

The Role of Information and Communication Technology (ICT) and Early Warning System in School Security Based System in North Eastern Nigeria

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Abstract- Security in secondary schools is a growing concern in Nigeria. The cases of student unrests have been on the rise especially over the recent years that the country is facing security challenges owing to insurgency in the north eastern part of the country. This paper focuses the role of ICT and early warning security system for schools. The introduction of ICTs into many aspects of everyday life has led to the development of the modern concept of the information society. This paper seeks to highlight the state of insecurity in the country, and the role of Information and Communication Technology (ICT) in the development of an early warning security system in tackling these security challenges. The application of Information and Communications Technology in the development of an early warning system, Actors in the security system, School Security and Surveillance, ICT as tools to tackle security challenges in Nigeria. And finally make recommendations on the use of ICT and EWS in combating insurgency in schools within the north eastern part of Nigeria.

Index Terms- School Security, Insurgency, RFID, Early Warning System, ICT,

I. INTRODUCTION

Security and Crime are major issues at all levels, globally, regionally and nationally. The Institute for Economics and Peace (IEP) compiled a Global Peace Index (GPI) for year 2014 with data collated by the Economist Intelligence Unit (EIU). The GPI is an attempt to measure the relative position of nations' and regions' peacefulness, factors examined include; levels of violence and crime within the country and external relations such as military expenditure and wars. The GPI ranks 162 countries, covering 99.6% of the world's population. Disturbingly, Nigeria ranked 151 out of 162 countries (Global Peace Index, 2014). The current security challenges' facing the nation is deeply embedded in its socio-political and economic institutions over the years. Schools owners and organizations must understand the physical-security challenges with an aim of mitigating them in order to enhance protection of students and business assets. Physical security is that part of security concerned with physical measures designed to safeguard students; to prevent unauthorized access to equipment, installations, material, and documents; and to safeguard against espionage, sabotage, damage, and theft (Department of Army, 2001)

The heartless, incessant attacks on Schools should serve as a tipping point for school security policy restructuring. School

shootings are a rare but terrifying occurrence and the sensationalized media accounts that follow create significant angst in many communities. Most parents trust the education enterprise to teach their children in a safe environment. A comparative study of member states of European Union found out that the rate of insecurity in schools had risen sharply in the past decades by as much as 50-100%. (Hughes, 2004). The situation is not different in Africa. In Lesotho, cases of students carrying weapons, assaulting and bullying each other were reported (Brener, Lowry and Barrios 2005). On April 14th, 2014, boko haram militants kidnaped more than 250 school girls from Chibok in Nigeria's North-Eastern Borno State. In Maiduguri Borno State capital of Nigeria all secondary schools were shut down for two years while in in some part of Yobe and Adamawa State schools were also shut down for more than two academic sessions as a result of insecurity and insurgency.).

The existing security frameworks and practices in many of Nigeria's schools are not designed to defend against the threat posed by an armed intruder (Wargo 2004). There is lack of smart security system in many schools and organizations to secured critical assets. Most schools in Nigeria uses an array of human quads positioned at the gates, bugler proof door and windows, and perimeter wall. Human guards are charged with the responsibility of checking staffs, visitors and student before entry into the school compound, registering and issuance of gate pass, maintaining surveillance along the school perimeter fence and in the compound.

Provision of security, early warnings and quality of detection by human security guards is not effective. Human security guards have no stored log rather depend on their subjective memory. Social prejudices make security staffs vulnerable thus fearing to stop and inspect certain groups of people during regular operations.

This climate of insecurity has seriously retarded, and in places even stopped, the crucial task of educating Nigerian children. Looking at the situation in the north-eastern part of the country, where a new rash of suicide bombing and targeting of teachers and schools has directly put schools in the line of fire, insecurity has cast an even more serious pall. Yet it is impossible to gauge the exact impact of insecurity on education because no one including the government and the United Nations has a comprehensive view of the schools and other educational setting in the area affected by insurgency at any given moment except the case of the Chibok school girls on April 14, 2014 that attracted national and international interest. The security systems in most Nigeria schools are not integrated rather function as

individual entities and as a result lack the desired intelligence to deal with emerging security issues.

If urgent steps are not taken to address this ugly trend, it will negatively affect all indices of development and the quest for the Millennium Development goal for 2020.

Early warning is a major element of disaster risk reduction. It helps prevent loss of life and reduces the potential economic impact of disasters. To be effective, early warning systems need to actively involve the communities at risk, facilitate public education and awareness; communicate and disseminate warnings and messages, and ensure there is a constant state of preparedness. Early warning reveals that these systems have generally been effective in alerting countries and donors to impending food crises in the context of seasonal droughts. However, exceptions suggest that inadequate early warning analysis, together with poor communication and coordination; have often contributed to acute food security, emergencies that could have been prevented (Joseph, 2010).

The purpose of early warning systems is to detect, forecast and when necessary issue alerts related to impending hazard events. In order to fulfill a risk reduction function, however, early warning needs to be supported by information about the actual and potential risks that a hazard poses, as well as the measures people can take to prepare for and mitigate its adverse impact. Early warning information needs to be communicated in such a way that facilitates decision making and timely action of response organization and vulnerable groups (UNEP, 2012)

The Origin of Insurgent Group in North Eastern Nigeria

Currently the nation is witnessing high spate of insecurity especially in the north eastern Nigeria by a group of insurgent called: The Jama'atuAhlus-SunnahliddaAwatiWal-Jihad popularly known as Boko Haram. This group was founded in 2001 in 'Maiduguri' the capital city of Borno State north eastern Nigeria by Mohammed Yusuf the pioneer leader and originator of Boko Haram group. The name Boko Haram is a Hausa statement, which upon translated into English mean "Western education is forbidden". This group is opposed to everything that have link to Western education; its ideologies, and systems. Additionally, "Boko" in Hausa language means western education, and "Haram" is an Arabic language which means "forbidden". Boko Haram group opposes western education and also western culture. In 2004, it moved to Yobe State where it set up a base. This base was used to attack nearby police outposts, burning schools with a vow that the war will continue as long as the political and educational system was not changed. The Boko haram group want the Sharia Law to be applied all over the country and this will be difficult for the government of Nigeria to comply with. They vowed that they would rather have a separate Islamic state carved out of Nigeria where they can practice their religion unhindered. The Federal Government of Nigeria saw these demands as unacceptable, senseless, and as a traits to national stability, peace and harmony in the country, quickly deployed the Nigerian Police to the trouble area. Certainly, in an attempt to dislodge the group of its remote settlement, Mohammed Yusuf the leader of the Boko Haram group was arrested and later passes away in the custody in 2009. Adeyemi (2014) stated that from that 2009 year, and following the assumption of a new leadership headed by AbubakarShekau, the

insurgent group has continue to unlash violence and began what can best be described as the "soft target" capturing of border towns close to the Republic of Cameroon, Chad and Niger, killing un armed patriotic civilian population of north eastern states in Nigeria, forcefully abduction of girls of school age, kidnaping of women, frequent suicide bombing and sporadic shooting in public places.

II. SCHOOL SECURITY AND SURVEILLANCE

Security is the degree of resistance to, or protection from, harm. It applies to any vulnerable and valuable asset, such as a person, dwelling, community, nation, or organization. The use of security and surveillance programs and practices represent only one of the many strategies schools use to prevent crime and promote safety. Schools around the country use a wide variety of strategies to enhance physical security (Trump, 1998) including school-based security guards or police officers, metal detectors, surveillance cameras, locker searches, limiting access to the school building (e.g., locked doors, fences, etc.), increased lighting, duress alarms, student, staff and visitor ID badges, visitor sign-in/out procedures, and marking school property for inventory control, just to name a few.

The following section provides a description of three different studies that examined the prevalence of security activities in U.S. schools. These studies used different samples, sampling techniques, and survey items in their research and therefore are not comparable to one another. The information provided in this section is intended for general descriptive purposes to illustrate the various types of security activities used in schools and the various methods individual researchers have used to examine the levels and types of school security use; it is not meant for the cross-study comparison of percentages of specific security activities used by schools.

Whether security activities actually reduce student fear and improve school safety or have the opposite effect has yet to be determined. Research on the effectiveness of security strategies in meeting their goals and resulting in safer schools is sparse. Only a handful of studies have attempted to evaluate the effects of security technology in reducing school crime or fear of crime. Ginsberg and Loffredo (1993) conducted a study of a representative sample of New York City public high school students in schools with and without hand-held metal detectors. Using self-report surveys, they found that students in schools with and without metal detectors were equally likely to report having been threatened or involved in a physical fight at or away from school. When examining the prevalence of weapons-carrying in school, differences did emerge between the two groups of students. Students in schools with metal detectors were half as likely to report carrying a weapon inside the school building (7.8% vs. 13.6%) or going to and from school (7.7% vs. 15.2%) as students in schools without metal detectors (Ginsberg and Loffredo, 1993). There were no differences, however, between the two groups in self-reported weapons-carrying in settings other than the school (Ginsberg and Loffredo, 1993).

Actors in the security systems

Security system requires a wide range of actors and their roles, responsibilities and actions must be defined in a way that is

compatible with the establishment of sound democratic governance, principles, transparency, and the rule of laws. The following are the actors in the security system of a nation:

- (i) Core security actors: Armed forces, Police, Paramilitary forces, presidential guards, military and civilian intelligence and security services, custom authorities, civil defence etc.
- (ii) Security management and oversight bodies: Executives institutions of national government, national security advisory bodies, legislature and legislative select committees, ministries of defence, internal affairs, foreign affairs, traditional authorities and local authorities, financial management bodies such as ministries, budget offices, financial audit and planning units and chief security officers e.g civilian review boards, public complaints commissions.
- (iii) Justice and law enforcement institutions: Judiciary, justice ministries, prisons, criminal investigation and prosecution services, human rights commissions, customary and traditional justice systems.
- (iv) Non statutory security forces: Private security companies, political party militias, private armies and body guards units (Snow, 1987).

III. ROLE OF ICT AND EARLY WARNING SECURITY SYSTEM

The United Nations proposed an early warning ICT security system for North east Nigeria as part of fighting insurgency and reporting any suspicious person before any attack could be carried out by terrorists. The UN says it will set up "ICT-based Early Warning Systems" in Borno and other states in the North East to ensure rapid response to activities of Boko Haram. DrDaoudaToure, the UN Resident Co-ordinator, pointed that, at the ongoing screening of Boko Haram victims for a one-year skills acquisition programme. He said the project would also enable victims of Boko Haram to access help promptly. Toure said the ICT-based system, when installed, would allow people to send real-time incidents which pose threats to the society to a central control room through imaging, SMS and e-mail. The UN official said the information would then be retrieved, analysed and responded to within minutes. "Part of the programmes we (UNDP) are planning for Borno and the North East is to have the ICT-based Early Warning System. "ICT early warning system is a system that is ICT-based like it is called. "You can send SMS to that system, you can send video imaging to that system, you can take your photograph and send to that system and it will be there. "So, people will be able to see and analyse. "Toure, represented by Matthew Alao, UNDP's Conflict Prevention and Peace Building Analyst, said to win the war against insurgents, people must be actively involved in the provision of intelligence. He said people must be given the opportunity to report suspected activities anonymously, in order to remove the fear of being identified. The UN official noted the concerns about false alerts, but pointed out that cases of false alerts were negligible while genuine ones were usually much more. "You have to evolve an initiative that will give people opportunity to report incidences of

conflict and violence or incidences that can resort into violence or activities of this Boko Haram insurgency. "So that's why we want to set up an ICT-based early warning early response system. "As long as you have the code, the SMS short code, the e-mail, all the necessary information you need to have to send to the server, the control staff will retrieve it. "The operation staff will also act on it by sending such messages or alerts to the nearest police post or the nearest security post to go and bust such conflict or crisis that is brewing. "It's a unique one, because all that is required is government commitment at the highest level of the Security Council of the state. "Anything like this, because of the hierarchical nature of security agencies, somebody must give directive, not individuals. (Vanguard,2015)

In the past, Nigeria law enforcement agents were at least able to contain some of the security challenges they were faced with. The situation today is totally different with the availability of Internet-based data-exchange applications. While in the past, law enforcement was confronted with mostly physical and traditional paper-based evidence and reports, today the vast majority of discovered material is digital. Information and Communication Technology is defined as technology that will facilitate communication and the processing and transition of information by electronic means (Adelekan, 2008). Bamiro (2011) defined ICT as the use of electronic devices for sending-out, storing and receiving information. Information and communications technology is an umbrella that involves any communication application or device, encompassing; television, radio, satellite systems, cellular phones, computer hardware and software. According to Aliyu (2007) information and communication technology is the use of computers and other electronic equipment for storing, analysing and sending out information that are necessary for the purpose of acquiring and sending out information, ideas, skills, knowledge, attitude, beliefs and feeling with the aim of bringing about particular changes in an individual. Information is the fact about a person, group, event, situation, company, country (Adelekan ,2008). Communication is the process of passing information from one person or group to one another. When the communication process makes use of devices and systems which transmit electronic or optical signals over long distances, it is more appropriately referred to as telecommunications. The methods and devices used in gathering information and communicating it are all included in the ICT. The ICT process has changed social relationships between mankind for the better, so it is applicable to security.

The pervasiveness of ICT has brought about rapid technological, social, political and economic transformation, which eventuated in a network society organized around ICT (Yusuf, 2005).

- ❖ It provides real opportunities for security personnel's.
- ❖ It strengthens and provides opportunities for connection among the countries of the world.
- ❖ ICT provides opportunities for security personnels to communicate one another through e-mail, SMS, radio phone, web .etc so as to provide information

concerning security situation in the country.

- ❖ It also provides quicker and easier access to more extensive current information that can be used to carry out security operations.
- ❖ It provides security operatives with a steady avenue for the dissemination of security reports and findings.

The use of ICT's to combat Nigeria's school security problems represent an important area for harmonization and collaboration amongst various Government bodies and security agencies in the country. Crime and security issues are borderless and it must be recognized that as a country with multiple ethnic and religious groups, these issues require cooperation in technology deployment, human capacity building in the use of ICTs and financial resources.

IV. ICT AS A TOOL TO TACKLE SECURITY CHALLENGES IN NIGERIA

Security threats, concerns and other challenges in the country are multi-dimensional in nature and scope. Traditionally, crime and security establishments throughout Nigeria have operated largely bureaucratic, paper based an institution which has stifled the process of information sharing, it is therefore important to recognize that the traditional ways of meeting the challenges need to be expanded to encompass new non-traditional threats. The use of ICT is slowly emerging as one response to critical issues faced in the country. As such there are a number ICT implementations beginning to take shape in response to incidents that have affected the country which will lay the foundation for further evaluation of regulatory mechanisms for handling crimes in the country some of them include: Automated Fingerprinting Information Systems (AFIS) e.g. the introduction of the fingerprint authentication system during JAMB examination registration and election process, Mobile Banking, Global System for Mobile Communication in almost all parts of the country, Use of Geographic Information Systems, e-commerce etc. Also, various sectors of the crime and security forces have been moving toward the implementation and use of ICT technology such as the Public Security Communications System (PSCS) to install CCTV cameras in Lagos and Abuja, to monitor crimes and address criminality in order to assist the police their efforts (Emma, 2013). However, there is a question/problem of the sustainability of these ICT interventions /projects after their introduction. As most of the qualified ICT professionals who can handle them prefer to migrate to more developed countries.

Automatic Identification and Data Capture (AIDC) refers to the methods of automatically identifying objects, collecting data about them, and entering that data directly into computer systems (i.e. without human involvement) Wen (2010). Identification of persons is always important in places like Airports, railway stations, theatres, School environment etc. Identification can be made automatic using Auto-identification. There are various methods for auto-identification. Radio frequency identification (RFID) is a wireless technology that can be used to develop the

access control system. The literature has revealed the use of this technology to automate various processes ranging from industrial sector to home control (Winet- ael, 2009). Yan (2009) has reported the use of RFID technology to automate sight spot ticket management system. The system hardware consists of RFID electronic tickets, RFID readers, computer terminals, optical networks, computer servers and site controllers. Electronic ticket contains the S-DES encrypted form of data including scenic region number, scenic spot number, ticket type, ticket date, site number, serial number and check bit. The RFID reader at the site reads the data inside the e-ticket and transmits it to the computer terminal and servers through the network. The data is decrypted at the terminal and its authenticity is verified. The site controller then allows the right tourist to enter the spot.

Automatic identification and access control system has become necessary to overcome the security threats faced by many schools and organizations in North-East Nigerian due to insurgency. By installing the system at the entrance will only allow the authorized persons to enter the organization. The system can also be installed at various points inside the organization to track the person's movement and to restrict their access to sensitive areas in the organization. In such a way, suspicious persons can be caught which will surely improve the security level and early warning in the organization.

Contribution to Knowledge

- ✓ The study has drawn the attention of North Eastern governors forum and the federal government to see and response to the security challenges faced by schools in their region.
- ✓ The study has drawn the attention of the government to understand that human security guard is not enough to provide adequate security to students in north eastern Nigeria.
- ✓ The study has also outline the need to develop and install ICT Early Warning System to inform and alert security agencies of anything suspicious.
- ✓ The study also provide vital information to other researcher who will like to conduct study on school security in north eastern Nigeria.

V. CONCLUSION

Insecurity in the north eastern part of Nigeria has displaced over one million children and has deprived them basic education (NEMA 2016). It has also become a threat to the entire country. The book haram insurgency in north eastern Nigeria as slow down the nation ability of achieving the Millennium Development Goals Project (MDGs) Education for all, and as well as Nigerian Vision 2020 program. With the development of ICT EWS in school environment, it will help to curtain some of the insecurity problem and provide a safe learning environment. Fatherly, the current joint Tax Force (JTF) by the Nigeria government and African union to end insurgency have recorded a tremendous success under the lead administration of President MohammeduBuhari, however we concluded that ICT has also played a vital role in the fight against insurgency and should be fully supported in school security.

Recommendations

It is recommended that

- The federal government should install Early warning ICT systems in schools in north east region of Nigeria to provide security and safety of students and staff.
- The federal government should implement the use of RFID security based system to identify intruders and terrorist outside and inside the school premises.
- The federal government should show higher commitment in equipping the armed forces with ICT security system in mobilizing them to north eastern Nigeria for providing security in schools.
- The federal government should pay more attention to founding of ICT, so that it can be of greater help tools in monitoring security system
- The federal government should properly make use of ICT in providing security for schools.
- The school host community people should be encourage to support school on security issues as to disseminate information to the security forces via ICT.

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