understanding that enables them to share data. UBOS adopted a GIs policy in 2004 (Muhwezi, 2004). A recent USDI meeting held in Makerere University underscored the need of a GI policy and put mechanisms in place to see a GI policy formulated. In one of the resolutions passed by the meeting, a number of working groups are to be set up and one of them shall be the GI policy working group. It was also resolved to piggyback other institutions such as UN ECA, GSDI, GeoConnections and others to support the drafting of policy (Lwasa, 2006a).

The Uganda National ICT policy framework of May 2002 recognises that ICT has a big role in the stimulation of national development and globalization of the economy. However, Uganda ICT policy does not yet recognise the role of geoinformation. Other relevant pieces of general legislations that have a big effect on GI in Uganda include; The National Water policy, 1999, The National Environment Management Policy for Uganda, 1994; The Uganda Forestry Policy, 2001. UBOS GIS Policy Statement, the Environment Statute, 1995;The Land Act, 1998, Town and Country Planning Act, 1964 Registration of titles Act, 1964 Environmental Impact Assessment (EIA) Guidelines and Regulations, 1998.

2.2.3 Coordination

There are a number of GI providers in Uganda with different institutional mandates for data ownership; acquisition and maintenance as stipulated by UBOS see (Muhwezi, 2004). However, there are not in line with the present situation. The mandates are partly out of date and thus in conflict with the present practices. Even where mandates are clearly specified, the current demand for spatial data has created practices that are in conflict with established mandates. For instance, there are some overlapping functions between Land and Surveys and UBOS in the area of National Mapping. Capitalizing on this situation, a number of new breeds of new data providers emerged. There are a myriad of donors funding these organizations (Karamatunga and Ali, 2002). There is therefore a danger of having heterogeneous GI data sets characterized by different standards more so projection systems, on the market. The coordination problems have been partly taken care of in the UBOS GIS policy guidelines and partly by the Institutional framework adopted by the GIS task force following recommendations by a World Bank funded study.

The last USDI meeting held in Makerere University noted the problems caused by lack of proper coordination and passed a number of resolutions that include; The Office of the Prime Minister to continue to take the lead in USDI with support from University and other stakeholders. It was also resolved the GIS coordinating subgroup of NIMES be transformed into USDI; having subcommittees to handle issues of policy, standards, drafting of policy and institutionalizing the USDI under OPM (Lwasa, 2006a).

2.2.4 Geospatial datasets

The GI service sector under the Uganda Bureau of Statistics is now a fully functional GI infrastructure with integrated data sets with some of the National statistical datasets (Nasirumbi, 2006). As contained in the UBOS GI policy, UBOS has initiated joint spatial data collection, clearing data, handling analysis and data dissemination with both the private governmental agencies and individuals.

The mandate of the Department of Land and Surveys includes the provision of geographic data defined by the UNGDI stakeholders as common infrastructure (Karamatunga and Ali, 2002). The department has several data sets in different forms but a great amount of required data sets are not yet captured or exist in paper form and is outdated (table 2). Only 15% of the land is surveyed and titled, 85% is not. The 15% that is surveyed cant be digitized and integrated with the existing national coverage data sets due to variations in projections and other mal standards issues (Musinguzi, 2004).

Other data sets that exist include data generated by donor-funded projects. A good example is the National Biomass study project. In addition to the data on land cover, the project developed a digital database of six base layers and has since established itself as a major source of basic geospatial data layers (Karamatunga and Ali, 2002).

Table 2: Main Data holdings at the Department of Land and Surveys

Dataset	Level	Scale
1:50,000 standard topographic sheets (base maps).	National level	1: 50,000
Aerial Photographs of the 1960's	National Level	1:25,000
SPOT satellite data. Processed data to produce 1: 50,000 standard sheet format, space maps and space posters.	National	1:50,000
1:2,500 topographic base map data. Used for production of 1:2,500 and smaller scale maps and related data.	Greater Kampala, and 10 urban centres.	1:2,500
Large scale cadastral information. Used for development of cadastral-based GIS.	Urban (Greater Kampala). 80%	1: 2,500

To enable spatial relations to the features, the spatial referencing of all basic data within Uganda is supposed to be done to the following standards as stipulated by the UBOS GI policy guidelines (Muhwezi, 2004):

ELLIPSOID:	Clarke 1880 (M0DIF)
HORIZONTAL DATUM:	New Arc 9160
Origin:	Blomfontein(South Africa)
VERTICAL DATUM:	Mean sea level
Origin:	Mombasa (Kenya)
Measurement Units:	Meteres
PROJECTION:	UTM
Grid:	UTM (Zone 36)

2.2.5 Metadata

This aspect of NSDI is the most ignored and has led to serious duplication of efforts in GI data production (Musinguzi, 2004). The few metadata that exist are internal documentation describing the data in some institutions, however, there is no formalized Meta data for national use (Karamatunga and Ali, 2002). For instance-NEMA (National Environment Management Authority) has developed a Meta data for its GI data sets (see www.nemaud.org) (Ibid).

UBOS GI policy has set this as a mandatory obligation for any GI producer. UBOS has on its on developed unique geocodes as they are called that uniquely identifies all administrative areas from national down to village level the geospatial data acquired in the 2002 census (Karamatunga and Ali, 2002). Due to need for trends analysis, the GI service under UBOS plans to geocode all previous data sets backwards through 1990, 80, 70 subject to availability of funds. This is proposed to take place in the first quarter of 2006 (Ibid).

The last USDI meeting seriously addressed this issue. There was a whole session and presentation on the he nitty-gritty's of USDI implementation and this benefited from a presentation that focused on the concepts of metadata, clearing houses, standards, web-mapping and GIS portals. The paper detailed the usefulness of metadata, clearing houses and data searches, emphasized the importance of common data templates for integration, data access and Just-in Time mapping as well as the different portal types see (Chukwudozie, 2006).

2.2.6 Data Pricing

There is no central pricing policy for geospatial datasets though some institutions like
NEMA and the NFA have set up prices for existing geospatial datasets. In other institutions the price depends and can sometimes take up negotiation with the client while other institutions give their data freely depending on the working relations (Nasirumbi, 2006).In a study carried out in 2005 (Tukugize, 2005), it was noted that more than one pricing policy exist within individual private organizations. These include a combination of pricing according to production cost, cost recovery and negotiations.

2.2.7 Copyright and Licensing Issues

Uganda is a member of WIPO[*3]and thus expected to adhere to the international copyright law under the Uganda Copyright Act of 1964. The copyright bill, 2002 is pending concerning amendment of the copyright Act and provision of related rights. Copyright policies in Uganda especially concerning GI are not enforced (Tukugize, 2005 and Nasirumbi, 2006). For instance

Land and Surveys copyrights its maps but still instances of duplication through digitizing are rampant. Private companies mainly acquire GI from public organizations to which they add value in order to meet the intended objectives without acknowledging the source.

The 1995 Uganda constitution recognizes the right of access to information. However, no national policy for data exchange exists. Memorandum of Understanding enables the sharing of data (Karamatunga and Ali, 2002 and Muhwezi, 2004). No licensing agreements exist between the state and private organizations. Official Secret Act makes it an offense to obtain, collect, record, publish and communicate what is deemed to be official secrets/ information or data sets (Ibid). These instances of legislation make access to GI sector specific- case in point; the Biomass project whose data sets are highly accessible and widely used. In the private sector, some MOU exist among the various institutions. These include NEMA project, Karamoja Data Center, Ministry of HEALTH, department of Land and Surveys.

2.3 Tanzania

2.3.1 Status of the NSDI Initiative

The United Republic of Tanzania was formed in 1964 through the union of Tanganyika, which today is the mainland Tanzania, and Zanzibar Island. Administratively it is divided into 26 regions (21 on the mainland and 5 on Zanzibar) and 130 districts.

The NSDI initiative was formally begun in 2003. In March 2003, the national Bureau of Statistics held a two-day workshop to deliberate on the establishing of a Tanzania NSDI (TNSDI). An interim steering committee was formed and charged with the responsibility of overseeing the development of a proposal for TNSDI (Mavima and Noongo, 2004). The Ministry of Land and Human Settlements Development in Tanzania was recommended to be the lead agency (SW, 2003). However in a dinner held in conjunction with the workshop, the Permanent Secretary of the Ministry of Land and Human Settlements Development directed the lead agency be the National Bureau of Statistics (NBS) under the office of the president. This was because under NBS, funds could easily be availed and all key sectors could easily be politically muscled to participate (Ibid).

A sensitization workshop was later held in May 2003 in UCLAS Dar-es-Salaam. A number of resolutions were reached; they included institutional arrangement structure, financing strategy,

[*] 3 World Intellectual Property Organization

NSDI action plan, recommendation for standards and technical requirements and a sub-national networking and communication mechanism.

Though NBS has the establishment of NSDI initiative in its Strategic and Business plans 2003/04-2005/06 (NBS, 2003), there is not much that has been done and therefore no detailed action plan exists on how the NSDI initiative is to proceed. Since May 2003, sensitization meeting, the most recent initiative aimed at convening a TNSDI steering committee meeting was during the CODI IV meeting in Ethiopia in 2005. It is during this meeting that people involved in TNSDI got a chance to meet and discussed the possibility of holding a TNSDI meeting back in Tanzania (Jonas, 2005).Back at home; NEMC believes that Surveying and Mapping Division (SMD) of Ministry of Land and Human Settlements Development has to initiate the next meeting of the steering committee. On the other hand, SMD does not feel it is alone responsible for taking the initiative to call a meeting and have been hoping to hear from the steering committee chair-UCLAS.

The immediate strategies that the steering committee has to look at include; empowering itself (the steering committee), developing an action plan for TNSDI development and developing funding proposals. Among the gains already made and which will act as the back drop for the TNSDI development and the committee need not care about include; the ICT policy, local government reform, the land act, the environment management act, Land policy, Tele- comm. Act and Human Settlement Policy (Mavima and Noongo,2004).

2.3.2 Public Sector Information Legislation and the GI policy

The main provider of GI in Tanzania is the Natinal Bureau of Statistics (NBS). NBS is the central statistical office in Tanzania. It is responsible for the censuses and surveys in a wide variety of subjects from economics to demographic. Much of the data collected by NBS has a spatial component in it and is therefore suitable for use in TNSDI. The other GI provider is Surveying and Mapping Division (SMD). SMD is responsible for the delivery of land development services and multipurpose cadastral information system for sustainable development (Masele and Mtalo, 2004). Regional Center for Remote Sensing, the Ministry of Agricultural, Sustainable Management of Land and Environment (SMOLE) and the Environment Information Systems are also providers of GI in Tanzania.

A field study contacted in 2005 see (Jeroen, 2005) showed lack of coordination and cooperation amongst the GI providers in Tanzania. Besides TNSDI initiative, there were also parallel SDI initiatives in Tanzania. In 2004 for example, the Ministry of Agriculture and Food Security initiated a project that in the long run would output among others SDI for the agricultural sector.

Though TNSDI steering committee covers Zanzibar, and has a representative in Zanzibar, one of the founded SMOLE project activities is to form a SDI for Zanzibar (DLR et al, 2005). Much of what has been promoted by EIS program qualifies for independent effort towards the formation of a SDI (Gymai, 1999).

2.3.3 Geospatial Datasets

There exist a number of data sets, all held with different institutions and with varied standards. The lead agency the NBS has demographic and health data, National Boundaries, Roads, National parks, Animals, Weather and climate data (NBS, 2004). Most of these data sets are not spatially referenced and exist just as statistics.

The National Mapping Agency has 1:50,000 and 1:250,000 topographic sheets at a national level, Roads network maps at 1:250,000 (Masele and Mtalo, 2004). All were done before 1980 and thus not so current apart from the 1:2,500 topographical maps covering Arusha, Manyara and Kilimanjaro, which were updated using aerial photography in 2002 (SMD, 2005).

SUA[*4] data sets are spatially referenced and thus suitable for integration into a SDI. They include agriculture, forestry, and rainfall and soil maps. WSCT[*5] has enormous amount of data as well, but it is largely biodiversity data (Animals, plants, forest cover and rivers (Jeroen, 2005). Base maps of the areas, administrative boundaries and population maps accompany all the biodiversity data sets. The other more recent sets that could be of relevance to the SDI initiative have been derived from research and donor funded projects. Their standards and reference systems are as varied as the researchers/ donors themselves.

Part from being under pressure to standardize the existing data, NBS is faced with the increasing pressure from users at all levels for more current data to be availed at a smaller scale. Demands are almost never ending for more published data that measure to the latest state of affairs (NBS, 2005).

2.3.4 Meta data

In Tanzania, the usual way organization find out which organizations have some needed data is by visits to the respective offices (SW, 2003). Meta data is not in place. There is so much information amongst the various GI producers but no structured ways to keep track of where, how and what is available exist.

The establishment of a Meta data was neither mentioned in sensitization seminar held in 2003 nor has it been mentioned in the current strategic plan of the lead agency; NBS. However, some individual efforts in as regarding the development of a Meta data are in place. The most successful has two institutions. This was developed during a research carried out by the University of Umae.

2.3.5 Data Pricing

In carrying out the role of a GI provider to meet the needs of various sectors, NBS developed an equitable pricing policy that assumedly rationalized the allocation of public resources on one hand and meets the satisfaction of users of a public GI on the other hand [34]. This is what the government in pricing public GI has adopted though it is not strictly adhered to. Instead the pricing criteria of public GI incorporates a number of factors including marginal costs for additional dissemination of basic information, the cost of basic GI data sets and commercial pricing based on competitive neutrality principles, for products and services which could compete with similar products provided by the private sector (Ibid).

In the private sector, pricing of GI varies from organization to organization. Some organizations charge on production and cost recovery measures, others charge on time spent on production. For standard products, charges are done in accordance to price set by government pricelists (Tukugize, 2005).

2.3.6 Copyright and licensing Issues

There is a copyright law covering GI products but it has not been effectively enforced. As a result there is a tendency among organizations to consider GI in their possessions as a source of power they are eager to keep (SW, 2003). When organization share data, it is through a bureaucratic process where the usage of the data is specified and the amount of the data that is shared is just to that specific usage to limit cases of plagiarism. This is mainly done through MOU (Tukugize, 2005). No licensing agreement exists. There is however, a collaborative agreement under making between NDC, NBS and SMD though costing remains a contentious issue (Jeroen, 2005).

[*]4 Sokoine University of Agriculture. [*]5 Wildlife Conservation Society of Tanzania

3. DISCUSSION

The main findings of the GI policy status in East Africa are summarized in table 5.

	KENYA	**UGANDA**	**TANZANIA**
Public sector GI legislation	-Right to any information of public interest -GI policy draft -ICT policy draft - Land Policy draft - Copyright bill of 2001	-Right to any information of public interest -GI policy of 2004 -ICT policy of 2002 -Copyright bill of 2001	--Right to any information of public interest policy-2003 -Dissemination and pricing policy -Land policy, Tele-Comm. Act and Human settlement policy
GI producers and Core data custodians (relevant legislations)	Survey Act of 1964	Registration of titles Act-1964 Land Act of 1998	-Land Survey Ordnance-1957 & Land Act of 1999
Partnerships	-No legislation in place, addressed in the GI draft policy	-No policy in place, MOU commonly used and legally accepted	-No policy in place, MOU commonly used and legally accepted
Coordination mechanism	KNSDI secretariat constitutionally mandated by the minister	Act of Parliament of 1998 mandated UBOS-which has spelt out the mandates in its GIS policy.	TNSDI steering committee constitutionally mandated by the Office of the President
Core data and standards	No policy in place, addressed in the GI policy draft	UBOS GIS policy guidelines	No legislation in place
Meta data	No policy in place, under consideration in the GI policy	No pricing policy in place.	UBOS GIS Policy
Pricing	Survey Act CAP 299, addressed in the GI draft policy	No legislation in place-multi criteria pricing	Dissemination and pricing policy by NBS
Copyright and licensing issues	Copy Right law of 1964 (Not clear on GI) Survey Act Cap 299 Addressed in the GI policy draft	The Uganda copy right law of 1964 under the international copyright law	No policy/ legislation in place
Funding	JICA- Currently in the country carrying out a survey	-Ugandan government (budget -2005/2006)	-Funding still not in place
Regional Cooporation &Integration	-Member UNECA-CODI, AFRICOVER, AFREF	-Member UNECA-CODI, AFRICOVER, AFREF	-Active member of SADC, AFREF, UNECA-CODI &

Table 5: Summary of the GI Policy status in East AFRICA

In all the three EAC member states, there is freedom to access any information of public interest. Legally, freedom of information normally provide citizens with access to official documents held by public authorities, and with the opportunity and to observe the political and administrative decision making process in order to foster the democratic legitimacy of the decisions taken. In EAC where all the governments observe a long power distance as opposed to the short power distance observed in the developed economies, this kind of freedom of information is a political rather than a legal right. This rationale has resulted into restrictions of information to which access is given thus completely complicating the right to access to information and leaving the general public with very little trust.

It is worth noting that all the countries have a number of policies that are required to compliment the GI policy, they are however outdated and thus in most cases legally weakened. Kenya and Uganda have the copyright law in place though it is outdated and does not adequately cover GI. GI has an economic value, it therefore must be protected against retrieval and secondary use by others. Copyright law alone is inadequate and can't ensure this. Three other different legal methods of protection as noted by Jan Kabel, 2000 are urgently needed to supplement the Copyright laws in existence in Kenya and Uganda. These include unfair competition law, the right of extraction, and the contractual law. Copyright does not protect economic investments as such. Copyright protects intellectual achievements which show certain originality and that condition, legally speaking, is not applicable to facts. GI is mostly related to facts. The condition of originality could be fulfilled if the ways in which these facts are organized in a database show a certain intellectual activity that could be characterized as different to standard ways of organizing material. Free riders in EAC could be stopped if the way in which they collect these facts could constitute an act of unfair advantage, the extraction law and the contractual law.

With respect to the other elements of NSDI, that would form a basis for a sound GI policy, all the countries already have small-scale topographic data (though needs updating) available, as well as varying degrees of environmental and socio economic data. Land Information Systems and Cadastral data for these countries needs to be developed. Major emphasis needs to be put on the formulation of GI policies that will compel the development of data sets to some common acceptable standards and more so a common reference system for the three countries.

Meta data appears to be given a varying degree of priority in spite the effort needed to make organizations through the public sector appreciate the value of documenting data resources as part of the wider strategy to increase the access to information. In Uganda, UBOS has addressed this in the GIS policy adopted and have gone a head in implementing this by geocoding all their information in the central system. In Kenya, it featured prominently in the last two KNSDI

workshops and it has been agreed that the research carried out in the University of Nairobi be adopted and updated. In Tanzania, it is neither in place nor under discussion.

Kenya has not only developed a clear framework for NSDI as part of National Spatial Infrastructure but is also at an advanced stage of the GI policy formulation. So far, it has the most active NSDI secretariat in the region and has held the highest number of workshops. Kenya however still lacks behind in the implementation of components of NSDI including coordination mechanisms, and the implementation of existing legislations/policies related to copyright, pricing and regional integration. Uganda and Tanzania have a land policy and ICT policy while Kenya has the draft for the two policies almost ready for enactment. Whereas the land policies in Uganda and Tanzania are expected to supplement the GI policy, they are not wholly applied. In all the three countries, the ICT policy is focused so much to telecommunication and technology and does not adequately address the management of information leave alone GI.

Uganda has a less developed framework than Kenya and is yet to start the formulation of a GI policy, but there are some indications of a dynamic process-taking place that could rapidly alter the extent of NSDI development and the GI policy formulation process. First, It has won the most crucial battle, which is successfully taking the case to the politicians. As a result, the Ugandan parliament set aside funds for the NSDI initiatives for the financial year 2005-2006. Secondly it is the only country in the region that has a GIS policy guideline in place with clearly set out mandates for the GI stakeholders.

In relative terms, Tanzania has a less developed framework and very little political commitment. Since May 2003, the steering committee has been unable to meet because of lack of funding. In the region, Tanzania has been more active than Kenya and Uganda in GNSDI initiative unfortunately at the expense of their national GI initiatives. Tanzania is an active member of CODI, SADC, AFRICOVER and AFREF. Although Tanzania has not yet taken off, it has adopted a forward-looking strategy and has a lot of latent capacity in the country in terms of relevant existing policy elements.

The EAC secretariat in Arusha does not have in its strategic plan a program to establish a regional SDI. The findings of a similar study carried out in the European Union suggest that GI policies and relevant technologies such as geographic information systems have key roles to play in regional accession (Craglia and Messer, 2000). The role relates to the need to develop the infrastructure necessary to support the process of modernization and public administration, which can only be achieved by a homogeneous GI policy in a regional bloc. The absence of a regional GI body and the enrolment and non-uniform participation of the member states in a myriad of continental GI bodies means the pan EAC GI products and policies cannot be easily

harmonized to common acceptable standards. The region will therefore not be able to address complexities surrounding the integration of environmental, economic and social issues in the candidate member states. This ideally means the objectives of forming the EAC community will for a long time remain unachieved.

4. CONCLUSION

This paper focused on the Geoinformation policy status in the East African Community. An evaluation of the three candidate member states was done. The formulation of GI policy is on in Kenya but it is yet to go through a number of stages, these include government approval with commitment from the KNSDI stakeholders, formulation of the KNSDI bill and finally the enacting of the bill. In Tanzania and Uganda the process is yet to begin.

There are numerous areas of common ground in these three states:

1. All the three member states have a number of key pieces of relevant policies and legislation that already provide a backdrop for a GI policy but they are not fully implemented. These include; Acts of parliaments on copyright issues, pricing, coordination etc.

2. The difficulties faced in implementing GI strategies and infrastructure are largely the same and include lack of awareness across different levels of the private and public sector, lack of management support and technical skills, varying policies with respect to access to data and pricing, weak motivation and coordination across agencies. In addition limited financial resources exacerbate these problems.

There is certainly high degree of consensus that the East Africa Community will bring great economic, social and political growth in the region. Its success however to some extent is pegged on having modern geoinformation systems, not just for direct support of its activities but also for allowing a more open access to public sector information, which will in turn enable more informed public sector participation and accountable administration. With this in mind and encouraged by the similar challenges faced first in the implementation of NSDI because of lack of GI policies and challenges in the formulation of these policies themselves, the member states should give the process an integrated approach.

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