SOCIAL JUSTICE AND CLIMATE CHANGE IN NEMBE BAYELSA STATE

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ABSTRACT

Cholera (Blue Death) outbreaks peak during the dry season in Nembe, an oil rich communities intermittently / seasonally underscored the desire to investigate the social justice and climate change in Nembe Bayelsa State. This study was a descriptive *survey based in Nembe, Bayelsa State. The respondents comprised 400 cholera victims drawn from 10 compounds in Nembe both Bassambiri and Ogbolomabiri using purposive sampling method. Data were collected using questionnaire from the respondents. And were presented in tables and discussed using the percentage method. Findings confirmed that the sole cause of cholera is shortage of clean and drinkable water orchestrated by climate change and the faulty pipe – borne water, the only sources of drinkable water of the both communities and neglect of the multi-national oil companies operating in the territories. Ipso factor, On account of these findings the study suggests that the existing pipe borne water of both communities (Bassambiri and Ogbolomabiri) be overhauled and a better potable water be drilled in the two communities for prevalence of social justice.*

Keywords*:* Social justice, climate change, Cholera, Nembe, Bayelsa State.

Introduction

Bayelsa State is a South-South state and one of the thirty-six states in Nigeria. And the state has eight local government area. Nembe is one of the eight LGA with a population of 197,682 is a projected estimate from the official estimate of 130,931 recorded during the 2006 National Population Census, (NPC), Nigeria and ICF, (2019), Nigeria demographic and health Survey (2018).

And she is blessed with the main stay of Nigerian economy. Nembe hosts or impacts the oil field of Oluasiri/ Soku oilfield /Gas Plant; Odeama Creak; Belema; Belema North; Ekulema 1and 2; Nembe Creek; Santa Babara (Bassambiri); Santa Babara South; Total (SPDC); Obama; Total NOAC); Robert kiri (Idama); and Total (Chevron). Even the Tora Manifold which controls the flow of oil in the whole of Bayelsa State and some part of Rivers and Delta State is located in Ikensi – Ibe in Nembe Se, Okorobia, (2011). The operators of these various oil fields is SPDC, NAOC and Chevron. And the environmental harm generated by the oil exploitation and exploration activities such as loss of biodiversity and risks of public health just to mention a few is as a result of climate change is unequally allotted or experienced by the Multi -National Oil Companies and the indigenes of Nembe. Climate change or crisis has economic undertone.

The whole world, and more specifically the Middle East North Africa region, struggles with compounding crises triggered by conflicts, pandemic, social and economic problems, deteriorating living conditions and devastating disasters, big western oil firms, by far some of the largest contributors to the global climate crisis, have more than doubled their profits to 219 billion USD in 2022, Ghiwa, (2023). Likewise in Nembe, the huge profit is benefited by the Multi – National Oil Companies to the contrary of social justice principles which emphasizes fair and equitable distribution of social, political, and economic benefits and burdens.

Social justice, in contemporary politics, social science, and political philosophy, the fair treatment and equitable status of all individuals and social groups within a state or society. The term also is used to refer to social, political, and economic institutions, laws, or policies that collectively afford such fairness and equity and is commonly applied to movements that seek fairness, equity, inclusion, self-determination, or other goals for currently or historically oppressed, exploited, or marginalized populations, (Brian, anonymous) There is no social justice /climate justice without a just phase out of all fossil fuels: coal, oil and gas/ equally resolving the burden. Fossil Fuels are responsible for over 75% of global GHG emissions and 90% of CO2 emissions which causes climate change that disproportionately affects the poorest country, a large part of the population depends directly on activities that are the most affected by climate change, notably agriculture, forestry, water and fishery, (Ghiwa, 2023).

This year, 2025, the first quarter of the year cholera ravaged Nembe community, Bassambiri and Ogbolomabiri. A suspected cholera outbreak in Nembe-Ogbolomabiri, Nembe Local Government Area of Bayelsa State, has claimed 18 lives, according to community sources.

Last Saturday, a delegation made up of the Commissioner for Health, Prof Seiyefa Brisibe, Commissioner for Environment, Ben Opolo and the Permanent Secretary, Ministry of Water Resources, visited Nembe-Ogbolomabiri for an on-the-spot assessment….

A member of the Bayelsa State Health Management Board said a cholera outbreak was confirmed.

"It was gathered that since then, 15 deaths have been recorded in Nembe (Ogbolomabiri and Bassambiri), Nembe Creek and some nearby communities with many more still on admission in the various facilities in Nembe. (Samuel and Dennis, 2025).

Cholera is an infection of the intestines caused by the bacterium Vibrio cholerae. You can get cholera from drinking water or eating food containing cholera bacteria.

…. cholera can cause life-threatening watery diarrhea and vomiting. Every year, an estimated 1.3 to 4 million people around the world get cholera, and between 21,000 to 143,000 people die…., (WHO, 2021 – present).

Most people who get cholera have mild symptoms or no symptoms at all. About 1 in 10 people develop severe symptoms such as watery diarrhea, vomiting, and leg cramps. Losing body fluids quickly can lead to dehydration and shock, (CDC, 2025). This social issue - cholera is caused by shortage of clean water orchestrated by climate change, while the triggers for cholera outbreaks—like poverty and conflict—are enduring, climate change and conflict are now compounding the problem. Extreme climate events like floods, cyclones and droughts reduce access to clean water and create an ideal environment for cholera to thrive, (WHO, 2021 – present).This study investigated social justice and climate change in Nembe, Bayelsa state.

The specific objectives of the study are:

3. To ascertain if climate change depletes the underground source of drinkable water is directly associated to the cause of cholera in Nembe.
4. To examine the faulty status of the pipe borne water is linked to reliance on well water and sachet water in Nembe.
5. To investigate the extent of social justice existing between the multi-national oil companies and Nembe citizens.

The following research questions are answered in the study:

- How does climate change deplete the underground source of drinkable water which is directly associated to the cause of cholera in Nembe?
- Why the faulty status of the pipe borne water is linked to reliance on well water and sachet water in Nembe?
- Does social justice exist between the multi-national oil companies and Nembe Citizens?

The following hypotheses are postulated to guide this study.

7. There is no significant relationship between climate change which depletes the underground source of drinkable water and the cause of cholera in Nembe.
8. There is no significant relationship between faulty status of the pipe borne water and reliance on well water and sachet water in Nembe.
9. There is no significant relationship between the existence of social justice between the multi-national oil companies and Nembe citizens.

Literature Review

Social Justice

Social justice, in contemporary politics, social science, and political philosophy, the fair treatment and equitable status of all individuals and social groups within a state or society. The term also is used to refer to social, political, and economic institutions, laws, or policies that collectively afford such fairness and equity and is commonly applied to movements that seek fairness, equity, inclusion, self-determination, or other goals for currently or historically oppressed, exploited, or marginalized populations.

In theoretical terms, social justice is often understood to be equivalent to justice itself, however that concept is defined. Many somewhat narrower interpretations conceive of social justice as being equivalent to or partly constitutive of distributive justice—that is, the fair and equitable distribution of social, political, and economic benefits and burdens. According to some interpretations, social justice also encompasses, among other conditions, the equal opportunity to contribute to and to

benefit from the common good, including by holding public office (such readings are sometimes referred to as "contributive justice"). Other interpretations promote the stronger goal of equal participation by all individuals and groups in all major social, political, and economic institutions, (Brian, anonymous).

Another set of definitions of social justice emphasizes the institutional conditions that encourage individual self-development and self-determination—the former being understood as the opposite of oppression and the latter as the opposite of domination. A related concept of justice, suggested by the American philosopher Martha Nussbaum, is that a just society fosters the capabilities of individuals to engage in activities that are essential to a truly "human" life—including, among others, the capabilities to live a life of normal length, to use one's mind in ways "protected by guarantees of freedom of expression," and to meaningfully participate in political decision-making. Still other accounts define social justice, or justice itself, in terms of broad categories of human rights, including the entire range of civil and political rights (such as the rights to personal liberty and to participation in government), economic and social rights (such as the rights to employment and to education), and solidarity or group rights (such as the rights to political independence and to economic development).

Social justice is both a theoretical concept and a practical ideal—an object of social-scientific and philosophical understanding and debate as well as a real-world goal of social and political reform movements. In general, practical ideals of social justice represent an attempt to realize a certain conception of social justice in a particular state or society. Accordingly, such ideals tend to vary with the historical and cultural circumstances in which they are pursued; they may also depend upon current social-scientific understandings of the institutions to be reformed, abolished, or created.

However the notion of social justice is understood, it is naturally grounded in the concept of justice itself. Indeed, the notion of social justice originated as an application of a historical theory of justice to current social problems. (Bryan, et al anonymous)

Oil Spillage and Climate Change

SPDC, NOAC, Chevron, etc. are some of the multinational oil companies operating in the region of Niger Delta, carry out oil exploration and exploitation activities with out - dated pipes that are due for replacement. (Agunobi, et al., 2014, p. 21), agreed to the above assertion that, there are older, corrosive pipes with a projected lifetime of only 15 years. Most of the pipes are between 20 and 25 years old. Even Shell is prepared to concede that "most of the facilities were completed" between the 1960s and early 1980s at the then-prevailing standards. As such, there were 33 instances

of oil spills in Niger Delta between2008 and 2013 and 4,919 between 2015-2021. (Agunobi, et al., 2014; Premium time 2022). Oil spillages are the unintentional discharge of a liquid petroleum hydrocarbon into the environment, Nasar and Martin (2012). These discharges cause climate change, numerous unintentional releases of liquid petroleum hydrocarbon into the ecosystem across the country, where air pollution is an example of how it affects climate change (Al-Amin, et al., 2025). Furthermore, researchers like (Sabiu, et al., 2025) made the following conclusion and recommendation that oil spillage, rainfall, and etc are significant contributors to greenhouse gas emissions and, by extension, to climate change in Nigeria. Oil spillage, in particular, poses a persistent threat to environmental sustainability, and its effects are further exacerbated by heavy rainfall and energy use. Therefore, Oil companies should be mandated to adopt cleaner technologies, invest in spill-prevention infrastructure, and implement rapid spill-response mechanisms. Furthermore, stronger penalties for negligence and incentives for compliance will help reduce the frequency and severity of oil spills, thereby mitigating their contribution to climate change.

Climate change and the two emerged group

Global climate change induced wealth which entails inequalities. The uneven distribution of "goods" and "bads" that characterizes the generation and manifestation of climate change, climate justice illuminates two broad human groups. The first is those who have benefited from fossil fuel- and colonialism-enabled economic development and now sit in positions of privilege. Compared to others, this group is well placed to adapt to the negative side effects of the development trajectory they have helped generate and have largely benefited from – side effects that include, but are not limited to, a disrupted climate. It is one dominated by the well-educated, English-speaking, professional classes. Even though recent experiences have powerfully demonstrated that no one is immune to climate disruption and it's far-reaching, cascading effects – including researchers (Rickards and Watson, 2020 cited in Lauren, 2020). – It is increasingly clear that for many individuals and households, the effects are not just cascading, they are compounded by existing structural violence. While such violence has many dimensions, many of these converge in disparities in wealth.

The second group, the much larger and more diverse population who have long been, and continue to be, exploited and sacrificed in the development processes that have birthed climate change. Given their prior disadvantage, as well as spatial perversities that mean some locations are more exposed to climatic extremes than others, this group is now especially vulnerable to the additional burden of the capitalist economy's feedbacks on the global climate. Despite doing little to cause climate

change, and in fact already suffering from the exploitative processes generating its emergence, the world's majority will suffer its worst effects

Sustainable world and climate change

Achieving both climate and social justice, requires addressing the historic and ongoing injustices that have contributed to the current existential climate crisis and empowering local communities to participate in the climate decision-making processes. It requires acknowledging that historical polluting countries and industries are responsible for the crisis the world is facing and those who contributed the least are suffering mostly from its impacts now.

It starts by holding polluting corporations and countries accountable and demanding them to pay for the damage they have caused and continue to cause. Moreover, they should support the most vulnerable countries to adapt to the climate crisis by transferring knowledge.

Fossil Fuels are responsible for over 75% of global GHG emissions and 90% of CO2 emissions. There is no climate justice without a just phase out of all fossil fuels: coal, oil and gas. Mitigating climate change is critical to sustainably improve living conditions globally – and we need to ensure its effective, adaptive and affordable, Ghiwa, 2023).

Climate change and cholera infection

Climate change and conflict are now compounding the problem. Extreme climate events like floods, cyclones and droughts reduce access to clean water and create an ideal environment for cholera to thrive, (WHO, 2021 – present). Cholera is an infection of the intestines caused by the bacterium Vibrio cholerae. You can get cholera from drinking water or eating food containing cholera bacteria.

Most people who get cholera don't get sick. However, cholera can cause life-threatening watery diarrhea and vomiting. Every year, an estimated 1.3 to 4 million people around the world get cholera, and between 21,000 to 143,000 people die.

With early and proper treatment, even severely ill patients can survive cholera.

Most people who get cholera have mild symptoms or no symptoms at all. About 1 in 10 people develop severe symptoms such as watery diarrhea, vomiting, and leg cramps. Losing body fluids quickly can lead to dehydration and shock

People living in areas with unsafe drinking water, poor sanitation, and inadequate hygiene are at highest risk of getting cholera. , (ibid, 2021 – present).

U.S. residents can get cholera while traveling abroad and sometimes become ill after returning home. Some travelers have gotten sick after bringing contaminated seafood home with them from abroad.

How It Spreads

People usually get cholera from drinking water or eating food that contains traces of poop from someone with cholera. The disease can spread quickly in areas where sewage and drinking water aren't adequately treated.

Cholera bacteria also can live in brackish (slightly salty) and coastal waters. Eating raw shellfish can cause cholera.

Using Treated Water Helps Prevent Cholera.

If you plan to travel, check if cholera is common or ongoing in the area you are visiting. If cholera is present, washing your hands with soap and safe water, drinking treated water, and getting vaccinated against cholera are among the steps that can help prevent you from getting sick.

Treatment and Recovery

If you think you or a family member might have cholera, get medical attention immediately. Dehydration can occur quickly and replacing lost fluids is essential. For babies with watery diarrhea, continue feeding them breast milk or formula to help them stay hydrated.

Treatment for cholera can include; Rehydration therapy, Antibiotics, Zinc supplementation for children, (CDC, 2025).

Theoretical framework

Climate justice theory

Simon Caney, Robert Bullard, Henry Shue, John Rawls, Agarwal and Narain, (1999; 2000) are the main proponent of the Climate justice theory. The work adopted the Climate justice theory to aid the

Blue Death outbreaks that peak during the dry season in Nembe. Climate justice theory rests on core pillars addressing who is harmed, who benefits, and who decides in climate action, primarily focusing on Distributive Justice (fair burdens/benefits), Procedural Justice (inclusive participation), and Recognitional Justice (valuing all experiences), often expanding to include Restorative (repairing harm) and Transformative Justice (systemic change) to tackle root causes of inequality and environmental damage.

Core Pillars (The "Big Three")

Distributive Justice: Focuses on the fair sharing of climate change burdens (pollution, impacts) and benefits (solutions, resources). It addresses disproportionate impacts on vulnerable communities (e.g., low-income, communities of color).

Procedural Justice: Ensures that all affected people have meaningful participation, representation, and a voice in climate policy and decision-making processes.

Recognitional Justice: Acknowledges and validates the distinct identities, cultures, knowledge, and experiences of marginalized groups, recognizing their unique vulnerabilities and contributions.

Expanded Pillars & Principles

Restorative Justice: Aims to repair past harms and compensate for damages caused by climate injustice.

Transformative Justice: Seeks to change the underlying social, economic, and political systems (like capitalism or colonialism) that create and perpetuate climate inequality.

Human Rights: Grounds climate action in fundamental rights, viewing climate impacts as human rights issues.

Intergenerational Equity: Considers the rights and needs of future generations.

Ecological Justice: Protects ecosystems and biodiversity, recognizing their intrinsic value and role in supporting life.

This theory argues that the communities (Nembe Bassambiri, Nembe Ogbolomabiri, etc.) most vulnerable to climate change impacts (like floods and droughts that trigger cholera outbreaks) are often those least responsible for the greenhouse gas emissions causing climate change. It emphasizes

the ethical dimensions and calls for equitable distribution of the burdens and benefits of climate mitigation and adaptation

Method

This study adopts a descriptive survey research design. As clearly stated by Kothari, (2004) that a research design serves as the blueprint for data collection, measurement and analysis. The study respondents were selected in 10 compounds (Polo) using purposive sampling method. A total of 400 cholera victims constituted the respondents. Equal number of respondents (40) were selected from each of the ten compounds (polo) chosen for the study, namely, Sikaka – polo (compound), Ogbo – polo, Igbobeleu – polo, Sandfilled, Amasara – polo, Tombi, Agbutubu – polo, Isokiri, Iwoama and Nembe creek. The questionnaire was used to elicit information from the respondents. Question in the questionnaire comprised both structure and unstructured. Data collected from the respondents on the cause of the cholera, status of the pipe borne water and the nature of assistance offered by the multi-national oil companies operating in the territory were coded, tabulated and presented in tables. The data were also discussed using the percentage method. The instruments were given out by the researcher to establish face and content validity. The internal consistency of the instrument was established by Cronbach Alpha reliability. A pilot study was conducted on 28 respondents outside as a trial who are not expected to be part of the main study. The data collected was subjected to Cronbach's reliability analysis and reliability coefficient at 0.81 which confirm the reliability of the instrument.

Results

Data Presentation

This section shows data related to the background characteristics of the sampled respondents.

Table 1 Distribution of the respondents by the cause of cholera in Nembe.

Variable	Description	No of respondents	%
Cholera victims	Shortage of drinkable water	315	78.75
Cholera victims	Polluted foods	83	20.75
	Total	398	100

Source: fieldwork 2025

The data presented in this table (Table 1) shows that shortage of drinkable water is the sole cause of cholera in Nembe. As indicated in the table, 315 (78.75%) respondents said that it is an intermittent occurrence in that it occur at the dry season mostly. The same information was given by 83 (20.75%) respondents that polluted foods is the secondary cause of cholera. All the respondents admitted that the unfriendly environment must have been the propeller of the epidemic.

Test of Hypotheses

Hypothesis one: There is no significant relationship between climate change which depletes the underground source of drinkable water and the cause of cholera in Nembe

Statistics: Inferential statistics used is Pearson Product Moment Correlation (PPMC)

Formula:

$$r = \frac{n\sum XY - \sum X\sum Y}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

Rule of decision: The level of the significance ranges from -1 to + 1 and closer the r direction value to +1. Strength and the direction of Pearson (r) value of interpretation and relationship is as follows:

- Between 0.0 and ± .25 – zero weak relationship
- Between ± 26 and ± 50 moderately weak relationship
- Between ±51 and ± 75 moderately strong relationship
- Between ± 76 and ± 1.0 strong to perfect relationship

Table 1.2: Pearson's correlation matrix showing relationship between climate change and the cause of cholera in Nembe

Contingency Table

		Climate change	cholera out break
Climate	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
change	N	400	400
cholera	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
out break	N	400	400

**. Correlation is significant at the 0.01 level (2-tailed).

Result r = - 1.000**

p = 0.01

As can be observed in table 1.1, data analysis indicates a significant relationship between climate change and the cause of cholera in Nembe. (r = - 1.000**; 0.01) at 0.5 level of significance. Since p – value was lower than 0.01 at 0.05 level of significance the null hypothesis was rejected, leading to the alternative hypothesis being accepted and the correlation coefficient of 1.000** implies that there is a strong relationship between the two variables. By interpretation, the more unfriendly the environment becomes (climate change) the more the epidemic (cholera) is propelled.

Table 2 Distribution of the respondents by the communities' pipe - borne water

Variable	**Description**	**No of respondents**	**%**
Cholera victims	The pipe – borne water is faulty	269	67.25
Cholera victims	Sachet water	130	32.5
	Total	399	100

Source: fieldwork2025

Table 2 shows data on the communities' pipe – borne water defective situation. The data shows that 269 (67.25 %) respondents complained that the source of the communities' pipe - borne water is

defective, the faultiness is seasonal and is due to the far – reaching of the submersible water pump/ sumo pump to the table water as a result of the dryness of the season, therefore, the source for alternative by using well water. Another 130 (32.5 %) respondents claimed that they depend on sachet water that is brought to them from a neighboring state whose expiring date might have been elapsed.

Hypothesis two: There is no significant relationship between faulty status of pipe borne water and reliance on well water and sachet water in Nembe.

Statistics: Inferential statistics used is Pearson Product Moment Correlation (PPMC)

Table 2.2: Pearson's correlation matrix showing relationship between faulty status of pipe borne water and reliance on well water and sachet water in Nembe.

Contingency Table

		Faulty pipe - borne water	Reliance on well water
Faulty pipe - borne water	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	N	399	399
Reliance on well water	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	N	399	399

**. Correlation is significant at the 0.01 level (2-tailed).

Result r = - 1.000**

p = 0.01

As can be observed in table 2.2, data analysis indicates a significant relationship between faulty status of pipe borne water and reliance on well water and sachet water in Nembe. (r = - 1.000**; 0.01) at 0.5 level of significance. Since p – value was lower than 0.01 at 0.05 level of significance the null hypothesis was rejected, leading to the alternative hypothesis being accepted and the correlation coefficient of 1.000** implies that there is a strong relationship between the two variables. By interpretation, the higher the dryness becomes the higher the reliance on well and sachet water. This

is because, the far – reaching of the submersible water pump/ sumo pump to the table water becomes greater.

Table 3 Distribution of respondents by the assistance offered by Shell and Agip oil companies

Variable	Description	No of respondents	%
Cholera victims	No tangible assistance	319	79.75
Cholera victims	A myriad of assistance	79	19.75
	Total	398	100

Source: fieldwork2025

Table 3 shows the distribution of respondents by the assistance offered by Shell and Agip oil companies. The data shows that majority of the respondents, 319 (79.75) reiterated that no tangible assistance were observed from the multinational oil companies. They bitterly complain about her neglect to situation of such issue. However, respondents of 79 (19.75) equally accorded gratitude to the oil companies operating in the region of her persistent offer of assistance.

Hypothesis three: There is no significant relationship between the existence of social justice among the multi-national oil companies and Nembe citizens.

Statistics: Inferential statistics used is Pearson Product Moment Correlation (PPMC)

Table 3.2: Pearson's correlation matrix showing relationship between the existence of social justice among the multi-national oil companies and Nembe citizens.

Contingency Table

		Oil companies	Existence of social justice between oil companies and Nembe citizens
Oil companies	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	N	398	398
Existence of social justice between oil	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	

companies and Nembe citizens	N	398	398

Result r = - 1.000**

p = 0.01

6. As can be observed in table 3.2, data analysis indicates a significant relationship between the existence of social justice among the multi-national oil companies and Nembe citizens.. (r = - 1.000**; 0.01) at 0.5 level of significance. Since p – value was lower than 0.01 at 0.05 level of significance the null hypothesis was rejected, leading to the alternative hypothesis being accepted and the correlation coefficient of 1.000** implies that there is a strong relationship between the two variables. By interpretation, divide and rule does not give birth to appreciable social justice.

Discussion of Findings

The findings of this study showed that the sole cause of cholera is shortage of clean and drinkable water orchestrated by climate change (see table 1). And this finding agrees with, (WHO, 2021 – present) whose study found that, Climate change and conflict are now compounding the problem. Extreme climate events like floods, cyclones and droughts reduce access to clean water and create an ideal environment for cholera to thrive.

Furthermore, the findings from (table 2 and 3) is exacerbation of cholera in Nembe. The former is an emphasis of faulty pipe – borne water and the latter is neglect of assistance from the multi-national oil companies operating in the region – blessed with crude oil. It is proven by Ghiwa (2023) and WHO,(2021 – present) that Fossil Fuels are responsible for over 75% of global GHG emissions and 90% of CO2 emissions which generate climate change and climate change caused cholera and the English-speaking, professional classes have benefited from fossil fuel- and colonialism-enabled economic development while the majority including Nembe who have long been, and continue to be, exploited and sacrificed in the development processes that have given birthed to climate change. However, for social justice to prevail as solicited by (Brian, anonymous) the multinational companies should have to take the burden.

Conclusion

Nembe (Bassambiri and Ogbolomabiri) is blessed with the main stay of Nigerians' economy yet she suffers from shortage of clean drinkable water exacerbated by climate change. She is vulnerable from the impact of climate change disproportionately from issue such as cholera during the dry season. Social justice is required to emphasize polluters pay and place people and sustainability over profit as an economic model.

Recommendations

32. The only communities' sources of water should be repaired and treated.
33. A new one be drilled for the both communities by the multi-national oil companies.

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