Chapter 21

Climate Change Reflections in Conflict Resolution: A Call for Climate Change Education in Nigeria

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Introduction

The interaction involving the sun, ocean, atmosphere, clouds, ice, land and life influence the Earth's climate which has been recorded to be relatively stable over the last 10,000 years of the pre-industrial period (Climate Science, 2009). The reason which has been proven through various scientific researches is that the gases through which the Earth generates its warmth and coldness were relatively stable. This claim is supported by Farmer and Cook (2013) that "today's climate scientists tell us that models show the temperature increase with the addition of carbon dioxide; and the models do not show the temperature increase without the increase in carbon dioxide." As a result, the Earth was able to undergo its process of homeostasis (maintaining energy balance after an alteration) whenever there was an alteration up until the 1750 industrial revolution. Industrial revolution was marked with a shift from manual labour to fossil fuel driven machine-based manufacturing and changes in the way goods and services were produced. Powering industrial machines with fossil fuels and feeding the industries with logs of woods (leading to deforestation) for mass production of goods and services to better the good of humanity, marked the turning point in the earth's climate system. Hence, more carbons are emitted into the atmosphere and trees that are capable of removing them from the atmosphere and storing them are cut down. This phenomenon allowed carbon dioxide and other greenhouse gases to be trapped and retained in the atmosphere beyond the Earth's carrying capacity thereby weakening the capacity of the Earth to undergo homeostasis. As a result, Climate events such as rising temperatures, change in rainfall patterns, rise in sea level which result in extreme climate events such as drought, desertification, flooding and other climate-related stressors that exacerbate reduced availability of water, food, land, incidence of poverty and hunger, unemployment and other social, economic, and political tensions, which can lead conflict began to occur.

Conflict has been regarded as a common social phenomenon which is ubiquitous and necessary for the development of societies the world over. Many societies in the world face one form of conflict or the other owing to different factors which are categorized into personal, political, social, and economic. Such factors arise from differences in needs, ideas, beliefs, values, goals as well as scarcity of

resources. These factors lead to competitive interactions between and among societies as everyone either wants its goal and needs satisfied first with the scare resources or projects its ideas, beliefs, and values as superior to the one held by other societies. This posture degenerates into oppression of the weaker societies which is in turn resisted by the seemingly weaker societies through wars, insurrections, agitations, protests, campaigns, etc, leading to wanton destruction of life and property including the environment and its resources.

Conflict from the above narrative is inevitable in every human society since there is usually reason for competitions between and among members of societies. As a result, approaches for reconciliations and resolutions are usually put in place to resolving conflicts whenever it arises, be it among countries, ethnic and religious groups, sects within societies, family members, etc. Such approaches according to Udezo (nd) include:

1. avoidance
2. direct command resolution
3. non-governmental/third party intervention
4. compromise or negotiation
5. synergistic approach
6. religion or peace-making through faith in action

These measures irrespective of how effective they may seem have not been able to yield results in conflict resolution in Nigeria as conflicts persist in different parts of the country. This could not be far from the failure of the conflict resolution experts to engage in the analysis of how climate change can exacerbate conflict in Nigeria.

This paper reflects on the dynamics of climate change and ways through which it triggers conflicts in different parts of Nigeria.

The Concept of Conflict and Conflict Resolution

Conflict could be seen as disagreement resulting from human interactions in the quest to achieve predetermined goals which could be personal, economic, social and political. This is owed to the fact that the interacting individuals, organizations, communities, and societies uphold different needs, ideas, beliefs, values and goals. Environmentally speaking, every human need is met with an environmental resource such as land (including mineral and petroleum resources, biosphere, soil/sand), water, sun light, wind, etc. The manner and approach in which these resources are viewed, harnessed and utilized in meeting the needs of various societies, organizations, communities and individuals differ to a great measure. This difference generates tension whenever a group is aggrieved over the manner a resource they claimed ownership of has been invaded and exploited

by another group. This grievance when not properly managed, degenerates into conflict.

Conflict according to Bercovitch and Langley in Moses-Ojo, Joseph and Aliyu (2023) is a struggle or contest between people with opposing needs, ideas, beliefs, values and goals as well as over scarce resources. Odoh and Chilaka (2012) acknowledge that conflict is an enduring aspect of human existence, and hence posit that wherever a community of individuals is found, conflict arises when the communities pursue their different survival and security needs. Aligning with this position, Wall in Health of the Mother Earth Foundation (HOMEF) (2021) defines conflict as "a process in which one party perceives that its interests are being opposed or negatively affected by another party." HOMEF grouped conflict into personal, interpersonal, intergroup, interorganizational and international. On the other hand, Abdulsalam, Olokoba, Okafor and Adika (2020) categorized conflicts according to their causative agents namely:

1. struggles for the control of scarce or limited resources;
2. perceived violation of the value system;
3. psychological needs; and
4. manipulation of information to incite people.

Regrettably, the effects of conflicts in the society are devastating and sometimes permanently irreversible. Hence, the need for measures for conflict resolution as well as forestalling impending conflicts.

Conflict resolution is a process that is geared towards the reduction, elimination or termination of conflict. It consists of a broad range of activities which involves mediation, negotiation, bargaining and arbitration which fall into the conflict resolution categories (Abdulsalam, Olokoba, Okafor and Adika, 2020). A lot of efforts have been invested in the identification and implementation of different measures for effective conflict resolution. But, no efforts are being made to interrogate different ways through which climate change can birth conditions that can degenerate into conflicts among different groups in Nigeria, hence, the focus of this paper.

A Synoptic Review of the Science of Climate Change: To make mention of climate is to make mention of the atmosphere because the processes which create, regulate and influence the climate take place in the atmosphere. This underscores the relevance of the concept of atmosphere in this discourse, hence its definition.

Atmosphere

This is a thin layer of odourless, colourless and tasteless gases surrounding the earth. Other descriptions of the atmosphere as articulated by Orr (1959) and Farmer and Cook (2013) include the following:

1. a great protective canopy;
2. a roof overhead;
3. envelop of gases;
4. ocean of air;
5. blanket of air worn by the earth;
6. storehouse for nature's secrets;
7. succession of shell encompassing the earth; and
8. Earth's thermostat.

Orr (1959) went further to view the atmosphere as the most precious resource and as a result, a necessity for all living things whose gases permit us to refine our metal ores, run our automobiles, and carry on a hundred and one ordinary daily activities. The atmosphere as a product of the whole process of creation and subsequent geologic events was in the beginning, of the right composition whereby the portions of the sun's rays that would destroy life were cut out, leaving the life-sustaining parts. There is abundance of water which is picked up in the atmosphere and spread over the land. The air is also in the right composition of oxygen and nitrogen for the needs of our bodies (Orr, 1959; Theis & Tomkin, 2012; Farmer & Cook, 2013). The atmosphere is the envelop of gases surrounding the solid planet, the hydrosphere and biosphere. The composition of the atmosphere consists largely of two elements, oxygen and nitrogen.

Other chemical components of the atmosphere are shown in the table below:

Table 1: Chemical Components of the Atmosphere

S/N	Component	Chemical abbreviation	Volumw (%) (Dry Air)
1	Nitrogen	N_2	78.08
2	Oxygen	O_2	20.98
3	Argon	Ar	0.93
4	Carbon dioxide	CO_2	0.039
5	Neon	Ne	0.0018
6	Helium	He	0.0005
7	Hydrogen	H	0.00006
8	Krypton	Kr	0.0011
9	Xenon	Xe	0.00009
10	Methane	CH_4	0.0017
11	Ozone	O_3	0.00006

It is the presence of these gases in their right proportions in the atmosphere that thrives life on earth hence Orr's (1959) declaration that where there is no atmosphere, the earth would be sterile without weather, cloud or multi-coloured sunset. From Kerry and Kerry's (2007) view, the atmosphere could be conceived

as an envelope within which all other environmental conditions and processes operate, including precipitation, humidity, winds, ocean currents, sea levels and all of the biological and even economic processes affected by these. The atmosphere regulates the quantity and quality of light (sun rays entering and leaving the earth), rainfall, wind, temperature and humidity of the earth. This is the reason Cunningham and Saigo (2010) describe the atmosphere as a great weather engine in which a ceaseless flow of energy from the sun causes global cycling of air and water that creates our climate and distributes energy and material through the environment.

Weather

The meaning of climate will be enhanced with the understanding of the term "weather" whose change is sometimes mistaken for climate change. Weather according to Cunningham and Saigo (2010) is a description of the physical conditions of the atmosphere while Theis and Tomkin (2012) describe weather as short-term state of the atmosphere. Atmospheric conditions which determine the weather of the earth are air, wind, pressure, precipitation, humidity and temperature. Weather is created by the movement of large air masses of differing temperatures and moisture content around the globe, pushed by wind generated by pressure gradient created by ceaseless flow of solar radiation into the atmosphere. Weather is commonly understood as change in the atmospheric conditions of the day. According to farmer and Cook (2013), Weather is the state of the atmosphere at any given time. It is what happens today, tomorrow, or predicted for the next week or 10 days. Change in the atmospheric conditions could occur on a daily, weekly, monthly, yearly or seasonal basis.

Climate

Climate according to Orr (1959), is the sum total of all the weather that occurs at any place. Climate is a description of pattern of weather in a region over a long time period. Climate is the average of the weather. Climate could be seen as the weather of a place averaged over a long period of time with thirty (30) years as the minimum. World Meteorological Organization in Farmer and Cook (2013) succinctly defines climate as "weather over a long period of time, usually taken to be at least 30 years." Measurements of climate include the averages of the daily, weekly, monthly and yearly weather patterns, the seasons and even a description of how extraordinary events, such as hurricanes occur (Theis and Tomkin, 2012). The measurements are taken for at least thirty (30) years before a deduction on the state of the climate could be made. Climate is created by global cycling of air and water as a result of ceaseless flow of energy from the sun into the atmosphere.

Climate Change

The United Nations Framework Convention on Climate Change (1992) defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is observed over a comparable time period". Climate change is also a long-term change in the earth's climate as a result of alteration in the amount of energy that comes from the sun (insolation) and changes in the properties of the earth (albedo and atmospheric gases) that determine how long that energy stays in the earth system. This change according to Sharma (2009), occurs due to imbalance in the energy flux of the earth which causes the earth's surface to get warmer thereby affecting the elements of the climate system (air, wind, pressure, precipitation, humidity and temperature). Climate change can also be seen as a change in the climatic conditions of the atmosphere over a long period of time occasioned by constant heating of the air and water vapour with the energy from the sun. Climate change has been attributed to a lot of factors such as Milankovitch cycles (periodic changes in the earth's orbit and tilt), volcanic eruptions and human activities such as burning of fossil fuels (coal, crude oil, natural gas), making of cement, agriculture, etc. These factors result in a change in the distribution and intensity of energy reaching the earth's surface, thus energy imbalance is created. But among other factors, human activities have been blamed mostly due to intense use of fossil fuels to power economy since the 1750 industrial revolution.

Ozone Layer Depletion

This is the destruction of the ozone layer—a layer in the stratosphere ten to twenty-five miles above the earth by certain chemicals. This layer prevents much of the sun's damaging ultraviolet (UV) radiation from reaching the surface of the planet. Chemicals containing chlorine and bromine have been linked to the destruction of the ozone layer. When these chemicals are released into the atmosphere, they slowly rise into the stratosphere and cause the destruction of ozone molecules for about one hundred years. Of the chlorine-producing chemicals, chlorofluorocarbons (CFCs) have the greatest impact. They have been used in refrigeration, air conditioners, aerosols, upholstery, foam insulation, and packing materials. When CFCs were invented in 1928, they were hailed as a safe alternative to ammonia and other dangerous coolants used in refrigerators. No one imagined that these same chemicals posed an environmental threat (Choice Programme, 2005).

Greenhouse Effect

This is the trapping of heat on the earth surface by some gases that allow heat from the sun to pass through them to get to the earth surface but prevent the heat on the earth's surface from escaping the earth. This results in the heating up of the

earth's global temperature (global warming). Orr (1959:165) illustrates how carbon dioxide could work this change thus:

> Like the glass panes in a structure, carbon dioxide throughout the atmosphere imposes a one-way street on some of the sun's incoming energy. The gas is almost completely transparent to the radiations of a hot glowing body such as the sun but partially opaque to those of a cooler mass like the earth, and thus it hinders heat's escape from the earth.

This process is analogous to the glass panes of a car on a hot day which allows sunlight to pass through it but prevents the heat generated by the opaque interior of the car from escaping, thus making the interior of the car to be hot. The gases responsible for this effect are known as greenhouse gases (GHG) and include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapour. Human activities have been indicted of being responsible for the injection of these gases into the atmosphere.

Global Warming

This is the continuous increase in the average global atmospheric temperature. It is triggered by ozone layer depletion and greenhouse effect arising from the alteration of gaseous components of the atmosphere mainly due to human activities.

Climate Change: A Threat Multiplier

Climate change is seen as a "threat multiplier" as a result of its ability to aggravate existing vulnerabilities and amplify the risks associated with economic, social, and political instability. Rising global temperatures, more frequent extreme weather events, and shifting climatic patterns strain resources, increase competition, and contribute to instability in crisis prone regions.

The consequences of climate change which exacerbate conditions that disrupt livelihoods and economies as well as place additional pressure on governments according to the United States Climate Change Science, (2009) include the following:

1. Melting of ice sheets and glaciers, combined with the thermal expansion of seawater. As the oceans warm, it is causing sea level to rise. Seawater begins to move onto low-lying land and to contaminate coastal fresh water sources and begins to submerge coastal facilities and barrier islands. Sea-level rise increases the risk of damage to homes and buildings from storm surges such as those that accompany hurricanes.
2. Climate plays an important role in the global distribution of freshwater resources. Changing precipitation patterns and temperature conditions

alter the distribution and availability of freshwater resources, reducing reliable access to water for many people and their crops. Winter snowpack and mountain glaciers that provide water for human use are declining as a result of global warming.

3. Incidents of extreme weather are projected to increase as a result of climate change. Many locations will see a substantial increase in the number of heat waves they experience per year and a likely decrease in episodes of severe cold. Precipitation events are expected to become less frequent but more intense in many areas, and droughts will be more frequent and severe in areas where average precipitation is projected to decrease.
4. The chemistry of ocean water is changed by absorption of carbon dioxide from the atmosphere. Increasing carbon dioxide levels in the atmosphere is causing ocean water to become more acidic, threatening the survival of shell-building marine species and the entire food web of which they are a part.
5. Ecosystems on land and in the ocean have been and will continue to be disturbed by climate change. Animals, plants, bacteria, and viruses will migrate to new areas with favourable climate conditions. Infectious diseases and certain species will be able to invade areas that they did not previously inhabit.
6. Human health and mortality rates will be affected to different degrees in specific regions of the world as a result of climate change. Although cold-related deaths are predicted to decrease, other risks are predicted to rise. The incidence and geographical range of climate-sensitive infectious diseases such as malaria, dengue fever, and tick-borne diseases increase. Drought-reduced crop yields, degraded air and water quality, and increased hazards in coastal and low-lying areas contribute to unhealthy conditions, particularly for the most vulnerable populations.

Climate Change as a Predictor of Conflict

One of the consequences of climate change is change in rainfall pattern, causing the coastal regions to experience plenty of rainfalls while leaving the arid regions with limited rainfalls. Limited rainfall with high temperature in the arid region lead to a long period of drought, possibly with desert encroachment as the result. Drought and desertification affect the availability of pasture and water for animal consumption and productivity. This situation forces the pastoralists to move southward of the Northern Nigeria in search of pasture and water for their cattle outside their normal grazing routes. Olaniyan and Okeke-Uzosike in CGIAR (2021) report that this migration for adaptation results into desperate guests (herders) and unwilling hosts (farmers) syndrome leading to confrontation between them as they compete over access and use of arable lands and water in the execution of their businesses. Moses-Ojo, Joseph and Aliyu (2023)

corroborate this position as they emphasize that this "migration usually for adaptation purposes creates problems for the receiving communities and could engender conflict given the pressure on land, food shortage, conflicts of interest, cultural differences, overpopulation, social disorganization, religious, social and cultural intolerance". This scenario has been blamed for countless herder/farmer conflicts that has led to deaths of several thousands of Nigerians especial in Benue, Nasarawa, Plateau, Zamfara, Niger, Kogi, Delta, Edo, Enugu, Ebonyi, Kwara, Oyo, and Ondo States of Nigeria. This exposition is buttressed by Odo and Chilaka (2012:118) as they report that:

> In Nigeria, many communal clashes (often mis-interpreted or mis-represented as ethnic and religious clashes) are actually struggle over either the control of land or mineral resources or both. In the northern and middle parts of the country, the cereal-productive Sudan savannah ecology is transiting to pure Sahel and the influence of the Sahara is increasing southwards. In the same vein, the root and tuber productive ecology of the Guinea Savannah is giving way to Sudan Savannah grassland. The predominant Fulani herdsman of the lower Sahel and Sudan savannah ecologies is now moving south to northern states (Nasarawa, Kogi, Abuja, Kwara, Plateau, Benue) who are close to the Guinea Savannah and Forest belt of the South - to find greener pasture for his herds. This is not acceptable to the root and tuber farmers of these northern states who are close to the Guinea Savannah that is already farming close to the climatic margin of cultivation.

On a similar report by Odo and Chilaka (2012:119) arising from an interview granted by Kabiru Yammama, an environmental consultant, the communal clashes could be blamed on the effects of climate change. The interviewee reported thus:

> Northern nomadic communities are increasingly moving southwards as climate change turns their grazing land into desert. He further noted that about 35 percent of land that was cultivable 50 years ago is now desert in 11 of Nigeria's northernmost states: Borno, Bauchi, Gombe, Adamawa, Jigawa, Kano, Katsina, Yobe, Zamfara, Sokoto and Kebbi, and the livelihoods of some 15 million pastoralists in northern Nigeria are threatened by decreasing access to water and pasture -- shortages linked to climate change.

The reports above established a clear relationship between climate change and conflict, especially in Nigeria.

In the coastal region, rise in sea level resulting to flooding and river encroachment due to climate change are not without their dire consequences. Among the consequences are reduction in fish stock and the resultant declining fish catch, lack of drinking water, displacement of people, shrinking space for personal, social and economic uses, mangrove depletion, low income for fishers and farmers (Health of Mother Earth Foundation, (HOMEF) 2021). Confirming the status of climate change as a threat multiplier, HOMEF (2021) linked natural disasters such as flooding and river encroachment with conditions of poverty, lack and other forms of insecurity that serve as drivers or enablers of conflict. In his report, Oshienemen, Amaratunga and Haigh (2018) reveal thus:

> Lack of sustainable alternatives and livelihood support have then pushed people to migrate to other areas in search of employment. This process of erosion of traditional livelihoods such as fishing has damaged social cohesion, fostering frustration and grievances among community members, especially youths, who are recruited by oil companies and equipped with weapons to protect facilities, contributing to insecurity risks related to restiveness within the communities.

The above position points to the fact that natural disasters arising from climate change destroy the sources of livelihood of the people of the coastal communities, pushing them into poverty and unemployment which has been established by HOMEF as drivers of conflict. Unemployment created as a result of climate related disaster turn some youths into sea pirates who waylay, highjack, steal and in most cases maim or kill fishermen who went outside their immediate waters for fishing. This owes to the fact that fish stocks within their immediate waters would have been destroyed by flooding. Lack of physical spaces for personal, social and economic activities arising from river encroachment result in the migration of the affected communities. The migration shrinks the already scarce resources which the host may not be willing to share with the guests, hence resulting to competition and conflict.

A link has also been established among climate change, poverty, unemployment and banditry and militancy. In support of this link, the United States Institute of Peace (2011:6) asserts that:

> In the dusty streets of Borno State's capital, the anti-establishment Islamic group Boko Haram attracts rafts of jobless young men, do the Delta's many militias and gangs. ….more jobless youths could deepen the recruitment pool for political violence. Idle young men and women already provide the muscle for much of this unrest.

A reflection on the above narrative reveals that drought and desertification as consequences of climate change destroyed the grazing fields of herdsmen and in

most cases lead to loss of many herds. The herders who could not move southward in search of pasture for their herds as well as those who lost their herds are thrown back into unemployment and poverty. This situation prepares them for engagement into other alternative sources of livelihood. In this case, whatever is presented to them as a means of survival is acceptable by them. As a result, some were recruited into Boko Haram terrorist group while others were introduced to banditry. These groups indulge in some criminal activities ranging from terrorism, kidnapping, cattle rustling, mining of solid minerals, declaration of some community as being under their control, killing of indigenes and farmers.

On the other hand, households in the coastal region obtain 60 percent of their income from environmental resources (World bank in Francis, Lapen & Rossiasco, 2011). When these resources are destroyed, their sources of livelihood from the environment are destroyed. This situation produces more jobless, poorer and hungrier people who are mostly the youth who would be willing to subscrib to any alternatives presented to them. The search for the alternatives motivated the raft of the jobless youth to join the elders in the agitations for resource control in the Niger Delta region. These agitations came from the backdrop of the fact that development in the Niger Delta was considered unsatisfactory as the region contributes to over ninety percent (90%) of the nation's revenue. The elders pursued their course through peaceful protests, dialogue, conferences, communiques and appeals to the consciences of people in authority and power at the Federal and State levels. The youth advanced their own course through the use of arms as they constituted themselves into different militant groups. Among such militant groups are Niger Delta Peoples Volunteer force (NDPVF), Movement for the Emancipation of Niger Delta (MEND), Joint Revolutionary Council (JRC) (Tamuno, 2011). The militant groups among other things engaged in illegal oil bunkering, attack on oil installations and facilities, kidnappings and other forms of violence. This was confirmed by the leader of one of the former militant groups, Mujihad Asari Dokubo as properly captured in Tamuno (2011) thus:

> I am not an illegal bunkerer. I am taking what belongs to my people and giving it back to them. How can petrol sell at N45 per litre in Abuja, and Lagos and today in Buguma and Nembe it is sold at N200 per litre? This same oil I am refining it and selling at N15 per litre in the riverine areas. It is N15 per litre.

This report was based on the existential conditions in 2003. The issue of militancy officially ended on October 4, 2009 with the declaration of amnesty to the militants by the then President Umaru Musa Yar' Adua. But, Amnesty to the militants did not stop their nefarious activities as they reconstituted themselves into various cult groups to continue with the perpetration of illegal oil bunkering, kidnapping and various forms of cult-related violence.

The Leadership of these cult groups according to Naanem and Tolani (2014) share bunkering "points" on the pipelines from which crude oil is delivered to buyers. According to them, nobody can install or own a point without the permission of these leaders as they desire to maintain the control of the business. This quest to remain in control of the business without allowing new entrants into the business has been identified as a major cause of communal clashes in some communities in the coastal areas of the Niger Delta (Naneem & Tolani, 2014).

From the foregoing narratives, we will not derail from understanding that extreme climate events resulting from climate change wreaked havoc on the marine ecosystem which served as the people's primary source of livelihood. Consequent upon this, a raft of jobless, unemployed and poor youth was created, hence indulgence into arms conflict was made possible in search of alternatives for survival.

Reflections on Climate Change Mitigation and Adaptation as Measures of Conflict Resolution

Literature reviewed revealed that causes of conflict in Nigeria include the following: resource scarcity; loss of access to sources of livelihood, poverty and unemployment, poor responses to climate change events (Naanem & Tolani, 2014; HOMEF, 2021; Francis, Lapen & Rossiasco, 2011; Odo & Chilaka, 2012). Odo and Chilaka (2012) assert that these factors are the immediate causes of conflicts in Nigeria while climate change creates them. For instance, poor responses to the shifts lead to resource shortages and poor responses to the resource shortages heighten one or more structural conflict risks. These climatic challenges, as left unaddressed, had thrown already stressed resources such as land and water into even shorter supply. Moreover, poor responses to resource shortages also have serious negative secondary effects, including more sickness and hunger, fewer jobs, and poor economic growth, which in turn open the door to more violence. Odo and Chilaka (2012) went further to accuse scholars of only seriously looking at conflicts in Nigeria (especially farmer/herder) through the prism of resource scarcity and the quality and quantity of resources available. According to them, scholars have failed to examine the role climate change plays in creating conflicts in Nigeria.

Their claims could be adjudged correct as climate mitigation and adaptation have not been captured in any recommendations as measures for conflict resolution. If this is a point to be reckoned with, it means that every effort that has been made towards conflict resolution amounted to a scratch on the surface or a symptomatic treatment rather than a cure to the main problem, climate change. This calls for efforts towards climate change mitigation and adaptation as measures for dealing with climate change – the creator of factors that trigger conflicts in Nigeria. Climate change mitigation is defined as slowing down climate change by

reducing and stabilizing greenhouse gas emissions or enhancing greenhouse gas sinks. Examples of greenhouse gases have been given earlier in the chapter while examples of two major greenhouse gas sinks are the ocean and forest. These are bodies that trap carbon dioxide from the atmosphere and sequester (store) it in them. Climate change adaptation on the other hand, is about helping people and environments prepare for and adjust to climate change (Armstrong, Krasny and Schuldt, 2018). Mitigation and adaption measures include the following:

1. Planting trees especially drought-resilient ones in desert-prone areas;
2. Mangrove restoration in coastal region;
3. Sand dune stabilization;
4. Implementing floodwater management systems;
5. Investment in seawalls construction; and
6. Transition to renewable energy use to reduce use of coal, oil and gas.

It may interest the readers of this contribution to know that the herdsmen may be running southward in search of food for their herd as a way of adapting to the effects of drought and desertification marked by shortage of water and food brought out by climate change but may not know the reason for the scarcity of food in areas where there used to be plenty of food. They may also know that the environment is hot, there is dryness and desert encroachment but, they may not know the cause of these extreme climate events. They definitely do not know that there are measures that could be taken to mitigate the extreme climate events as well as empower them to continue to graze their herds in their grazing zones, hence the southward movement. This lack of knowledge generates the need for climate change education to educate them on the relevance of these measures to them, their herds and the environment as well as develop their ability to participate in activities designed to implement the climate change mitigation and adaptation measures.

Reflection on Climate Change Educationas a Measure of Conflict Resolution

In this reflection, we want to put forward the relevance of climate change education as a measure for addressing the impact of climate change. Climate change education is defined as a process of education and learning about the causes, effects and probable solutions of climate change (Henderson, Long & McGinnis, 2017).

Key components of climate change education:

Climate change science: This deals with understanding of the causes, effects, and consequences of climate change;
Climate change impacts: This deals with learning about the social, economic, and environmental impacts of climate change;

Climate change mitigation and adaptation: This deals with exploring strategies to reduce greenhouse gas emissions and adapt to the changing climate; and
Sustainable development: This deals with understanding the links between climate change, sustainable development, and human well-being.

The major goal of climate change education is to promote climate literacy and build resilience in the recipients which are expected to generate changes intended to enhance natural and human systems by reducing greenhouse gases as well as helping communities adapt to climate change in an environmentally sound manner (Armstrong, Krasny and Schuldt, 2018; Unesco, 2019).

Armstrong, Krasny and Schuldt, (2018) view climate literacy as the knowledge about climate systems and processes, and about how humans affect climate, and how climate change affects humans and what actions humans can take to mitigate and adapt to climate change. On the other hand, United State Climate Science (2009) simply sees climate literacy as an understanding of the climate's influence on humans and society and humans influence on climate. The goal of climate literacy is to develop citizens who possess the following characteristics:

1. ability to understand the essential principles of Earth's climate system;
2. ability to know how to assess scientifically credible information about climate;
3. ability to communicate about climate and climate change in a meaningful way; and
4. ability to make informed and responsible decisions with regards to actions that may affect climate.

Resilience refers to the ability of individuals, communities, ecosystems, and social-ecological systems to respond to change, including hardship and disasters. Climate change educators working in areas impacted by major storms, drought, wildfire, or other natural disasters exacerbated by climate change may be particularly interested in fostering community and social-ecological resilience

Types of Resilience

Type of Resilience	Definition
Psychological Resilience	The process of, capacity for, or patterns of positive adaptation during or following exposure to adverse experience that have the potential to disrupt or destroy the successful functioning or development of a person.
Community Resilience	The ability of communities to cope with and recover from external stressors resulting from social, political and environmental change.
Ecological Resilience	The magnitude of disturbance that a system can experience before it moves into different controls on structure and function.
Socio-ecological System Resilience	The capacity of socio-ecological systems to continually change, adapt or transform to maintain ongoing processes in response to gradual and small-scale change, or transform in the face of devastating change.

Adapted from Armetrong, Frasny and Schuldt, 2018

Climate literacy and resilience empower the recipients to initiate and or participate in action individually or collectively initiated to execute programmes or projects meant for implementing any of the climate change mitigation and adaptation measures as the case may be. As a result, they constitute the major goal of climate change education.

Conclusion

This contribution attempted to establish a link between climate change and conflicts especially with reference to Nigeria. It exposed how climate events such as shift in rainfall pattern, drought, desertification, flooding, rise in sea level can lead to reduced availability of water, food, land, etc which can degenerate into competition and conflict among humans and potentially result in large groups of climate/environmental refugees. The paper therefore calls for the recognition of climate change as the remote cause and driver of conflicts in Nigeria. It also calls for the consideration of climate change as one of the measures of conflict resolution. It recommends climate change education as a strategy to develop in the citizenry climate literacy and build in them resiliency which will empower them to initiate and or participate in actions initiated to execute programmes and projects designed to implement measures for climate change mitigation and adaptation.

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