

# **Surveying Profession in Nigeria: Stimulating interest and encouraging youth participation for future sustainability**

**Abdul-Lateef BALOGUN, Nigeria; Abdul Nasir MATORI, Malaysia; Yussof KHAMARUZAMAN, Malaysia; Dano umar LAWAL, Nigeria; Imtiaz CHANDIO, Pakistan**

**Key words:** Curricula, Education, Professional practice, young surveyor

## **SUMMARY**

As the most populous country in Africa and one of the most populous in the world, Nigeria is a potentially huge market for surveying services. However, the Surveying profession in Nigeria appears to be witnessing a gradual but steady decline in the quantity and quality of people practicing it. Young surveyors are abandoning the profession and high-school graduates do not seem motivated to enroll for the course in higher educational institutions. This paper provides updated insights into the challenges faced by practicing surveyors and potential surveyors in the country. Reasons why the profession does not rank among top choices for high-school graduates poised for tertiary education are discussed. Furthermore, core factors militating against the development of the profession and its practitioners are outlined and possible practical solutions to these problems are proffered.

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## 1. INTRODUCTION

The 21st century society is a knowledge driven one and many countries are investing massively on education in-order to enhance their global competitiveness and general well-being. Based on reports from Education at a Glance (OECD,2011), a recently published report by the Organization for Economic Co-operation and Development (OECD), the countries that invest the most in education have the most educated people. Similarly, the countries with the most highly educated citizens are also some of the wealthiest in the world. This direct relationship between education and development seems to be a motivating factor for significant investment in education. However, the OECD report also shows that while education has improved across the board, it has not improved evenly, with some countries/continents enjoying much greater rates of educational attainment than others.

One of the continents obviously lagging behind in educational attainment is Africa and one of the professions being affected by the slow educational development in the continent is the Surveying profession. Nigeria, the most populous country in Africa with a population of over 150 million people has witnessed a steady decline (relatively) in the quantity and quality of surveying professionals over the years (Internet world stat, 2011). Not many youths are eager to enroll for surveying as a first choice course in tertiary educational institutions and a lot of surveying professionals in the country are not fulfilled (Fajemirokun et al. 2009). Many are even willing to switch profession at the slightest opportunity.

S/N	Academic Session	No. of UME Applicants	Merit	Supplementary
1	1998/1999	*na	26	105
2	1999/2000	64	28	27
3	2000/2001	*na	11	65
4	2001/2002	*na	14	147
5	2002/2003	*na	28	27
6	2003/2004	42	23	*na
7	2004/2005	-	-	-
8	2005/2006	52	39	17
9	2006/2007	36	13	45
10	2007/2008	36	19	23
11	2008/2009	59	26	2

\*na-Not Available

**Table 1:** Students Enrolment Statistics in department of Surveying and Geoinformatics, University of Lagos Between 1998 and 2009 [Adapted from Fajemirokun et al. 2009]

According to Fajemirokun et al. (2009), data contained in table 1 above shows the existence of problems regarding candidates' enrollment into the Surveying programme. Majority of the University Matriculation Examination (UME) candidates qualified for enrollment through supplementary admission-a process which usually selects from candidates crossing from other departments because they could not be admitted for their first choice courses. The candidates therefore settle for a second choice programme, often times halfheartedly.

To reverse this trend, it is necessary to carefully investigate the factors responsible for this alarming trend and proffer practical solutions.

## **2. FACTORS RESPONSIBLE FOR THE DECLINE IN THE NUMBER (QUANTITY) OF SURVEYING PROFESSIONALS AND PROSPECTIVE SURVEYING STUDENTS**

### **2.1 What is in a name?**

An average Nigerian youth with high school education is conscious of the prestige and respect that comes with certain professions. Professions like medicine, law, engineering, information technology, military services etc are popular among them. The dream of every child is to be addressed as a Dr., Barrister, Engineer, General etc in future. This is largely due to the respect accorded these professions by members of the society. The portrayal of these professions by the mass media as noble professions encourages many parents to convince their kids to enroll for such professions upon graduation from high school. These stereotypes unfortunately do not really extend to the survey profession in Nigeria. Many people have the erroneous impression that surveying is all about tedious land measurements. Images of technicians conducting survey works using traditional equipments like the theodolite and chains, under the scorching heat of the sun does not appeal to many (Nwilo and Osanwuta, 2004). Oblivious of the significant roles played by modern day surveyors and allied professionals in developed countries in advanced fields like space technology, Remote sensing, GIS etc, the Nigerian youth and their parents often relegate the surveying profession to the back-stage when considering professions to be majored-in at higher educational institutions. While technological advancements have redefined and expanded the roles of surveyors in the 21st century (Nwilo et al. 2000), many in Africa still relate surveying and surveyors only with physically demanding Land measurement tasks. Impressed by the glamour and prestige that come with professions like medicine, law, engineering etc, an average Nigerian youth would prefer to be referred to as a Dr., barrister, or Engineer rather than being referred to as a Surveyor; the name sounds out-dated to them.

## 2.2 Poor Job Prospects

Another group of factors responsible for the decline in the number of people interested in practicing the surveying profession in Nigeria are low salary, poor job prospect and high rate of unemployment. The monthly salaries of fresh graduate surveyors working in private firms in Lagos, Nigeria's commercial capital, vary between N15,000(USD94) to N60,000(USD375) per month. The figure is even lower in less prosperous parts of the country. Those working in banks, oil companies, telecommunication companies, and manufacturing companies are better off. Considering the high cost of living, young surveyors are barely able to survive on this package. Consequently, there is little dedication to duty and eagerness to abandon the profession for better paying jobs. Similarly, career prospects for young surveyors do not appear too bright when compared with other professions. While other professionals such as civil engineers, architects and quantity surveyors have properly defined career prospects in other government ministries like transport, housing, and mine and power, surveyors are usually restricted to the federal ministry of works which has provision for full developed career prospects (Nwilo and Osanwuta, 2004). This situation prompts many young surveyors to abandon the profession at early stages of their careers. Some even return to school to enroll for a degree in Civil Engineering. The surveying discipline generally has a poor image of a non lucrative profession. This uninspiring situation makes it difficult for young people in the country to select surveying as a profession of choice when enrolling for undergraduate study in Tertiary educational institutions.

## 2.3 Conflicting Representation of Surveying

The absence of a unified status for the surveying profession also accounts for the lack of interest in the profession by youths. Globally, civil engineering, electrical engineering, mechanical engineering etc are all recognized as engineering professions. A civil engineer in Nigeria will also be recognized as a civil engineer in far away Australia. The same cannot be said of the surveying profession. While some universities view surveying as an Engineering profession, others view it as an Environmental science. Some even still treat the profession as a sub-set of Civil Engineering and surveying professionals do not earn the same income and respect as their counterparts in similar professions. For instance, a survey engineer in Nigeria might be regarded as an Environmental scientist elsewhere due to difference in curriculum and credit hours. Apparently, there is a lack of any clear international recognition of a 21st century definition of the profession of "surveying" and thus a failure to promote, at a global level, a clear, coherent "surveying" message to both clients and to the broader public. Indeed, there is evidence that some skills that are recognized and valued as being part of the surveying profession in some countries are not considered in the same light in others (Hannah et al, 2009). Furthermore, it appears various governments in the country do not accord the surveying profession the important position it ought to occupy and the priority it deserves in view of the indispensability of its services to sustainable development (Fajemirokun et al, 2002). All these combine to make many young people skeptical about venturing into the surveying profession.

## **2.4 Professional Rigors and Hazards**

The use of outdated equipments for surveying practices means young surveyors have to spend several hours and even days on-site for data collection. Since field works are an integral part of the profession, fresh school leavers are usually reluctant to venture into this major. They prefer jobs that involve more office work and minimal field work. Specifically, female school-leavers are wary of hazards related to field work in remote parts of the country (Ruther, 2003). There are reported cases of boundary/land disputes where surveyors get caught in fights between feuding land owners. Some of these disputes are so serious that dangerous weapons are used by warring factions thereby endangering the lives of surveyors and their expensive equipments too. Considering the unimpressive remuneration package and attendant rigours cum risks that come with it, young surveyors are tempted to switch profession and fresh school leavers are not motivated to pursue a degree in surveying at universities. This causes the number of surveying professionals to dwindle.

## **2.5 Brain Drain**

According to Ruther (2003), one of the central problems impeding the building of capacity in Africa is the 'pull of the first world'. Out of the few students that are determined to pursue a career in surveying, the cream of this group are usually offered scholarships by developed countries. Finding the lure of better academic and research facilities, fat remuneration package, and improved standard of living in these countries irresistible, pupil surveyors are tempted to stay back even after the expiration of their scholarship tenure. This ultimately affects the number of young surveyors capable of developing the profession locally.

# **3 FACTORS RESPONSIBLE FOR THE DECLINE IN THE QUALITY OF YOUNG SURVEYING PROFESSIONALS AND PROSPECTIVE SURVEYING STUDENTS**

## **3.1 Dearth of Qualified Personnel**

As mentioned above, the negative impact of the brain drain syndrome is profound. Many first class surveying graduates seek greener pastures outside the country, and even continent. They are reluctant to take up positions in local universities as researchers cum lecturers. Their geniuses are appreciated and adequately utilized in various research labs and universities in developed countries. As a result, the local universities are often left with average lecturers who might not necessarily possess the talent and finesse of their first class colleagues lost to the developed world. These average lecturers in-turn generally produce average students who end up giving average performances at the work place. Needless to say the fiercely competitive 21st century labour market has little tolerance for average performers.

## **3.2 Obsolete curriculum and inadequacy of modern equipment**

Technological advancements in recent times have tremendously impacted the survey and

mapping profession. Conventional survey techniques and instruments have been replaced by digital models (Bouloucos and Kufoniyi, 2000). Angular surveys have been augmented by electronic distance measurement, and more recently by satellite positioning. Photogrammetry has become an analytical discipline and Earth observation by satellites has made remote sensing an indispensable tool (Konecny, 2002). Unfortunately though, the African continent is yet to fully utilize the numerous benefits offered by modern day survey. A large number of professionals, lecturers, technologists and technicians in various organizations involved in geospatial information activities were trained in the obsolete methods of map production (Kufoniyi et al. 2002). Most of the personnel available for teaching are well grounded in the traditional survey techniques, but need to be retrained in the new emerging geoinformation techniques (Fajemirokun et al. 2002). With rare opportunities to go for pertinent refresher courses, they are unfamiliar with most modern survey techniques and equipments and are unable to teach same to students. They are compelled to rely on existing curricular, which are outdated. Consequently, students trained by these personnel are generally proficient in old survey techniques like theodolite-survey and inept at modern day techniques like GPS-Survey.

### **3.3 Paucity of Funds**

The importance of funds to the rapid development of the profession cannot be over-emphasized. Though Nigeria has a relatively large number of surveying departments when compared with other African countries, it nonetheless suffers a similar fate with them in-terms of inadequate funding. Researchers in the past have highlighted the fact that poor funding of surveying institutions is critically affecting surveying and geoinformatics education in Africa (Fajemirokun et al, 2002). Tertiary institutions are under funded and little progress can be achieved in the absence of much needed funds. Funds are needed to attract and keep quality researchers/teachers in academia; needed to procure state of the art surveying equipments; needed to train and constantly retrain educators in-order to properly position them for the challenges of the 21st century. Without funds, not much can be achieved in the quest for a viable and sustainable geospatial industry in Nigeria.

Country	No. of Departments	Names of Universities
Nigeria	11	i. University of Nigeria, Enugu Campus ii. University of Lagos, Lagos. iii. Ahmadu Bello University, Zaria iv. Federal University of Technology, Yola. v. Federal University of Technology, Minna. vi. University of Uyo, Uyo. vii. Rivers State University of Science & Technology, PH. viii. Enugu State University of Science & Technology, Enugu. ix. Abubakar Tafawa Balewa, University, Bauchi. x. Imo State University, Owerri. xi. Anambra State University, Uli.
South Africa	1	University of Pretoria, Pretoria
Botswana	1	University of Botswana, Gaborone
Zimbabwe	2	i. University of Zimbabwe, Harare ii. State University of Midlands
Zambia	1	University of Zambia, Lusaka
Tanzania	1	University College for Land and Architectural Studies
Kenya	2	i. University of Kenya, Nairobi ii. Jomo Kenyatta University of Technology, Thika
Uganda	1	Makerere University, Kampala
Democratic Republic of Congo	1	University of Kinshasa, Kinshasa
Sudan	1	University of Khartoun, Khartoun
Ghana	1	University of Kumasi

**Table 2:** List of Universities in Sub-Saharan Africa [Adapted from Ruther (2003)]

#### 4 CHARTING A WAY FORWARD

Lots of papers have been written in the past, detailing the necessary steps to be taken in-order to salvage the profession from apparent danger. Many of the proffered solutions are capital intensive and require huge government intervention. Unfortunately, the needed intervention has been slow in coming. In addition to the existing well-documented solutions, it is necessary to explore other initiatives that do not necessarily require direct government support or huge financial commitments. Though simplistic on face value, these initiatives have the potential to significantly benefit the profession, if sustained.

#### **4.1 Change of Name and Curriculum**

In line with global trend, it is necessary to change the name of the course in tertiary institutions from Surveying to Geomatics/Geoinformatics. Geomatics is a globally admired brand name and adopting it will most likely stimulate the interest of youths in the profession. According to Ruther (2003), the change from Surveying to Geomatics has had some positive effect on the demographics of the student population in South Africa. Geomatics has a different image and is not perceived as being associated with extensive periods of fieldwork; as a result, larger numbers of female students are now registered there.

In addition to name change, it is also necessary to revise the curriculum and incorporate courses on pertinent modern fields like geoinformation, global positioning systems, Remote sensing etc. The introduction of these sophisticated programmes in the curriculum will further stimulate the interest of young students. This technique is working at the University of Lagos and it will most likely work in other surveying departments in the country if adopted.

#### **4.2 Mentoring and Volunteering**

In different parts of the developed world, there are numerous Nigerian Surveyors working and excelling in the industry and academia. They utilize state of the art facilities and keep abreast of latest developments in the profession by attending conferences. These multitudes have experienced the beauty of the profession firsthand and are well placed to mentor young and upcoming surveyors on the prospects of the profession. As role models, they can convince High/Secondary school leavers to enroll for a Geomatic degree in tertiary institutions. They can motivate current undergraduate students by facilitating internships and exchange programmes with foreign organizations. Collectively, they can provide invaluable information to their colleagues in Nigeria by sensitizing them on the various untapped opportunities in the developed world. There are lots of geospatial opportunities out there but having timely access to information on these opportunities is usually a challenge for home-based young surveyors.

Furthermore, these expatriate surveyors should be encouraged to periodically volunteer their expertise as educators in various institutions across the country. In addition, concerted efforts should be made to reach out to and seek the support of the following group of people:

1. Professionals from any country who want to share their expertise with counterparts in Nigeria.
2. Senior business leaders and retired executives from any country in the world who wish

- to support Surveying and geospatial development in Nigeria.
3. Surveying experts in Nigeria who wish to volunteer and share local knowledge with proteges.

### **4.3 Private Funding Initiatives**

Instead of relying solely on government funds, efforts should be made to generate revenue from other sources. One major area that can be looked into is fund raising events. By liaising with their alumni associations, local universities can organize big fund-raising events. Such events usually provide an avenue for the alumni to reach out to their wide range of contacts in a bid to raise funds for the geomatic department. Similarly, International geospatial bodies like the Federation of International Surveyors (FIG) and the International Society of Photogrammetry and Remote Sensing (ISPRS) should be encouraged to host their international congresses here. Hosting events like this has the potential to generate lots of funds for the cash-strapped industry. For instance, the 2014 FIG congress scheduled to hold in Malaysia is expected to generate approximately £8.7 million for the Malaysian economy (Tourism Malaysia, 2010).

### **4.4 Use of Modern Equipments**

The advent of modern techniques and equipments like Global positioning systems, geographic Information systems, satellite photogrammetry, remote sensing, GPS receivers, total station, CAD and GIS software etc has revolutionalized the surveying profession. To be globally competitive, young surveyors in the country have to be conversant with these tools. Though expensive, many of these tools can be acquired through the intervention of the Alumni and Nigerian expatriate surveyors. Through their network, they can liaise with various organizations and encourage them to donate some of these equipments. They can equally work out bargains that will enable them purchase some of the more expensive equipments at discounted prices and possibly make installment payments.

Using modern equipments will drastically reduce the time spent on site for data collection as well as make the whole survey process from start-to-completion very easy and fascinating. Without rigours and avoidable time consumption usually associated with the use of out-dated equipments, the negative perception of young people regarding the survey profession will change and they will be motivated to venture into it.

### **4.5 Academic Collaboration and E-Learning**

The dearth of well trained personnel in local institutions can be combated by collaborating with various institutions in developed countries. An obvious benefit of collaboration is the opportunity to be trained by experts in these countries via staff exchange programmes. With their assistance, outdated curriculums can be regularly updated. Also, refresher courses can be

organized for academic staff members in-order to update their knowledge in line with the modernized curriculum.

In the past, collaboration initiatives were stifled by lack of funds needed to sponsor staff members to Geomatic departments in developed countries. However, real time online networking facilities like the *webinar* can now be used to conduct trainings without sending staff members abroad. A webinar is a web-based interactive seminar that enables a trainer to deliver lectures to anyone in any part of the world, in real time. Like real world situation, trainees can see the trainer, ask questions and receive answers immediately, and even record the event for future reference. By using facilities like this, staff training and retraining will be regularly conducted at a very low cost.

## 5 CONCLUSION

Challenges facing Nigeria's education sector in general, and the geomatic profession in particular cannot be possibly exhausted in a single paper. Previous research efforts have discussed many of these problems and offered possible solutions, though some of the proffered solutions are impracticable. This paper has highlighted some of the most significant problems and suggested solutions that have not really been explored in the past. Though simplistic on face-value, these solutions are capable of revamping the profession if adopted collectively and spiritedly.

Here, more emphasis is placed on surveying in the academia over surveying in the industry. It is only logical that the situation in the industry is a reflection of what obtains in the academia. If the problems in the academia are fixed, more people will be motivated to enroll for surveying programmes in tertiary institutions, more competent graduates will be produced by these institutions, and the surveying profession will ultimately thrive both in the academic community and the industry.

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## BIOGRAPHICAL NOTES

### EMPLOYMENT HISTORY

2010-Till Date	Graduate Assistant & PhD Research Student, Universiti Teknologi PETRONAS, Malaysia. <ul style="list-style-type: none"><li>• Conducting research on the use of Spatial DSS for optimal pipeline route selection.</li><li>• Instructing students on the use of GPS and other Surveying/GIS devices and techniques.</li></ul>
October –December, 2008	GIS intern, Geoinfo Services Malaysia. <ul style="list-style-type: none"><li>• Processed GIS/RS data using ArcGIS &amp; ERDAS imagine software.</li></ul>
January-June, 2008	Site acquisition executive, Deemranbey & Associates, Nigeria. <ul style="list-style-type: none"><li>• Identified suitable sites for the erection of telephone antennas using a GPS device.</li><li>• Negotiated suitable location with Landowners</li></ul>

### PUBLICATIONS & RESEARCH WORKS

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## ACADEMIC AWARDS

- Postgraduate merit scholarship recipient (2011), AUT University New Zealand.
- Postgraduate merit scholarship-GA recipient (2010-2012), UTP University Malaysia.
- Best Student, Geoinformatics graduate class (2009) with a CGPA of **3.94/4.00**.
- Second runner-up, National Quiz Competition (2009) involving participants from various public universities all over Malaysia.
- Winner, Golden Key International Honor Society (GKI) essay writing competition, 2008

## MEMBERSHIP OF PROFESSIONAL ORGANIZATIONS

- Student Consortium (SC) member, International Society for Photogrammetry and Remote Sensing (ISPRS).
- Student member, Royal Institution of Chartered Surveyors (RICS), UK.
- Student member, Surveying & Spatial Sciences Institute (SSSI), Australia.

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