The Effects of Cross-Border Use of Drones in Nigerian National Security

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Abstract—Drone technology has become a significant discourse in a nation's national security, while this technology could constitute a danger to national security on the one hand, on the other hand, it is used in developed and developing countries for border security, and in some cases, for protection of security agents and migrants. In the case of Nigeria, drones are used by the military to monitor and tighten security around the borders. However, terrorist groups have devised a means to utilize the technology to their advantage. Therefore, the potential danger in the widespread proliferation of this technology has become a myriad of risks. The research on the effects of cross-border use of drones in Nigerian national security looks at the negative and positive consequences of using drone technology. The study employs the use of interviews and relevant documents to obtain data while the study applied the Just War theory to justify the reason why countries use force; it further buttresses the points with what the realist theory thinks about the use of force. In conclusion, the paper recommends that the Nigerian government through the National Assembly should pass a bill for the establishment of a law that will guide the use of armed and unarmed drones in Nigeria enforced by the Nigeria Civil Aviation Authority and the office of the National Security Adviser.

Keywords—Armed drones, cross-border, drones, national security.

I. INTRODUCTION

THE Unmanned Aerial Vehicle (UAV), known as a drone, plays a significant role in a nation's national security and its popularity is gradually acknowledged by leaders across states. This surveillance capability of drones in the border areas poses a great threat to non-state actors due to its ability to gather unprecedented amounts of aerial imagery and conduct strikes at target using nearly undetectable platforms. Furthermore, drones have the capability to carry out conventional counter-insurgency activities with its reconnaissance features. These features and enormous benefits found in drones can be utilized by African leaders to address the security challenges which are largely perpetrated by non-state actors. However, non-state actors exploit the capacity of drone for criminal activities [1].

Lately, apart from combatting and attacking enemies, drones are increasingly being relied on in peacetime to perform a range of tasks, including traffic congestion monitoring, police surveillance, and to transport diagnostic clinical laboratory specimens. These drones are unarmed and can be used for commercial purposes for instance, it can be used to deliver medical samples like the novel corona virus test samples, carry emergency medical supplies and organs for

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transplant, delivery of non-medical products. The British Broadcasting Corporation (BBC) recently reported that drones are now being used to deliver National Health Service (NHS) supplies to the Isle of Wight [2].

Drones are also being used to save lives; the Economist in 2019 reported a story of how drones were used to rescue mountain-climbers and people trapped by natural disasters [3]. The production of drones can be used to boost a nation's economy. Topham in 2018 reported that drones are predicted to give British economy a 42 billion-euro lifts by 2030 [4]. Little wonder why, in the international arena, drones are widely used by over 90 nations. Countries such as Israel and China are already selling drones in the global market, with indigenous production increasing. The increased production of drones and its usages both for civilian and military purposes have presented many countries with regulatory challenges. Most developed countries have operated drones without any proper regulatory framework and African countries like South Africa, Algeria, Tunisia, Egypt, and Ethiopia, who are now developing their own drones, do not have any framework in place [5].

It is worthy of note that Rwanda is the only country which has put in place a regulatory framework that is meant to engender and grow the operations of drones in such a manner that provides feedback necessary for evolving the regulatory frameworks that will reduce the risk involved in drone operations [6].

The case of Nigeria is unique because apart from the military that have built indigenous drone called Tsaigumi, championed by the Nigerian Air Force (NAF), the proliferation of drones has taken another dimension as civilians and non-state actors already have drones in their custody. Additionally, there is no proper regulatory framework to curb the use of the drone in Nigeria. This can have negative consequences on a nation's national security [7]

To make matters worse, the emergence of Boko Haram, an extremist group in 2009, took a toll on Nigeria's national security. The violent activities such as suicide bombings, the kidnapping of the Chibok girls and a host of others, have taken a transnational dimension [8]. The trans-border characteristics of the Boko Haram have affected Nigerian citizens and other neighboring countries such as Chad, Cameroon, Benin and Niger. These attacks took a cross-border dimension in 2014 when the Vice Prime Minister Amadou Ali and his family members from the extreme North region of Cameroon were kidnapped and taken to an unknown destination. [9] Again, in another incident, the kidnapping of 97 boys and several women from Doron Baga fishing village near Lake Chad [10].

Due to the porosity experienced at Nigerian borders with her neighbors, Boko Haram took advantage and has been exploiting the ungoverned spaces along the borders for transnational crimes such as small arms and light weapon proliferation, training and funding, and recruitment of militarized refugees. These atrocities committed in the border areas pose a serious threat to Nigerian national security. Nevertheless, the establishment of a Multinational Joint Task Force (MNJTF) liberated the Lake Chad Basin from the deadly terrorist group [11]. Despite these efforts by the Nigerian government in collaboration with Chad, Cameroun, Niger Republic, etc., much is still expected to be done to eradicate the activities of Boko Haram around the borders areas and to curb the illicit crimes that are committed.

In a bid to win the insurgency war, and to curb cross-border crimes, the need for the use of drone technology came to bear. The features found in drones can be used to conduct search and rescue missions, police and wildlife protection operations, disaster management, convoy protection of pipeline and power line monitoring, mapping, border patrols and also to conduct military missions over land and sea; it can also be used to curb the current border security challenges [12]. Suffice to state, Nigeria started using drone since 2014 for both surveillance and airstrikes against the insurgency group. However, there are no laws guiding the use of drones whether armed or unarmed in Nigeria rather advisory circular by Nigerian Civil Aviation Authority (NCAA) [13]. Therefore, the arbitral use of drones whether armed or unarmed will have adverse effects on a nation's national security. The study using a qualitative method, focuses on drone across the border areas, and in this regard discusses the effects of cross-border use of armed drones on Nigeria's national security. It attempts to distinguish between armed drones and unarmed drones for the purpose of clarity. The study looks at drone regulation and uses in Nigeria; it addresses the extensive use of drones by security forces in Nigeria; laws guiding the use of drones in Nigeria and the challenges, and finally, the effects of cross-border use of drones on Nigeria's national security. The study will be beneficial to policymakers in Nigeria, especially regarding the formulation of drone policy and will add to the existing wealth of knowledge.

II. THEORIZING THE CROSS-BORDER USE OF DRONE TECHNOLOGY AND NATIONAL SECURITY

In this study, there are several theories to be applied as to why nations use drones to protect their national security and the effect of using drones. However, because the study focuses on the effects of the cross-border use of drones on Nigeria's national security, it was decided to use the Just war theory and Neorealist theory.

A. Just War Theory

Augustine (354-430) provided a foundation for the Just war theory while Thomas Aquinas (1225-1274) codified Augustine's reflections on the distinct criteria for the Just war theory [14]. The Just war theory describes the condition in which nations seek to legally and morally justify going to war.

While states justify the reason for the use of force, the theory gave three core principles which are occupied with two central questions: when it is appropriate to go to war (*jus ad bellum*) and how the war should be fought (*jus in bello*), seen in [15].

The theory limits how wars should be fought and proposes three justifications for the use of drones that is, when there is an imminent threat. This is difficult to establish; however, when it comes to asymmetrical warfare the use of drones becomes the most proportionate response to an imminent terrorist attack [16]. Second, if the capture of an individual seems unattainable especially in the case of Abubakar Shekau, the Nigerian military have made several attempts to capture the leader of the extremist group; however, since their efforts have not yet yielded the desired results, in this case, the military can employ the use of armed drones for this purpose. This singular action may have significant consequences on a national security, and that is why many critics like Brunstetter argue that "Framing it this way makes other options, de facto, seem unreasonable, leaving drones the only option left on the table" [17]. Third, the need to choose war as the last resort will be justifiable after every other means have been exhausted. Again, many like Matthew think that innocent people will be the target and no opportunity will be given for them to surrender [18]. The need to further justify the use of drones and its effect is seen from the neorealist perspectives.

B. Neorealism

This theory was propounded by Kenneth Waltz in his book, 'Theory of International Politics' (1979). The theory simply states that power is the most important factor in international relations [19]. Neorealist thinkers believe that the international system is anarchical and there is no formal central authority, and as such, states seek their own interest [20]. Neorealists consider states to be the main actors at the international system, reiterated by Morgenthau in his book 'Struggle for Power' (1948); the international system remains the arena of conflicting national interests and power; states living in anarchy have no guarantee of their existence, hence, states necessarily make their security from attacks and their prosperity their major objectives [21].

The MNJTF was formed due to porous borders, to monitor highway banditry and other cross-border crimes. However, these counter terror operations have seen the use of force and the use of drones. This bring to the fore what the realist believes, which is that war is the product of human nature, a product of state behavior and concludes that the international system is anarchic and volatile in the sense that there is no higher authority than the states themselves [22]. To the realist, war is a tragedy and deeply understood to be inevitable within the current international system. Consequently, states seek security through other means either through technological strength or power tussles since realist see war as a continuation of politics through other means [23]. States compete militarily with their "enemies" with the most advanced technology i.e. drones. These drones can be used to conduct strikes between states and non-state actors. Byman argues that drones have significant strategic value due to their

ability to devastate terrorist groups [24]. However, a critic of neorealism, Feminism, sees the strategic value of drones in the area of killing to be a masculine assertion. Feminism sees the use of force as directly affecting individuals who are killed in the guise of killing a terrorist. According to Feminist theory, drones are not fighting terrorism, but perpetuating it [25].

Drones alienate individuals in countries where drone strikes are used. Dissecting both theories gives a broader picture of the relevance of drones and its potentials to impact national security. This may depend on which side the coin flips, either it poses a threat to national security or it is a blessing in the skies. As long as the international system operates, the anarchical nature will always emerge, and it will be the survival of the fittest. Wars at this point will no longer be fought on moral grounds but will be based on strength. This is seen in the scenario that Purkissin a published article; "Obama's Covert Drone War in Numbers: Ten Times More Strikes than Bush" [26] gave on how the United States during the Bush administration in 2004 and Obama in 2014 used drones to conduct air strikes targeting radical groups such as al Qaeda and the Taliban. This gives a clear picture that states will use force to achieve their national interests regardless. Similarly, the Trump administration employed the use of drone strikes when Iranian top military officer General Soleimani and others were killed. The US claimed that Soleimani was responsible for the death of millions of people [27].

The above examples buttress the point that drones have both positive and negative effects thus, states use the technology to foster national interest. Accordingly, drones are now being used in Nigeria by the military and at the same Boko Haram are in possession of the technology. The Cable News reported in 2018 that the Nigerian government deployed drones to her nation's border in the North East to combat Boko Haram insurgency [26]. In the same vein, the New York Times reported that the Boko Haram fighters were in possession of sophisticated drones [27].

III. LITERATURE REVIEW

The literature review will discuss the main concepts of drone technology and national security, and the relationship between drone technology and national security.

A. Drone Technology

Birmingham Policy Commission Report described drone technology as robot planes, pilotless aircraft, remotely piloted aircraft, non-crewed aircraft, remotely piloted vehicles and UAVs that have the capacity to fly through remote control or with the use of on-board computers. From the definition, it can be deduced that drone technology is any unmanned aircraft that is used with the help of a computer. However, this definition is not suitable for the study because the functions of drone were not spelt out [28].

The Department of Defense defined the drone as using aerodynamic forces that can fly using aerodynamic forces or be controlled [29]. This definition relates to just the features of a drone without the nitty-gritty of it functions and as such, is also not suitable for the study.

Tice opined that drones can fly either by remote control or on a predetermined flight path; can be small as an insect and as large as a traditional jet; they can be produced more cheaply than traditional aircraft and can keep operators out of harm's way [30]. The authors gave a positive review of the use of drones, and their emphasis was solely for surveillance purposes without adding the negative effects drone can have on a nation's national security. Therefore, this definition is not considered for the study.

Abayomi et al. defined drones or remotely piloted vehicles (RPVs) as small aircraft that can fly without an onboard human operator. They are either autonomous or semi-autonomous and can carry cameras, sensors, communication equipment or other payloads. Their uses have been the most effective for aerial surveillance. This definition gave a broader definition of drones with it functions. This is a clear indication that drones can be used for surveillance purpose thus, appropriate for the study [31].

Michael explained the difference between armed drones and unarmed drones although, they are used mostly for surveys, mapping, visual, monitoring and thermal imaging of a region and other less lethal tasks equipped with accessories [32]. Nevertheless, drones can be armed and unarmed depending on what it is used for but most often, armed drones have lethal weapons, driven by an internal combustion engine, extremely high resolution, thermal imaging and the infrared mainly for military purposes. An example of such a drone is the US-origin Predator XP being procured by India while Hejduk opined that commercial or domestic drones are unarmed, smaller, and are driven by an electric motor, different from military in the size mainly used for photographing and firm making. An example is the DJI Phantom Vision 2 [33].

It is expedient to note that drones are playing a dominant role in the conflicts of the 21st century, with state and non-state actors using this technology. This creates concerns about the peace and security that drones give. While some are of the opinion that drones are the ideal technology to patrol large areas and protect property and state borders, others think that drones are serious threat especially as it relates with the privacy of individuals. It is often argued that drone usage poses a danger to human rights [34].

Emmerson, United Nation Special Rapporteur on Counterterrorism and Human Rights, stated that drones are here to stay despite the negative effects put forward by various schools of thought [35]. Oren Gross reported that the United States military and the CIA rely on drones, making drones the American "weapon of choice" for combatting terrorism [36]. For the purpose for this study, the armed drone will be the focus in the paper, since we are looking at the cross-border use of it as regards to its effects on national security.

B. National Security

According to Lasswell national security means freedom from external forces. This definition is not applicable for this study because national security was not looked at in the area

of protection of the state against external attack rather security was seen from an individualistic point of view [37].

Holmes defined national security as the safekeeping of the nation that is the protection of the nation and its people from attack and other external dangers by maintaining armed forces and guarding state secrets. This definition by Holmes gives a clear picture of what national security is about; all-encompassing; political, economic, energy, cyber, human, environment, etc. [38].

C. Relationship between National Security and Drone Technology

Riham & Youssef looked at the safety concerns raised using the civilian drone and how it will affect national airspaces, especially government facilities. A clear example is how drones disrupted flights at the UK's second largest airport, Gatwick Airport, for more than 45 minutes [39].

Koslowski & Schulzke pointed out the political, policy and ethical implications of using armed drones at the border. According to them, though military technology encroaches into nonmilitary, security operations have adverse security repercussions; however, drones may save migrants' lives as they make dangerous journeys through deserts and across rough seas. Again, drone surveillance erodes privacy, but it creates new accountability mechanisms and finally, drones reduce the visible signs of security thereby introducing an invisible security apparatus [40].

Blazakis discusses the benefits and limitations of drones which can fill a void in border surveillance in terms of coverage along remote sections of the border. The operational advantage of drones is its loiter capabilities, allowing it to remain in a place for prolonged periods of time. The author considered the fact that drones are less expensive compared to manned aircraft used on the borders. However, the inability of drones to target a moving object limits its capabilities, while privacy, safety and technical issues are other considerations [41].

According to Time magazine reporter Hennigan, the widespread availability of commercial drones in 2018 poses the largest threat. Terrorists, criminals are using drones within borders for illicit purposes and overseas to advance plots and attacks [42]. The attempted plot to assassinate Venezuela's President Nicolas Maduro through a weaponized unmanned aircraft is a clear case of drone terrorism [43]. Armed drones are now being used to carry out offensive actions like dropping a grenade on an adversary's military base. Countries like Nigeria, Pakistan, and Turkey are now using armed drones in combat. However, the chances for sophisticated drone technology getting into the wrong hands increases exponentially. As such, Davis et al. dissected the characteristics and capabilities of long-range armed drones from short-range drones which create difficulty in their development and operation. The long range is expendable, like cruise missiles, and is easier to use while the short-range drones are going to spread because they have attractive civilian uses. The authors views on armed drones is that, though it creates uncertainties like the fear of it being in the

wrong hands, it is not chaotic except when wrongly used by non-state actors. From the aforementioned, we have been able to establish that there is a relationship between drone and national security [44].

IV. Methodology

The qualitative research method was employed in the paper through face-to-face interview with one respondent at a time. The interviews were carried out between July and August 2019. A total of nine individuals with over 20 years of experience in the military, particularly Air Force personnel in the Air Force Institute of Technology (AFIT) and the Air Force headquarters, and the Ministry of Foreign Affairs were consulted because of their direct link with the topic and their involvement in the MNJTF. This method was chosen because the subject matter needed expert opinions.

The data were analyzed using qualitative content analysis and the validity of the data obtained from the respondents was based on the trustworthiness of the respondent who used their experiences in the military and other fields in the context of this paper. The sampling technique was based on the availability and willingness of the respondents, and their names were kept anonymous for this study. However, due to the researcher's inability to interview some key stakeholders in the field, because of the possibility of biases, secondary data were employed to compliment the research. Data were collected from relevant documents, journals, textbooks, unpublished thesis, internet materials, articles from newspapers, official gazette, etc. The study utilized purposive non-probability sampling to get specific knowledge and individual distinct expertise. The interview questions are available in the appendix.

V. The Effects of Cross-Border Use of Drones in Nigerian National Security

In terms of Nigeria's security and the impact of drones in the country's border areas, this section will provide a descriptive presentation of the findings on the extensive use of armed drones by security forces in Nigeria, the laws guiding the use of armed drones beyond Nigerian borders, the effects of the cross-border use of armed drones on Nigeria's national security and the challenges of cross-border use of drones in the country.

A. The Extensive Use of Armed Drones by Security Forces in Nigeria

In a bid to find out the extent of the use of drones by Nigeria security forces, interviews conducted in 2019 by the researcher with members of the security forces on drone usage were used. One of the respondents, a senior military officer, believed that the minimal use of drones by security forces is due to the frequency of its usage, which is a function of serviceability, that is, depending on whether the drone is good enough to be used after previous usage. Again, the few times the security forces have used armed drones was against the Islamic extremist group Boko Haram, and not on innocent Nigerians [45].

Suffice it to state, Nigeria joined other countries using armed drones for modern war in 2015 when it was reported in the news that a Chinese made CH-3 drone, owned by Nigeria crashed in the north east and in February 2016, the Nigerian military successfully carried out a drone strikes against Boko Haram [46]. The Nigerian military had also come out to defend their use of armed drones mainly for counterinsurgency (COIN) actions and has argued that drones are "necessary" in fighting the insurgency.

Historically, the use of armed drones by security forces in Nigeria had never crossed the minds of Nigerians until the invasion by Islamic movement group known as Boko Haram in 2009 and the havoc committed by the deadly group in the north east. The rate of suicide bombings and killing of innocent Nigerians became worrisome to the Nigerian government forcing them to contact the Chinese government with the intent to buy armed drones in the quest to end the war against the insurgency. So far, the Chinese government has sold at least five-armed CH-3 drones to Nigeria. Nigeria became the eighth country to have used armed drones in combat, having announced a successful drone strike in its ongoing war against the militant group Boko Haram [47].

Although, the use of armed drones in Nigeria for "counter-insurgency" operations are quite troubling because the potential effect of such use on civilians and communities poses dangers. The government seeing the challenges involved in the use of drones especially when not monitored prohibited its usage in the Nigerian airspace with the exemption of the military use of the technology to fight the insurgency.

When compared to the United States and other developed countries, the use of drones by security forces is highly extensive. An example is the United States, where in 2014 through its military forces, fired "Friendly Fire" in Afghanistan using drones. [48]. In 2017, the US shot down a pro-regime drone that was determined to be within firing range of its coalition forces. [49]. It was also reported that 15 Afghan National Police Officers were killed in a US-armed UAV operation in Helmand Province in July 2017 [50]. Again, in 2018, the US destroyed a Russian-made T-72 tank with an armed drone [51].

Koslowski & Schulzke described how the United State used armed drones for military patrols along its borders. [52] The US, through its spokesperson Lt. Comdr. Anthony Falvo for US African Command, is in support of its use against terrorists "as long as it is applied in responsible manner and solely in an effort to better secure their borders against violent or illegal activities that disrupt stability or present a danger to their overall security" [53].

The extensive use of US armed drones is seen in the attacks against Pakistan since 2004, where they carried out series of attacks that left dozens of civilians dead [54].

In Africa, the United States has over the years extensively used both armed and unarmed drones on and from the continent to counter suspected terrorist threats. It was reported that the United States has a squadron of armed drones based in the West African nation of Niger. The drone attacks experienced in Somalia have left so many casualties many of which are civilians [55].

In 2018, the Russian military officials suggested that the Ukraine provided support for a drone attack against Russia's Khmeimim airborne 14 and used the attack to justify retaliatory measures against non-state armed groups in Idlib [56].

The United Kingdom also has a good history of the use of drones in a manner guided by ethical and humanitarian considerations to the extent that it is regarded as a model for other countries to emulate. For example, in Iraq and Afghanistan, the use of drones was strictly restricted to force protection and facilitation of operations. The way and manner the UK restricted the use of military drone was widely commended and the model was used by the United Nations and other countries [57].

The Guardian Newspaper reported how Theresa May defended the use of drone strikes against British citizens abroad. Turkey has struck militants with drone strikes within its borders; Israel's growing production, use and proliferation of armed drone have been seen in the strikes they carried out within Palestinian territories [58].

The Israelis are known to have drones, and this was seen in 2018, when an Iranian drone was shot down in their airspace. After the loss of their F-16 fighter jet by a Syrian anti-aircraft missile in 1979, the Israel Defense Forces conducted a similar retaliatory strike against the Syrian Arab Armed Forces after a Syrian drone entered Israeli airspace after passing over Jordan [59].

It is also on record that Chinese-made drones have been used extensively to combat extremism outside of China, but that the Chinese military have avoided conducting lethal strikes themselves. However, in 2013, the New York Times reported that China considered using a drone to kill a Burmese drug lord but opted instead to capture and try him in court. He received a death sentence [60]. The Indian government, seeking protection against neighboring China and Pakistan, developed Rustom-I UAVs in 2009 and armed Rustom-II MALE UAVs in 2015 [61].

In 2003, countries in Europe joined the French government to develop the next generation of drones called the nEUROn technology demonstrator. The initiative included Sweden, Spain, Greece and Switzerland. The Dassault nEUROn is an experimental unmanned combat aerial vehicle (UCAV) [62].

Based on findings on the extent of use of drones by security forces in Nigeria, it is objectively clear that its usage is limited.

B. Laws Guiding the Use of Armed Drones beyond Nigerian Borders

Initially, there were no laws or policies guiding the use of armed drones in Nigeria, except the regulation put in place by the NCAA on the use of drones in the country with strict approval of the Officer of the National Security Adviser (ONSA) before unarmed drones can be allowed to fly in the airspace. As seen in Part 4 of Nig. CARs 2015 [63]. However, in 2019, NCAA came up with the 2nd edition Advisory Circulars which outline clearly the Civil and Military usage of

armed and unarmed drones in Nigeria [64].

The legal implication is that when the need arises for the Nigerian government to deploy armed drones across its borders, they can only do so with the consent of the country involved except in cases where *jus ad bellum* must be applied. The challenge, therefore, will be to safeguard the Nigerian airspace and the privacy of the Nigerian citizens if armed drones are to be deployed for cross-border security, perhaps for surveillance activities.

Accordingly, Byrne stated that the laws of conduct and limitation of the use of force should be in accordance with international and humanitarian law [65]. On the other hand, in the United States and United Kingdom, policies have been put in place to regulate the cross-border use of armed drones even though it is centered on continuing secrecy around the respective legal foundations [66]. However, during Obama's administration in 2013, the President signed a Presidential Policy Guidance restraining the use of drones except when it involves national security [67]. The Trump administration later reverted the order [68].

The British government has been using armed drones against ISIS in Syria and Iraq and has so far conducted 400 strikes in the period 2014-2018. However, the British parliament must vote before allowing any drone strikes. The case of Reyaad Khan killed in Syria in 2015 posed a continuing imminent threat to the government even though he was a national. The government believed that the drone strike was for the individual and collective self-defense [69].

The UK policy regulating the use of armed drones in Afghanistan has already met the highest standards of distinction and proportionality under international humanitarian law and has played a vital role in force protection [70].

In the case of French armed drone policy, the government has no clearly outlined framework concerning the use of armed drones even though they have conducted strikes in Syria, Iraq and the Sahel. The French do not have many drones but are currently engaged in armed drone operations against jihadists in the Sahel Sahara region [71].

Juxtaposing what is found in the advisory circular: NCAA-GAD-AC-002, no policies were considered for the cross-border use of armed drones outside Nigerian territory. Taking a cue from the UK and US governments, policies of such nature must be agreed and signed by the Nigerian National Assembly before any action is taken when it comes to armed drones. This is to avoid the unnecessary killing of innocent Nigerians who are in foreign territories.

A question was asked; if there are laws guiding the cross-border use of drone outside the Nigerian territory, one respondent stated that "the laws are the same as those for use of the airborne weapons system". In other words, what is applied in the international system is what applied when drones are flown beyond Nigeria's borders [72]. Another respondent added his views stating that "there are restricted uses and restricted sales" [73]. Accordingly, export licenses are needed to acquire drones from the United States or Europe. Group Captain Obadike, a former participant of the National

Defence College, Abuja, in an interview conducted on the laws guiding the use of armed drones beyond Nigerian borders stated that "the use of drone in armed drone is restricted to the law guiding it, even at the international level" [74]. However, it is important to note that while drones are not unlawful in themselves; their usage is subject to international humanitarian laws (IHL). What that means is that any country in possession of armed drones must be subjected to the laws binding it at the international level. In 2014, the Special Investigator for the United Nations Human Rights Council, Ben Emmerson, stated that unambiguous policy frameworks which are in harmony with IHL must guide the employment of armed drones [75].

It is imported to note, that IHL guides all warfare as such, the legality of drone strikes is still blurred under international law and so is the status of their use to kill civilians whether abroad or within controlled territory.

C. The Effects of Cross-Border Use of Armed Drones on Nigeria's National Security

There are several concerns raised about potential effects (positive and negative) of the use of drones, armed and unarmed. Some of the negative effects include the potential harm on the environment, human health, and agriculture. The geographical zones of Nigeria (northeast and northwest), where most counter-insurgency operations are taking place, are known for their rich supply of farm crops such as grains and vegetables, and for animal rearing such as cattle, sheep, and goats.

If the use of armed drone strikes continues in the fight against Boko Haram, the effect poses great threat to the environment which will ultimately affect the livelihood of the populace.

From the interviews, one respondent argued that the encroachment of military technologies into non-military security operations may have adverse repercussions to a state and even the environment. He also posited that armed drones, if effectively deployed by the armed forces of Nigeria, hold good prospects for enhancing national security. He gave the example of how armed drones have expanded Nigeria's national security by assisting in the annihilation of Boko Haram. The interviewee further added that the implication on national security will be that it will reduce military and equipment collateral damage [76]. The deployment of the technology will help to deliver weapons and can be used to gain access to prohibited areas and for taking aerial photos.

The deployment of armed drones can deliver significant benefits for Nigerian national security, aid policies and the economy. The advanced surveillance and precision of drones can have an adverse effect in the fight against insurgency and insecurity in Nigeria since the airstrikes undertaken by armed drones cause less harm to innocent citizens and non-targets than other forms of aerial bombing. The use of drones in the fight against insurgency has lowered the risk of casualties on the attacking side, and the ability of drones to loiter over an area for extended periods of time enables a more judicious use of force.

D.Challenges of Cross-Border Use of Drones in Nigeria

In the global arena, fear of the use of armed drones by non-state armed groups and private individuals is call for concern, especially with the fact that it was reported that the Lebanon-based militant group, Hezbollah, which has no responsibility to adhere to international regulations, treaties, or Geneva Conventions has armed drones at their disposal and has deployed drones laden with explosives [77].

In 2014, it was reported that the terrorist group Hamas flew a drone over Israel. The legal implication is that countries bound by international regulations are now fighting against militants with armed drones justifying its use on self-defense. Israel shot down a surveillance drone operated by the militant group Hamas in 2014 [78].

The use of armed drones by terrorist groups, militant and insurgent groups are serious challenges that pose great threats to national security knowing that most African borders are porous and non-state actors are using it for illicit purposes. The notion that Boko Haram could drop explosive payloads, deliver harmful substances and conduct reconnaissance in the northeast is not far-fetched, especially since they have pledged allegiance to ISIS and because it was reported that they now use drones to fight the Nigerian military.

One respondent, the former Permanent Secretary at the Ministry of Foreign Affairs, mentioned the following as major challenges in deploying drone technology in Nigeria, these include, but are not limited to: the cost of acquisition, technological know-how, and threat to civil aviation etc. According to the retired ambassador, "the cost of acquiring this technology is very high, as such it poses a challenge to the Nigerian government" [79]. In a similar vein, one respondent mentioned technical capacity, maintenance and the availability of spare parts as major challenges in deploying drone technology in Nigeria, while another, a retired naval officer also attributed inadequate technological capacity to manufacture, deploy and effectively operate drones. He further highlighted the weak regulation and lack of an institutional and legal framework on their usage.

A retired Air Force officer opined that the technology is just being introduced in Nigeria and the lack of industrial base is a major challenge. He spoke about the NAF innovation in developing Tsugunmi and his hope that the government will support and improve on it [80].

A serving senior military officer, in his opinion, stated that personnel capacity and technology infrastructure were the major challenges in deploying drones in Nigeria. The other challenges include but are not limited to collateral damage and the socio-cultural differences among Nigerians [81].

From the aforementioned, there are three reoccurring challenges highlighted by the respondents. These include the lack of technological base, human capacity and limited equipment maintenance capabilities. These three challenges will be discussed more extensively in the next section.

E. Lack of Technological Base

The Nigerian military does not have the technological base for armed drone technology unlike the United States military that has dominated 21st century battle spaces with capable drones. In 2018, the Defense Advanced Research Projects Agency (DARPA) created a technology that controls drones with thoughts and can translate thinking into codes [82]. The Russian military in 2019 also conducted similar research [83]

DARPA is integrating drones into existing perimeter security systems, such as tethered aerostats, to cover more area. The technological base of the US is growing at a remarkably high speed, and more deployable systems that can be easily transitioned to a mobile capability are being developed. Grumman recently demonstrated a system where an app on a soldier's smartphone can use the device's microphone to detect small drones [84]. Nigeria has not yet gained ground regarding the maintenance of armed drone technology since it was acquired from the Chinese, and even the indigenous drones built by the NAF are still not at the operational level.

F. Human Capacity

In the interview with the former Commandant of the AFIT, he attributed the shortcomings to insufficient manpower both for ground operations and production. According to him, "Unlike the manned aircraft [where] you may just need three people who work round it and supervise it, but [for] an armed drone, you need close to 15 people; the ground operations for a drone to take off is enormous, but once it takes off one person can manage it for 24 hours, but the logistic footprint for it to take off to go for operations is large. Imagine a drone like Tsaugumi that weighs 80 kg flying at 13,000 feet, if something goes wrong, it can cause as much damage as a manned aircraft" [85].

The Former Provost of AFIT had a different perspective; according to him, the challenge of using armed drone in Nigeria is regular posting of skilled personnel who have gone through rigorous training by the institute only to be transferred to another unit. The knowledge that would have been put in the job is not fully utilized [86].

G.Equipment Maintenance

It is often said that Nigerians lack maintenance culture, and this has seriously eaten deep into various sectors. The armed drone acquired from the Chinese government, the CH-3, needs high maintenance and as such, the drone will be expensive to maintain. Accordingly, it has halted the efforts of the US in its fight against terrorism on the grounds that the Nigerian military does not have the facilities that can be used to maintain helicopters.

The French government budgeted from 2 to 42.2 billion euros for service support dedicated to their defense aircraft maintenance [87], unlike the Nigerian government that budgeted N1.4 billion for maintenance of aircraft of the Presidential fleet [88].

Although, in Africa, defense budgets throughout the continent have increased significantly in the past years, only to be cut down by low oil prices [89]. Therefore, drone warfare is not to be taken lightly if the Nigerian government is serious in using it to fight the war against Boko Haram, they must be

aware of its remotely controlled air power. The risk of flying into sensitive facilities must be a consideration.

Some drones have been programmed to be flown in any space undetected. It is therefore a great challenge to track and counter them.

It is not certain if the Nigerian military has Skylock drone detection radar that can neutralize and destroy unauthorized drones. It will only be a matter of time before any threat manifests in a violent way [90].

In addressing the challenges arising from the cross-border use of armed drones in the fight against insurgency in Nigeria, there are ethical implications. The use of armed drones may undermine international agreements already in place relating to the use of lethal force due to a lack of regulatory framework. The US based their drone attacks on national interest.

Although countries around the world have not an agreed a framework for the operation of armed drones, a country's national interest must take precedent when there are potential attacks by states and non-state actors.

VI. CONCLUSION

The study acknowledged that there are positive and negative effects in the cross-border use of drones especially as it affects Nigeria's national security. Looking at the arbitrary killing, extraterritorial attacks and counter-terrorism operations by such weapons systems, states should be bound by the IHL whose principles clearly state that outside a country's borders they should be prevented from taking any life on any grounds different from those within their borders. The study reemphasized the need to be mindful of the legal implications of the cross-border use of armed drones especially when the need arises, and the military may be forced to use lethal force on terrorist group outside its jurisdiction. However, the study also acknowledges that the deployment of armed drones can deliver significant benefits for Nigerian national security, as well as aid in its policy and economy because the technology comes with advanced surveillance and precision in terms of weapons delivery and helps prevent mass atrocities. Although, there are reoccurring challenges such as the lack of technological base, Nigeria is still not prepared. Another challenge discussed in this paper is the lack of experienced personnel. One question that comes to mind: Why train personnel when you will not utilize their wealth of knowledge and experience? The issue of maintenance was also highlighted, based on the knowledge that Nigeria lacks the necessary maintenance culture.

The paper also points out the lack of policy on the use of armed drones in Nigeria and its foreign policy impact which has serious consequences.

Finally, the study concluded that the use of cross-border armed drones will positively impact the fight against insurgency and security in Nigeria, since the airstrikes undertaken by armed drones cause less harm to civilians and non-targets than other forms of aerial bombing. The following recommendations should be considered by the security institutions in Nigeria: Firstly, the Nigerian government, through the National Assembly, should pass a bill for the establishment of a law that will guide the use of armed and unarmed drones in the country. In addition, there is need for the Nigerian government to sign a multilateral joint agreement with neighboring countries, including Chad, Niger and Cameroon for the operational use of armed drones in the fight against terrorist and insurgent groups. Lastly, the Federal government should create an institutional and legal framework for the use of armed drones and commercial drones in Nigeria.

APPENDIX

Interview questions:

1. What are the effects of the cross-border use of drones on Nigerian National Security?
2. Are there laws guiding the use of drones in Nigeria and beyond her borders?
3. What are the policies in place for the cross-border use of drones?
4. What are the challenges of deploying drones?
5. How extensive is the use of drones by security forces in Nigeria?

REFERENCES

[1] T. Ong, Criminals used a swarm of drones to surveil and disrupt an FBI hostage operation, The VERGE, 1998.
[2] D. Molloy & J. Copestake, Drone-to-door medicines trial takes flight in Ireland, BBC News. 2020. Retrieved from: https://www.bbc.com/news/technology-52206660
[3] The Economist, Drones need to be encouraged, and people protected. https://www.economist.com/leaders/2019/01/26/drones-need-to-be-encouraged-and-people-protected
[4] G. Topham, Drones predicted to give British economy a £42bn lift by 2030. https://www.theguardian.com/business/2018/may/29/drones-predicted-to-give-british-economy-a-42bn-lift-by-2030
[5] P. Foeka, Swarms over the Savannas: How Drones are Gaining More Traction in Africa. 2016. Retrieved from https://www.oxfordresearchgroup.org.uk/blog/swarms-over-the-savannas-how-drones-are-gaining-more-traction-in-africa.
[6] R. Amanda, What the world can learn from Rwanda's approach to drones 2016. Retrieved from: https://www.weforum.org/agenda/2019/01/what-the-world-can-learn-from-rwandas-approach-to-drones/
[7] The DefencePost, Nigerian Air Force inducts Tsaigumi, first operational indigenous ISR drone. https://www.thedefensepost.com/2018/02/19/nigeria-air-force-tsaigumi-drone-operational/
[8] BBC, Nigeria Chibok abductions: What we know, 2017, https://www.bbc.com/news/world-africa-32299943
[9] BBC, Cameroon flies freed Boko Haram hostages to capital, 2014, https://www.bbc.com/news/world-africa-29581495
[10] D.D. Ayeotan, "Terrorism: the Boko Haram Phenomenon in Nigeria", 2012. Unpublished thesis.
[11] Factsheet, Multi-National Joint Task Force (MNJTF) against Boko Haram, The African Peace Facility. https://africa-eu-partnership.org/sites/default/files/apf_factsheet_-_mnjtf.pdf
[12] Air Force Technology, Tsaigumi Unmanned Aerial Vehicle, https://www.airforce-technology.com/projects/tsaigumi-unmanned-aerial-vehicle/
[13] NCAA, Advisory Circular, NCAA-GAD-AC-002 Second Edition, Unmanned Aircraft System Operations in Nigeria's Airspace–Guidance. https://ncaa.gov.ng/media/zm2pm2fj/ncaa-gad-ac-002-unmanned-aircraft-system-operations-in-nigeria-airspace-guidance-1.pdf
[14] J. Dorbolo, Just War Theory, 2001, https://oregonstate.edu/instruct/phl201/modules/just_war_theory/criteria_intro.html
[15] E. Freiberger, Just War Theory and Ethics of Drone Warfare, 2013. https://www.e-ir.info/2013/07/18/just-war-theory-and-the-ethics-of-

drone-warfare/

[16] D.R. Brunstetter, Can We Wage a Just Drone War? The Atlantic, July 19, 2012.

[17] R.M. Matthew, "Creating Space: Drones, Just War, And Jus Ad Vim" 2017. Unpublished work.

[18] Sagan, "the seminal text of neorealism", Waltz's book remains, 2004 page. 91 No.4,

[19] J.J. Mearsheimer, "The Tragedy of Great Power Politics", New York, NY: Norton. 2014 pp. 3. ISBN 978-0393020250.

[20] Defence Web. MJTF shows strengths and limits of collective security. 2018. Retrieved from: https://www.defenceweb.co.za/joint/diplomacy-a-peace/mjtf-shows-strengths-and-limits-of-collective-security/#:~:text=The%20MNJTF%20was%20established%20by,and%20other%20cross%2Dborder%20crime. Accessed 28/12/2020.

[21] S. Antunes & I. Camisão. Introducing Realism in International Relations Theory. Retrieved from: https://www.e-ir.info/2018/02/27/introducing-realism-in-international-relations-theory/ Accessed 28/12/2020.

[22] D. Byman, 'Why Drones Work: The Case for Washington's Weapon of Choice' Foreign Affairs, 2013. 92(6): 32-43.

[23] John De Bhal, Drones, Gender and Classical Realists, https://www.e-ir.info/2015/04/17/drones-gender-and-classical-realists/

[24] Jessica Purkiss and Jack Searle, "Obama's covert drone war in numbers: Ten times more strikes than Bush," The Bureau of Investigative Journalism, January 17, 2017.

[25] P. Bump, Why the administration claims that Soleimani killed hundreds of Americans. https://www.washingtonpost.com/politics/2020/01/08/why-administration-claims-that-soleimani-killed-hundreds-americans/

[26] The Cable FG deploys drones to fight Boko Haram. https://www.thecable.ng/fg-deploys-drones-to-fight-boko-haram

[27] D. Searcey. Boko Haram Is Back. With Better Drones. New York Times 2019. Retrieved from: https://www.nytimes.com/2019/09/13/world/africa/nigeria-boko-haram.html. Accessed 14/10/2020.

[28] Birmingham Policy Commission, The Security Impact of Drones: Challenges and Opportunities for the UK. https://www.birmingham.ac.uk/Documents/research/policycommission/remote-warfare/final-report-october-2014.pdf

[29] Department of Defense, DOD Dictionary of Military Term, 2013. Retrieved from: https://www.cia.gov/library/abbottabad-compound/B9/B9875E9C2553D81D1D6E0523563F8D72_DoD_Dictionary_of_Military_Terms.pdf,Accessed 4/7/ 2018.

[30] B.P. Tice, "Unmanned Aerial Vehicles: The Force Multiplier of the 1990s" Airpower Journal. USA 1991.

[31] A. Abayomi, B.O. Adam, O.O. Joseph, Review on UAVs used for Aerial Surveillance, 2016. Retrieved from: https://www.researchgate.net/publication/309585222_Review_on_UAVs_used_for_Aerial_Surveillance

[32] M. Clarke, The UK's Use of Armed Drones: Working with Partners. 2018, All Party Parliamentary Group on Drones Inquiry Report.

[33] M. Hejduk, "The use of unmanned aerial vehicles - drones supply courier", 2015. Thesis Inzynierska Wroclaw.

[34] European Union Committee, Civilian Use of Drones in the EU. 7th Report of Session 2014-15. Retrieved from: https://publications.parliament.uk/pa/ld201415/ldselect/ldeucom/122/122.pdf

[35] B. Emmerson, UN Special Rapporteur on Counter-Terrorism and Human Rights Concerning the Launch of an Inquiry into the Civilian Impact, and Human Rights Implications of the Use (sic) Drones and Other Forms of Targeted Killings for the Purpose of Counter-Terrorism and Counter-Insurgency, 2013. Retrieved from: http://www.ohchr.org/Documents/Issues/Terrorism/SRCTBenEmmersonQC.24January12.pdf.al

[36] O. Gross. The New Way of War: Is There A Duty to Use Drones. 2016. : Is There A Duty to Use Drones?, 67 Fla. L. Rev. 1 (2016). Available at: http://scholarship.law.ufl.edu/flr/vol67/iss1/1

[37] D. A. Baldwin, The Concept of Security, Review of International Studies, Vol. 23, No. 1 (Jan. 1997), pp. 5-26 (22 pages) Published By: Cambridge University Press

[38] K.R. Holmes, what is National Security? Heritage.org. Military Strength Topical Essays. Retrieved from: https://www.heritage.org/military-strength-topical-essays/2015-essays/what-national-security

[39] R.A. Riham & A.M. Youssef (2016), Security, Privacy, and Safety Aspects of Civilian Drones: A Survey. ACM Transactions on Cyber-Physical Systems 1 (2):1-25 DOI: 10.1145/3001836.

[40] Verge Staff, Idiots with drones, shut down the UK's second largest airport again, 2018. Retrieved from https://www.theverge.com/2018/12/20/18149819/london-gatwick-airport-drone-shutdown-reports

[41] R. Koslowski & M. Schulzke, Drones along Borders: Border Security UAVs in the United States and the European Union. Forthcoming in International Studies Perspectives For presentation at The International Studies Association Meeting (ISA), San Francisco, CA, April 4-7, 2018.

[42] J. Blazakis, Border Security and Unmanned Vehicles. Connections Vol. 5, No. 2 (Fall 2006), pp. 154-159 (6 pages) Published by: Partnership for Peace Consortium of Defense Academies and Security Studies Institutes.

[43] W.J. Hennigan, Experts Say Drones Pose a National Security Threat — and We Aren't Ready, 2018. Retrieved from https://time.com/5295586/drones-threat/.

[44] BBC, Venezuela President Maduro survives 'drone assassination attempt', 2018, https://www.bbc.com/news/world-latin-america-45073385

[45] L.E. Davis, M.J. McNerney, J. Chow, T. Hamiton, S. Harting, D. Byman Armed and Dangerous? 2015. UAVs and U.S. Security. Retrieved from: https://www.rand.org/content/dam/rand/pubs/research_reports/RR400/RR449/RAND_RR449.pdf

[46] Paul Jemitola, Nigerian Air force, Armed Forces Headquarters, Garki, Abuja. Interview with the AVM in 2019.

[47] J. Lin &P.W. Singer, Did an Armed Chinese-Made Drone Just Crash in Nigeria? CH-3 UCAVs Join War Against Boko Haram 2015. https://www.popsci.com/did-armed-chinese-made-drone-just-crash-nigeria/ Accessed 28/112/2020

[48] R. Acheson, M. Bolton, E. Minor, A. Pytlak. The Humanitarian Impact of Drones. 2017. Retrieved from: https://reliefweb.int/sites/reliefweb.int/files/resources/humanitarian-impact-of-drones.pdf Accessed 28/12/2020

[49] R. Browne & B. Starr, First on CNN: US shoots down another pro-regime drone in Syria. 2017. Retrieved from: https://edition.cnn.com/2017/06/20/politics/us-syria-shoots-down-pro-regime-drone/index.html. Accessed 28/12/2020

[50] G. Woodhams and J. Borrie. Armed UAVs in conflict escalation and inter-State crisis. 2018 Retrieved from: https://www.unidir.org/files/publications/pdfs/armed-uav-in-conflict-escalation-and-inter-state-crisis-en-747.pdf Accessed 28/12/2020

[51] P. Stewart, U.S. drone destroys Russian-made tank in Syria, Reuter,2018, https://www.reuters.com/article/us-mideast-crisis-usa-syria-tank/u-s-drone-destroys-russian-made-tank-in-syria-idUSKCN1FX2SJ

[52] R. Koslowski & M. Schulzke, Drones along Borders: Border Security UAVs in the United States and the European Union, For presentation at The International Studies Association Meeting (ISA), San Francisco, CA, April 4-7, 2018. https://www.albany.edu/~rk289758/documents/Koslowski&Schulzke_Drones_along_Borders_ISA.pdf

[53] M. Abdiwahab, US launches first drone strikes on IS group in Somalia, https://www.france24.com/en/20171103-usa-conducts-first-airstrikes-against-islamic-state-somalia

[54] Amnesty International, Will I Be Next? "Us Drone Strikes in Pakistan, copyright@amnesty.org

[55] R. Hussein, A. Moorehead & J. Horowitz. Niger facing Pressure to ensure US and French Drone Strikes Comply with Human Right Law. 2018. Retrieved from : https://www.justsecurity.org/60589/niger-facing-pressure-ensure-u-s-french-drone-strikes-comply-human-rights-law/ Accessed 28/12/2020.

[56] T. Rogoway, Look inside Putin's Massive New Military Command and Control Center, 2015.

[57] M. Clarke, The UK's Use of Armed Drones: Working with Partners, A report by the All-Party Parliamentary Group on Drones. Concluding its Inquiry into The UK's Use of Armed Drones: Working with Partners. 2018

[58] A. Ross, MPs call on Theresa May to release 'kill list' for UK drone strikes, 2017. Retrieved from: https://www.theguardian.com/world/2017/feb/23/mps-theresa-may-release-kill-list-for-uk-drone-strikes

[59] J. Philips, Israel Hits Back in Syria After Iranian Drone Invades Israeli Airspace. 2018. Retrieved from: https://www.heritage.org/middle-east/commentary/israel-hits-back-syria-after-iranian-drone-invades-israeli-airspace

[60] J. Perlez, Chinese Plan to Kill Drug Lord with Drone Highlights Military

Advances, 2013, The New York Times. https://www.nytimes.com/2013/02/21/world/asia/chinese-plan-to-use-drone-highlights-military-advances.html

[61] New America, Who Has What: Countries Developing Armed Drones, https://www.newamerica.org/international-security/reports/world-drones/who-has-what-countries-developing-armed-drones/

[62] Dassault Aviation, Introduction. 2003. https://www.dassault-aviation.com/en/defense/neuron/introduction/

[63] Nigerian Civil Aviation Authority, NCAA. UAS Regulation, NCAA-GAD-AC-001.

[64] Advisory Circular, Unmanned Aircraft System Operations in Nigeria's Airspace—Guidance. 2019. NCAA-GAD-AC-001.

[65] M. Byrne Consent and the use of force: an examination of 'intervention by invitation' as a basis for US drone strikes in Pakistan, Somalia and Yemen Journal on the Use of Force and International Law Volume 3, 2016 - Issue 1

[66] M. Muller, the Fog of Drone War: Lessons from the U.S. and European Armed Drone Policy. American Institute for Contemporary German Studies, 2019.

[67] D. Cox & R. Kassemt, Off the Record: The National Security Council, Drone Killings, and Historical Accountability. 2014 https://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?article=1388&context=yjreg

[68] H.R. McMaster, Midterm Assessment, The Trump Administration's Foreign and National Security Policies, Edited by John Hannah & David Adesnik, January 2019

[69] UK Joint Committee on Human Rights, The Government's policy on the use of drones for targeted killing, Second Report of Session 2015-16, 10 May 2016, available at: http://www.publications.parliament.uk/pa/jt201516/jtselect/jtrights/574/574.pdf

[70] The Bureau of Investigation, Afghanistan: Reported US covert actions 2017. Retrieved from: https://www.thebureauinvestigates.com/drone-war/data/get-the-data-a-list-of-us-air-and-drone-strikes-afghanistan-2017

[71] S. Cvijic, L. Klingenberg, D. Goxho, E. Knight, Armed Drones in Europe, © 2019 Open Society Foundations

[72] Patrick Obeya, Nigerian Air Force, Air Commodore, Directing Staff, National Defence College, Abuja, Nigeria, being an interview asked in 2019.

[73] Isah Yusuf, Former Directing Staff, Air Commodore (rtd), NDC, Abuja, Nigeria, being an interview conducted in 2019.

[74] Obadike, Nigerian Air Force, Former Participant, NDC, Abuja, Group Captain, being an interview conducted in 2019.

[75] H. Christof, D. Akande, L.H. Cawthorne, T. Chengeta, the International Law Framework Regulating the Use of Armed Drones. Copyright: © British Institute of International and Comparative Law 2016 DOI: Published online by Cambridge University Press

[76] P. Kpou, former Directing Staff NDC, Abuja, Commodore retired, being an interview conducted in 2019.

[77] France 24, Hezbollah says explosive-laden drone damaged its media centre. https://www.france24.com/en/20190825-hezbollah-says-explosive-laden-drone-damaged-its-media-centre

[78] T. Staff Jerusalem said to warn Hamas over drones entering Israel from Gaza. Times of Israel. https://www.timesofisrael.com/jerusalem-said-to-warn-hamas-over-drones-entering-israel-from-gaza

[79] Ambassador Sola Enitanolaiya, The Director in Charge National Geo-Political Studies at the NDC, Abuja, Nigeria

[80] Air Commodore Isah Yusuf (rtd) National Defence College Abuja Nigeria. Served as a Directing Staff.

[81] Group Capt Obadike, former Participant of the National Defence College Abuja Nigeria.

[82] P. Ratner, The U.S. military creates tech to control drones with thoughts, 2018, https://bigthink.com/mind-brain/the-u-s-military-is-developing-mind-controlled-drones

[83] RAND, the Future of the Russia Military, Russia's Ground Combat Capabilities and Implications for U.S.-Russia Competition. Published by the RAND Corporation, Santa Monica, Calif. © Copyright 2019 RAND Corporation R® is a registered trademark.

[84] Battle Space, Radar, EO/IR, Night Vision and Surveillance Update. 2020 https://battle-updates.com/update/radar-eo-ir-night-vision-and-surveillance-update-91/

[85] C. N. Udeagwu, Air Force Institute of Technology, Kaduna, Nigeria, Former Commandant, being an interview conducted in 2019.

[86] Emmanuel O. Ezugwu, Former Provost, AFIT, Prof (Engr), being an interview conducted in 2019.

[87] P. Tran, France to bolster defense spending by $2 billion. Here's the military equipment already on order, 2018. Retrieved from: https://www.defensenews.com/global/europe/2018/09/26/france-to-bolster-defense-spending-by-2-billion-heres-the-military-equipment-already-on-order/

[88] O. Olawoyin, Budget for presidential aircraft for Buhari, Osinbajo nearly doubles to N7.3 billion. 2020 https://www.premiumtimesng.com/news/headlines/250053-budget-for-presidential-aircraft-for-buhari-osinbajo-nearly-doubles-to-n7-3-billion.html

[89] Military expenditure, https://africacenter.org/wp-content/uploads/2018/12/YB17_Chapter-9-Military-expenditure.pdf

[90] J. P. Yaacoub, H. Noura, O, Salman, A, Chehab, Security analysis of drones' systems: Attacks, limitations, and recommendations