

## **The impact of Abuja Geographic Information Systems on corrupt practices in land administration in the Federal Capital Territory of Nigeria**

Adewale O. Akingbade<sup>1</sup>, Diego D. Navarra<sup>2</sup>, Yola Georgiadou<sup>3</sup>

<sup>1</sup>[akingbade00528@itc.nl](mailto:akingbade00528@itc.nl), <sup>2</sup>[navarra@itc.nl](mailto:navarra@itc.nl), <sup>3</sup>[georgiadou@itc.nl](mailto:georgiadou@itc.nl)

Faculty of Geo-Information Science and Earth Observation (ITC),  
University of Twente, Hengelosestraat 99, 7500 AA Enschede  
The Netherlands

### **Abstract**

Our objective in this paper is to ascertain the impact of Abuja Geographic Information System (AGIS) on a society-wide critical issue in Nigeria. Our review of the literature shows that corruption is the greatest single society-wide critical issue in the public sector of Nigeria. We consider corruption as an unfreedom in the provision of land administration services within the Federal Capital Territory (FCT) and find out the substantive freedom from corruption, which the demand side stakeholders have enjoyed six years after the establishment of AGIS. Data collected through case study methodology suggests that services with more human intervention are more prone to corruption and the computerisation has intensified and made some corrupt practices less obvious. This study empirically reveals that freedom from corruption in land administration cannot be achieved solely through the use of Geographic Information Systems.

**Keywords:** *AGIS, capability approach, corruption, development, freedom*

## **1. Introduction**

Abuja Geographic Information Systems (AGIS) is a public sector Geographic Information System (GIS) project of the Federal Capital Territory Administration (FCTA) of Nigeria. The mission of AGIS is “to provide basic and quality services which every citizen is entitled to, in a quality, fair, honest, effective and transparent manner”<sup>1</sup> (AGIS, 2009a). The project is intended to curb some problems, including corruption, which is believed to be a critical societal problem in Nigeria (Achebe, 1984; Olowu, 1985). Thus, our aim in this paper is to ascertain the impacts of AGIS on corruption in the provision of Land Administration (LA) services in the Federal Capital Territory (FCT) of Nigeria.

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<sup>1</sup> <http://www.abujagis.com/>

To realise our aim we adopt the capability approach (CA) championed by Amartya Sen and Martha Nussbaum to evaluate AGIS as a citizen-centric ‘development’ initiative. Researchers have argued for more research attention to impact of IS, including GIS on society-wide critical issues in developing countries (Walsham et al., 2007; Walsham and Sahay, 2006). This paper constitutes an effort to give such issues a research attention. We continue in the next section by reviewing the literature on corruption and corruption in LA and the CA. This is followed by a description of our methodology, case background and analysis. We present and discuss our findings and draw some conclusions. Finally, we suggest some future avenues of research.

## **2. Literature review**

For the purpose of our study, we define corruption from the viewpoints of Nye (1967) and Osoba (1996) as actions of public officers, which deviate from the formal duties of a public role for private-regarding (personal, family and political) gains and inconsistent with the established legal norms and prevailing local and international ethics. The various forms of corruption in public service are described in Appendix 1.

### ***2.1 Corruption: a society-wide critical issue in Nigeria?***

Corruption has been a persistent, notorious reoccurring and progressively worsening social problem in Nigeria from colonial times to the present (Osoba, 1996). It is “a kind of social virus which is a hybrid of traits of fraudulent anti-social behaviour derived from British colonial rule and those derived from, and nurtured in the indigenous Nigerian context” (Osoba, 1996; p372). Awe (1999) announced that corruption had become endemic among both civil and military rulers. She observed that the situation is exacerbated by military governance disregard for rule of law (Awe, 1999). Corruption in the public service reached unprecedented levels under the military regimes of Ibrahim Babangida (1985-1993) and Sani Abacha (1993-1998) and government admitted that it was powerless to check the spread of corruption (Ocheje, 2001). In his speech on May 29, 1999, former President Olusegun Obasanjo emphasised that corruption is the greatest single bane of the Nigerian society and has retarded the development of the nation. He observed that corruption is incipient in all human societies and in most human activities, but it must not be condoned. This led to the establishment of public commissions to combat corruption. Two prominent anti-corruption commissions in Nigeria are Independent Corrupt Practices and Other Related Offences Commission (ICPC) and Economic and Financial Crimes Commission (EFCC). Some public and private agencies have embraced Geo-information and Communication Technology (Geo-ICT) as an enabler of corruption reduction. Such agencies include AGIS and National eGovernment Strategies (NeGSt). The focal point of AGIS is honesty and transparency in the provision of geospatial services and the NeGSt emphasis is on diligence and transparency.

### ***2.2 Corruption in land administration and GIS technology***

Land is the base of all societies and fundamental to humanity. Land Administration (LA) is described as “the processes of recording and disseminating information about the ownership, value and use of land and its associated resources” (UN, 1996; p14). The processes of LA consist of land registration, cadastral surveying and mapping, fiscal, legal and multi-purpose cadastres and land information systems (Steudler et al., 2004). To support land markets, these

processes must be transparent, minimise opportunities for corruption and give freedom to all stakeholders to be well informed. The use of technologies can improve LA processes, increase transparency and reduce corruption (UN, 2005). Some forms of corruption inherent in LA are bribery, fraud, nepotism/favouritism/clientelism and white collar malpractices (Mwanza, 2004; van der Molen and Tuladhar, 2006).

While, Williamson and Ting (2001) noted that LA can no longer rely on manual processes, van der Molen and Tuladhar (2006) suggested computerisation as one of the measures to curb corruption in LA. Geographic Information Systems (GIS) has been recommended as a computerisation tool for LA agencies (UN, 2005). GIS “is a group of procedures that provide data input, storage and retrieval, mapping and spatial analysis for both spatial and attribute data to support the decision-making activities of the organisation” (Grimshaw, 1994; p 26).

The GIS literature revealed that the ultimate goal of all technologies introduced in public organisations is to benefit society (Nedović-Budić, 1998). Fundamentally, computerisation of public services is expected to improve state capacity and reduce corruption through proper record keeping (Tettey, 1997). These claims are probable, but their widespread repetition can not serve as an empirical verification of the extent or nature of impacts of computerisation on individuals, organisations and society (Danziger and Andersen, 2002). Set against these considerations, we propose that it is of the essence to empirically ascertain the impact of AGIS (a computerisation project) on the society-wide critical issue corruption in Nigeria.

### ***2.3 Capability approach: a citizen’s centric perspective to development***

There is no consensus on the meaning of ‘development’ (Simon, 1997). The term development is both a value and theory relative term (Prakash and De, 2007). For Seers (1972; p21), “development means creating the conditions for the realization of human personality”. A key objective of development is therefore to make it possible for people to enjoy long, healthy and creative lives (UNDP, 1990). These suggest a people oriented or citizen-centric evaluative space for development. The capability approach (CA) provides a broad conceptual framework to evaluate social states in terms of human well-being and agency. According to Sen (1987), ‘well-being aspect’ includes a person’s achievements and opportunities as personal advantage. The ‘agency aspect’ considers achievements and opportunities in a wider scope, which extends to attaching importance to a person’s expectations, and the ability to develop related objectives and have them realised. A person’s freedom is considered valuable to both well-being and agency aspects. Freedom of choice is argued as more important than wealth and central to leading a good life and evaluation of achievements in developing countries. The conception of positive freedom in the ‘right space’ is not on commodities and incomes, but on functionings and capabilities (Sen, 1988). This represents a combination of things a person is able to do or be: the various ‘functionings’ he or she can achieve and evaluation of a person’s ability to achieve valuable functioning as part of living (capability).

The proponents of CA argue that the evaluation of social arrangements should be primarily based on extent of freedom people have to promote or achieve functionings they value. In a simple sense, there is progress or improvement when there are greater freedoms. According to Sen (1999; p18), “Greater freedom enhances the ability of people to help

themselves and also to influence the world, and these matters are central to the process of development”.

From the foregoing, we understand development as a process of expanding the real freedoms that people enjoy and removal of ‘unfreedoms’. This perception depicts freedom not just the ends of development, but also as a principal means of development (Sen, 1999). The conception of development as substantive freedoms of people allows the evaluation of improvement in terms of removal of unfreedoms that members of a society may suffer. Sen (1999) identified five types of freedoms: political freedoms, economic facilities, social opportunities, transparency guarantees and protective security. Transparency guarantees is the most relevant type of freedom to our case, because it has “a clear instrumental role in preventing corruption, financial irresponsibility and under-hand dealings” (Sen, 1999; p40).

AGIS aims at freedom of stakeholders from land use abuses, forgery of land documents, bribery and a host of other unfreedoms related to LA and provision of geospatial data and services. When AGIS stakeholders have these freedoms (capabilities) or the unfreedoms have reduced considerably, then it has been a period of development for them and a contribution to societal well-being. Our argument is that AGIS is a development intervention and should be evaluated as such. For this purpose, techno-centric measures based on inputs and outputs and monetary returns are insufficient.

The CA declines techno-centric measures and resource-based approaches, which simply substitutes something easy to measure for what really ought to be measured (Nussbaum, 2002). According to Sen (1988; p1): “The life of money-making”, as Aristotle noted, ‘is one undertaken under compulsion, and wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else’. Robeyns (2003) unwaveringly argued that what matters intrinsically are functioning and capabilities. Consequently, resources Geo-ICT and money are useful only when they enhance people’s well-being. The people are both the beneficiaries of such resources and the agents of the progress.

AGIS puts the people at the centre of its provision of LA and geospatial services. The CA provides a perspective to evaluate how AGIS has promoted the removal of unfreedoms identified before its establishment or achieve functionings, which the stakeholders value. It is an ethically individualistic theory, which takes each person into account in an evaluation process and does not exclude the concern for others or the actions of others. Robeyns (2003) described CA as an improvement over well-being approaches in welfare economics and political philosophy.

### **3. Case study**

#### **3.1 Methodology**

A preliminary fieldwork was carried out in December 2007 and March 2008 and a comprehensive data collection took place between 01 February and 01 May 2009. Before the commencement of the comprehensive data collection, candidate organisations for data collection and potential respondents to interviews were identified based on the official stakeholders of AGIS and findings of the preliminary fieldwork. Other organisations and individuals were selected based on their relevance to our research goal. Letters of introduction were sent to the organisations by courier service before the data collection and also delivered by hand on the spot during the data collection.

Data were collected primarily through 44 semi structured interviews across supply and demand sides' stakeholders and at different (management, middle and operational) levels in organisations/departments. Some of the interviews were digitally recorded with the consent of the interviewees and notes were taken in all cases. Primary evidences were also derived from direct observation of GIS (processes, technology and people) at work in AGIS. The observations, which started from the reception desks and waiting hall to the back offices included taking of photographs at various points of observation. The pictures were taken with permission. Additional primary data were collected using three sets of surveys. The aim of the first set of surveys was to discover how AGIS stakeholders perceive corruption in LA and to find out corrupt practices in LA prior to AGIS. The second set of surveys was carried out to explore causative factors of corruption in LA and impact of AGIS on identified corrupt practices. The third set of surveys considered the impact of AGIS on corruption and malpractices in the delivery land and property related services in the FCT. While, the first and second set of surveys cut across both supply and demand stakeholders, the third set of surveys considered only demand side stakeholders (persons or a group of persons that uses the services of AGIS). In total, 300 questionnaires were distributed and 156 were returned, giving a response rate of 52%.

Secondary sources are broken down into the following three categories. The first group of secondary evidences are documents, such as Laws, briefs, reports and terms of reference (TOR), and relevant extracts from national newspapers. The second group is archival records, consisting of digital and hard copy maps, personnel records, guidelines, rates, revenue generation, workflows and old photographs. The third category is physical artefacts comprising hardware, software, computer networks and the office premises.

### ***3.2 Case background and history***

AGIS started in 2003 as a project to computerise the cadastral and land records of the Federal Capital Territory Administration (FCTA), formerly known as the Ministry of Federal Capital Territory (MFCT). AGIS supports the following LA services in Federal Capital Territory (FCT) of Nigeria: preparation and issuance of Certificate-of-Occupancy (CofO) and other certificates evidencing titles, preparation and issuance of Right-of-Occupancy (Rofo), production and printing of Titled Deed Plan (TDP), street naming and house numbering, textual and graphic data on the FCT –including land record, aerial photographs, satellite images, engineering drawings, and scanned pictures of buildings– property search and verification of land record and application for land allocation (AGIS, 2009b). More than 80% of the efforts of AGIS are into support of LA and all fees payable to AGIS are directly connected to land and property services. The macro supply-side actors involved in the provision of these services are the FCTA and Julius Berger Nigeria (JBN) PLC (project contractor). The demand-side actors are departments and agencies of the FCTA, professionals, public and private companies and individuals.

### ***3.3 AGIS services and unfreedoms***

#### ***3.3.1 Land administration services***

From our empirical evidences, LA demand side stakeholders or customers that are served with the computerisation tools provided by AGIS are essentially interested in removal of unfreedoms in the provision of four services: (i) grant of statutory right of occupancy, (ii) area

councils' title regularisation and recertification of statutory titles mostly issued within the FCC, (iii) legal searches and (iv) consents to alienate statutory right of occupancy.

### **3.3.2 Unfreedoms in land administration services in the FCT**

Evidences collected from surveys shows that the prominent unfreedoms in the provision of land and property related services in the FCT are forgery of land documents, multiple allocations, bribery, fraud, nepotism and favouritism, and white collar malpractices. Table 1 describes the unfreedoms.

**Table 1: Prominent unfreedoms in land administration services in the FCT**

<b>Nature of unfreedom</b>	<b>Description</b>
Forgery	Creation of a false land document or alteration of a genuine one, with the intent to cheat. Since the goal of forgers is deception and cheating, forgery can be considered as a kind of fraud referred to as 419 in Nigeria. Eradication of forgery of land documents is a major concern of AGIS.
Multiple allocations	Deliberate allocation of one plot of land to more than one person.
Bribery	Abuse of discretion because of payments by third parties, e.g. in processing of application for statutory right of occupancy, recertification and regularisation.
Fraud	Pocketing of land revenue and deliberate deception or cheating in calculation of ground rent and other fees.
Nepotism and Favouritism	Abuse of discretion for benefit of friends, relatives and political allies, for example in the granting of statutory right of occupancy.
White collar malpractices	Premeditated neglect of proper procedures for personal benefits.

## **4. Impact of AGIS**

### **4.1 Beings, Doings and Barriers**

Sen's capability approach does not propose a ready-made list of capabilities to consider for a particular purpose (Robeyns, 2003). Sen intentionally keeps the capabilities vague, but made certain that goods and services are important only in the light of what they enable people to do and to be (Zheng, 2007). Therefore, it is important to know the desires of demand-side stakeholders and what they need to be (beings) and actually able to do (doings) with LA products and services supported by AGIS. From our interviews and surveys, we present these beings and doings, and existing barriers in achieving the beings and doings in Appendix 2.

## ***4.2 Impact of AGIS on corrupt practices or unfreedoms***

Our evaluative space considers how AGIS has enabled demand-side stakeholders to achieve what they considered important for them, which is removal of prominent unfreedoms in LA services in the FCT. In what follows, we present our empirical findings on impact of AGIS on unfreedoms in LA within the FCT.

### **4.2.1 Forgery**

Both the supply and demand side stakeholders recognise forgery as the most important corrupt practice to eradicate. According to a former Director of AGIS, “From where we started, we started in a very bad footing because historically the documents that we took over from the defunct MFCT, which are documents that have been operated manually, the registers, the records, and all the rest of them were done manually, some have been torn, some have been tampered with [...] because of this porousness of the system then, you find out that even fraudsters took over the operations to an extent of even having a parallel office that runs side by side with the department of land administration and resettlement”. A staff of the project’s contractor remarked that “The priority is not pushing files ahead of others, but to stop manipulations and forgery, etc.” All the respondents to our surveys either strongly agree or agree that forgery is an issue of concern. The impact of AGIS on removing this unfreedom therefore turns out to be our first issue of practical interest.

An interviewee on the demand-side of AGIS noted that if one gets the documents now “... there is full assurance that it is a genuine land”. Another demand-side interviewee noted that “forgery is reduced now, because it is now easy to confirm the documents from AGIS”. A civil servant on the demand-side opined that “... the issue of forgery, I cannot say much about it because either computerised or not, documents can be forged”. Then, we observe that the authentication of documents is a valuable functioning in our case. This functioning is achieved through capability to carry out legal searches. The result of searches offers demand-side stakeholders the capability to discern between legitimate and illegitimate documents. We found out from an interviewee that “the computerisation has helped in the storage and retrieval of land and property related information, but it is not so easy with forgery and other crimes/malpractices. As we put in place these new IT based measures, the criminals develop their own counter criminal solutions. They use IT to produce the same set of documents that we produce”. The opinion of another supply-side interviewee is that forgery still happens, “but everything leaves a trace, everything can be detected. As long as human beings are working with the system, we cannot rule out this. We know the cases; we are working on better supervision. It (forgery) will never go to zero, but better”. This opinion corroborates data from secondary sources, for example Bashir (2009) reported that the Police in Abuja arrested five people for allegedly producing and selling fake land allocation papers. The report further stated that the accused forgers usually carry out the crime in collaboration with insiders.

We attempt to compare how the demand-side stakeholders perceive the prominence of the six unfreedoms in Table 1, prior to AGIS (before 2003) and after AGIS (2009). Data collected through surveys include asking the respondents to rank the prevalence or prominence of the six unfreedoms before AGIS and after AGIS. We used a scale from 1 (strongly disagree), 2 (disagree), 3 (agree) to 4 (strongly agree), (Fisher, 2006). The idea here is that the higher the value of an unfreedom in a period, the higher its prominence for the

period. For example the sum of the value for forgery before AGIS is 184 and 94 after AGIS. The perception of the respondents to our survey is that there are more forgeries before AGIS than now; this is graphically presented in Figure 1. Evidence from three sources of interviews, surveys and documents revealed that the AGIS demand-side stakeholders have gained some freedoms to lead a life without being frustrated by fake land documents. However, slapdash and unsuspecting members of the public are still constrained by this unfreedom.

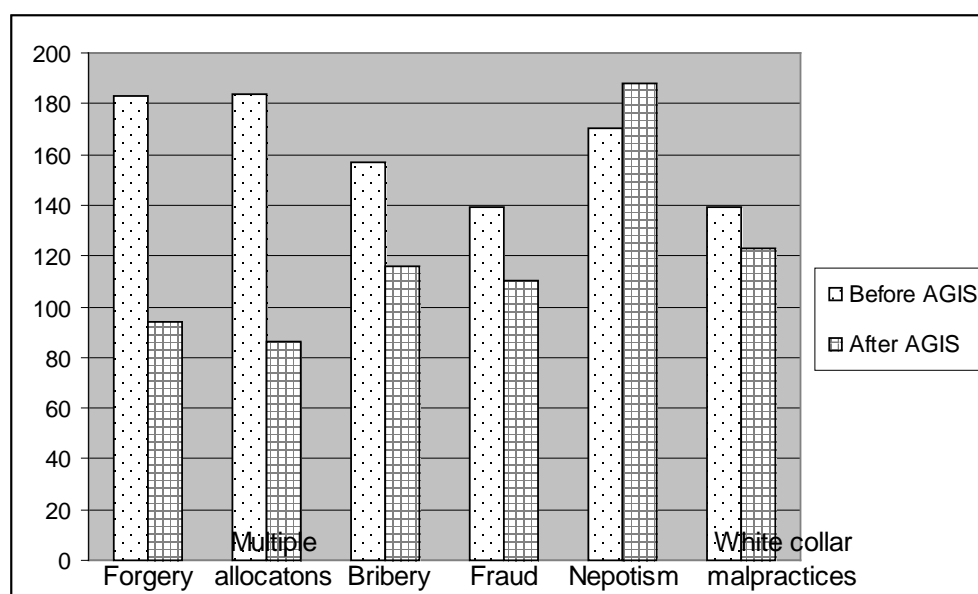


Figure 1: Impact of AGIS on prominent unfreedoms/corrupt practices

#### 4.2.2 Multiple allocations

A respondent to our survey remarked that “the issue of multiple allocations is also rare now” and another observed that “AGIS has reduced to the barest minimal malpractices associated with land allocations, e.g. double allocation”. Perhaps, these show that the removal of the unfreedom of multiple allocations is somehow significant; still an interviewee noted that “AGIS should improve on the issue of double allocation”. A comparison of perceptions of the demand-side stakeholders in Figure 1, gives the same impression that multiple allocations have reduced, but remain a noteworthy unfreedom. This lends credence to the observation of an interviewee that “... AGIS as it is today, you still have numerous plot duplications, multiple allocations...”. The judgment that “But I know before then double allocation is very rampant, before the computerisation. But now, to the best of my knowledge, I think that has been reduced to the barest minimum” generally portrays the opinion of our interviewees.

#### 4.2.3 Bribery

Data collection on bribery seems difficult because of the concealed nature of the unfreedom. Only one of the respondents to our survey agreed that he/she paid to quicken or facilitate the processing of statutory right of occupancy. However, some survey respondents agreed that they gave ‘gifts’ in appreciation of the LA services they received. A survey respondent remarked that “Today, we can observe less corrupt practices by the AGIS civil servants. But this does not mean that there is no longer bribery ...”. Figure 1 shows that respondents perceive the incidence of bribery is lower now than before AGIS. According to an



interviewee, people will not like to own up to giving bribe because “... in Nigeria if you give bribe you are offender, if you take bribe you are an offender as well. Both of you are guilty of giving and taking, it’s not one way, it’s bi-directional”. The position of another interviewee is that “In the old registry of FCT, when they ask me to give bribe, I said no. It’s a capital NO. In AGIS now, I just drop my application. Most of the time, you don’t have direct dealings with the guys. You just submit your application and go”. We sum up our findings on bribery with the comment of an interviewee that “You can call it bribe or gratification or anything you like, the computerisation has reduced these problems, but mind you there are still other issues”. Cutting corners or what is locally referred to as ‘*chua chua*’ is a companion of bribery in land and property related transactions within the FCT. According to a demand-side stakeholder, “Most of the things I use to get, if people are getting it one week or two weeks, my own can take three months, because I am not ready to do *chua chua*. I am not ready to bribe anybody ...”. Another interviewee noted that “I know there is *chua chua*, *chua chua* is still there”. *Chua chua* involves doing things in disorderly manner.

#### 4.2.4 Fraud

A respondent to our survey observed that the effect of AGIS on fraud is insignificant and “fraudsters and perpetrators of these crimes also improve in the devilish act everyday”. Our findings show that fraudulent practices are inseparable from forgery. The perpetrators of fraud fake official government receipts to divert land revenue to their pocket. The first measure put in place by AGIS to remove this unfreedom was to pay directly to banks and use bank tellers for land transactions. Payments for all services offered by AGIS are now through bank draft, which is difficult to forge because of unique identifiers on the bank drafts. The accounting system of AGIS is now automated, with one medium (eTranzact) of online payment. Other payments channels such as Visa card and Master card are yet to be incorporated. There is an increase in the annual income to AGIS from an average of about ₦250million (US\$1.65million) per annum before AGIS to over an average of about ₦5.2billion (US\$342.11million) per annum from September 2004 November 2008. In a preliminary and general sense, it can be argued that reduction in fraud contributed to increase in the revenue. Furthermore, we observe that the refusal of cash transactions and workflows, which verifies payment during processing of requests, is largely responsible for reductions in pocketing of land revenue.

#### 4.2.5 Nepotism and Favouritism

An interviewee described this kind of unfreedom as “man-know-man”. This is observed as an issue that is cultural and not something to worry about! According to an interviewee, “the civil servants have to favour their friends and help them to facilitate their applications”. Another interviewee responded that “*Jamaan ka, su ne arzikin ka*”, meaning “your people/crowd, etc or the people/friends you know are your wealth”. We observe that nepotism is still a prominent or more prominent after AGIS as indicated by our empirical data in Figure 1. It is grounded in the concept of man-know-man as observed by some interviewees, “If you know the minister, permanent secretary or senator, top civil servants and politicians, you will get land quickly”. “They should give land to people that does not have connections. They should tell us where there are vacant lands and people that have land in Abuja”. “They still have clicks, let them be open. I am not sure they are faithful; still behave like typical Ministry people”. “I had to seek the assistance of a colleague, a professional colleague who works

there, and it was the fellow, the colleague that assisted me to retrieve the acknowledgment”. About 43% of respondents to our survey confirmed that they have received one kind of assistance from friends and professional colleagues working at FCTA/AGIS. Such practices are somehow considered as normal in Nigeria and those that are unwilling to support or even favour friends, relatives and allies may be considered as a foe and having no place in the society. In many societies, it is believed that certain persons or members of certain classes such as monarchs deserve favour. Figure 1 shows that the corrupt practice of nepotism and favouritism is higher now than before AGIS. This is probably because AGIS has made more information available to decision-makers rapidly and such information are now used to offer undeserved benefits. A respondent to our survey remarked that with the computerisation, “executive lawlessness set in, which nearly derailed the good computerisation project” and an interviewee directly put it that “favouritism, for example for a Senator’s wife will always be there”.

#### **4.2.6 White collar malpractices**

The demolitions of some buildings with ‘approved’ buildings plans demonstrated white collar malpractices as an unfreedom in the provision of LA services in the FCT. According to the President of Kubwa Residents Welfare Association (KUREWA), the citizens “were lured into purchasing the illegal land and houses by a syndicate of land racketeers who connived with some staff of the FCDA to trade the properties to unsuspecting buyers” (Inalegwu and Ibrahim, 2005). This secondary evidence does not contradict the position of some interviewees that “Abuses and malpractices, still going on, people use the boys that are running those things to change the records” and “There were malpractices, abuses, etc in the old system, they still there now”. Figure 1 shows that the capability to offer demand-side substantive freedom from white collar malpractices is marginal. This is reflected in our surveys response, with comments such as “Malpractices have reduced, though not eliminated. Some new ones have also come up” and “Computerisation cannot remove malpractices”. However, other respondents believe that “It has checked malpractices and misconducts considerably. But, there are still some loopholes”, “reduced rate of malpractices and misconducts in general” and “... makes people to know whether the allocation is genuine or fake, thereby reducing the rate of malpractices and misconduct”.

### **5. Discussion of findings**

Our findings are not homogenous, probably because we do not take a holistic approach. Rather, we investigate the impact of AGIS on each of the six forms of corrupt practices identified in the provision of LA services. To start with, we find that AGIS has enhanced capability of demand side stakeholders to be free from forgery of land documents. This is mainly because of the design of AGIS, which provided opportunities to demand side stakeholders to validate the legitimacy of documents through legal searches. Human interference is minimal in a legal search; it is mainly an automated process to query a geo-database to deliver information. Our study of AGIS shows that reduction in human interference or high level of computerisation of the process of legal search to authenticate land documents reduced forgery of land documents. However, an interviewee noted that “As long as human beings are working with the system, we cannot rule out this (forgery)”. Thus,

most (92%) of the demand side stakeholders that responded to our survey are satisfied with the provision of the service of legal searches. In the same vein, the demand-side stakeholders now have more freedom from multiple allocations, because the system is designed to prevent re-allocation of land that has been already allocated. In spite of this, we find that the unfreedom is still there, due to the activities of illegal parallel offices operating in collaboration with the personnel of AGIS and the LA department.

It seems that demand-side stakeholders now have better opportunities to transact land business without been hassled by bribery? We argue that this is not completely true, because of the hidden nature of bribery. The rich and connected people can secretly offer money to influence decisions of public servants on land matters, without the knowledge of ‘outsiders’ to the bargain. In our study, we find that non-payment of bribe by some demand-side stakeholders is largely due to two reasons. One, some interviewees will not pay bribe because they consider it immoral and illegal. The second reason is lack of resources to pay bribe. An interviewee puts it clearly to us that “... I don’t know anybody there and don’t have money to bribe” and further reiterated that “I don’t have money for chua, chua. But, if I have I will give them, but I don’t have. It’s just a matter of using what you have to get what you want”. For this interviewee, bribery is way to achieve beings and doings, but constrained by the resources to offer bribe. However, we argue that if the system is fair and transparent one may not consider offering bribe, except for habitual bribe payers or those who believe that they cannot achieve their desired functionings without paying bribe.

Our study presents a scenario that demand-side stakeholders now has more freedom from fraud and white collar malpractices. This capability is evidently due to the abolition of cash transactions and ability of AGIS to rapidly show physical developments that contradicts the Abuja Master Plan. Nevertheless, the provision of services in support of LA, urban planning and development control still entails extensive human dealings and physical desk-to-desk processes. Our direct observation during the fieldwork shows that the services of granting of statutory right of occupancy, regularisation, processing and evaluation of applications for physical development are less computerised. In December 2008, the opportunity for e-Payment for AGIS services was estimated at 20%. Frauds and white collar malpractices are still prominent unfreedoms because of less computerisation of core LA workflows. Only 9% of the respondents to our survey are satisfied with the provision of the service of granting of statutory right of occupancy. 36% are indifferent and 55% are unhappy with the service.

The impact of AGIS on nepotism and favouritism is uniquely different. Our findings reveal that the demand-side stakeholders are more confined by the unfreedom of nepotism and favouritism. The opinion of a respondent to our survey is that “AGIS is a welcome development; the major problem is nepotism and favouritism by the decision-makers or among politicians. The vesting of management of land solely on the political class is a problem. If all the procedures at AGIS are fully automated with minimum human interference, corruption can be eradicated in land administration”. An interviewee reacted that “Favouritism is a cultural thing. Whenever some has opportunity to take advantage of the system, they will. People think that it is their right to do what they are doing because; they have waited enough for it”. The situation is readily understood. Since, the power to grant right to occupy and use land in Nigeria is constitutionally placed under the jurisdiction the ruling class, unfaithful leaders can easily abuse the authority of their office to favour relatives, friends and political allies. Secondary evidence shows that 3645 plots of land were allocated

within two weeks of 17–29 May, 2007, when the Federal Executive Council (FEC) had been dissolved (Ashaka, 2009). The dissolution of the FEC implies that there was no legitimate Minister of FCT to grant allocation of land. The plots, which were allocated to relatives and political allies were later revoked by the Senate (Dunia, 2009).

The administrators of AGIS recognise that freedom from corruption in LA cannot be achieved solely through the use of GIS or Geo-ICT. They sought the assistance of the Police, ICPC and EFCC in investigating cases of corruption in land matters and monitoring of the activities of land and property criminals. Disparate departmental discretions in land matters were controlled with centralisation of all land allocations under the Minister's Office (el-Rufai, 2009). Although, the restructuring can improve administrative efficiency and reduce the problem of frauds or financial haemorrhaging (see Tettey, 2000), both supply and demand side actors pointed out they have not seen any changes. On the other hand, the Minister has more control and influence on LA services, implying more power to lessen or exacerbate the unfreedoms. If the situation is exacerbated, then it will be a confirmation of the thinking of one of the respondents to our survey respondents that "What we can see today is that AGIS has only shifted corrupt practices to higher level. Corruption is no longer open as in the past but, it is still there, but less visible".

From our study of AGIS, we learn that the extent to which demand-side stakeholders can achieve their doings and beings and develop capabilities from the LA services supported by AGIS are not completely dependent on computerisation. This empirically substantiates the argument of Robeyns (2005) that the relation between a good and functionings to achieve beings and doings is influenced by what she described as conversion factors. The conversion factors identified in our case are socio-political and economic environment, personal characteristics and public infrastructure.

Up to two-thirds of respondents to our survey either strongly disagree or disagree that social and cultural issues are less relevant, even with high level of computerisation or full automation of LA services. For example, full possibilities for online submission and processing of applications. According to a supply-side respondent, "Computerisation may not prevent some of these issues of corruption if there is no political will to stop it [...] Leadership by example and selfless leadership may be the key to solving these problems". The stance of another respondent is that "... corruption is all over our society and computerisation alone cannot do the magic. The solution is re-orientation of the civil service, better remuneration ...". These points to social and economic considerations: over 60% of staff members of AGIS and LA department are temporary project workers (in December 2008), who earns about ₦21,000.00 (approx US\$138.00) per month. A middle level civil servant working at AGIS or LA department on salary grade level 10, step 8 earns about ₦60,000.00 (approx US\$395.00) per month, including basic salary and other allowances. As casual staff, the temporary project workers are not entitled to allowances such as housing, transport, medical and pension benefits. An interviewee on the supply-side pointed out that "the core staff of AGIS are casual staff, the implication is that they have nothing at stake ...". Our observation is that majority of the staff members are not empowered by the system to resist the temptation of corruption. Supply-side stakeholders will be honest and do what is right only to the extent that they have economic incentives for doing so (Sen, 1977).

Personal characteristics of demand side stakeholders, such as computer knowledge, access to Internet and literacy are important and closely linked to the state of public infrastructure. Even if the demand-side stakeholders have access to Internet, the electricity to

power their computers is unpredictable. AGIS offers some opportunities to transact many land business electronically, but the capability of the demand-side stakeholders to develop the opportunities is limited by weak conversion factors.

## **6. Conclusion**

This paper theoretically and empirically reveals that corruption is not only an issue, which deserves attention in the provision of LA services, but a society-wide critical issue in Nigeria. Thinking about development in terms of functionings and capabilities allow us to get behind evaluation the impacts of AGIS supply-side benefits that dominate the GIS literature. However, the CA is not a precise theory that completely addresses societal issues. The CA is naturally underspecified, if capabilities are to be used to evaluate societal benefits, a list of basic capabilities has to be specified (Nussbaum, 2003; Robeyns, 2003). Consequently, we investigate the desired and achieved functionings and capabilities of demand-side stakeholders (beings, doings and barriers). While capabilities to be free from corruption are relevant to our case, Nussbaum (2003) cautioned that some freedoms limit others. We argue that the capabilities offered by AGIS to rapidly display land information has supported decision-making and legal searches. On the other hand, it exacerbates the unfreedom of nepotism and favouritism, because the decision-makers readily have access to land information to support decision-making in granting right of occupancy to allies. In effect, AGIS has created some freedoms from the forgery of land documents, multiple allocations, bribery, fraud and white collar malpractices. At the same time, demand-side stakeholders are more constrained by nepotism and favouritism.

Our case reveals that services provided with less human intervention offer more freedoms from corruption. Thus, it is pertinent for us to conclude that the services with less level of computerisation are more plagued with corruption. The role of AGIS in curbing unfreedoms in LA considerably exhibits the clumsiness tormenting public sector development projects in Nigeria. As shown in the preceding section, AGIS is constrained by weak conversion factors in realising its mission. Then, we enunciate that AGIS and FCTA have to place more emphasis on human factors. Further studies that focus on these conversion factors become imperative, we particularly suggest the impact of policies, legislations, norms and values on the societal benefits of AGIS. This study should also inform researchers and practitioners about the pervasiveness of factors not deeply rooted in technical solutions in GIS implementation.

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## Akingbade, Navarra & Georgiadou: IMPACT OF ABUJA GEOGRAPHIC INFORMATION SYSTEMS

### Appendix 1: Some forms of corruption described in the literature

Form of corruption	Description
Bribery	Use of a reward to pervert the judgment of a person in a position of trust, for example kickbacks, and pay-offs.
Nepotism and favouritism	Patronage and support by reason of relationship, rather than merit and biased distribution of state resources in favour of friends, families and close associates.
Fraud	Illegal appropriation of public resources for private use or benefit. Trickery, swindle and deceit, counterfeiting, racketing, smuggling and forgery.
Embezzlement	Theft of public resources such as public fund.
Extortion	Extraction of money by coercion, violence or force.
God-fatherism	Aiding and abetting of immoral conduct or habit and shielding of perpetrators from justice, thereby creating impediment to the course of justice by the virtue of closeness to the seat of power.
Settlement syndrome	An arrangement of allowing the leadership and those who cooperated with them to loot as much money as possible in a short time and then step aside for their associates to loot their own.

Sources: (Awe, 1999; Dike, 2005; Nye, 1967; Ocheje, 2001; Onyeczili, 2005)

### Appendix 2: Beings, Doings and Barriers from the demand side perspective

Beings	Doings	Barriers
<ul style="list-style-type: none"> <li>• Availability of products at the time of requirement.</li> <li>• Use of title document for housing loan.</li> <li>• Speedy delivery of legal searches.</li> <li>• Authentication of land documents and elimination of fake documents.</li> <li>• Security of landed property and confidence in land transactions.</li> <li>• Elimination of double or irregular allocations.</li> <li>• Fairness in granting rights of occupancy.</li> <li>• Fewer bottlenecks in payment.</li> </ul>	<ul style="list-style-type: none"> <li>• Speedy delivery of legal searches.</li> <li>• Reduction in the circulation of fake documents.</li> <li>• Elimination double allocation of land/plots.</li> <li>• Easy access to the information.</li> <li>• Lessening disregard of development control rules by FCTA officials.</li> <li>• Enhanced prospect of using certificate of occupancy as collateral.</li> <li>• Promotion of property and real estate business.</li> </ul>	<ul style="list-style-type: none"> <li>• Limitations in online payment.</li> <li>• Limited online services: not all information (e.g. plot owners, vacant plots, value of properties, etc) are provided.</li> <li>• Unnecessary charges and delays in the processing of regularisation applications.</li> <li>• No transparency in land transactions.</li> <li>• Lack of technical know how by the 'local' personnel.</li> <li>• All services are located at the headquarters.</li> <li>• Favouritism in granting of right of occupancy.</li> </ul>