



INTEGRATIVE BIOLOGY EDUCATION A PENANCE FOR INSECURITY AND SUSTAINABLE DEVELOPMENT

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ABSTRACT

Biology education is the key to the development of any nation. Societal welfare and economic empowerment are paramount important in national development objectives of any nation and the level of sustainable development of any human society is directly dependent on the quality of science education learned and applied by the citizenry. The purpose of this paper is to examine the involvement of biology education in promoting sustainable development and insecurity challenges. The paper considers the concept of education and biology education as a tool for achieving sustainable development in Nigeria. It also talks about the facets of development that can be sustained through biology education which include, peaceful co-existence, research, agriculture, poverty alleviation, rural development, health and nutrition. In conclusion, the paper observed that to make science education a tool for sustainable development in Nigeria, content, teacher education, and curriculum materials should be given special attention. The paper also suggested that, citizens should develop a sense of patriotism that is to put the country above any selfish interest capable of destroying peace and harmony in the country and the teaching of biology education in all our schools should facilitate new culture of politics which make for tolerance, and political accommodation among the political class. This would enhance the survival of democracy in the country.

Keywords: Biology Education, Sustainability, Development, Nigeria, Insecurity

INTRODUCTION

Education is a fundamental human right that is critical to an individual's and society's overall well-being. It has been identified as an instilment for socio-economic, cultural, and political development and transformation, and it is at the heart of encouraging behavioral change in man. Education is essential for long-term development (Ofojebe, Chukwuma & Onajike, 2014). Education has been characterized in a variety of ways, including as a process, a product, and a discipline, according to Okorosaye (2005). It refers to the transformation that it provides to a person as a product. It is

a method of assisting an individual in realizing his full potential through a well organized process; Through education, an individual acquires the necessary knowledge and skills" needed for" lifelong sustainability and development Of the society.

Maclean (2008) observes that although there are many keys to development, such as improved infrastructure as dams, roads, telecommunication facilities, ports and the like, education is regarded as being the master key to economic and social development. Globally, demand is on education that will sustain development. The power of the people to transform the society is greater now than ever before. The global shift to industrialization and the fact that effective education can help to" ensure a wealthier, healthier, safer and sustainable development call for a serious and conscious action by all stakeholders in education, to redefine and establish educational system that would accommodate the evolving needs.

Education in Nigeria should, therefore, be geared towards the preparation of individuals for the industrial, scientific and technological age in order to achieve sustainable development and global competitiveness. The key to energizing education system throughout the country should be a consensus on content standards for the teaching and learning process (Kumar, 2000). Consequently the overwhelming call for preparation of a citizenry capable of competing in an increasingly global society that is highly influenced by science and technology brings to bare the need for qualitative biology education. The theoretical approach to learning or in most schools in the country is not enough to achieve sustainable development. Many schools are not teaching the deep knowledge that encourages creative and innovative activities, (Sawyer, 2006). The new world order and the globalization agenda of the present century are controlled by development in science (Orner, 2011). The need for a good biology education cannot be overemphasized.

Biology education is especially significant in everyday life since biology has influenced every element of existence. Biology education produces



information through discoveries and provides the learner with the necessary abilities to make life easier than it has ever been. Man produces new tools for tackling practical problems through biological instruction. It teaches citizens how to solve problems in novel ways.

Concept of Biology Education

Biology deals with the study of many varieties of lives. It is a natural science concerned with the study of living organisms including their structure, function, growth, distribution and taxonomy (Magna, 2002). Biology is the study of the structure, function, heredity and evolution of all living things: micro-organisms, fungi, plants and animals. According to Araoye (2015) biology education is a typical education which aims at training and marketability of essential skills for the well-being of man. As a matter of fact, the knowledge of plant and animal, their use and management represent one of the few opportunities of the nation's state of well-being, development and of course, productivity. Despite the enormous expanse of biology, there are some general and unifying notions that govern all studies and researchers, bringing the discipline together into a simple and logical whole. In general, biology regards the cell as the fundamental unit of life, the gene as the fundamental unit of heredity, and evolution as the driving force behind the synthesis and creation of new species. All creatures survive by consuming and changing energy and controlling their internal environment to maintain a stable and vital condition, which is now widely accepted. Sub-disciplines of biology are defined by the scale at which organisms are studied, the kinds of organisms studied and the methods used to study them. For example Biochemistry examines the rudimentary chemistry of life, molecular biology studies the complex interactions among biological molecules:- Botany is the study of the biology of plants: cellular biology which examines the basic building-blocks of all life cells, physiology which examines the physical and chemical functions of tissues, organs and organ systems of an organism.

Evolutionary biology, examines the processes that produced the diversity of life: Ecology examines how organisms interact in their environment:

Zoology, the study of animals: Pathology the study of disease of plants and animals and methods of controlling them. Entomology, the study of insects: Algaelogy which is the study of algae, parastology, the study of parasites and microbiology the study of microorganisms. Biology Education therefore is education in biology which generally aims at training individuals to understand himself or herself, the parts of his or her body and how the body parts function. Hence, the application of principles of education in teaching and learning of biology is known as biology education. It is the art of teaching and training in order to inculcate or transfer the knowledge of biology to students (Okenyi, 2012). For this can afford them the opportunity of contributing meaningfully to the development of the society in one way or the other.

Sustainable Development

Sustainable development has been defined in many ways, but the most frequently used description is that given by Brundtland Commission (1987), as "a development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs." In other words, it means a better quality of life for everyone, now and for generations to come. United Nations Millennium Declaration identifies environmental protection, social and economic developments as the inseparable components of human progress. Specifically, Ahuja (2012) stresses that economic development is expressed in the following parameters:

- i. Increase in improvement in human capital
- ii. Increase in food supply and agricultural output
- iii. Increase in income

Social development is reached when peace and unity reign while environmental protection entails maintaining safer and healthier environment. The well-being of the three areas intertwine to produce balance and sustainable development. For example, a healthy prosperous nation, relies on a healthy environment to provide food resources, safer drinking water and clears air for the people. Achieving sustainable development depends on the initiative, resourcefulness, creativity and



discipline of human beings who are the managers of developmental programmes. The ability of a nation to meet the demands of sustainable development depends on the human and physical capitals which are directly and indirectly products of science and technological education. Biology education has been identified as the tool with which to attain sustainable development. This is possible because biology education impacts the desired scientific knowledge and procedures through discovery process. Effective biology education will produce graduates that could manipulate the environment in such a way that sustainable development could be attained. Invariably, sustainable development will make the world a better place to dwell for the present and future generations.

Conceptualizing National Security

Security can be said to be the activities involved in the protection of life, properties and territorial integrity of a community against threat, mishap and other forms of destructive tendencies either from within or from outside the community. However, Babangida (2012) viewed national security as the physical protection and defense of our citizens and our territorial integrity of which it is a part but also the promotion of the economic well-being and prosperity of Nigerians in a safe and secured environment that promote the attainment of our national interests and those of our foreign partners. Furthermore, Yusuf and Babatunde (2009) asserted that security is the condition which enhances the ability of government, its agencies and its citizens to function without hindrances. Section 14 (1) of chapter of the 1999 constitution of the federal republic of Nigeria captures the importance of security when it states that security and welfare of the people shall be the primary purpose of government. Seen this way, "security is a social contract between the state and its citizens in when the former is expected to protect, defend and provide for the latter in the public area. On the other hand, Otto and Ukpere (2012) opined that security means protection from hidden and hurtful disruptions in the patterns of daily life in homes, offices or communities. Security must be related to the presence of peace, safety, happiness and

the protection of human and physical resources or the absence of crisis, threats to human injury among others.

National security in a broad sense implies the absence of threat to life, property and socio-economic well being of the people. A proper understanding of security is important for an adequate explanation of the remote causes of breach of peace and security, whether historical, religions, civil, ethnic, economic, social, political etc. that have contributed to reoccurring conflicts, which Nigeria has witnessed over the years, resulting in wanton destruction and loss of live and property. These institutions: the police military, state security agencies, immigration and prison services are charged with the responsibility for the protection of life and property and well-being of the people which is the primary purpose of government. In line with Khan (1987) nation security is taken to mean the totality of measures instituted by government to protect the territorial integrity and the cherished values and interest of the people as well as guarantee the freedom of the citizenry from anxiety, threats to life, and property and their safety from natural or manmade disasters. In addition, the dimensions of security to include: economic security, food security, Health security, Environmental Security, personal Security, Community Security and Political Security. (ibid) Odedele and Egotancoa (2010) posited that National Security means the process and act of effective protection of lives and property in a country. National security involves effective policing and careful watch against elements that could breach peace or anything that can jeopardize the social economic or political development in the country. National security from the various definitions provide above is non-negotiable phenomenon in human society. It has become more encompassing involving social, political, economic and other forms of the security calculation culminating in the concern of human security and improvement in the quality of the people.



CAUSES OF INSECURITY IN NIGERIA

A. The Reality of Bad Governance

This fact remains the basic cause of insecurity in Nigeria from the past till now. The primary function of any government anywhere is the provision of basic amenities such as water, electricity, good road network, standard education and general infrastructure. Interestingly in Nigeria these basic things are not there and the people are generally demoralized and frustrated. Logically demoralization and frustration are good fertile ground for violence and general insecurity. The lack of these basic amenities in Nigeria embarrassingly is not as a result of scarcity of funds but rather, corruption at the highest level leadership structure. A paradox of a wealthy nation with poor people in the majority as articulated by Hazen and Horner (2007).

B. The Reality of Economic Imbalance and Marginalization

This point is very glaring. Despite the harsh economic situation being experienced by the majority of the populace, very few Nigerians exhibit great affluence to the chagrin of the poor. These corrupt few tactically created this economic imbalance to perpetrate poverty among the people. The people cannot endure this forever and the consequence of this is very obvious – violent unrest. In addition to this man made imbalance is the issue of marginalization where some people or parts of the country are very intentionally excluded from benefitting from their natural endowments. Again this can only be endured for a while before the logical consequences of restiveness and demand for self-determination rear their heads in non-peaceful manners.

C. The reality of Ethnic/Religious Intolerance

In a multi-ethnic and multi-religious society like Nigeria, intolerance of other ethnic groups and religious beliefs is one of the key reasons of insecurity. The Nigerian structure's diversity, which should have been her greatest strength, has sadly turned out to be her biggest weakness. Insecurity has been encouraged in Nigeria by ethnic intolerance and religious fanaticism to the point where it is progressively becoming the Nigerian State's identity. The adherents of Nigeria's two major religions, Islam and Christianity, have never embraced one other cordially as being created by the same God and should live in harmony, especially in the

northern region of the country. Violence at the least provocation is a common occurrence there. Almost all violent crises in Nigeria are rooted in this ethnic/religious intolerance factor. Adagba, (2012); Achumba, (2013), equally maintained that the control of things like scarce resources, power, land, markets, traditional and political offices have resulted in mass killings and destruction of properties among groups in different parts of the country.

D. The Reality of Poor/Weak Security apparatus

The security system in Nigeria is considered very weak both in personnel and equipment. The security personnel are poorly and inadequately trained and poorly remunerated. As a result the expertise needed to encounter modern security challenges is not available. Equally of serious concern is the commitment of the security personnel to the Nigerian project of ensuring general security. Facts abound where these personnel abandon national interest for ethnic or regional one by sabotaging the efforts of government in achieving national security. Many of the soldiers fighting the insurgency in the northeast of the country have on some occasions been ambushed and many killed by the Boko Haram fighters as a result of information leaked to them by those who supposed to fight them. Again huge sums of money made available for the procurement of weapons have been embezzled and misappropriated or outdated equipment purchased and the culprits were not adequately punished. In some other cases weapons meant for the Nigerian troops found their ways into the hands of the insurgents. Also noted is the lack of synergy among the security agencies. The case of some soldiers that killed three police officers and wounding others in Taraba State, who were on official duty to arrest a kidnapping kingpin not long ago further showcased the weak security system in Nigeria.

E. The Reality of the Loss of Traditional Value and Moral System

The Nigerian traditional society has some ethos and values that naturally provided and sustained security among the citizenry. Such ethos and values like absolute respect for life and its dignity recognition and praise of hard work, honesty and integrity, respect for duly constituted authority, respect for the elderly persons, justice and fair play, conviviality and hospitality made it impossible for insecurity to thrive. Presently,



modernization, westernization and globalization have eroded the cherished value system that held the traditional society safe and secure and replace it with vices like adulation of materialism, celebration of criminality, dishonesty, kidnapping, banditry, cheating, get-rich-quick epidemic and general immorality. All these breed large scale insecurity.

F. The Reality of Porous Borders and Arms Proliferation

When a coup d'état occurred in Nigeria during the military government, the announcer would invariably say, "All airports, seaports, and border ports are closed; do not let any of the wanted persons to flee." This merely illustrated how porous the borders were at the time, not to mention how leaky they are now. Border controllers are significantly corrupted, in addition to the porousness of the frontiers. As a result of this tragic circumstance, a wide range of persons and weapons enter the country. Several times, criminal elements have successfully crossed the Nigerian border to carry out illicit acts and then returned. Criminals in the country have also easy access to both heavy and light arms as a result of these porous borders (Hazen and Horner, 2007). Again the porous nature of the Nigerian borders has enabled non documented migrants from countries like Niger, Chad Benin, Mali and Niamey to invade Nigeria with their criminal tendencies (Adeola and Oluyemi, 2012).

G. The Reality of Politically Motivated Insecurity

the new face of insecurity we have Nigeria today, where villages are sacked and burnt, people killed wantonly including in worship centers, passengers on our high ways attacked and abducted and either killed or freed after payment of ransoms, women and girls raped, cattle rustled, kidnapping of all sorts are allegedly done by "Fulani Herdsmen and Bandits". These were criminal elements that entered Nigeria illegally, sponsored by some Nigerian politicians to cause mayhems in the event of loss of election in 2015. The result of the elections went in their favour and these criminals were left on their own. These criminals were known to them – on the 28th of August 2019, Governor Aminu Masari of Katsina State met and dialogued with the bandits at their hide out where the leader posed for a photograph with Ak-47 gun meant for the military; on the 29th of August Zamfara bandits surrendered weapons, military uniform to the Police; on the 30th of August 50 AK – 47 Rifles were

recovered from the attackers of the deputy governor of Nasarawa State; on the 5th September Katsina governor Aminu Masari visited the Fulani herdsmen bandits camps in Faskari Local Government Area for negotiation after their leader visited him in Katsina. Currently, Abuja to Kaduna high way has been taken over by these bandits unmolested.

The Consequences of Insecurity in Nigeria

1. Underdevelopment

Just as development thrives most in a secure environment so does underdevelopment thrive in an insecure environment. Underdevelopment is a sure bait of insecurity. Development is never realized in an atmosphere of instability, fear, threats and hopelessness. For people to invest in developmental projects, they must be certain of at least relative stability and guarantee of safety. In the absence of these as a result of insecurity then the stark reality of underdevelopment takes the center stage. In the Niger Delta region, for instance, with the exit of the oil companies and their ancillary services as a result of insecurity massive underdevelopment was recorded in that region. Indeed insecurity and underdevelopment are like mother and child for they are inseparable.

2. Poverty/hunger

Poverty and hunger are inextricably linked to insecurity. When individuals are afraid of losing their lives or being killed, they are unable to go to work, both agriculturally and otherwise. Hunger and poverty result. People from the Northeast, as well as areas of the North Central and Northwest, have been forced from their natural and traditional habitats and are now living in IDP camps around the country. As a result of the insecurity, many no longer go to their farms or other places of work. Massive hunger and poverty follow as a result of these events. And more to this is that this region of the country is correctly termed the 'food basket' of the country and as a result of non-production of food in this region presently, the entire country is feeling the pinch of hunger and poverty. The cost of living in Nigeria today has risen up to 500%.

3. Insurgency/Militancy/Youth Restiveness

The emergence of these three identical factors is attributed to the state of insecurity in Nigeria. In a situation of lawlessness and a seeming failure of



the State the youth component of that particular society will engage themselves in these acts above. This is the true story of Nigeria for some time now. Insurgency in the Northeast, militancy in the Niger Delta and youth restiveness in the Southeast and Southwest currently define Nigeria as one of the most unsafe places to go to in the whole world and so many countries in Europe and America are warning/advising their citizens about the danger of travelling to Nigeria.

4. Drug abuse/Kidnapping/Armed Robbery

Insecurity is a hydra-headed malaise that is equivalent to Pandora box. The issue of drug abuse has defied all security checks as some of the security agents are also involved in it. The Nigerian government has recently banned the importation of some of these highly abused drugs like tramadol and codeine and still they are everywhere in the open market. Kidnapping and armed robbery are inseparable twins that have wrecked unprecedented havoc in Nigeria today. No single day passes without at least ten cases of kidnapping or armed robbery operations. It is so worrisome that even security agents (policemen) were abducted and ransom demanded for their release. Nigeria is so unsafe as a result of this unfortunate state of affairs that a sitting governor in the northern part of the country did not vote in the last February 2019 general elections for fear of being kidnapped.

5. Brain Drain

Insecurity in the country has unfortunately led to the flight of so many of our professionals in different sectors of our life as a nation. The insecure environment in place could not guarantee the safety of these brains to function to uplift our national life and they have to leave to other climes that provide security. Nigeria is paying dearly for this exodus of our best brains.

6. Poor Image in the International Community

The insecurity situation in the country has given Nigeria a very poor image abroad to the extent that investors are no longer considering the country as an investment zone. They now consider other countries around Nigeria and even some investments in the country are being relocated to nearby West African countries (Campbell, 2009). Nigerians

travelling abroad are now being subjected embarrassingly to extra checks because of where they are coming from.

Role of Biology Education in National development

The erroneous belief that biology education is meant to enable students pass prescribed examination and meet the requirement for admission into tertiary institutions has negatively impacted on the attention and interest that students should pay to the subject. Biology education should play the following roles in national development

1. **Promotion of Good Health Practices:** One major objective of biology education is to promote good personal and community health practices. Students are made to acquire knowledge of the causes, mode of transmission, symptoms and control methods of many diseases. These include water borne diseases such as cholera, dysentery and poliomyelitis and air borne diseases such as tuberculosis, whooping cough and measles.
2. **Management of Refuse and Household Wastes:** Many cities in Nigeria today are defaced by heaps of refuse generated daily in our homes and markets. The cities not only look unsightly and unkempt but sometimes are filled with unpleasant stench of decomposing organic matter. Simple waste management principles acquired from biology education can provide the knowledge required to deal with the problems of waste disposal and save the nation from the attendant effects of poor waste management and heavy cost of machinery which are difficult to maintain and very frequently go out of use.
3. **3. Reduction of Ecological Issues:** Human activities such as deforestation, obstruction of natural waterways and canals by property developers, and refuse exacerbate many ecological issues such as desertification, erosion, and flooding that are prevalent in today's communities. Through vegetation management and waste disposal, biology education can provide the information needed to counteract desert encroachment and gully erosion. Biology education addresses current world difficulties such as global warming, pollution, and ozone layer depletion, as well as their solutions.



4. **Promotion of Good Nutritional Practices:** Biology education explains the nutritional values of most food items consumed in Nigeria. The requirement of the human body of various food types such as carbohydrates, protein, fats and oils, vitamins, mineral salts and water are stressed. This is started in the form of balanced diet which is a diet that contains the right proportion of all the food types needed by the body. This knowledge will prevent many food deficiency diseases such as kwashiorkor in children, scurvy, beriberi and goitre which are brought about by poor eating habits. The health implications of obesity are also explained. The objective of eating right is to ensure the availability of a healthy population that will contribute to national development.
5. **Peaceful Co-existence:** Economic growth and sustainable development can only be achieved in a peaceful environment. Biology education accords a student some basic attitudes as teamwork, open-mindedness and respect for people's opinion. These positive habits acquired in the school will likely be applied in later lives to promote peaceful co-existence in the society. Quality education makes people better neighbours and citizens and makes political and social life more healthy and meaningful.
6. **Research:** Teaching science as inquiry brings the students to the world of inquiry and discovery while in school. This approach will stimulate research in the future science graduate. This will bring about technological changes in the economy and increase in productivity development. Biology education creates new employment opportunities through research.
7. **Agriculture:** Sustainable agriculture may be defined as environmentally friendly methods of farming that allow the production of crops and animals without damage to human and natural system. Scientific skills and knowledge can lead to technological change and modernization in agriculture. Better agriculture will lead to employment opportunities, increase in food production and reduction in Poverty.
8. **Poverty Reduction:** Poverty reduction is an important component of long-term development. The level of earned income is clearly linked

to the level of schooling (Ahuja, 2012). As a result, if a large number of people are exposed to high-quality education, poverty will be considerably decreased. Biology education provides students with the required skills and knowledge, such as critical thinking, that can lead to discoveries and technological innovation. Many scientists who make important discoveries become extremely wealthy as a result of their work. Bill Gates and Emeagwai are two excellent examples.

9. **Health and Nutrition:** Biology education provides skills, scientific discoveries and technological advances in medicine and food production. Science has led to the discovery of better drugs for the treatment of some serious diseases plaguing mankind. Better food and healthier environment mean more productive society which falls under the realm of sustainable development.
10. **Rural Development:** If Nigeria is to achieve sustainable development, the benefits of biology education must be directed toward rural development. Biology education gives skills that can lead to technical growth, which, if distributed to rural areas, can speed up the country's development. Individuals who have received a biology education are better prepared to make bigger contributions to society. The difference between developing and developed countries, according to Ochu (2007), is dependent on the quality and quantity of science and technology they have. Agriculture and rural development can help to alleviate poverty and unemployment.

Challenges of a Sustainable Development

1. **Funding:** The Success of any education depends largely on funding. This is because inadequate funding militates against the provision of quality education. It adequately affects provision of infrastructure, facilities and needed number of teachers. Nwangwu (2004): reported that ill equipped workshops, libraries and laboratories exist because of serious shortfalls and inadequacies in education funding.
2. **A lack of instructional materials:** Instructional materials are facilities, equipment, or resources that a teacher uses to show, emphasize, and explain teachings to pupils in order for them to understand them better. According to Efang (2005), the availability and utilization of



instructional resources have a major impact on the pupils'/students' performance. In addition, according to UNESCO (2000), instructional materials are critical in the implementation of the curriculum. Some sections of science are riddled with abstract concepts that students find difficult to comprehend. Availability and use of instructional materials in teaching such difficult concepts will make for better understanding and thus enhance achieve the objectives of biology education.

3. Large Class Size: Teacher –pupil ratio is a very big challenge to biology teachers of biology education. According to the Federal Republic of Nigeria (FRN, 2004), the teacher –pupil ratio should be 1:35. This is contrary to the 1:60 most schools have in the southeast. For science teachers to carry out their teaching very well, they should be able to encourage the pupils positively, show love, recognize individual differences and plan cooperative teaching with the pupils. The large number of pupils under the control of the teacher incapacitates and create interactional gap between the teacher and the learners. The type and quality of interaction that exists in the classroom does not only determine the effectiveness of teaching and learning situation but also the attitudes, interest and even the personality of learners (Mbakwe, 2005).

4. Remuneration and Improved Work Conditions of Biology Teachers: It is a known fact that optimal working condition for teachers directly contribute to the good quality of public education (Igbuzor, 2006). It is necessary for the government to rehabilitate and restore the image of science teachers. This could be done by enhancing teachers' packages. Science teachers' housing, accommodation and utility allowances should be increased. Transfer allowances should be paid to teachers who go on transfer and those who dwell in rivervrine and rural areas to perform their duties should be given special allowances to motivate teachers.

5. Teaching Methodology: Methods are means that teachers use to drive home their lesson presentation thereby making learning experiences concrete to learners. Mbakwe (2005) asserts that a teacher's teaching technique is what distinguishes him or her as a professional. Learners in the old system were merely spectators, listening and digesting everything the lecturers said. Teachers should give learners with basic information,

values, and abilities, as well as some degree of freedom to allow learners to initiate and complete learning with minimal intervention, in order for them to reach the science objectives.

6. Political Instability: Rarely in the history of Nigeria have the demands of democracy and the needs of economy been so closely aligned. It is in the nation's best interest that democracy is sustained and allowed to flourish. Sustaining the country's democracy is vital to maintaining political stability, to consolidating the market economy, to regaining and sustaining international investors' confidence in the country, and to strengthening its position as an emerging economy.

Prospects of Biology Education as a Penance for Insecurity and Sustainable Development

The prospect of biology education is very slim. Poor governance is significantly slowing progress towards biology education and undermining the quality of biology education services. Despite the challenges of biology education in Nigeria, some prospects are reviewed under the following headings:

(1) Health Care and Education

Biology has many applications, both in the natural environment and the environment of health and education. Studying biology allows health care workers to understand the living systems of the body and to apply the knowledge in direct ways to recover and maintain the physical health of both animal and human patients. Biology education, if improved by the government will help the biology educators to teach the study of life to future generations.

(2) Understanding living system and Critical Thinking

Biology education will help to increase understanding of living systems and to allow people to consider the system in relationship to self and other organisms in the natural environment.

(3) Employment

Biology education in Nigeria will educate students for a career in either education or industry, where they will be directly involved in the study and development of pharmaceuticals, food products, and biotechnology. Biology study can also prepare you to work for the government as a



manager of animal environmental studies, river systems, or biological waste. People in Nigeria will be able to learn many of the skills required to succeed in business, such as the fishing company, if biology education is improved (Augustana, 1999).

(4) Program Goals

Biology education will provide a comprehensive education in biology that stress scientific reasoning and problem solving across the spectrum of discipline within biology. It will enrich students with opportunities for alternative education in the area of biology through undergraduate research, internships and studying abroad.

(5) Learning Aspect

Biology education will help the learner to be able to read, understand, and critically interpret the primary biological literature in his/her area of interest and to apply basic ethical principles to basic and applied biological/biomedical practice and will understand the role of biology/biomedical science and practitioners in society.

CONCLUSION

Biology education has the potential to be a critical component of national development integration. Its good instruction has the potential to make a significant contribution to Nigeria's national security. Positive attitudes, proper values of honesty, integrity, hard effort, fairness, justice, and togetherness, all of which are important for national development, should be instilled in children from an early age. When youths are well-informed, educated, and have learned basic social skills and attitudes, they will contribute to national security and the country's peace and development. The citizens must all identify themselves with the nation by upholding the ideas and values of the society and also place nation's interest first before personal ones this will ensure national security in Nigeria. Also for country to be secured, the citizens through biology education are given the right education, values, social skills and attitudes this would promote national integration and sustainable peace in the country. Biology education has respect and value for cultures hence it does not relegate any ethnic group and her culture as exemplified by the principle of cultural relativism.

RECOMMENDATIONS

From the foregoing discussion, the following recommendations were made to prevent occurrence of conflicts and insurgency and also ensuring national security in Nigeria. These include:

- i. The citizens should develop a sense of patriotism that is to put the country above any selfish interest capable of destroying peace and harmony in the country.
- ii. The teaching of biology education in all our schools should facilitate new culture of politics which make for tolerance, and political accommodation among the political class. This would enhance the survival of democracy in the country.
- iii. Citizens should pay their taxes regularly to enable the government generate the needed revenue to finance national security
- iv. Cases of planned unrest or mutining be reported to appropriate security agents.
- v. Workshop, seminars and conferences should be organized for security agents which comprises of the police, military and intelligence agencies on how to maintain and combat various crimes in the country.
- vi. Political players should be encouraged to avoid the politics of bitterness. Our religious leaders should try to preach sermons that will promote peaceful coexistence among country men in their worshipping places.
- vii. Political leaders should avoid the use of incitive languages that can cause inter or intra ethnic crisis.
- viii. Poverty and unemployment should be reduced to the bearest minimum
- ix. Officers and men of the security outfits should have access to training and retraining programmes to update their knowledge towards combating insurgency and aggressions.

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