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SCIENCE AND TECHNOLOGY: A MISFORTUNE IN CAMOUFLAGE FOR NIGER DELTA TERRITORY

AJIBOYE BABATOPE MATTHEW
Department of Peace and Conflict Studies, Federal University Oye-Ekiti.
Email: babatope.ajiboye@fuoye.edu.ng

&

AWE ENE NORAH
Department of Peace and Conflict Studies, Federal University Oye-Ekiti.
Email: ene.awe@fuoye.edu.ng

Abstract

Science and technology have led to notable breakthrough universally and in the Nigeria's Niger Delta territory in particular. Part of this breakthrough led to the discovery of oil in 1956 at Oloibiri, Bayelsa State located in the Niger Delta territory. On the heels of the discovery is the consequential drilling of oil which was supposed to be a blessing but ironically turned out to be a serious setback for the region. This is because the Niger Delta people have been subjected to all manner of untoward hardships and the region made to wobble in unpleasant state due to the installations of scientific and new technologies needed for oil exploration by the multinational companies. This paper therefore critically appraised how science and technology have contributed immensely to most of the encumbrances, misfortunes and problems in the region. Secondary source of data collection was employed and analyzed qualitatively. The work revealed that science and technology being an influencer has been responsible for encumbrances like ecosystem destruction, negative impact on agricultural development, reliance on oil and threat to health of inhabitants in the region. The paper concludes that science and technology have wholly been responsible for most of the malaise experienced in the Niger Delta territory. The paper recommends that government should be proactive by making sure that Multi-National Oil Companies (MNOCs) operating in the region adheres to Paris Agreement, known as the United Nations Framework Convention on Climate Change (UNFCCC) signed in 2016.

Keywords: science, technology, misfortune, camouflage, Niger Delta.

Introduction

The Nigeria's Niger Delta has seen a lot of literature written by scholars and researchers. Akpovuyono (2012) observed that, the Niger Delta region of Nigeria has become a site for scholarly inquiry in many and varied ramifications. Shockingly, most of these works either focused on militant groups coupled with their heinous crimes in the region or the documentation of the pitiable state of the region. None have really espoused how science and technology continued to be influencer of most of the maladies in the region. The much celebrated breakthrough in science and technology worldwide, in Nigeria and most

significantly in the Niger Delta region has sarcastically and ironically impeded the livelihood of inhabitants of the region. This is done through continuous oil exploration and other mining activities by transnational corporations like Exxon Mobil, Chevron, Statoil, Shell Petroleum Development Company (SPDC), Nigerian Agip Oil Company Limited et cetera.

Apparently, a number of untoward hazards have both been caused on people and the environment. In turn, it has contributed greatly to the ordeal, unpalatable and pitiable livelihood of the people in this particular milieu. The peak and watershed of these anomalies led to the emergence of groups like Movement for the Emancipation of Niger Delta (MEND), Niger Delta People's Volunteer Force (NDPVF), Niger Delta Liberation Front (NDLF) and Niger Delta Vigilante (NDV) which underlining mission were to draw the attention of the world to the worrisome state of the region. As a way of unearthing their grievances, the groups later shift ground from what was originally meant for by engaging in pipeline vandalization, kidnapping and hostage-taking of foreign expatriates et cetera. None of these groups, at their inception, had violent inclinations as their objectives. The prevailing circumstances forced these formations into violence some of which have degenerated into criminal activities (Okumagba, 2009 p.318).

Having assumed a worrisome dimension, the former Nigeria President, Late Umaru Musa Yardua came up with Amnesty programme meant to dowse tension and also to keep bay hostilities, pipe-line vandalism and kidnapping of foreign nationals in the region. Espousing the Amnesty programme, Agbegbedia (2014 p.185) observed that, Amnesty for ex-militants was not an event, but a declaration to show the commitment of government towards achieving peace in the Niger Delta Region. Despite the laudable Amnesty programme and many other initiatives considered by government as answers to many of the problems in the region and in turn to make the Niger Delta Region a safe haven for inhabitants, it is however lucent that Science and Technology being the catalyst and influenza behind the quagmire in the region has not been tamed.

In the words of Bernard Shaw (1856-1950 an Irish playwright cited in Khalil, 2011), 'Science is always wrong. It never solves a problem without creating ten more'. This famous statement concurs with the fact that science and technology have not only been the catalyst but also the drivers for many of the problems in the Niger Delta Region of the country. For instance, the giant stride of science and technology via mass production of sophisticated weapons has greatly aided the activities of the men of the underworld in carrying out their nefarious activities like kidnapping, oil bunkering, piracy, banditry, hostage- taking and others.

Therefore, looking at the configuration of Nigerian society, it could be expressly stated that out of the regions that constitutes the nation, without equivocation and contradiction whatsoever, one of the fortune concentrated zone and most affected part by science and technology is the Niger Delta region of the country. It is against this backdrop that the paper seeks among other things to probe into some of the problems orchestrated by science and technology via oil exploration by multinational companies in the Niger Delta region of the country; with emphasis on general idea of the region, historical development and conceptual explanation of science and technology and list of encumbrances and impediments such as ecosystem destruction and environmental pollution, negative impact on agricultural

development and reliance and dependency on oil and threat to health of inhabitants of the region.

Objectives of the study

The objectives of this paper include:
To analyze the Niger Delta territory
To examine the historical development of science and technology
To examine the misfortunes orchestrated by science and technology in the Niger Delta territory

Research methodology

Secondary source was adopted for data collection. This was done through library sources, books, journals, magazines, conference papers and other works applicable to the study. The internet was also found helpful for the inquiry. The gathered data were critically and thoroughly analyzed which subsequently led to logical conclusion.

Scope of the study

Akin to the topic, it covered the Niger Delta territory but with special consideration of the core states of Bayelsa, Delta and Rivers where the opprobriousness of science and technology via oil exploration by multinational cooperation are most felt.

The General Idea of Niger Delta Territory

The Niger Delta region portends two distinctive narratives. One, in the sense that it represent a richly blessed or fortune concentrated zone; where nearly every States of the federation depend heavily on for monthly allocation with which they pay their workforce and also for project execution. Secondly, it is a contrast whereby all manners of unpleasant, misery and impoverishment even in the midst of plenty remain the fate of the inhabitants. This condemnation has been as a result of the scientific and technologies needed for exploration of crude oil which is traded for monthly upkeep of other regions. According to Asika (2012 p.216), Niger Delta enjoys a reputation of one of the poorest, neglected and dilapidated area in Nigeria though it generates the highest proportion of wealth for the country.

Thus, going by popular conception, it is the economic mainstay of the nation. This proof is not farfetched from the fact that the region is wholly responsible for oil business which the country is known to be a major player in the world. However, the region is not restricted or limited to this feature alone. The region is also known for its unique and highly diverse ecosystem which is supportive of various types of vegetation and aquatic features. For instance, Eregah and Irughe (2009 p.160) observed that, the region is the most blessed deltas in the world, in both human and material resources. Ebegbulem *et al* (2013 p.279) noted that, the region consists of a number of distinct ecological zones, coaster ridge barriers, mangrove swamps, fresh water swamps, forests and lowland rain forest is dominated by rural communities that depend solely on the natural environment for subsistence living. Correspondingly, Ndinwa *et al* (2012 p.334) opined that:

> The inhabitants of the area derive a wide range of natural resources from the mangrove forest; including herbal medicine, fish, timber and vital ecosystem

> services like stable oil and a flourishing habitat for a variety of wildlife, such as several endangered species, such as the delta elephant, the white-crested monkey, and the river hippopotamus.

According to World Bank (1995 as cited in Akubor, 2012 p.164) described and defined the Niger Delta environment as an area consisting of vast plain of alluvial sedimentary deposits, exposed to flooding and crisscrossed by a lot of rivers and creeks whose banks are made of levees bordered by areas mainly consisting of black swamps of equatorial forest and numerous lake-like water logged depressions; where heavy rainfall and surface flow can hardly be drained by gravity. The region is made up of nine oil producing states of; Abia, Akwa-Ibom, Bayelsa, Cross-River, Delta, Edo, Imo, Ondo and Rivers with population of inhabitants estimated at thirty-one (31) million (Akpokodje and Salau, 2015 p.68).

Historical Development of Science and Technology

The vocation called science today is traceable to the speculative activities of the Greek Ionia thinkers like Thales, Anaximander, Anaximenes, Heraclitus and other philosophers. Their initial efforts were aimed at unraveling the original stuff the world is made from. Put differently, the myth and mystery enshrouding phenomena. This challenge saw them came up with four different speculative answers that the world consist of components like earth, air, water and fire. Their modus operandi which was through speculative approach made them not so convincing and led to the emergence of medieval scientists. The medieval scientists also known as alchemists succeeded the Greek Ionia thinkers and their efforts were centered on matter. They were more successful than the Ionians; they had landmark achievement in transformation of elements which resulted to another substance. For instance, the idea of getting gold from base metal if the right quantity of mercury is added was made possible by them.

In the 17th century, the alchemists had changed to chemists, the science known today as chemistry. There was also development in Physics; and notable among such physicists is Britain's greatest scientist, Isaac Newton who invented a reflecting telescope. In 1687, Newton propounded his theory of gravity and law of motion. For law of gravity, there is a universal force (gravity) responsible for attraction of all objects in the universe. While for law of motion, it was meant to explain the movement of planets. Other physicists of this period were Robert Boyle noted for the Boyle's law, Christian Huygens who discovered Titan, the moon of Saturn and others. By 18th century, the breakthrough in chemistry continued to dominate other science field. For instance, the greatest chemist of the 18th century, Antoine Lavoisier (1743-1794), discovered that during combustion, oxygen combines with substances. He also discovered the role of oxygen in respiration and corrosion of metals (Lambert, 2019).

In 19th century, there was significant progress in science. It was during this era that Michael Faraday (1791-1867) invented the dynamo. Another stride in Physics saw James Maxwell (1831-1879) showed that light is an electromagnetic wave. Charles Darwin also propounded evolution theory that species of animals could change. That is, change from one specie to specie. However, in 20th century, there was even bigger significance in science. For instance, Albert Einstein (1879-1955) revolutionized physics through his theories of Special Relativity in 1905 and the General Theory of Relativity in 1915. Medicine as a discipline in science made

also made great advances. For instance, Alexander Fleming (1881-1955) discovered penicillin. While in 1953, the duo of Francis Crick and James Watson discovered the double-helix structure of DNA. At the end of 20th century genetic engineering became possible (Lambert, 2019).

On the other hand, the notion technology is often seen as the application of science which translates creation of things of immense value to humanity. In other words, the process by which scientific knowledge are transformed into practical application is known as technology. The historical development of technology is extraordinary from the archaic period of existence to the modern time. Between the primordial and modern eras, six different ages have been identified; which includes Eolithic, Paleolithic, Mesolithic, Neolithic, Bronze and Iron. It is to be noted that all these ages also represents the different development and transformation that technology has undergone. The Iron Age which is the latest age is synonymous with the strengthened, robust and efficient technology which has permitted the creation of tools, materials and weapons needed to carry out man's activities easily.

Definitions of Science and Technology

The word science is consequential of the Latin word '*scire*' denoting to 'know'. Nearly every individual associated with science ever since the period of Aristotle has made concerted effort at defining science as a field of enterprise with emphasis and consideration centered on general acceptability of such definition. In conformity with the above standard, various definitions have however been offered by scientists, technologists, authors, scholars who are domiciled in the field of science and technology with the sole aim of explaining the essence and core of both discipline in relation to man and society.

One may not be forgiven for looking past a better place to start the definition of science if one fails to take into consideration the version offered by the National Academy of Science (2008) where it was espoused as, "the use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." In a similar vein, the Science Council in 2009 which agenda was primarily centered on fine-tuning a more encompassing and general definition which could be given to science saw the council posited that, sit is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence. Passing a dispassionately remark about the above definition, Grayling opined that:

> Because 'science' denotes such a very wide range of activities a definition of it needs to be general; it certainly needs to cover investigation of the social as well as natural worlds; it needs the word 'systematic' and 'evidence'; and it needs to be simple and short. The definition succeeds in all these respects admirably, and I applaud it therefore (The Guardian, March 4, 2009).

Another model of reasoning sees Ogunleye (2011 p.316) succinctly defined science as the systematic study of anything that can be examined, tested and verified. He further buttressed and made clarity on the enterprise science by stating that, it is a human activity through which problems and questions dealing with natural phenomena can be identified and defined and solutions proposed and tested. However, in a dissimilar conception of science, Austin (2017)

propped that, definition of science poses some problems for people. Everyone seems to have an idea of what science is, but articulating it is difficult. He however gave a very short and classical definition of science to simply mean "knowing".

However, a slight difference in conception saw US Supreme Court 1993 cited in Hohenberg (2010 pp.1-2) argued that, Science is not an encyclopedic body of knowledge about the universe. Instead, it represents a process for proposing and refining theoretical explanations about the world that are subject to further testing and refinement. But, in order to qualify as 'scientific knowledge,' an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation—that is, 'good grounds,' based on what is known. In short, the requirement that an expert's testimony pertain to 'scientific knowledge' establishes a standard of evidentiary reliability. Having highlighted some of the definitions of science as put forward by the various authors and science inclined institutions, our next point of call is to extend the same approach to technology.

While the term 'technology' like any other technological terms lacks a single universally adduced definition and meaning, just as Hughes (2004 cited in Adam, 2017) observed that, "Technology is messy and complex, it is difficult to define and to understand. In its variety, it is full of contradictions, laden with human folly, saved by occasional benign deeds, and rich with unintended consequences." Not that alone, he also made a very fascinating analogy in which he sees defining technology as problematic in the sense that, 'it is as difficult as grasping the essence of politics' (Hughes 2004, as cited in Adam 2017).

Nevertheless, the position expressed above does not in any way negate the fact that several definitions have been offered through the works of scholars, intellectuals and researchers in the field. Hence, one could not think past of a better direction to start defining technology than consulting the Wikipedia. It considers technology as the entities, both material and immaterial, created by the application of mental and physical effort in order to achieve some value (www.wikipedia.comRetrieved 20 March, 2020). In this definition, it is seen as a tool and machine needed to make about a change germane to solving human multifarious challenges or put differently, real- world problems.

A simple and unambiguous explanation of what technology means sees Fernald (2014 cited in Adam, 2017) defines technology as 'Ability to convert society's resources (labor and capital) into output (goods and services that we value)'. Towing the same line of reasoning, Anyifite (2007 as cited in Oyelade and Abolade, 2017 P.42) simply described technology as the result of man's efforts to do things more efficiently and effectively. Maskus (2003 as cited in Sazali*et.al*, 2012 p.62) further thickened the conception of Technology while making clarification that technology represents 'the information necessary to achieve a certain production outcome from a particular means of combining or processing selected inputs which include production processes, intra-firm organizational structures, management techniques, and means of finance, marketing methods or any of its combination'.

Furthermore, Karehka (2013) argued that, technology is a body of knowledge devoted to creating tools, processing actions and the extracting of materials. On the contrary, one must be cautious and cognizance of the fact that this enquiry is not in any way centered, interested

in coining out a unanimous definition for science and technology. As a matter of verity, all the definitions adduced to both science and its ally, technology, none of it could be said to be superior to another. Apart from the foregoing, the definitions only add impetus to the discourse. Therefore it becomes imperative to move to the cogent issues of the inquiry.

Misfortunes and Maladies Orchestrated by Science and Technology in the Niger Delta Territory

It is worthy of note that the people in the oil producing region are not only lagging behind in terms of infrastructural development but also made to grappled with inhumane treatment arising from new technologies employed in drilling crude oil, such technologies are flexible drills, 4D seismic monitoring, hydraulic fracturing in oil and gas. The region is also enmeshed with increase in temperature, global warming, ozone layer depletion and others which are as a result of machinery introduced by technology. In the face of these anomalies, the various transnational corporations continue to make huge economic proceeds without tangible efforts aimed at addressing the environmental hazards the people are subjected to. However, the probing microscope of this inquiry is specifically dedicated under this belt to discussing the misfortunes caused by science and technology for the region.

Ecosystem Destruction and Environmental Pollution

Ever since the scientific discovery and technological drilling of oil in Oloibiri village in Bayelsa State in 1956 and ensuing discoveries of other natural resources in the Niger Delta region as well as the continued exploration in the region by the transnational and multi-national corporations, the region has been deprived of the fresh and naturally friendly state it used to be in the past. For instance, Eliagwu, a correspondent of the Commonwealth Youth Programme articulated that 'before, the Niger-Delta ecosystem contained one of the highest concentrations of biodiversity on the planet in addition to supporting abundant flora and fauna, arable terrain that could sustain a wide variety of crops and trees, and more species of fresh water fish than any ecosystem in West Africa' (The Commonwealth Youth Programme, September 8, 2014).

The unrelenting mining, extraction and exploration of resources therein and subsequent improper diffusion of waste, oil spills on land and water ways, reckless emission of gas flares into hemisphere, persistent destruction of vegetation(flora) et cetera are what is responsible and poses danger to the environment and ecological imbalance. Anejionu*et al* (2015 as cited in Akpokodje and Salau, 2015 p.68) affirmed that, the region's ecosystem has been declared one of the most endangered ecosystems in the world. The pitiable condition of environment in the oil producing states which constitute the Niger Delta region of Nigeria has not only had a telling effect on the livelihood of the inhabitants of the region, but the trend of this experience has assumed a worrisome dimension lately.

As a result of uninterrupted exploration and extraction activities by the oil multinational companies in the region and unceasing neglect coupled with the lackadaisical attitudes of the government towards her citizens in this particular setting, the awry, scary and scathing experience continues to be their lots. Making a case for the challenge it posed on the wellbeing of the people in the oil producing areas, Nweze and Edame (2016) posited that, oil exploration causes a range of environmental problems which includes contamination of both surface and

ground water, contamination of soil by oil spills and leaks, increased deforestation… and environmental degradation stemming from gas flaring. In a similar assertion, Sagay (2005 as cited in Ugboma, 2015 p.76) opined that, beside poverty and deprivation, environmental abuse and degradation are the greatest threat to the survival of the people in the oil bearing region.

A similar thought saw Adedipe (2002 as cited in Ugboma, 2015 p.76) holds that, Oil spillage, erosion and leakages from pipelines, gas flaring, flood erosion and salt water incursion have taken their ugly toll on the social and economic lives of the people in the region. Besides the social and economic aspects, the health of the people in the region has also been threatened rising from the toxic substances continuously released to the hemisphere coupled with the noise pollution which are as a result of heavy technology used in exploring crude oil. According to Ugboma (2015 p.75) noise pollution causes health hazards like hypertension; sleep loses (which can lead to fatigue and brain fag). He stressed further that, it deafens people who are constantly near them. For Atubi (2015 as cited in Kabiamaowei and Ajibola, 2017 p.63) who held a similar view that oil operations involve the release of hydrocarbons and other noxious materials into the atmosphere, gas combustion with the generation of intense heat and flares and the disposal of industrial wastes; these may affect the fertility of the inhabitants in such a manner that fecundity may fall and the birth of abnormal babies may increase.

A recent review of the plight of the people in the region sees President Muhammadu Buhari sympathized with the host communities of OML-25 (Oil Mining License). The President speaking through his Senior Special Assistant on Niger Delta Affairs, Sen. Ita Enang at the reopening of the OML-25 Flow Station in Belema, Akuku-Toru LGA of Rivers State, empathically stated that, 'I felt touched when in the address by your leaders, they are asking for school in 2019 after 40 years of producing oil for Nigeria. I am also saddened to hear that while producing 44,000 barrels of oil per day for the past 40 years through the Shell Petroleum Development Company (SPDC) that you are now asking for a hospital'.(The Vanguard Newspaper, October 11, 2019).

Negative impact on Agricultural Development

The Niger Delta region is not only one of the best wetland in Africa but also in the world. This unique feature makes the area favors agricultural practice in no small measure. Akpokodje and Salau (2015 p.68) argued that, the location of the Niger Delta region in the rainforest and mangrove forest vegetable zones of Nigeria makes it possible to have all-year-round agricultural production activities. The local people like any other region in the country in the past were famous and noted for activities like hunting, farming and fishing. In attestation to central and crucial role agriculture plays in the lives of the people in the region, Eregha and Irughe (2009 p.160) argued that, before the discovery of crude oil, agriculture was the dominant occupation of the people.

In buttressing how agriculture can be sacrosanct to rural set up, Thurlow (2008) observed that, for growth and sustainable rural economy, agricultural development must be at the fore-runner, improving the quality of human life through sustenance of carrying capacity of supporting ecosystem. However, the scientific breakthrough which led to oil discovery and

the ensuing technological exploration in the Niger Delta Region, agricultural vocation has however been made to suffer and also experience exponential decline as a result of the continued oil exploration which in a way exposed the fertile land to harmful and toxic chemicals like Sulfur dioxide (SO2), Propane, Aliphatic compound, Methane, Ethane, Toluene, Hexane and others. These substances are daily discharged on the land in the Niger Delta region; afterwards, the land becomes no longer suitable for agricultural practice.

In Delta State for instance, exploration of mineral resources has been considered a curse rather than a blessing. Oil exploration and exploitation in the State has not been of much benefit to the local communities, it has been rather a source of agony and anguish for them. Their farmlands, which were hitherto fertile and encouraged enough food production for the populace, have become highly infertile due to oil spills and gas flares. Their creeks and rivers that used to serve as their main source of protein in their diets in the form of fish, have all become covered with oil films causing accelerated fish kills (Irhivben and Omonona, 2013 p.59). This condition has also been said to be responsible for lack of livelihood and frustration for the farmers and fishermen. For example, Effiong et al (2012 cited in Akpokodje and Salau, 2015 p.69) stated that, the negative impacts on agricultural practices by oil extraction activities have contributed to the abject poverty and conditions of social deprivation experienced by communities in the region.

Also, in situations where the inhabitants rely exclusively on farming for survival, many of the farmers have been forced to migrate from their community in search of fertile lands. While a host of others have been forced to abandon the vocation and take up other means of living in urban settings. Hassan *et al* (2002) argued that in farming communities the most severe problem of such communities are poor quality of soils and other serious problems related to their farming operations.

Reliance and Dependency on oil

The reliance and dependency on oil by producing States and by extension the whole nation is glaring to the extent that all other sectors have become practically nonexistent. According to Ugoh and Ukpere (2010 cited in Kabiamaowei and Ajibola, 2017 p.59) both the Federal and the State governments are basically dependent on oil resources from Niger Delta. In the same vein, the World Bank (2011 as cited in Akpokodje and Salau, 2015 p. 68) noted that:

> To some extent, the Niger Delta is a macrocosm of the broader Nigerian nation state – which has considerably poorer developmental outcomes than much less successful economies in Sub Saharan Africa.

He added that the Niger Delta is good example of poverty in the midst of plenty. A pointer to this assertion is to remind ourselves that the Nation's annual budget is often and only premised on numbers of barrels of crude oil per day with no accommodation for other products. Without equivocation attracted, one can even draw a conclusion from the aforementioned fact that, minus the proceeds from the sale of oil from the Gross Domestic Product (GDP), invariably, what Nigeria would be left with is shambles in terms of account. The foregoing assertion is further exemplified in the of NNPC (2014) report that, revenue from oil amounts to 70%-90% of the total foreign earning from export activities annually. However,

the import of the above is that Nigerian economy (mono-economy) has only been built solely around oil. The position is made valid due to the fact that science and technology through oil discovery has rendered sectors like agriculture, tourism, mining, textile, transport and others to the background. The non-performance of these non-oil sectors has also been as a result of neglect and the concentration centered on oil sector alone. Ishaq and Ogbanje (2017 p.23) noted that:

> So much have been written on the poor performance of the non-oil sectors of the economy particularly in their contribution to value of exports, the non-oil sectors is made up of roadside economic activities, including market activities which are not captured in the calculation of the Gross Domestic Product. The gains from petroleum development came from exertion of government and joint venture oil companies and there was the temptation to go for fast rack rather than for slow process of revenue generation in the agricultural sector and other sectors like manufacturing and solid minerals.

However, for Romanova (2007) heavy dependence on the export of natural resources like oil has been shown to negatively affect a country's economic, social and political development. She stated further that, the agricultural sector is neglected, leading to an impoverishment of the rural population; oil revenues tend to displace more stable and sustainable revenue flows. For example, as a result of huge oil revenue flows, countries tend to deemphasize income taxes as a source of government revenue; volatility of oil prices makes planning difficult, hampers growth, and aggravates investment conditions. Corroborating the above position in one of his articles, Eliagwu, a correspondent of the Commonwealth Youth Programme on September 8, 2014 writes that, "many inhabitant of the Niger-Delta region have argued that the presence of oil – supposedly an abundant blessing to them – has brought about a huge paradox in the sense that oil has become more of a curse" (The Commonwealth Youth Programme, September 8, 2014).

Threat to Health of Inhabitants

Another excruciating issue the Niger Delta region has been battered with is health. There has been continuous deterioration of health of inhabitants in the region ever since science and technology brought unceasing oil exploration in the region in relation to emission of toxic substances into atmosphere, these substances constitute a great deal of hazard. This has led to attendant cases of deformity or imbalance in new born babies. Not that alone, contaminated water arising from toxic wastes that found its way to hemisphere come back as acid rain and hunt the people. Akpan (2003) observed that, study carried out in southeastern Nigeria showed evidence of acid rain due to gas flaring, which can contaminate water bodies and soils.

So, for people living in communities that exploration sites are located, habitual inhaling of combustion fumes; Carbon dioxide (CO2) and Carbon monoxide (CO) released to the hemisphere are detrimental to their health. No wonder, diseases like lung cancer, pulmonary and cardiovascular disease (heart failure), nausea, hearing disorders, blurred vision and others are common in the region. Baumuller *et al* (2011 as cited in Salami *et al,* 2012 p.185) noted that, communities have reported a range of illness associated with the pollution,

including gastrointestinal problems, skin diseases, cancers and respiratory ailments. In his view, Eteng 2010) argued that, it is noteworthy that the devastating consequences of oil exploration in Niger Delta region with its eventual hazard on both aerial and terrestrial environs are tantamount to an irreversible chain effect on both the biodiversity and safety. He argues further that contamination of the ground-water and soils affects the human health adversely (Eteng, 2010).

Conclusion

From all indications, science and technology have wholly and not in part responsible for most of the malaise experienced in the Niger Delta Region considered the treasure base of the nation. The inquiry however took an unbiased approach by discussing extensively the quagmires orchestrated by science and technology in the region. The study shows that as a result of galvanized technology, Ecosystem destruction and environmental pollution have been one of the legacies bestowed on the region. Also, agricultural development has been dwarfed and relegated as a result of oil discovery in the region. The culture of reliance on oil has not only affected the region but also creep into the Nigeria system whereby the economy has been made to carry the toga of mono-economy. Again, the health of the inhabitants has been endangered greatly. In the midst of all these encumbrances, it is safe to say that scientific and technological impairment has outweighed development in the region.

Recommendations

Based on the discussed impairments and misfortunes orchestrated by science and technology in the Niger Delta region and to a large extent the nation, the following recommendations are considered vital in taming the issues raised.

Government should be proactive by making sure that Multi-National Oil Companies (MNOCs) operating in the region complies and adhere to Paris Agreement, known as the United Nations Framework Convention on Climate Change (UNFCCC) signed in 2016. The law which centered on not endangering the ecosystem and environment, it is evident that the region is an abattoir of ecological destruction, ozone depletion and environmental pollution due to the indiscriminate discharge of toxic substances which are harmful and detrimental to ecosystem.

At present, agriculture practice has been in abeyance in the region that accounted for the majority of palm oil, banana and fish production in the past. Modern agriculture practice should be encouraged in the region. This is not unconnected with the fact that as a result of Seismic work, discharge of toxic substances like methane, ethane, sulfur and others; the soil has lost its virility thereby making it difficult to support agricultural practice. However, to improve soil fertility in the region which in turn will be suitable for agricultural purposes, there has to be encouragement of modern agriculture.

It is crystal clear that the development brought about by scientific and technological innovations invariably led to demise of other sectors of the economy like tourism, agriculture, textile and others. In other words, there has been total reliance on oil at the detriment of other important sectors. Also, there is no gainsaying that the nation has been turned a mono-economy whereby bulk and if not all of her wealth comes from oil business. The dependency

does more harm than good in the sense that a slight drop in price of oil at global market not only affects the budget or fiscal plan but also spells doom for Nigeria's economy since its fate is tied to oil. However, to remove this veil, there is assiduous need for government to explore other alternatives. That is, oil should be de-emphasized and diversification of economy given priority.

The health of the people in the zone remain non-negotiable and must not be traded at alter of oil business. Therefore, government must see as upmost priority by compelling the multi-national oil companies (MNOCs) to put a stoppage to indiscriminate gas flaring, corrosive substances to the waterways and poisonous elements to the atmosphere which are hazardous and dangerous to the health of the people.

References

Adam, T. (2017), Defining 'Technology' The Technology Liberation Front http://techliberation.com/2014/04/29/defining-technology/. Retrieved, December 4, 2019.

Agbegbedia O. A. (2014) *Gender* Mainstreaming and the Impacts of the Federal Government Amnesty Programme in the Niger Delta Region. *International Journal of Gender and Women's Studies Vol.2*, No. 2 pp. 177-195.

Akpokodje, J. and Salau, S. (2015) " Oil pollution and agricultural productivity in the Niger Delta of Nigeria" *Journal of Environmental Economics Volume 6*, Issue 4, pp.68-75.

Akpovuyono, S. A. (2012) *Five Decades of Oil Production in Nigeria: Impact on the Niger Delta* Centre for Environmental and Niger Delta Studies.

Akubor, E.O. (2012) *Five Decades of Oil Production in Nigeria: Impact on the Niger Delta* Nigeria's Valley of Death: Historicizing Environmental Degradation in the Niger Delta Impact on Human Development Center for Environmental and Niger Delta Studies

Akpan, E.R. (2003) Acidic precipitation and infrastructural deterioration in oil producing communities of Akwa Ibom State: a case study of Eket, South Eastern Nigeria *Global Journal of Environmental Science* 2(1) pp.47-52.

Asika, I.E. (2012) *Five Decades of Oil Production in Nigeria: Impact on the Niger Delta* The parasite and the Host, Oil exploration and Exploitation of the Niger Delta: The Poet's Reflection inCentre for Environmental and Niger Delta Studies

Austine, C. (2017). Defining Science – How is Science Defined? http://www.learnreligions.com/how-is-science-defined-2505

Ebegbulem, J.C. Ekpe, D. Adejumo, T. O. (2013) Oil Exploration and Poverty in the Niger Delta Region of Nigeria: A Critical Analysis. *International Journal of Business and Social Science Vol. 4*, No. 3, pp.279-287.

Eregha, P.B. and Irughe, I.R. (2009) Oil-induced environmental degradation in the Nigeria's Niger Delta: The multiplier effects *Journal of Sustainable Development in Africa, Volume 11*, No. 4.pp. 160-175.

Eteng, A. (2010) The Nigerian State, Oil Exploration Community Interest: Issues and Perspective. Port Harcourt: University Press.

The Guardian (2009) what is this thing we call science? hhtps://www.guardian.com/science/

Hassan, C. et al (2002) Impact of International Trade and Multinational Cooperation on the Environmental and Sustainable Livelihood of Rural Women in AkwaIbom State, Niger Delta Region Nigeria Available on http://www.depot.gdnet.org

Hohenberg, P.C. (2010). *What is Science*? New York University Press.

Irhivben, B.O. and Omonona, B. T. (2013) Implication of Oil Exploration on Agricultural Development in Delta State, Nigeria *International Journal of Humanities and Social Science Invention. Volume 2*, Issue 4, pp. 59-63.

Ishaq, D. and Ogbanje, J.I. (2017) Over Dependence on Oil and its Implication for Development in Nigeria *Journal of Humanities, Management, Applied & Social Sciences Vol.1,* No. 2, pp. 25-33.

Kabiamaowei, A. I. and Ajibola, M. O. (2017) Effects of Oil Operations on Epebu Community in Bayelsa State *Covenant Journal of Research in the Buit Environment (CJRBE) Volume 5,* No. 2, pp.58-74.

Karehka R. (2013) what is Technology- Meaning of Technology and Its Use https://www.useoftechnology.com/what-is-technology/

Khalil, A. (2011). A Learning Space for Science: Define Science? https://www.nature.com/scitable/

Lambert, T. (2019) A Brief History of Science www.localhistories.org/sciencehtml

National Academy of Science, (2008) *Science, Evolution and Creationism*, NAS Pres, Washington, DC.

Ndinwa, C. Chukwuka, G. Akpafun, S. (2012) *Five Decades of Oil Production in Nigeria: Impact on the Niger Delta* Environmental Impacts of Oil Exploration andEploitation in Niger Delta Region of Nigeria Centre for Environmental and Niger Delta Studies.

Nigerian National Petroleum Corporation, (2014) NNPC business. http://www.nnpcgroup.com/Uptreamventures.apx

Nweze P.N. and Edame C. E.(2016). An Empirical Investigation of Oil Revenue and Economic Growth in Nigeria. *European Scientific Journal, 12*(25), pp. 271 – 294.

Ogunleye, B.O. and Faskin, A.O. (2011) Everyday Phenomena in Physics Education: Impact on Male and Female Students' Archievement, Attitude and Practical Skills in Urban and Peri-Urban Settings in Nigeria. *Pakistan Journal of Social Sciences, 8*(6): pp. 316-324.

Okumagba, P. (2009) Ethnic Militias and Criminality in the Niger- Delta *International Multi-Disciplinary Journal, Ethiopia Vol. 3*(3) pp. 315-330.

Oyelade, A.F. and Abolade, S.B. (2017) Historical Development of Science and Technology Education in Nigeria: Issues, Challenges and Prospects. *Makerere Journal of Higher Education 9*(2) pp. 41-49.

Romanova, I. (2007) Oil boom in Nigeria and its consequences for the country's economic development https://m.grin.com/document/67959

Salami, D.K. Oke, D.M. Fatima, K. (2012)*Five Decades of Oil Production in Nigeria: Impact on the Niger Delta* Oil Exploration in the Niger Delta and Health Challenges: Household Heads' Perceptions Centre for Environmental and Niger Delta Studies.

Sazali, A.W. Raduan, C. R. Susana, I.W.O (2012) Defining the Concepts of Technology and Technology Transfer: A Literature Analysis, *International Business Research. Vol. 5,*No.1, pp.61-71. Science Council,(2009). Our Definition of Science Accessed November 7, 2019.

The Commonwealth Youth Programme, (2014) "Environmental degradation in the Niger Delta"www.yourcommonwealth.org/economic-development/environment-

The Vanguard, (2019). OML-25 "Host Communities pleading for school in 2019 saddens me" https://www.vanguardngr.com Accessed December 17, 2019.

Thurlow, J.(2008) "Operations for Agricultural Growth and Poverty Reduction in Mozambique". Working Paper 20. Regional Strategic Analysis and Knowledge Support System (www.resakes.org) Accessed March 8, 2020.

Ugboma, P. P. (2015). Environmental Degradation in Oil Producing Areas of Niger Delta Region, Nigeria: the Need for Sustainable Development. *International Journal of Science and Technology (STECH) Vol. 4* (2) pp. 75-85.