

From Slums to Smart Cities: Addressing Slum-Dwelling in Nigeria through e-Land Administration

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ABSTRACT

Africa's progress towards achieving the Millennium Development Goals (MDGs) by 2015 is receiving considerable attention, due to the magnitude of its development challenges. As the second most populous continent, the world's "progress" on the MDGs is heavily dependent on whatever progress is made in Africa. Using a similar analogy, whatever progress Nigeria makes – being Africa's most populous nation- is likely to determine to a large extent the measure of success recorded by the continent. This study explores MDG 7: to ensure environmental sustainability, specifically Target 11 which seeks to improve the lives of at least 100 million slum dwellers by 2020. Based on a case study of Nigeria's capital city, Abuja where the Federal Capital Territory Administration established the Abuja Geographic Information System (AGIS) as an infrastructure to support land administration, housing allocation and urban planning, the paper discusses how AGIS, as an e-government tool, has helped in addressing the emergence of slums within the capital city. Supported by evidence from Africa and Asia, the study concludes that if there is substantial replication, GIS-based applications in land administration by sub-national governments across the country can ultimately contribute towards the MDG of reducing the number of slum dwellers in Nigeria.

Categories and Subject Descriptors

J.1 [Computer Applications]: Administrative Data Processing – Government

General Terms

Design, Economics, Management

Keywords

E-Land Administration, E-government, Slums, Nigeria.

1. INTRODUCTION

Africa's progress towards achieving the Millennium Development Goals (MDGs) by 2015 is receiving considerable attention, due to the magnitude of its development challenges. As the second most populous continent, the world's "progress" on the MDGs is heavily dependent on whatever progress is made in Africa. Using

a similar analogy, whatever progress Nigeria makes – being Africa's most populous nation- is likely to determine to a large extent the measure of success recorded by the continent. Nevertheless, of all the eight Millennium Development Goals, one of the least emphasized is MDG 7: to ensure environmental sustainability. Under this Goal, Target 11 aims "by 2020 to have achieved a significant improvement in the lives of at least 100million slum dwellers". According to the United Nations, 863 million people were estimated to be living in slums in 2012 compared to 760 million in 2000 and 650 million in 1990. Although Nigeria's population is mostly urban-resident, about 69 percent of the urban population reportedly lived in slums in 2012. This is one aspect of the MDGs where Nigeria's progress is difficult to judge on the basis of available data, although there is evidence of improving performance, compared to the other MDGs¹. Nevertheless, in several States across the country, urban renewal efforts (especially in the capital cities) appear to have reduced the incidence of slum dwellings. Yet, the problem of urban slums is still a considerable urban development challenge, which can in many ways hinder the achievement, or sustenance of achievements, of other MDGs. For instance, a rising population of slum dwellers will make them prone to social and economic disadvantages such as inadequate health and educational services (MDGs 3, 4, 5, 6), deprivation of utilities such as roads, water, bridges, telephones and other infrastructure, violent crime, as well as exposure to environmental hazards (MDG 7). All these challenges typically add up to raise the economic and social cost of living in slums such that poverty and inequality (MDGs 1 and 2) tend to rise. The corollary also holds: resolving the number of urban slum-dwellers can contribute to a reduction in poverty. Therefore, the objective of this paper is to examine what role electronic governance and electronic government tools – such as geographic information systems (GIS) - can play in reducing the proportion of urban slum dwellers, in a bid to contribute to the discussions on post-2015 action on the MDGs.² It is important to note that the target "to improve the lives of 100 million slum dwellers" has an inherent flaw which makes it difficult to measure and report. Our research here suggests that, rather than being "improved", slums can be "pushed out" of the urban areas through urban renewal and city planning initiatives. To address slum-

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¹ An on-going survey of the real estate sector in Nigeria being conducted by the National Bureau of Statistics may shed more light on this in 2013.

² Although with slightly different meanings, in this study, we do not attempt a strict distinction between the terms "electronic governance" and "electronic government".

dwelling holistically therefore, initiatives that apply information and communication technologies (ICTs) to land administration can be highly effective. Such technologies facilitate the sanitization of the process of land acquisition, use and transfer, as part of electronic government. Electronic government or “e-Government” is defined as “the use of information and communication technologies (ICTs) by government to provide public services, improve managerial effectiveness and promote democratic values, as well as a regulatory framework that facilitates information-intensive initiatives and fosters the knowledge society” [1]. It encompasses the range of electronic channels deployed by governments to deliver public services to citizens and businesses in a cost-effective and efficient manner. Its benefits ultimately ensure that transactions between parties can be undertaken via safe and secure channels with appropriate records, ultimately providing accountability and reducing corruption. Electronic governance has found wide applicability across several sectors and services such as e-health, e-learning, e-payments, e-voting, e-land administration etc.

In respect of land administration, urban planning and housing allocation services, one of the ICTs most commonly adopted is the Geographic Information System (GIS), typically designed to capture, store, analyse and depict different kinds of geographic and geo-spatial data. Although GIS and its associated technology pre-dates the concept of electronic governance, its adoption as a tool in the provision of public housing and land allocation services, as this study shows, can considerably improve the efficiency and effectiveness of delivery of these services, hence our consideration as a study in electronic governance. In this study, we review the case of Nigeria’s capital city, Abuja where the Federal Capital Territory Administration has established the Abuja Geographic Information System (AGIS) Office as an infrastructure to provide land administration services, housing allocations, urban planning and, to some extent, revenue generation. In terms of methodology, we undertake an historical review of land administration in Abuja. This is combined with country case studies from Africa and Asia, in order to understand possible areas for improving the current land administration system, particularly towards reducing the incidence of slum dwellings in the capital city. The rest of the paper is structured as follows: section 2 discusses land administration in the Federal Capital Territory, Abuja prior to the introduction of the Abuja Geographic Information System (AGIS), while section 3 presents the country case studies of Ghana and Bangladesh, to provide international comparison of e-land administration systems. Next, we highlight gaps and opportunities to improve the AGIS infrastructure in Nigeria in section 4. Section 5 discusses the challenges facing the proposed system, while section 6 concludes the study.

2. LAND ADMINISTRATION IN ABUJA BEFORE THE ESTABLISHMENT OF AGIS

In this section, we discuss the process of land administration in the Federal Capital Territory, Abuja prior to the establishment of the AGIS infrastructure. The term “land administration” is based on a definition adopted by the United Nations Economic Commission for Europe (UNECE), which refers to the processes of recording and disseminating information about the ownership, value, and use of land and its associated resources [6]. In Nigeria, all lands are vested in government and held in trust on behalf of the Nigerian people. As the nation’s capital city, Abuja covers

about 8000 square kilometres of land, and is geographically located at the centre of the country. It became the seat of government in 1991 when the Federal Government relocated from the densely-populated Lagos which, nonetheless, remains the nation’s commercial centre. With a population of about 1.4 million people according to the 2006 census [4], Abuja has the 18th highest population density in the country and is often considered as one of the fastest growing capital cities in Africa by government officials.

As a result of the desire of the federal government to hasten the development of the new capital city, land allocation was handled by the Land Allocation Committee (LAC) appointed by the Minister of the Federal Capital Territory (FCT), while city planning was methodically implemented in the early 1990s in line with the Abuja Master Plan. The Plan was, however, not faithfully implemented even by government authorities, resulting in erratic allocations, approvals and, consequently, land use abuses, multiple allocation of plots and encroachments. In a short while, the emergence of slums, squalors, and other random settlement structures across the city, in districts like Garki, Wuse, Karu, Mpape, Kubwa, Gwagwalada and Lugbe, to mention a few became an issue of public concern. Operational processes at the Land Administration Department were also largely manual, which invariably contributed the “human element” to the allocation of lands. Moreover, the number of litigations and land disputes both between individuals, as well as between government and citizens rose significantly. According to court records obtained from the Federal Capital Territory (FCT) High Court, between 1999 and 2003 there were about 127 cases relating to disputes over ownership of lands within the FCT, while nearly 300 cases related to citizens and businesses filing court cases against the government for demolished property, revocation of titles, and/or forceful ejection from dwelling. In 2003, the Federal Minister for the Federal Capital Territory (FCT) initiated wide-ranging measures to re-establish the Plan as the basis for the development of the growing city, fuelled by the economic liberalization policies and re-emergence of the Nigerian middle class during that decade.

The measures included demolition of slums, resettlement and compensation of affected residents, strengthening of existing laws and enactment of new ones, as well as the establishment of institutions – including the Abuja Geographic Information System (AGIS) Office - to support the renewed implementation of the Master Plan. AGIS was set up in 2003 principally to undertake a complete computerization of the cadastral and land registry of the FCT. As observed by [5], GIS is particularly relevant to land administration and MDG 7 generally, in the sense that remote sensing technologies and communications networks permit more effective resource management, mitigation of environmental risks, while facilitating greater transparency and monitoring of environmental abuses, as well as enforcement of environmental regulations. AGIS is also expected to facilitate the development of the land transfer market while establishing an efficient and sustainable system of land administration in the capital city. Ultimately, AGIS is expected to lead to improvement in the security of tenure, simplify the process of land acquisition, and foster prudent land management practices. The return of a sanitized system and focused implementation of the Master plan in line with this vision is indeed a key benefit of the establishment of the Abuja Geographic Information System (AGIS).

3. COMPARATIVE REVIEW OF E-LAND ADMINISTRATION: GHANA AND BANGLADESH

Given the situational analysis of land administration in the capital city prior to the emergence of the AGIS, we turn to a brief review of two developing countries in order to identify possible areas of improvement for AGIS. Some comparable countries with well-developed land administration systems include Ghana, Malaysia, Bangladesh and Sweden. For our purpose however, Ghana (Africa) and Bangladesh (Asia) have been selected, and are each discussed in turn here. Ghana is chosen due to its proximity to Nigeria in terms of socio-cultural organization, while Bangladesh shares similar population size structure with Nigeria.

3.1 Ghana

Ghana, has a total population of 24,658,823, according to the 2010 Census by the Ghana Statistical Services (GSS). The population results also revealed that the most populous region is Ashanti, with a population of 4,780,280, representing 19.4 percent of the country's total population followed by Greater Accra, with a population of 4,010,054 (16.3%). The least populous regions are Upper West with 702,110 persons constituting 2.8 percent of the total population and Upper East with 1,046,545 persons or 4.2 percent of Ghana's population [2]. The four major cities of Accra, Kumasi, Tamale and Takoradi continue to attract more people from the countryside. Census data suggest that rapid growth in urban population is primarily responsible for the growth of slums in the cities. This is because the rural-urban migrants do not have the resources to acquire land for shelter in the cities. They therefore make use of the marginal or less valuable urban lands such as riverbanks, steep slopes, dumping grounds, abandoned or unexploited plots near industrial areas and market places, low lying areas, wet lands, among others. These sites normally do not cost the slum dwellers anything and they are able to secure them almost immediately as they arrive in the city.

To address the challenge of growth of slums, Ghana adopted a GIS-based Land Administration Project (LAP), implemented in phases. A key component of the project involved the development of a computerized land information system, improvement in geodetic reference network, as well as strengthening of land registration.

3.2 Bangladesh

With a total population of 153million, according to the Bangladesh Bureau of Statistics (BBS), total slum population is estimated at 35% of the population living in 9000 slum clusters. According to [3], Bangladesh conducted a slum census using GIS slum maps of six study cities which provided list of slums with addresses, number of households and total slum population. Other aspects covered include slum land ownership pattern, housing conditions, area of land covered by slums, sources of drinking water, drainage situation, occupational patterns, and tenure security among others. The results indicate that the slums generally differ from locality to locality and show different characteristics. However, the slum mapping exercise provided considerable data for land administration purposes, in particular the management of the growth of slums across Bangladesh.

In summary, both country experiences reveal that land administration policies can be implemented to address growth of

slums through the use of ICT-enabled infrastructure that rely on GIS technology and database.

4. OPTIONS FOR IMPROVING LAND ADMINISTRATION

Having undertaken a review of Ghana and Bangladesh's experiences, we explore some opportunities to improve the current AGIS infrastructure. It should be stressed that AGIS is not a national framework, but rather, a sub-national entity for the Federal Capital Territory only. Yet, it provides an example in governance and transparency to other States with respect to the establishment and functioning of land administration authorities. In addition, the outcomes of the initiatives of the ICT-enabled land administration system have been widely noticed by other States some of which have attempted to replicate similar institutions within their various localities.

To a large extent, AGIS reflects the key features of a modern and sophisticated GIS-based infrastructure. The facilities available at AGIS enable the office to provide land-related services such as issuance of title documents, enumeration of streets and houses, computerization of cadastral and land records, production of digital satellite images of land and land uses, search / query of land records to authenticate title documents, application for land allocations, as well as electronic receipt of revenues, and revenue remittances. The opportunities provided for client-centric services by AGIS are expected to ensure that the problems associated with the "human element" which contributed to the pre-AGIS situation will be limited, if not completely eliminated. Perhaps more importantly however, the opportunity provided to citizens to obtain valid and genuine land title documents provides immeasurable confidence to citizens as to the safety of their land assets. AGIS also has the capacity to track transaction on land assets at the local government and community level, thus ensuring that all lands within the FCT are captured within AGIS infrastructure.

All these benefits appear attractive enough to ensure that citizens choose to regularize their claims to land ownership anywhere in the FCT, through AGIS. In addition, the assurance of obtaining genuine land documents is expected to enable the title-holders access credit facilities to build, rather than choose to live in slums. The advent of AGIS has helped stakeholders to overcome the identified problems and lapse engendered by the manual process of land documentation and administration in the FCT. Finally, AGIS permits the authorities to deliberately map out land areas for low income earners rather than having such areas embedded in an unplanned manner within urban areas, thus constituting slum dwellings.

However, in spite of the relative sophistication of AGIS, there are opportunities for improvement in its operations, to ensure that land and housing allocations are better implemented. To further attract the patronage of citizens, it is imperative that AGIS is able to support retrieval of information on the status of any piece of land, possibly through restricted access channels. Such channels should also support the provision of property assessment information, as well as payment of all levies and fees online. Efforts should be made to guarantee a safe, seamless and secure online payment system and guarantees the integrity of any transaction. The implementation of these features will greatly enhance the functionality of the AGIS as it relates to delivery of

land-related public services, and ultimately addressing the growth of slums.

Across Nigeria, a number of initiatives are being introduced at both State and Federal levels, to address land and housing allocations. For example, at the Federal level, the Federal Land Information System (FELIS) has been set up to facilitate land transactions and administration. In Lagos State, attention is being paid to registration of land titles, and business enterprise identification. Other states that have taken a bold leap forward to modernize land administration include Ogun, Benue, Anambra, Kano, Ondo, Cross River, Enugu, Delta. A remarkable point is that of Nassarawa State, Abuja's eastern neighbor, which launched its Geographic Information System (NGIS) Office modeled after the AGIS in June 2013. Nevertheless, there is still the need for a national land information system (NLIS), at the country level, which provides on-line access to a comprehensive set of land and property information and accessible to citizens from any part of the country. Indeed, this has been recognised as a fundamental tool in the support of effective land administration.

5. CHALLENGES

Having reviewed the benefits and opportunities that arise from the introduction of GIS in land administration across different countries, we briefly highlight some possible challenges that may be of interest. First is the need for a current and accurate census of slums and slums-dwellers in Nigeria, as was done in Bangladesh. This obviously should be the starting point for any policy initiative to address the incidence of slum-dwelling in Nigeria, particularly in light of tracking progress on the Millennium Development Goals (MDGs). However, the non-availability of such data constrains the extent to which effective housing can be provided and emergence of slums can be controlled. Secondly, building human capacity in the deployment of GIS tools, development of applications (apps), documentation, systems integration and interoperability is paramount, especially if the various GIS initiatives all over the country are to be effectively integrated in the longer term. Lastly, access to the internet remains generally low in the country, and would need to be expanded for effective use of the internet-based land administration system put forward in this paper.

6. CONCLUSION

To address the living conditions of slum dwellers, electronic governance tools such as GIS can be deployed to effectively address the constraints and challenges associated with land administration and housing allocations. With the introduction of the Abuja Geographic Information System (AGIS), there has been

a considerable sanitization of a once fraud-ridden system for land allocations and city planning. Cases of litigations over disputed property ownership, demolition of existing slums and relocation of slum-dwellers are being resolved through several capabilities of the AGIS infrastructure. Given the assurance that land acquisition is valid and genuine, government can enter into productive partnerships with non-state actors, private real estate developers and international development organizations to establish "low-income" housing facilities to replace existing slums in the FCT. Through the demonstration effect, other State governments will begin to copy the initiative thereby reducing the national incidence of slum-dwelling. After reviewing international case studies, and Abuja's historical experience with managing the emergence of slums, it is clear that similar GIS offices, if replicated by a significant number of sub-national governments and effectively integrated into a national land registry system, can considerably facilitate better administration of land and housing allocations, improve urban planning, facilitate secure tenure of land ownership and ultimately contribute towards the MDG target of reducing the number of slum dwellers in Nigeria.

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