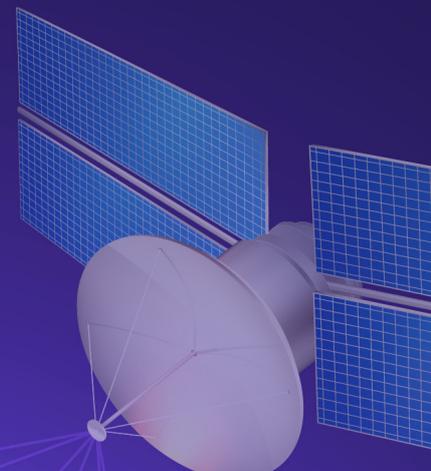




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Geospatial Intelligence Training Concept for Terrorism Surveillance, Nigeria to Infusive Sub-Saharan African Countries

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ABSTRACT

The wave of insecurity, terrorism, kidnapping, killing, and shooting of innocent citizens, as well as environmental destruction due to terrorism in Nigeria is of great concern to governments, security operatives and the civil society. Life now means nothing to terrorists operating in the region, as hundreds of people are kidnapped or killed every day. Information about these crimes and atrocities virtually end up on social media with heart breaking photographs, thus bringing down the dignity of man on earth. This paper proposes a geospatial intelligence framework for terrorism surveillance (GIFTS) so that terrorists' activities in Nigeria could at least be digitized on crime maps, and published as an outcome of surveillance research. The framework will enable scholars designated as research associates from Federal University of Technology Owerri (FUTO), and those from 5 other universities in Nigeria to acquire geospatial intelligence and engage in surveillance research extended to selected sub-Saharan African countries. This will be the first of such framework in the region, adaptable by any institution or organization worldwide. Sadly, Nigeria spent millions of dollars sending micro satellites into the orbit, but most regional researchers do not have access and capacity to use the imagery data and information. This model therefore will have state of the art tools to build geospatial intelligence capacity among scholars, government agencies, police and the military, using training modules on 12 project areas.

INTRODUCTION

Geospatial intelligence is a product of geospatial technology, it is a peculiar knowledge that can be acquired or developed by scholars who work with geospatial data from acquisition, processing to analysis (Fig. 1a & b). Many Nigerian scholars are into research involving geospatial data, and in most cases, the outcomes of these researches lack geospatial intelligence (Fig. 2a & b). This in no small measure brings down research visibility of Nigerian scholars in the global academic community. Lack of geospatial intelligence has prevented scholars from researching certain critical social problems relating to security, man-made and geo-hazards. It is therefore imperative that training on geospatial knowledge acquisition, in other words called geospatial intelligence (GeoInt) be promoted worldwide and not excluding Nigeria and sub-Saharan Africa. In this paper, geospatial intelligence stand as the basic tool for surveillance research; mapping and studying cases of terrorism and environmental hazards in Nigeria, extended to five linkage countries in the sub-Saharan Africa.

Geospatial intelligence was initially started as a working tool of the US military to survey and access human activities in the world. The tool was later acquired by European countries and other technologically advancing countries in the world, making the tool no longer about military only. The academia, professionals and the civil society need this knowledge to keep track of what happens around them in the modern society. Nigeria, a country of 36 states and the federal capital Abuja (Fig. 4), is far behind this knowledge. Most of the states are fully besieged by terrorists drawn from different parts of Africa, and only a

holistic approach such as surveillance research based on a Geospatial Intelligence Framework can bring the desired impacts. The goal is to improve geospatial knowledge of scholars and enable state of the art research outcome on insecurity in the region overwhelmed by terrorism and environmental destructions. In the long run, this will bring Nigerian scholars and their universities to global research visibility, which is presently constrained but remains the target of every university. Quality of maps and graphics in a research paper ranks the paper, and geospatial intelligence will help manage security challenges and improve the quality of maps and graphics in the regional research publications.

How our proposed geospatial intelligence framework will extend surveillance to target states in Nigeria (Fig. 4) and institute a surveillance research network, and how scholars and practicing professionals can be exposed to the knowledge of satellite and radar imageries, as well as Geographic information science (GIS) and classical analytical software tools is our major challenge. To subdue this challenge, we started by forming a geospatial intelligence research team (GIRT) in 2019 in the School of Environmental Sciences. Geospatial intelligence can be described as the integration of GIS and Satellite imagery knowledge to obtain information about a remote target. The original idea was for GIRT to build geospatial intelligence capacity among faculty and post-graduate students in the School of Environmental Sciences, extended to other schools in the university. Due to the present wave of insecurity in Nigeria, often linked to nearby regional countries, GIRT is now transformed to Geospatial Intelligence Framework for Terrorism

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surveillance (GIFTS) research in the region. We plan to acquire state of the art mapping drones (Fig. 2a and 2b) to enable survey of large areas at a fraction of time, cost, and effort. Surveillance research allows data collected locally by drones, regionally on satellite and remote sensing platforms to run through GIS and emerge into

full digital maps. This is made possible on software platforms such as: COLMAP, obtainable from GitHub; WebODM, product of Open Drone Map since 2017 and MeshRoom, obtainable from binaries of MeshRoom. GIFTS will use drone operations and exploitation and perform advanced data analytics on UAS acquired data

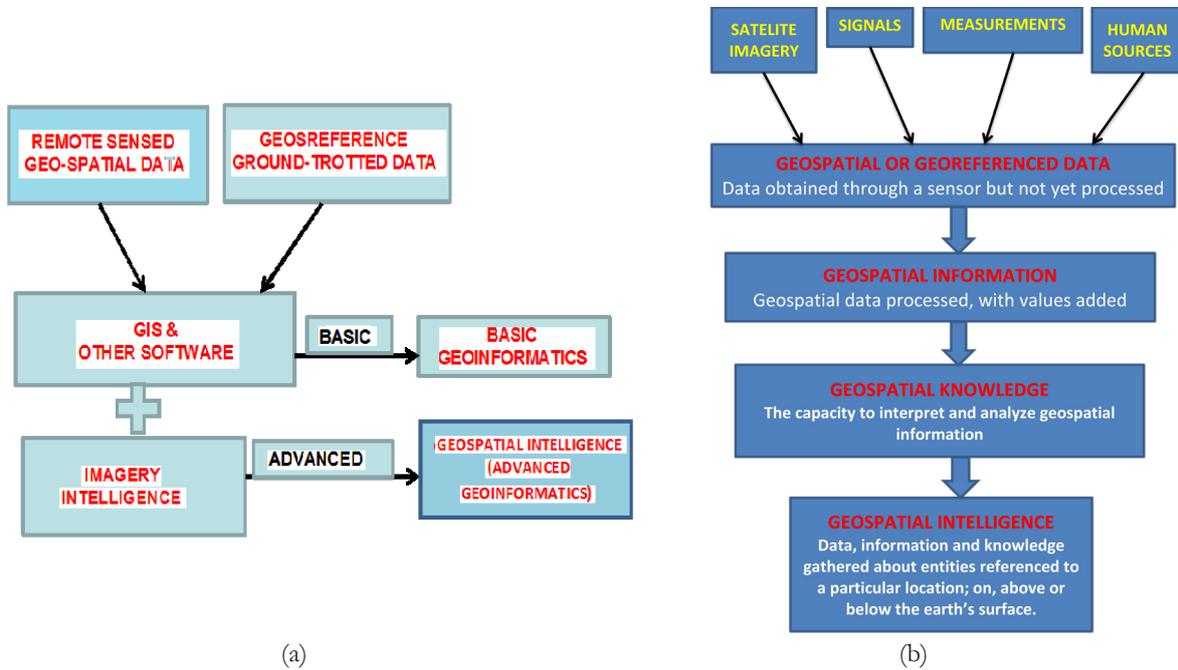


Figure 1: Digital Processes leading to Geospatial Intelligence



Figure 2a: Professional mapping Drones from GIDI Drones Nigeria Ltd



Figure 2b: Aerial Vantage Drone Geoint Washington DC, 2022

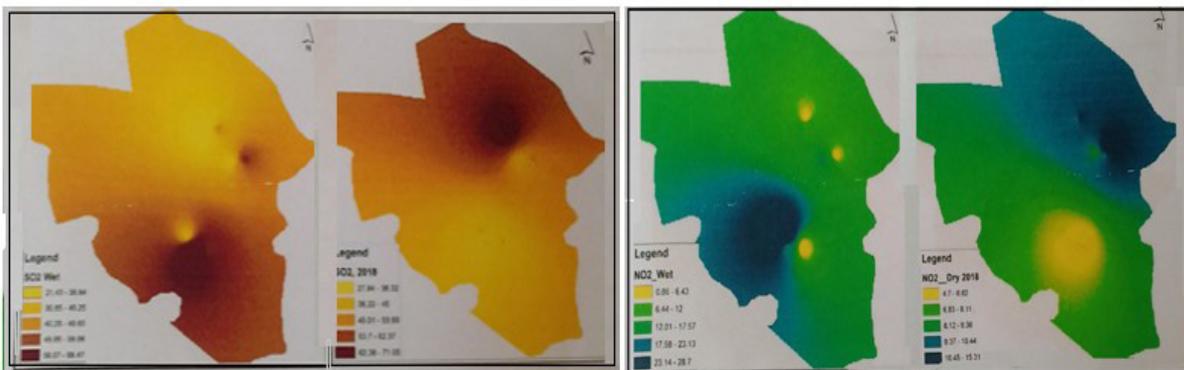


Figure 3: Spatiotemporal variation of SO2 (ppb) Spatiotemporal variation of NO2 (ppb)

including artificial intelligence (AI) and machine learning (ML) to generate and store information on terrorism at

every collaborating center. The lack of geospatial intelligence manifests also in

research reporting with scholars still presenting hand drawn project maps and graphics. Some of them use old maps produced with analog tools and use hands to effect positions. Some use computer tools of low precision other than GIS and remote sensing, with no practical knowledge of GIS and satellite imagery. Many of the few who have access to GIS lack geospatial intelligence to manipulate their data into an informative outcome. On the whole, only very few scholars working on geospatial data have geospatial intelligence to present acceptable maps and figures. What magic could such researchers perform if they do not also have access to necessary remote sensing tools, notwithstanding that Nigeria spent millions of dollars sending micro satellites into the orbit? The truth is that most researchers in Nigeria do not have access and capacity to use the imagery data and information but such capacity can now be acquired at GIFTS research center in this wave of terrorism. Below is a typical example of the quality of GIS map based on geospatial data, confirming lack of geospatial intelligence by the author

The above figures are supposed to be informative, but are incomplete, due to lack of:

- Locations and identity
- No scale shown
- No coordinates shown
- Data source accuracy is in doubt.

Above problem is challenging to the GIFTS research center, and when added to the problems of insecurity and environmental destructions prevalent in Nigeria, the ideas of this GIFTS becomes highly justified. The primary aim is to have a GIFTS in FUTU extended to five other universities located in the five other zones in Nigeria where scholars designated as research associates could collaborate with others from infusive sub-Saharan African countries to improve their geospatial knowledge and foster terrorism surveillance in the region. Coordinating these research associates and some expert professionals within the region and from other parts of the world to counter terrorism through surveillance research is part of what is required to save humanity in this part of the world, believing that the United Nations will see the need to intervene on account of human rights of existence and justice. Each GIFTS center will have an initial 120 research associates to constitute a geospatial intelligence network for the region. It is expected that the early trainees will acquire geospatial intelligence, and will in turn train others who will also impart the full knowledge to security officers; the military, police and others. This Capacity building program is very important and urgent in Nigeria, and can be achieved in the region within 12 and 24 months if fund is accessible. The good thing about this program is that the center will be sustainable by itself when fully equipped and operational.

Surveillance Research

The wave of insecurity, terrorism, kidnapping, killing, gun battles between security operatives and terrorists groups, as well as other environmental destructions in Nigeria

is of great concern to environmentalists, governments, security officers and the civil society. Life now means nothing to terrorists operating in the region, as hundreds of people are kidnapped or killed every day. According to Dokua Sasu (2022), Nigeria has one of the highest terrorism threat in the world, with a terrorism index of about 8.3. Sasu stated that several militant groups exist in Nigeria attacking and killing civilians without sparing the military and the police. Boko Haram he said is the deadliest, followed by their splinter group called Bandits and the Fulani herdsmen. The states most affected by Boko Haram and Bandits are Borno, Kaduna, Adamawa, Plateau, Bauchi, and Niger. The states most affected by Fulani herdsmen are Benue, Zamfara, Ebonyi, Kogi, Taraba, Ekiti, and Kwara, while states under siege by the unknown gunmen are Imo, Anambra, Enugu, Ondo. Other states not mentioned are still not exonerated from the wave of crime in Nigeria. In effect, 21 out of 36 states and Abuja are now in the hands of deadly terrorists groups. Often Boko haram and their rival terrorists SWAP, engage in gun battles, killing themselves and innocent citizens.

Information about these crimes and atrocities virtually end up on social media with heart breaking photographs showing how human beings are slaughtered, but not properly documented for record purposes. We are therefore introducing surveillance research with GIFTS as a new line of research where researchers can use surveillance tools to investigate, monitor and study crime events in the environment and society. Surveillance research goes with geospatial intelligence and can be applicable to various targets to generate geospatial data. Two factors preventing surveillance research in Nigeria are the lack of geospatial intelligence tools and the knowledge, and the two are what this center is designed to overcome. In this paper, surveillance is presented as different from research. The center will rather combine research with surveillance, using surveillance data to simulate research, evaluate existing crime control measures, monitor changes, and facilitate planning. Surveillance data can be used to estimate the magnitude of crime, environmental destruction and hazards which can help generate a research hypothesis. This has made surveillance research approach stand independently different from normal research. In this case, it is a research to save human existence from the killing hands of terrorists in this part of the world.

According to Baber (2018) Geospatial Intelligence is defined by the U.S. government as “the exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the earth” Geospatial intelligence consists of imagery, imagery intelligence, and geospatial information and the skill to manipulate them into something informative. The term geospatial information refers specifically to information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the

earth and includes (A) statistical data and information derived from, among other things, remote sensing, mapping, and surveying technologies; and (B) mapping, charting, geodetic data, and related products. There have been notable updates to this definition in more recent years, endeavoring to capture the essence of Geospatial Intelligence in practice.

One academically-developed definition describes Geospatial Intelligence as “actionable knowledge, a process and a profession, the ability to describe, understand, and interpret so as to anticipate the human impact of an event or action within a spatiotemporal environment, also the ability to identify, collect, store, and manipulate data to create geospatial knowledge through critical thinking, geospatial reasoning, and analytical techniques”

The Future of Geospatial Data

In a comprehensive report presented by Ball Aerospace *et al.* (2018) the team explored the uses of geospatial data in retail, health care, financial services, and transportation/logistics. According to them, “innovation and cutting-edge research and development (R&D) in the field of geospatial data, geospatial science, and analytics continue to yield new ways to incorporate geospatial data into new arenas and offer solutions to today’s most challenging problems” They confirmed that companies and academic institutions across the world are investing in developing geospatial technologies that will further extend the use of this valuable data outside traditional markets, but this is not the case with most countries in the sub-Saharan Africa. According to them, “The fields of remote sensing and mobile drone platforms/sensors are expanding rapidly and providing consumer markets new levels of persistent and targeted geospatial data previously available only to the military and intelligence agencies” Furthermore, they described geospatial data as a critical element to the operation of drones and small autonomous spacecraft, while numerous R&D activities are providing more accurate data to these platforms, thus enhancing their overall performance.

The team further expressed that “surveillance research has become a critical element in developing artificial intelligence (AI) and machine learning (ML) technologies” However, the understanding of these technologies in sub-Saharan Africa translates to greater challenge than in most other regions.

AI innovations offer groundbreaking ways to perform topological data analysis, spatial analysis, change detection, and feature selection, and geospatial data is also one of the foundational elements of virtual reality (VR) development all of which are yet to be integrated into research in the region. There is urgent needs to use geospatial data related to insecurity, demography, and environmental destruction to inform policy-making by government and activities of security operatives in the region.

LITERATURE REVIEW

Insecurity in Nigeria according to Obi (2015) “include activities of Boko haram and Bandits such as bombing, suicide bomb attacks, sporadic shooting of unarmed and innocent citizens, burning of police stations, churches, kidnapping of school girls and women, and not excluding kidnapping, rape, armed robbery and political crises, murder, destruction of oil facilities by Niger Delta militants alongside the attacks carried out by Fulani herdsmen on some communities in the North and South” According to Tanko Aliyu of BBC News 19 July 2021, Nigeria insecurity is hinged on 3 persistent life and property destructions threats; 1. Jihadism championed by Boko haram and caused death of about 350,000 people by end of 2020 and displaced millions from their homes following UN report. 2. Clashes between herdsmen and farmers resulting to killing of thousands of rural dwellers by armed herdsmen over grazing land. 3. Banditry and kidnapping, resulting to one of the scariest threats for families in Nigeria when thousands of school children and ordinary citizens become abducted and only released after millions are paid as ransom or killed.

Geospatial intelligence is the ability to present knowledge in a way that is appropriate to the decision-making environment (Bacastow and Bellafore, 2009). An industry-based definition indicates that “GEOINT” is the professional practice of integrating and interpreting all forms of geospatial data to create historical and anticipatory intelligence products used for planning, or that answer questions posed by decision makers” (Murdock and Clark, 2016). Collectively, data capture, visualization, and analysis for decision support are key elements of these definitions. Further, it’s notable that military, defense, and intelligence applications are not explicitly described within these definitions. From the University of Southern California website, while geographic information science (GIS) requires specialized knowledge to succeed, the discipline is full of varied opportunities. Geospatial intelligence represents one of the dynamic areas where professionals can further evolve their GIS careers, pursuing opportunities with the government, military or with humanitarian organizations. Nwachukwu (2018) presented a Mathematical Approach to Measure Academic Visibility in Universities and highlighted that the lack of geospatial intelligence affects the quality of maps and graphics and not excluding data acquisition methods, thereby preventing Nigerian scholars and their universities from global visibility. Fajemirokun *et al.*, (2006), declared that due to lack of adequate and modern technology and sufficient manpower having geospatial intelligence, the Nigerian security agents have not been able to effectively tackle the issue of crime in Nigeria. This has led to the formation of community vigilante groups. They described GIS as a tool for effective crime mapping and management. In their study of groundwater prospects in Imo River basin, Nwachukwu *et al.* (2013), used Geographic Information

System (GIS) to model geospatial data acquired from electrical resistivity and direct well measurements to show groundwater prospect in Imo River basin. The result showed areas of high, medium and low prospects correlating with the local geology, and presented a case for sustainable groundwater development in Imo River Basin.

Pranav Kedia (2016). Conducted crime mapping and analysis using GIS to show area of crime hotspots, areas deficient in security outfit, areas requiring constant police patrol, time and days when citizens face the maximum crime and of what type. Argun and Murat (2016) explained that development in technology and the accessibility of geographic data sources make it feasible for police departments to use GIS in crime mapping. Nwachukwu *et al.*, (2017) stated that abandoned borrow pits and their associated risks are on the increase in Nigeria. They insisted that borrow pits should be reclaimed soon after use, to prevent their use as crime hotspots. Further, they advocated the use of drones for surveillance mapping over abandoned borrow pits, quarry pits, and erosion gullies suspected to be crime hotspots.

Amangabara, *et al.* (2017): presented an assessment of the suitability of some sites for Aquaculture Development in the Onitsha Sub-basin of southeastern Nigeria using GIS methods but an improvement to this study will require the use of satellite imagery. It should also be recognized that there is often considerable overlap with application areas of Geospatial intelligence to the broader academic/professional geospatial field. Areas of overlap include examples such as climate change (Crosiar, 2015) and humanitarian crisis mapping (Stack, 2017). Andrew Helen (2019) and the 7th report of the European Union Committee on civilian use of drones listed several applications of drones to include security surveillance as part of geospatial intelligence.

MATERIALS AND METHODS

The center will establish a laboratory as a regional geospatial information service center, maintain ArcGIS, and install remote sensing and statistical software to include;

ILWIS - Integrated Land & Water Information System
 ENVI (Environment for Visualizing Images);
 PCI Geomatica- Processing earth observation data and
 ERDAS IMAGINE

JUMP Statistics – World famous statistical analysis software shall be installed to discourage use of stuff like Excel. The center will seek linkage with world geospatial intelligence experts.

The center will engage some industry based specialists for online and center based training using well prepared training modules. The capacity building framework is as shown in figure 4, and can be copied by any higher institution in sub-Saharan Africa to foster surveillance research and counter terrorism in the region with minimum funding. With partnership, GIFTS will focus on regional security challenges under surveillance research

using training modules as summarized under discussion.

Explanation of GITC Framework

The center has 40 registered research associates from FUTO, 100 from other universities selected in Nigeria, 20 from the industry and universities outside Nigeria, and 40 research assistants and technologists. These are people to receive the initial training and who will then train others. The ideas of this center is incorporated into a theoretical framework representing a research project (Figure 4). Details of the research framework or project as presented is self-explanatory. Arrows have been used to explain the direction of projects and their interface, including final collaboration with geospatial intelligence experts or agencies in advanced nations to complete a network for surveillance research and training in the sub-region. The states numbered 1-20 in the map are the target states, with number 1 as having the highest human killing and kidnapping for ransom and 20 about the least, in that order. Any institution can afford to adopt GIFTS as presented to foster surveillance research and counter terrorism in the region. Without many GIFTS established and collaborating across the region, the country Nigeria will cease to exist. Listed in the framework are 12 training modules specifically designed to bring about the center's most needed capacity building areas? Content and characteristics of each module is hereby presented under discussion.

GITC Network

A primary objective of this paper requires the adoption of GITC in six universities in Nigeria. The six universities will be located in northeast (NE), northwest (NW), north central (NC), southeast (SE), southwest (SW), and south-south (SS) zones of the country as illustrated in figure 4. The university of Origin; the Federal University of Technology Owerri (FUTO), is located in the SE and designated as zone A. University of Calabar, zone B will coordinate surveillance research in the SS. University of Ibadan will coordinate SW zone C, Nasarawa state University will coordinate NC zone D, while Usmanu Danfodiyo University Sokoto will coordinate the NE zone E, and University of Maiduguri coordinates NW zone F. This arrangement is capable of instituting a network of surveillance research to counter terrorism in Nigeria which is already beyond the control capacity of the country. We are calling on the world powers to come to our rescue; save Nigerians from the killing hands of these terrorists groups. United states and the European Union and the entire world under the United Nations should not keep quiet as though nothing is happening and as if the hundreds dying every week are no human beings. Are there no more world leaders investigating activities of Islamic extremists whose stalk in trade is to kill, kidnap Christians including the priests, and burn down churches?

RESULTS AND DISCUSSION

Mapping Land use and Urbanization

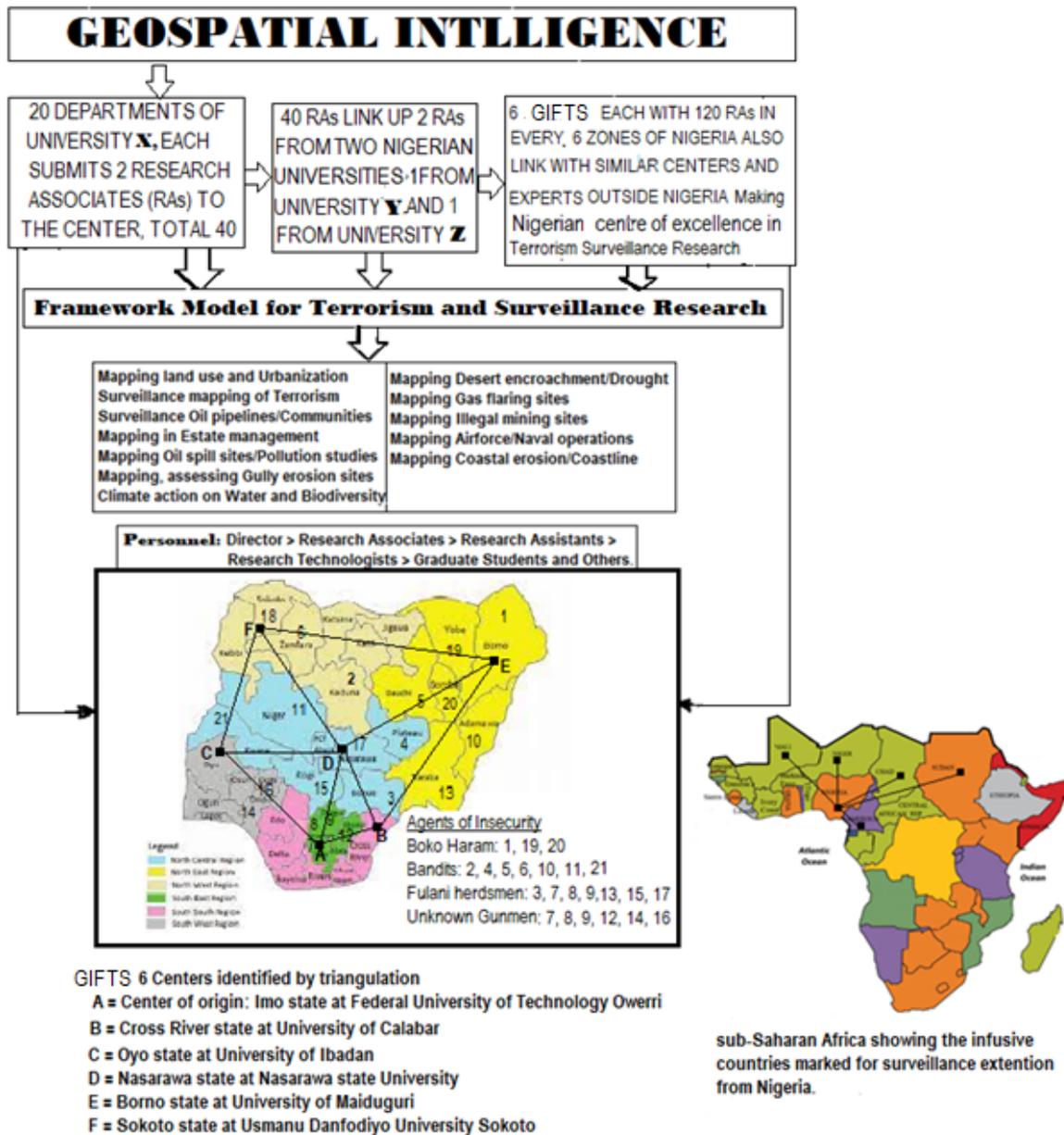


Figure 4: GITC Framework

This module will explain how geospatial intelligence can be applied in urban planning, mapping transportation routes; roads and rail tracks ahead of their development and usage. Identification of land areas for agriculture, forestry, markets, schools and hospitals ahead of time of development and in line with the principles of sustainable urban and regional planning are vital aspects of this training module. How surveillance research can be conducted over rail lines and major highways in Nigeria will be priority in this module.

Mapping of terrorists’ camps and operational hotspot

Terrorists’ camps, including kidnappers’ dens must be investigated and under surveillance. Hundreds of people are being kidnapped on daily bases across the region, and while half may be released after ransoms, half others are killed or buried alive. This act of inhumanity by persons

who identify themselves as terrorist groups such as the Boko Haram, ISWAP, Bandits, Fulani herdsmen etc., must be under surveillance research to expose and curb their activities. This module will contain details and methods of surveillance research on terrorist camps in Nigeria

Surveillance over oil pipelines and communities

Surveillance research will be extended to the protection of oil and gas pipelines and installations in the region. This facility has in recent times suffered vandalization by terrorist groups who often cause explosion of pipelines, spillage and resultant environmental degradation. Land and water bodies get polluted, affecting aquatic life and ecosystem loss. A training module on the application of geospatial intelligence to monitor pipelines will be handy.

Surveillance over industrial and residential estate

Crime waves; abduction, killing, arm robbery and raping

in urban areas across Nigeria is now too much to be ignored. Many residential estates are now unsafe for human dwelling following cases of robbery, kidnapping, killing and rapping associated with such estates in urban and semi-urban areas of the region. Perpetrators of such evil are often not permanent in one country. They commit evil in country A and will escape security operatives to hang out in the next country B only to return to Country A again after sorting out or could move to country C when B is no more comfortable. Along, such criminals go ahead with their crime which in most cases capitalize on drug pushing. Geospatial intelligence can be applied to track criminal excesses and drug pushing in urban areas in this training module.

Mapping oil spill sites and Pollution studies

Geospatial intelligence is applicable in the investigation and mapping of pollution sites. Open dumping of domestic and industrial wastes as well as transferred toxic wastes dumping along the Atlantic coast of West Africa are all major environmental insecurity in the region, causing pollution of land, air, and water resources. It also lead to insecurity of food products. Waste dumping on land or along the coastline is hazardous, and there is every need to monitor coastlines and land for dumping of hazardous wastes. Several oil spill sites exist in the Nigeria Niger delta areas often the handiwork of terrorist groups who target destruction of oil and gas installations. Such brownfields also need to be investigated, properly documented for possible remediation and policy decision making. This module will be designed to offer knowledge in these areas using geospatial intelligence.

Mapping and surveillance over Gully erosion sites

Gully erosion sites are wide spread in the region without record of locations, history and extent. Geospatial intelligence can be useful in mapping gully sites, since gully sites have been identified as criminal dens; kidnapers hide out and hazard areas to farmers and other roaming animals. It destroys arable land thereby causing food scarcity and insecurity. How gullies can be mapped, and subjected to surveillance research will be part of this training module. Best management practice to remedy and control gully erosion will be added.

Mapping impacts of Climate Change on water resources and biodiversity

Geospatial intelligence is applicable in the mapping of climate change impacts on water resources and biodiversity. Most streams and lakes in the region have declined. For example, Lake Chad which was 25 km² in the 70s is only 5km² today. There is ecosystem decline, resulting to loss of aquatic life and other organisms which amounts to another aspect of life insecurity, calling for surveillance research. With geospatial intelligence, a comparative specie analysis of birds and other organisms available today and those that were available 50 years ago can be carried out and duly integrated in this module.

Mapping Desert encroachment and Drought

Northern Nigeria and other northern areas of the sub-Saharan Africa are largely impacted by desert encroachment and there is no record or data about the rate and extent of spread collectively. It is possible that individual country is tracing desertification within its boundary, but geospatial intelligence can be used to understand events of desertification in the region. Environmental hazards associated with the desertification also comes under surveillance research. For example, loss of grazing fields resulting from desertification has made Fulani herdsmen in Nigeria to move southwards along with guns and other dangerous weapons to force gracing on farm lands in the south, thereby instituting violence and killing of innocent farmers on their farms. Again, near surface groundwater system typical of the igneous basement areas of the north have seen drought, resulting to decline of tube wells and water scarcity. These and more are issues to include in this training module.

Mapping Gas flaring sites and illegal mining and oil and gas activities

Too many gas flaring sites exist in the oil and gas mining district of Niger delta. Geospatial intelligence can be used to bring to book all the flaring sites for easy assessment and policy decision towards effective solution. Gas flaring is environmental degradation of a higher order, causing continuous release of greenhouse gases to the atmosphere and climate change consequences. Gas flaring bring about acid rain to soil and surface water contamination. Surveillance research can use geospatial intelligence to map all flaring sites and illegal mining activities in Nigeria. Several illegal sites for oil bunkering, petroleum refining, solid mineral extraction can be monitored using geospatial intelligence constituting a good training module for the center. Cases of explosion, shooting and killing, communal crises and fire incidents taken hundreds of lives are frequently reported in these areas predominantly in the Niger delta.

Aiding Police, Air force and Naval operations

Geospatial intelligence will be useful in mapping police, air force and naval operations. This module will be used to train police, air force and naval officers on how to apply geospatial intelligence in their operations, and be able to strike a target accurately. Basic digital mapping techniques will be added. Operation of radar control in space for both aircrafts and marine vessels will also be discussed. Surveillance research using geospatial intelligence will isolate crime hotspots to the knowledge of police and other security operatives for continuous surveillance. This module will be very attractive to security departments.

Documentation of Daily Terrorists Activities

The center will serve as data bank and terrorism information workstation, where all cases of kidnapping, killing, shooting and property destructions would be recorded on daily bases for public use. Information

exchange network will be established among researchers and important stakeholders for decision making. Information from security officers, newspaper reports and confirmed public posts will be accountable. Information collation, storage and more will be discussed in this module.

CONCLUSION

The interdisciplinary nature of this counter-terrorism perspective is interesting, and the most target professionals for the training are Security officers, Air force and Naval officers, Surveyors, Environmentalists, Geoscientists, Urban planners, Petroleum engineers, Public health officers, Education managers, Transport managers, Maritime managers, and Forestry officers, etc., The center will give priority to research associates of the mentioned professions to register with the center to acquire geospatial intelligence skills for surveillance studies. There is need for a more holistic but collaborative efforts to subdue insecurity challenges collectively by setting up centers where scholars in Nigeria and nearby countries could collaboratively acquire geospatial intelligence to empower terrorism surveillance research. The center will aid and train security operatives; the military, police, civil defense and others to acquire geospatial intelligence and apply the knowledge in their routine operations. Surveillance research to counter terrorism in Nigeria and the sub-Saharan Africa calls for special trust fund if the region sincerely wishes to counter terrorism. GMC framework as presented is open to be adapted by any university in the region for surveillance research to counter terrorism. Collaboration of such centers will provide useful information required in the fight against terrorism in Nigeria and across sub-Saharan Africa.

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