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Journal of  
**African Studies and Development**

July 2019  
ISSN: 2141-2189  
DOI: 10.5897/JASD  
[www.academicjournals.org](http://www.academicjournals.org)



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*Full Length Research Paper*

# **Challenges of educational digital infrastructure in Africa: A tale of hope and disillusionment**

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Received 30 May, 2019; Accepted 12 July, 2019

**Technology-based distance learning is becoming popular throughout the world. In Sub-Saharan Africa, advancements in communication technology more than two decades ago raised much hope since technology-based distance education was seen as a promising cost effective and cost-efficient answer to expansion of access to education. These high hopes in technology-based distance education have, however, turned into disillusionment because of the challenges relating to digital infrastructure affecting most of Sub-Saharan Africa. This article is a reflection on the challenges of digital infrastructure with respect to distance learning in Africa. The article makes some recommendations for practice and research.**

**Key words:** Technology-based learning, communication technology, digital divide.

## **INTRODUCTION**

Many governments in the developing world revitalized their education systems over the last two decades with a view to meeting goals set by the United Nations. This was done at a meeting where national leaders from all over the world resolved to eliminate poverty by 2015 through achieving a set of goals which were considered to have a causal relationship with poverty. The second of these millennium development goals committed states to ensuring that school-going age children everywhere would have access to primary education (Valk et al., 2010; Shava and Ndebele, 2014). For many developing countries, this goal proved to be a huge challenge because of the mismatch between the rising population of children and the slow pace at which educational opportunities are expanding. With the world economic recession, the resources for constructing new schools,

training and employing new teachers and supplying schools with teaching-learning materials have not been adequate (Wamba and Mgonezulu, 2014).

One of the promising solutions to this dismal situation has been technology-based distance education (DE). As Wanzala (2013) observed, developments in information communication technologies (ICT) brought excitement in Africa because it would lower costs of education and training and improve access. However, the excitement and high hopes raised two decades ago by innovations in ICT have met with some unforeseen challenges down the road. This paper discusses some of the challenges relating to digital infrastructure in Africa, affecting the region's dream of creating societies in which every child regardless of gender will have access to education either through participating in conventional classroom-based

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learning activities or through use of technology-based learning platforms. The paper also makes some recommendations for practice and for research. Before looking at the opportunities and challenges facing Africa with regard to educational digital infrastructure, the paper first refers to the world context in order to demonstrate that Africa's dream for technology-based DE has come true elsewhere in the world.

### Global trends

As Agyemang and Dadzie (2010) and Hoekstra (2013) observed, DE has become an important feature of education systems worldwide over the last few decades. Agyemang and Dadzie reported that the United Kingdom's Open University has broadened access to education to people who would have otherwise been excluded from further education. Ding et al. (2010) reported that DE in China has become a very important strategy for universalizing access to education. Through the strides made by DE in recent years, many people in China's rural areas have had access to basic education. According to Ding et al. (2010) China's delivery mode for DE has transitioned in three delivery mode generations from correspondence to radio and television through to online multi-media delivery which has emerged as the current significant delivery mode.

In Malaysia, DE is getting more and more popular with developments in technology (Ramayah, 2010). According to Githens et al. (2014), the possibility of accessing education through distance learning platforms is a timely solution to the problem facing people in the workforce that need to continue developing their knowledge and skills but are constrained by time or distance. The strategy is bearing fruit because of the availability of internet services which facilitate the delivery of high-quality multi-media learning materials. According to Ng and Confessore (2010), the most preferred mode of delivery from learners' point of view in Malaysia is use of a multiplicity of learning platforms such as site-based instruction and print media, audio and computer-supported interaction (or hybrid). The major goal of adopting multiple delivery modes is to benefit from the advantages of each.

In North America, DE has evolved from the early days when the sole mode of delivery of teaching/learning materials was postal services. Adams (2016) gives an account of how DE evolved from dependence on correspondence as the only delivery system before the current online options. Adams asserts that the exponential growth of internet and web-based course management has led to significant improvement in quality. According to Baggaley and Lee (2005), the most predominant delivery mode of DE in North America is text-based conferencing. Baggaley and Lee explain that scheduling live instructional synchronous sessions is not

easy in North America. Because of that, web-based asynchronous sessions are the preferred mode.

In developed countries, the application of technology to DE has been relatively easy because nearly all technological innovations take place in those countries. This has contributed to the decline in cost of services. Bates (2001) reported a significant growth in information communications technology (ICT) capacity in the decade leading up to the time of publication of his article appropriately titled '*The Continuing Evolution of ICT capacity.*' Bates observed that advancements in technology, increased ICT capacity, and the rise in ICT supply had a significant contribution to the lowering of the cost of digital communication (particularly with respect to telephone communication).

This explanation by Bates makes economic sense. However, Africa does not seem to have benefitted much from these trends as can be seen from the fact that access to ICT is still an issue because of costs. According to Miniwatts Marketing Group (2019), only 37% of Africa's population has access to internet, whereas in Latin America/Caribbean (just like in the Middle East) the rate is 67% of the population. Wealthier regions of the world have high internet usage rates per population. For instance, the rates for Europe and North America are 87% and 89% respectively. Interestingly, although Africa has the lowest internet usage rate per population, the region's growth rate in internet usage is very high. During the period 2000-2019, the percentage of growth in Africa's internet usage was 11.533%. This is significant when compared with Asia at 1.825%, Europe at 585%, Latin America/Caribbean at 2.377%, and North America at 203%. It should be borne in mind, though, that wealthier nations are not growing as much as Africa is doing because they are way ahead of Africa and are closer to 100% penetration rate.

The digital divide notwithstanding, however, the general point made by Bates (op cit) as well as Kikis et al. (2009) is valid. ICT is increasingly becoming more available to educational institutions and households across the world and this increase in digital infrastructure is boosting the use of technology in broadening access to education. This overview of global trends in DE has identified the following issues:

- (i) DE is growing in popularity in many parts of the world;
- (ii) Advancements in technology are aiding the growth of DE;
- (iii) Despite the adoption of internet-based technologies in the delivery of DE programs, the traditional delivery methods have not faded away. For instance, computer-supported interactions are still being blended with face-to-face interactions, print media, radio and television;
- (iv) The world is still experiencing a digital divide based on economic status of countries. Rich countries have more access to digital infrastructure than poorer countries.

Against this background of global trends in DE, what is the situation in Africa?

### DE in Africa

Sub-Saharan Africa (SSA) covers an area of 24 million square kilometers, comprising forty-nine countries, with a population of 659 million (Mbarika et al., 2002). As mentioned in the introduction, many SSA countries have been revitalizing their education systems over the last two decades largely because of their commitment to the United Nations Millennium Development Goals that required them to provide education to all children by the year 2015. According to UNESCO (2018), SSA has the largest population of children who are out of school, adolescents, with a total of 96.9 million in 2016. Furthermore, the region is still lagging behind other developing countries such as those in Latin America and the Caribbean (12.7 million), Southern Asia (95.8 million) and Northern Africa and Western Asia (18.5).

To address the problem of access, African governments have put many strategies in place, such as building more schools and training more teachers but there are not enough resources to do more (Wolff, 2002). It is partly against this background that DE is seen as a strategy for addressing the problem of access to education. Basaza et al. (2010) make an additional case for DE. They have observed, among other things, that DE has a positive impact on educational costs and enables students to participate in education without having to be separated from their families.

According to Leary and Berge (2007), DE programs in SSA have existed since the 1950s. Out of the approximately 150 DE programs, the most successful ones run in partnerships with universities overseas. For example, the African Virtual University, which is based in Kenya, enables students to receive online instructions from a university in the United States. Leary and Berge have observed that the predominant delivery mode is a blending of learning systems with primary emphasis on print material, radio, text and email.

Leary and Berge (2007) demonstrated that in Anglophone and Lusophone countries, the incidence of video conferencing is lower compared to the situation in Francophone countries. According to Leary and Berge, 40% of colleges in African Lusophone countries use video conferencing as one of their educational media, whereas only 3% of colleges in Anglophone and Francophone African countries include video conference in their types of educational media. With respect to the use of radio, 70% of colleges in Lusophone countries include it on their list of types of educational media and only 2% of colleges in Anglophone countries and 12% of colleges in Francophone countries do so.

It is interesting how the colonial backgrounds of nations in Africa impact on type of instructional media. The low

reliance on e-learning delivery systems is surprising when viewed in the light of findings made by Mbarika et al. (2002) indicating that SSA is no longer the technological desert that it used to be. They assert that the region had, by the year 2001, tremendously increased its capacity for ICT, contrary to many reports. They report that a decade ago, twenty-four countries had one thousand subscribers to internet dialup, nineteen had five thousand and six had twenty thousand. Mbarika et al. (2002) have reported that digital infrastructure has significantly broadened educational access. To some extent, SSA owes this rapid increase in adoption of ICT to the support rendered by donors (such as the World Bank, the Rockefeller Foundation, the Ford Foundation, and many others) that have funded projects for development and integration of web-based learning (Mkonongwa and Komba, 2018). Another notable development is the increasing use of mobile technologies (Apuke, 2018; Makinde et al., 2019).

Mbarika et al. (2002) concede, however, that the great strides that Africa is making towards improving internet diffusion do not tell the whole story. One part of the story is that internet diffusion is largely restricted to the major cities. The rural populations are generally outside coverage areas. Other parts of the story have been presented by several writers. For example, Intsiful et al. (2003) list the following constraints to effective and efficient use of ICT:

- (i) Prohibitive subscription costs
- (ii) Inadequate promotional strategies
- (iii) Inadequate relevant user information
- (iv) Poor quality of internet services
- (v) Unfriendly regulatory framework
- (vi) Ineffective network traffic and infrastructure management

In addition to this litany of challenges constraining the use of technology for purposes of DE, Oladejo and Gesinde (2014) noted other factors, including lack of face-to-face tutorial support to learners, unreliable and unsustainable materials development, inadequate staff development strategies to match the ever-changing nature of technology, high course fees, and inadequate funding. Afolabi (2015) observed that some potential DE students are unable to access learning because they lack computer skills.

### RECOMMENDATIONS FOR PRACTICE

Based on the challenges identified in this paper, recommendations can be grouped into two categories. Some recommendations can be addressed to national governments and their development partners, while other recommendations are for the attention of DE institutions.



### (1) National governments and development partners

Broadening of access to education through adoption and expansion of a well-functioning ICT-dependent DE system has several benefits to national governments. An increase in technology literacy in particular and a rise in the critical mass of educated citizenry in general can translate into an existence of a workforce that will satisfy the human resource needs of a nation's economy. Furthermore, not all governments in sub-Saharan Africa can afford to build and equip schools and colleges to meet the demand for education. ICT-dependent DE is a viable solution to the problem because it comes at a cost that is less burdensome than face-to-face teaching/learning delivery modes. It is prudent, therefore, for national governments and their social partners to create an enabling environment for supporting educational ICT through the following measures:

- (i) Developing a friendly legal framework through laws and policies (such as tax incentives) that attract and protect private enterprises providing ICT services (such as internet providers, suppliers of ICT software and hardware, and suppliers of mobile ICT devices); and developing strategies for lowering subscription costs for ICT services.
- (ii) Developing strategies for improving and sustaining the quality of internet services.
- (iii) Improved management of network traffic and ICT infrastructure.
- (iv) Supporting research development in ICT.
- (v) Improved public financing to DE institutions.

### (2) DE Institutions

DE institutions benefit from efficiently run technology-based education and have much to lose from a disappointed clientele when services are poor (e.g. intermittent or poor access to online platforms; uncommunicative learning materials; inappropriate pedagogy for online learning; lack of feedback to learners). DE providers should adopt and maintain best practices for managing and delivering ICT-based learning through:

- (i) Selecting user-friendly ICT learning platforms;
- (ii) Providing support to students that have no computer skills (e.g. conducting basic computer skills at community-based DE centers).
- (iii) Developing and periodically revising learning materials that are appropriate for online delivery (e.g. materials with clearly stated learning objectives, clearly structured content, relevant and authentic student activities, and clear rubrics for exercises).
- (iv) Engaging competent IT specialists for managing instructional technology.

(v) Developing faculty capacity to maintain quality (e.g. training faculty in development of online teaching-learning materials).

(vi) Constantly monitoring and evaluating DE activities (e.g. through soliciting feedback from learners and using the data for system improvement).

(vii) Adopting strategies for lowering costs without compromising on quality (e.g. promotion of mobile and personal technology platforms that are more affordable and more popular among the target groups, (Apuke and Iyendo, 2018); use of social media for academic purposes (Apuke and Iyendo, 2017).

### RECOMMENDATIONS FOR RESEARCH

Use of communication technology is a welcome phenomenon in as much as it contributes to reduction in educational costs and access to free online learning materials (Apuke and Iyendo, 2018; Makinde et al., 2019). However, communication technology has also been known to come with hazards such as pathological addiction to the internet with resultant anti-social effects (El-Kader and Hanson, 2019). The exact nature of unwanted consequences of the use of social media and mobile phones for DE in Sub-Saharan Africa has not been investigated. Neither has the possibility of using ICT-based DE for purposes of technical vocational education and training (TVET) been fully investigated. Research should be conducted to determine the following:

- (i) The impact of educational ICT (including social media for educational purposes) on students' social-cultural competences. If there are any unintended consequences that affect academic performance, what remedial and preventive measures should be incorporated into the curriculum for online programs?
- (ii) The feasibility and best practices for online delivery of TVET knowledge, skills, and dispositions. To what extent can practical, hands-on skills be acquired through online learning platforms?

### Conclusion

This paper has discussed the hopes and disillusionment in the use of digital technology in Africa south of the Sahara. The paper has indicated that advancements in ICT made a couple of decades ago have had a tremendous impact on DE delivery systems throughout the world. Although SSA has had some success stories in the use of online-based delivery systems, and although the rate of internet diffusion is rising significantly, the region has still got some issues with digital infrastructure. Challenges slowing down the growth of internet-based delivery systems in Africa include unequal internet access between urban and rural populations, unreliable

internet services and high cost of ICT. Partly because of these challenges, DE continues to be characterized by use of traditional delivery systems, such as print, radio and television, particularly in Anglophone and Lusophone countries. It is hoped that the recommendations for practice will be implemented.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# **Security implications of oil exploration on social activities in South Lokichar Basin, Turkana County, Kenya**

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Received 25 June, 2019; Accepted 26 July, 2019

**This study explored the security implications of oil exploration on the social activities in South Lokichar Basin, Turkana County, Kenya. It was motivated by the disagreements between the county government and national government on the exploration, extraction, production and sharing of oil benefits. Oil discovery and revenues fuel ethnic and political tension in any country, result in war and political instability. Nigeria's Biafran war was due to oil discovery between July 6, 1967 and January 15, 1970. Such tensions are due to unfulfilled expectations of the host communities, corruption, environmental degradation, socio-economic disruptions and exploitation. In a region of extant and prevalent insecurity over scarce resources, there is the likelihood of violent disagreements over ownership and utilization of a newly discovered resource. Using Yamane's formula, a sample of 382 respondents was drawn; 8,493 were adults from Turkana County. Whereas most studies relating to oil discovery in Kenya have centred on the economic implications; this study filled the gap from the security perspective. Oil exploration had security implications on social activities as confirmed by 70% of the respondents. 65% also confirmed it, while 60% confirmed that oil exploration led to increased insecurity. 65% of the respondents felt that the security measures were insufficient to deal with security threats as a result of oil exploration while 60% of the respondents did not feel entitled to the benefits of oil exploration and production. The study concluded that oil exploration had both positive and negative security implications on socio-economic activities in South Lokichar Basin, Turkana County, Kenya.**

**Key words:** Security, implications, oil exploration, social activities, indigenous communities, community participation.

## **INTRODUCTION**

The discovery of oil at Ngamia 1, on 12<sup>th</sup> March, 2012 at South Lokichar Basin in Turkana County brought a lot of excitement and high expectations among the indigenous communities of Turkana County and Kenyans at large. Since the oil discovery was announced, more viable oils

wells have been drilled with some having promising recoverable crude oil and gas. With the great economic expectations, minerals such as oil come with challenges that Auty (1993) refers to as "Resource Curse". This phenomenon has been experienced only in some

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countries and it is largely attributable to non-existent or bad resource management policies, exploitative corrupt practices, non-participation of indigenous communities, and neglect of other economic activities.

The issue of oil related security challenges has remained varied and viewed by many from different perspectives in history. According to World Bank (2009), countries dependent on oil are mostly associated with civil wars, inequitable resource allocation and marginalization of some communities or places in the country. In other words, oil-dependent countries are more likely to suffer from insecurity motivated by grievances or greed and this is particularly true for states in sub-Saharan Africa (Garvin, 2009). However, the discovery of oil also creates a sense of hope and expectation that the revenue would lead to the development of indigenous communities and the countries as a whole. And for this to be realized, the need for greater involvement of the people of oil producing areas in oil production cannot be over-emphasized.

Conversely, the discovery of oil deposits raises new opportunities for revenues, employment and other benefits, which may impact positively on community activities and peace-building. Collier (2007) notes that involvement of the indigenous community will ensure that they are effectively mobilized to contribute to the oil producing processes with a view to guaranteeing that reasonable margins and standards of safety and security are followed. Indeed, partnering with the people of oil producing communities will create and sustain better understanding among stakeholders in the oil industry and make conflict resolution less cumbersome. This will require good governance which according to UNDP (2011) "is the exercise of economic, political and administrative authority to manage a country's affairs at all levels comprising the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences". Governance involves the manner in which allocative and regulatory mechanisms are exercised in the management of resources and broadly embraces the formal and informal institutions by which authority is exercised and thus inclusiveness is key.

Africa's mineral endowment is vast and well documented (Bush, 2008). With the realisation of this potential, there is a growing dependency on new discoveries of minerals by many African economies. Despite gains in economic growth related to the extractive boom since 2002, Africa remains one of the world's poorest, least developed regions (MacNeish, 2010). The great potential benefits notwithstanding, the extraction of these finite resources poses significant security threats not only to the community but the country as whole in the form of localised insecurity or civil wars. Such negative security incidences cause death and injury, loss and misallocation of assets, and potentially a

negative trajectory of socio-economic development in the long-run.

It has been warned that the new oil discovery is likely to exacerbate existing tensions in the Turkana County where growing militarised inter-ethnic and cross-border insecurity are mainly caused by competition for scarce pastures and water resources (Johannes et al., 2015). Much depends on the successful implementation of a more inclusive political settlement as promised by the decentralisation provisions of the 2010 Constitution. Oil discovery in post-conflict countries may be expected to revive old animosities and political risks, particularly when the past insecurity had significant territorial dimensions such as among the Pokot and Turkana.

Turkana Baseline Report (2015) indicates that without access to information and meaningful consultation, most indigenous communities confronted with oil, gas and mining will eventually resist projects that have a negative impact on them. When negative impacts are not adequately redressed and benefits are unevenly distributed, trust is further undermined and the risk of intra-community and community-company tensions increases (Collier et al., 2008). Insecurity over resources is not only about natural resources. They are about social and cognitive boundaries, in demarcating resource ownership and thus selective assignment of enmity (Schlee, 2014). This idea supports the perceived definition of a "community"; that is a sense of belonging anchored in institutions as well as naturalised conventions which are a necessary condition to the agreements about the appropriation, use and sharing of natural and land resources (Jacob, 2004). This raises the question about inclusion/exclusion mechanisms and dynamics within a community and between communities.

Residents of South Lokichar who have been faced with a lack of electricity, water shortages and banditry, famine, etc., would thus be optimistic that their economic, security and infrastructural status will improve with the discovery of oil. The attention of the government has also shifted to Turkana County as a significant economic contributor. This is a shift from the previous governments' attitude towards the region as remote and economically insignificant. The discovery of oil in Turkana County could drive the central government and regional actors towards renewal of peace talks and a more inclusive political settlement for the region (International Crisis Group, 2008). Political leadership (notably the Kenyan government) and the role of regional actors are factors that will determine whether extractive industries in the region result in a developmental impact in the community. With many studies emphasizing the economic implication of oil discovery particularly in the developed countries, scanty documentations have placed emphasis on the security implications of the same particularly in developing countries. Thus, this study will attempt to fill this gap by examining security implications of oil exploration on social activities.

### Justification of the study

The study will be useful to the academic community by contributing to the existing scarce knowledge on the security implications of oil exploration on social activities. Scholars will use the knowledge for further research and suggest academically informed solutions to oil related security problems. Policy makers can also tap into the findings and recommendations to inform their decisions.

### LITERATURE REVIEW

In a Turkana Baseline Report (2015), oil stakeholders in their assessment on the county's mineral resources, were convinced that a more systematic, constructive and inclusive dialogue between indigenous communities, government and oil companies is possible and urgently needed to prevent further social tensions and rent seeking, in order to contribute to sustainable development in Turkana County. This is in cognisance of the fact that oil corporations that have engaged with indigenous communities through development projects have been a cause of inter-community conflicts in other places such as in the Niger Delta between communities participating in such projects and those that do not. Such tensions are thought to have contributed to the Nembe war in 2005 and the conflict between the Emouha and Ogbakiri communities in Rivers State (Idemudia 2010). In 2014 Shell's community development manager in Nigeria, acknowledged that the company at times precipitated insecurity by "...the way we award contracts, gain access to land, and deal with community representatives...", (BBC, 2014). Cash payments by oil companies to community leaders to avoid disruption, or to indigenous (usually armed) individuals for security, fostered both conflict and crime, and the increase in hostage taking, both of foreign oil workers; and even of prominent Nigerians and their family members. This can be seen as stemming in part from segregating practice of selective engaging of indigenous community.

One of the effects of oil exploration on communities near oil reserves is its impact on cultural practices, specifically the ways in which otherwise benign cultural practices might be rendered problematic in the face of changes resulting from the discovery of oil (Fearon, 2010). Dadiowe (2003) indicated that Gbaran oil host communities were confronted with an increase in the number of teenage mothers with fatherless babies. This upsets the established African tradition of fathers fending for their families and thus the role is left to the single mothers. Alongside the problem of single motherhood is the issue sexual exploitation. Research by social historians such as Akyeampong (2008) in Ghana makes it quite clear that commercial sex work is not a new invention in Africa; and one can safely say that the nature, extent and consequences of such practices in our

current context are more worrisome. While our generation has witnessed the emergence of deadly sexually transmitted infections such as HIV/AIDS, women still have very little ability to negotiate safer sexual practices (Gary, 2009). Be it as commercial sex workers who are more at risk of sexually transmitted infections including HIV/AIDS or teenage mothers who are left to care for children all on their own, the destruction of the structures that provide livelihoods for women in oil producing communities puts an undue burden on women in these communities. In a society such as the Turkana, this is a possibility due to the desperation caused by years of economic neglect.

Oil companies have also at times been blamed for giving rise to social unrest in the areas where they operate as a result of exploitation of the indigenous communities. This was particularly apparent in the Niger Delta where violence, oil theft and sabotage of pipelines increased sharply during the mid-1990s, and peaking in 2006-2007 (Idemudia, 2010). This was characterised by formation of militant groups and communities venting their anger about limited employment opportunities, inequitable sharing of oil revenues, environmental degradation and threats to indigenous farming and fishing livelihoods. Chevron Texaco is estimated to have lost around \$750 million as a result of community strife (Idemudia, 2010). While there is little unity across 140 ethnic groups in the Delta region, one feeling that is common is that all Niger Delta groups have been disadvantaged as none belong to Nigeria's three major ethnic groups of Hausa-Fulani, Yoruba or Igbo. As far back as 1958, the Willink Commission Report, a study which looked into minority groups' fears of domination in an independent Nigeria, found that the people had problems specific to the region owing to its terrain and therefore it should be regarded as a special area; that the development of the area required special attention by government; and that neglect or oppression of minorities would risk rebellion likely to necessitate a military response from the federal government. In its approach to handling the oil conflict in Turkana county, the national government has the option of using force and this is likely to backfire and lead to mass action, or even formation of militias. This is in consideration of the areas as being prone to banditry and proliferation of arms.

The discovery and exploration of oil has the potential to, and in most cases, has negatively affected the political system of developing nations. Gumedede (2008) argues that the West is selective in their pressure for African countries to democratise by ignoring countries that are rich in oil such as Chad and Equatorial Guinea. Indeed, Ross (2013) has argued that oil and mineral production is linked to authoritarian rule. Likewise, Boonstra et al. (2008) noted that there is an intricate relationship between energy production and democracy such that international pressure for bad regimes in oil-rich nations to reform is increasingly weakened as Western countries

seek to access the scarce resources in more competitive global markets. In Nigeria, Bloomfield (2008) opines that just as oil has polluted the environment of the Niger Delta, so has it polluted the politics of Nigeria. In Kenya, the political relationship between the Turkana County government and National government has become increasingly tense in the recent past due to oil exploration activities (Imana and Mmbaili, 2016). This might give leeway to foreign MNOCs and elements in the central government to have an excuse to impose political leaders who conform to their interest demands. This was seen in the chance stance by the Turkana leadership after the appointment of Cabinet Secretary from the region to be in charge of mining and natural resources. Together with the appointment, tough talking leaders who claimed to champion the interests of the Turkana community, as far as oil benefits were concerned, have since been silenced and the legislative they have since supported legislative clauses they were against.

Oil discovery has also threatened the stability of some governments in the developing world. For instance, in Equatorial Guinea, the news of the discovery of oil in commercial quantities resulted in an attempted coup d'état in 2004. Gary (2009) argues that oil revenue tends to negatively affect democratic gains and further advised that for Ghana to avoid this, the right institutions and transparent policies ought to be in place before commercial production begins. This is in a bid to streamline oil exploitation operations once they begin and avoid disagreements. Such measures are also critical in ensuring that maximum benefits are realised and the resource curse phenomenon is avoided.

The bulk of the literature on the impact of oil discovery and exploration in developing countries indicates the dwindling health status of the people in communities near oil reserves (Bloomfield, 2008). A UNEP (2009) report indicates for example that the exploration of natural resources has the tendency to engender health risks and that this health risk is more acute in developing countries. In addition to exposing indigenous communities to health risks, oil exploration also has the potential of destroying the health seeking behaviour of indigenous communities. The negative environmental impacts of oil exploration affect plants some of which are used by the indigenous communities near the oil reserves in their health-seeking behaviour. According to the UNCTAD (2007) report, the construction of pipelines leads to the destruction of medicinal plants used by the indigenous populations. In Turkana County, there are reported instances of people and livestock getting ill and dying due to ingestion, or inhalation, of chemicals used by Tullow PLC in their activities. Contamination of pasture and underground water reservoirs is disastrous for a pastoralist community such as the Turkana.

The extractive industry, particularly oil exploration, also has serious human rights implications for developing countries. According to a report by UNCTAD (2007), the

participation of transnational corporations in the extractive industries can result in human rights abuses such as the disappearance of people, arbitrary detention and torture and loss of land and livelihoods without negotiation and without compensation. The famed case of Ken Saro Wiwa, leader of the Movement for the Survival of the Ogoni People, and eight other Ogoni minority rights activists, in November 1995 (Obi 2009) is an instance. They were protesting against the poor quality of life of the Ogoni in spite of the oil exploration activities of Shell in their community, are a good example of such cases of atrocious human rights abuses. With voiced grievances against exploitative tendencies by Tullow PLC and the National Government, it was necessary to establish how the human rights of the indigenous community has been affected more so those seen as leaders of resistance.

## METHODOLOGY

The study adopted a cross-sectional survey research design. This research design was best suited to studies aimed at finding out the prevalence of a phenomenon, situation, problem, attitude or issue by taking a cross-section of the population (Kumar, 2014). Kumar (2014) further notes that cross-sectional survey research design is useful in obtaining the overall picture as it stands at the time of the study. The study was conducted in Lokichar Ward in Turkana County Kenya within which recoverable oil resources have been found. Lokichar Basin is within the Lokichar Ward in Turkana South Constituency of Turkana County. Turkana County is well endowed with natural resources including oil. Notable explored oil wells include Ngamia 1, Ngamia 2, Amosing 1, Ekales 1, Twiga South 1, Agete 1, Etuko 1, Ewoi 1 etc. Of the numerous oil wells, Ngamia 1 Amosing 1 and Ekales 1 have since been found to be economically viable with a projected production of 750 million barrels (Turkana County Government, 2015). A sample size of 382 respondents was selected using Yamane formula on sample size:

$$n = \frac{N}{1 + N(e)^2}$$

Where n = is the sample size, N = the target population (8,493), e = precision level (0.05).

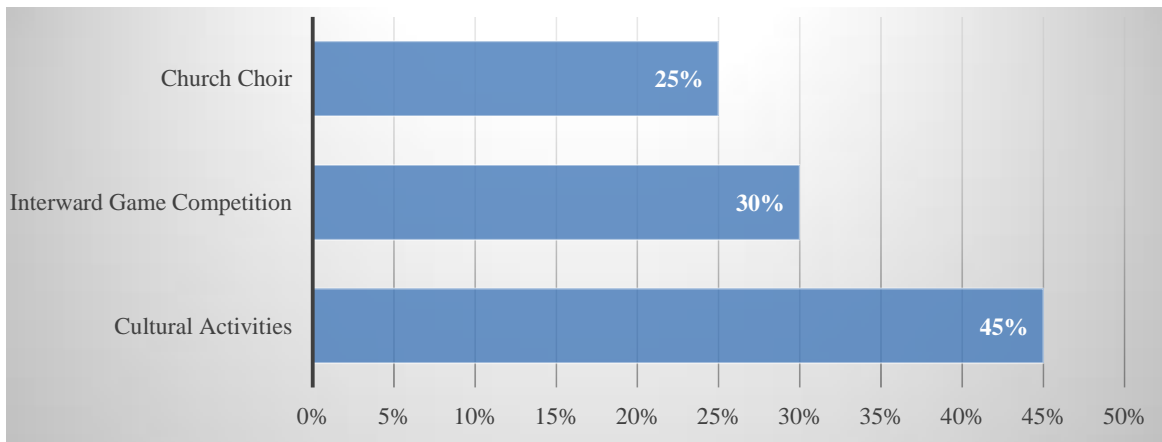
Therefore:

$$n = \frac{8.493}{1 + 8.493(0.05)^2}$$

$$n = \frac{8.715}{1 + (8.493 \times 0.0025)}$$

$$n = \frac{8.493}{22.2325} = 382.0083212 \approx 382$$

The research utilized both primary and secondary data. The secondary data were obtained from textbooks related to the study,



**Figure 1.** Main social activities.

journals, presented conferences papers and government reports as well as the internet. The primary data on the other hand were obtained from the respondents using interview schedules and focus group discussions.

## RESULTS AND DISCUSSION

The first objective of this study was to determine the security implications of oil exploration on social activities in South Lokichar Basin, Turkana County, Kenya.

### Main social activities

The study sought to determine the main social activities according to the opinion of the respondents. The findings are presented as follows.

Figure 1 presents the main social activities in South Lokichar Basin. Majority (45%) of the participants considered cultural activities as a main social activity, while 30% indicated that inter ward game competition was a main social activity in the area. 25% of the respondents participate in church choir as a social activity. The main reasons for these activities were to engage the residents and divert them from prosecuting other activities that would endanger the security of the region. Community elders noted that such activities engaged the youths who would otherwise be tempted to engage insecurity promoting activities such as stealing, highway robberies, cattle rustling among others.

### Effects of oil exploration on social activities

The respondents were asked to indicate if oil exploration affects social activities. Figure 2 presents the respondents' views on the effects of oil exploration. The findings show that majority (70%) of the participants

indicated that oil exploration has an impact on social activities while 30% said No. The respondents also indicated that the rate of immoral activities has significantly increased in the recent years since the advent of oil exploration in Lokichar. The number of youths who engaged in alcohol and drug abuse due to oil exploration in the region had gone up and dismayed the community elders. The respondents also indicated that oil exploration has led to early pregnancy and spread of HIV/AIDs. The findings concur with the conclusion made by Erickson (2008), who established that the exploration project has an impact on social development of marginalized communities, exploration projects has brought negative social impact on marginalized communities.

### Security effects of oil exploration on social activities

The respondents were asked whether they agreed that oil exploration had negative security effects on the security of social activities in Lokichar, Turkana County. Figure 3 shows that majority (40%) of the respondents strongly agreed that oil exploration has a negative impact on social security, 30% agreed, 15% disagreed while 5% strongly disagreed that oil exploration has an impact on social security. The respondents were asked to explain their views and most of them revealed that their ratings were based on the mixture of different workers from different parts of the country. This has led to instances of increased insecurity that the residents believe to perpetrate by individuals from outside Lokichar. The community elders also lamented that they had been displaced from the land and thus affecting their traditional social and cultural activities leading to the urge by youths to raid the oil facilities and reposes their lands. The finding supports the findings in the study carried out by Dean and Brown (2009) who indicated that oil exploration

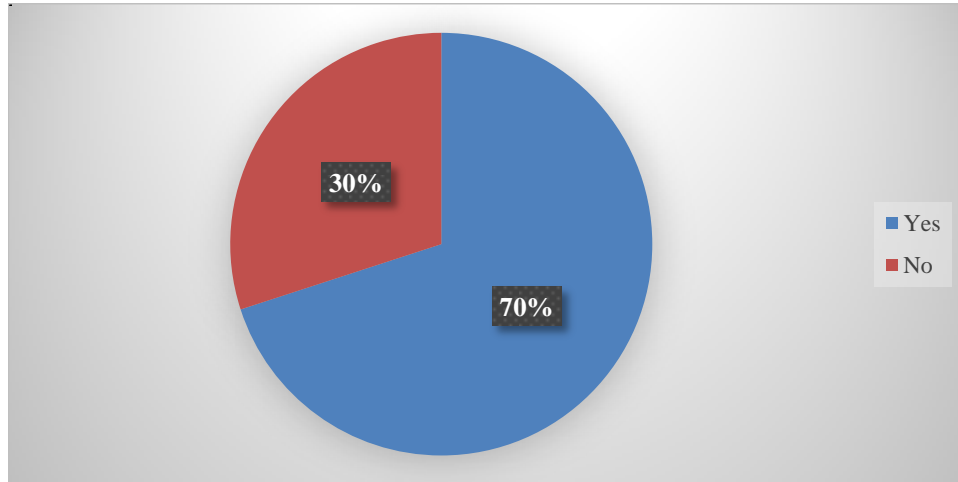


Figure 2. Effects of oil exploration.

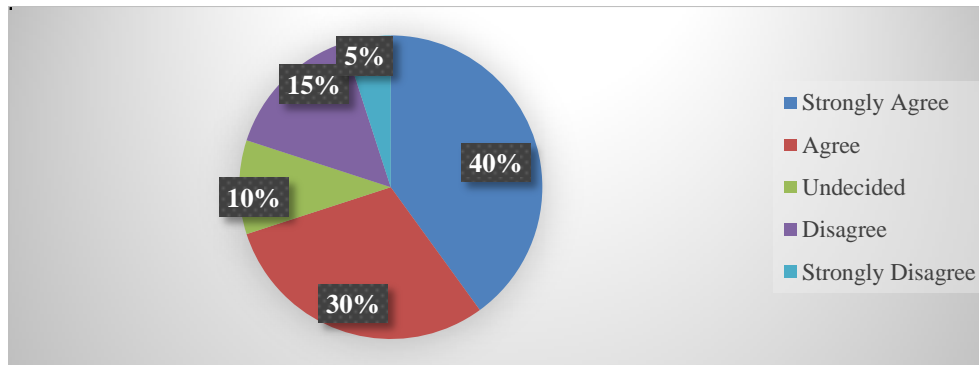


Figure 3. Effects of oil exploration on security of social activities.

project has led to displacement of various communities from their areas of domicile to make room for oil exploration activities. This has made communities to lose their land and their livelihoods, disrupting also community institutions and power relations.

**Significance of security implication of oil exploration on social activities**

The study sought to assess the significance of oil exploration on security of social activities. The respondents were asked; how they would rate the general significance of security implication of oil exploration on social activities among Lokichar residents. The scale of 1-5 was used whereby 1=very significant, 2=significant, 3=neither significant nor insignificant, 4 insignificant and 5=very insignificant; and the findings are as tabulated below:

Table 1 presents the significance of oil exploration on security of social activities in Lokichar. The findings show

that majority (44%) of respondents reported that the security implication is significant, 26% significant while 5% very insignificant. The findings support the study carried out by Gulati et al. (2010) which revealed that exploration projects lead to pollution and damaging of the environment for instance, and also appropriating grazing land for exploration from the marginalized communities who are actually dependent on limited vegetation for their livestock.

**Extent of the effects oil exploration on aspects of social security**

The respondents were asked to assess the effect of oil exploration on security of different social aspects of social security. The scale was on 1-5, whereby 1=very high extent, 2=high extent, 3=medium extent, 4= low extent and 5=very low extent.

Table 2 presents oil exploration effects on security. The findings show that majority (50.0, 34.5 and 42%)



**Table 1.** Significance of security implication.

Variable	Frequency	Percentage
Very significant	125	44
Significant	76	26
Neutral	52	18
Insignificant	20	7
Very insignificant	14	5
Total	287	100.0

**Table 2.** Oil exploration effects on security.

Variable	Very high extent (%)	High extent (%)	Medium extent (%)	Low extent (%)	Very low extent (%)
Cultural sites and practices	24.2	50.0	5.8	20	0.0
Family roles setup	26.5	34.5	14	20	5
Environmental pollution and health risks	36	42	12	6	6
Politics	43	27	10	10	10
Human rights	32	18	22	14	14

indicated that oil exploration has a high extent affecting the cultural sites and practices, family roles setup and environmental pollution and health risks respectively. The findings also show that 43 and 32% of respondents revealed that oil exploration has a very high extent to politics and human rights respectively. The findings concur with the conclusion made by Bloomfield (2008) indicating that oil discovery and exploration in developing countries led to dwindling health status of the people in communities near oil reserves. The findings further supported the assertion by UNEP (2009) that stated that oil exploration of natural resources has the tendency to prompt health risks and that this health risk is more acute in developing countries. The findings also support the observation by UNCTAD (2007) report and Obi (2009) which indicates that participation of transnational corporations in the extractive industries can result in human rights abuses such as the disappearance of people, arbitrary detention and torture and loss of land and livelihoods without negotiation and without compensation.

This study intended to investigate the security implications of oil exploration on social activities in south Lokichar basin Turkana county. The study aimed to fill the knowledge gap from the security management perspective given the fact that most studies in the area of oil discovery in Kenya have focused on the economic prospects.

The study found out that oil exploration had effect on social activities in Lokichar and this was represented by 70% of the respondents. Through the explanations offered by the respondents, the researcher came to the realization that the effects were negative affecting cultural

sites, family roles setup, health, and human rights in the areas. Where the actual effect had not occurred, the respondents opined that there was a high potential of occurrence. Community elders expressed concern that their traditional cultural practices were particularly in danger due to oil exploration activities. To them, certain sites where particular and significant rituals are conducted are now being allocated to oil exploration companies. Such rituals include *Asapan* (passage into elderhood), cultural prayers to *Akuj* (god) during times of crisis or during calamities such as extreme droughts etc and were now threatened since the spaces are being reallocated.

Turkana community is patriarchal with men heading the families. Modernization and income differentiation have seen this social norm steadily changing. Women have taken up leadership roles mostly in politics and they have been employed with decent income. Although it is not explicit, it is implied that they have taken up the roles of guiding the family through making important decisions due to their empowerment. However, a discussion with the community elders indicated that they are not accepting such changes and women are still required to subjugate to men. However, the practice is changing. With oil exploration activities, family roles are bound to changes in certain ways. Firstly, women are bound to get more empowered through employment and thus elevating their social standing. Secondly, divorce rates are likely to increase due to resistance by men to accept such social role changes. Thirdly, single parenthood occasioned by divorces or demises due to STIs/HIV are likely to see majority of women having to raise families singlehandedly. The same could be occasioned through

irresponsible sexual behaviours leading to unwanted pregnancies; a concern bothering the community elders.

Politically, there have been ugly spates of public altercations between the National political leadership and the county political leadership. This was occasioned by disagreements on issues relating to oil revenue sharing. Although the political leaders have since reconciled, the researcher noted that community members were dissatisfied with the terms truce. This is mainly because they view it as a betrayal by leaders who they thought were representing their plight and would fight for the community's fair share. Most of the community members revealed that such disquiet is likely to lead to recurrence of public disagreements and heightened insecurity in the region.

The Extractive Industries Transparency Initiative (EITI) is a global standard that promotes open and accountable management of natural resources. It has been utilized in mineral rich countries such as the Democratic Republic of Congo, Central African Republic, and Republic of Congo among others. It aims at promoting information sharing and tracking of minerals so as to eliminate illegal exploitation and use of minerals and their proceeds. The annual EITI report will inform the public on how much the extractive industry contributes to the economy, and how the government spends such revenues for the welfare of citizens. EITI's multi stakeholder approach also provides a platform for discussion of issues relevant to the governance of the extractive sector, thereby increasing civic participation. Aside from producing information on extractive sector revenues, EITI also promotes transparency across the extractive industry value chain, including information on the licensing process, social development programs at the local level, and processes involving indigenous peoples.

EITI aims to ensure transparency across the extractive industry value chain and foster civil society's meaningful participation in the governance of natural resources. The disclosure of information through the EITI process enables the broader public to evaluate the extractive sector by providing a mechanism by which local communities are able to openly scrutinize the collection and spending of revenues collected by the government from the extraction of natural resources. EITI also enables civil society to assess gaps in existing government systems and provide data – driven recommendations to policy makers.

## Conclusion

Based on the findings, the study concludes that oil exploration has contributed to both positive and negative security effects on socio-economic activities in south Lokichar Basin Turkana County. In particular oil exploration has had negative effects on social activities in the region. From the study, a number of youths have

engaged in alcohol and drug abuse due to oil exploration in the region. Moreover, more youths have engaged in early sexual activities which have led to early pregnancy.

## Recommendations

The national and the county government should take deliberate effort to identify important cultural sites for the community in carrying out their traditional rituals and cultural practices. These should then be mapped and protected under the National Museums and Heritage Act of 2009 (Government of Kenya, 2009). Despite any mineral potential of such areas, they should under no circumstances be appropriated for exploration activities. This will serve to avoid offending the indigenous communities by disrupting their valued cultural practices; an act that can be interpreted as disrespect to the community.

The civil society organizations need to take a proactive role in highlighting instances of human rights abuses by the oil exploration companies, or government agencies. They should take a lead role in advocating for justice and respect for human rights. The CSOs also need to educate the public about their rights so that they are aware whenever exploitation or abuse of those rights occur in the course of oil exploration. This is important in the endeavour to hold oil companies and government machinery to account for and ensure that human rights are upheld

The Kenyan Government needs to adopt and utilize the Extractive Industries Transparency Initiative (EITI). This is a global standard that promotes open and accountable management of natural resources. It seeks to strengthen government and company systems, inform public debate, and enhance trust among stakeholders. The EITI promotes access to information, transparency and accountability in the extractive sector through disclosure and publication of payments made by mining, oil, gas and other extractive companies. In this way the indigenous communities in Kenya can participate in the governance of oil and gas industry.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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