

Understanding the Dynamics of Environmental Regulatory Failures and Environmental Conflicts in Nigeria's Oil and Gas Activities: A Systems Thinking Approach

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Abstract

This paper employs Systems Thinking (ST) to explore the dynamics of environmental regulatory failures and conflicts arising from Nigeria's oil and gas activities. Environmental regulations are essential government guidelines aimed at minimising the environmental impact of various organisations while fostering innovative approaches to sustainability. These regulations play a critical role in promoting sustainable development by establishing frameworks and standards that balance economic growth with ecological preservation. However, this study highlights the shortcomings of environmental regulation in effectively addressing these issues. Strong regulations are crucial for sustainability. In contrast to the proactive "polluter pays" approach in the UK, Nigeria's regulations often neglect ecological concerns, as seen in the 1988 Koko toxic waste incident. Various literature have argued that attempts to mitigate health and environmental impacts, the regulatory framework continues to be ineffective. Multinational oil companies engage in unsustainable practices due to high compliance costs, while the bureaucratic permit approval process exacerbates environmental harm. A lack of accountability for illegal waste discharges intensifies conflicts over vital resources in Nigeria. Research indicates a connection between resource scarcity and social unrest, revealing that the degradation of clean air, water, and land can catalyse violence and conflict, making urgent action necessary. This paper affirms the various causes of environmental degradation resulting from regulatory failures in Nigeria's oil and gas activities. The study seeks to understand the dynamic issues surrounding the causes and consequences of environmental degradation and conflict in the Nigerian oil and gas sector and to offer recommendations to address the identified problems. Using ST approach is vital for capturing the diverse factors contributing to environmental degradation and conflict in Nigeria's oil and gas activities. The environmental conflict in the Niger Delta region is a result of the complex interplay between host communities, oil and gas activities, the Federal Government and the surrounding environment. ST

can be adapted as a qualitative technique that seeks to understand these relationships holistically. By applying Causal Loop Diagrams (CLD), ST provides insights into the underlying causes of environmental conflict experienced in the Niger Delta. Data collected from the literature review were analysed using computer simulation software, such as Vensim® or Stella Architect®. Furthermore, the analysis concluded that environmental conflict significantly contributes to environmental degradation in the Niger Delta region. This has led to increasing poverty, unemployment, and reduced agricultural output. These issues have further resulted in power struggles and grievances over resource control within the oil-producing region. Therefore, this paper concludes that there is an urgent need for a sustainable management strategy to address the issues of environmental regulatory failure, environmental degradation, and conflict in Nigeria's oil and gas activities. The severity of these problems is underscored by the ongoing rise in poverty, unemployment, and decline in agriculture, which are direct consequences of the environmental issues. Future work will include bringing the perspectives of stakeholders such as oil and gas companies, host communities, and government entities. Further, there is a need to highlight the necessity of approaching the issue of environmental conflict from multiple viewpoints to ensure a more inclusive understanding, which is another aspect of the future work.

Keyword: Nigerian Niger Delta, Oil and Gas Activities, Environmental Regulatory Failures, Environmental Degradation, Environmental Conflict, Systems Thinking

1. Introduction

The discovery of crude oil in Oloibiri in 1956 boosted Niger Delta's economy, with production reaching around 2 million barrels daily. However, local communities remain impoverished, benefiting little from this wealth. Development favors oil companies, neglecting residents' needs.

Environmental degradation from oil production has caused health crises, pollution, and violence against protestors [1]. Effective environmental regulations are crucial for mitigating impacts and promoting sustainability. This study examines the failure of regulations in driving degradation and conflict. Countries regulate differently; for example, the UK Parliament oversees offshore activities with dynamic regulations based on "polluter pays" and voluntary agreements, while U.S. regulation is federal, governed by laws like the Clean Water Act.

In Nigeria, early oil regulations overlooked ecological concerns, as shown by the 1988 Koko toxic waste incident. Later regulations aimed to address oil's environmental and health impacts [2]. However, the regulatory framework has been ineffective, with technological limitations and industry support influencing decisions. Multinational companies often engage in unsustainable practices due to compliance costs, and the approval process for oil waste discharge permits by the DPR has worsened environmental harm [3]. Despite illegal waste discharge, many operators avoid accountability, worsening environmental damage and conflict. Oil extraction causes environmental harm, leading to resource conflicts. Scarcity of resources like clean air, water, and land is linked to violence, economic decline, and population displacement [4].

2. Conceptual Framework

Conceptual Clarifications of Environmental Regulations

Environmental regulations are crucial for minimizing ecological impact and fostering sustainability. These guidelines balance economic growth with environmental protection by setting limits on emissions and waste disposal. While assessing their precise impacts can be complex, regulations lead to job creation in green industries, improved socioeconomic conditions, and enhanced environmental quality, such as reduced air and water pollution. In response to the substantial environmental challenges posed by the oil and gas sector, such as greenhouse gas emissions, habitat destruction, and water contamination, many countries are increasingly prioritising the development of comprehensive ecological management strategies specifically tailored to this industry. This often involves integrating advanced technologies for cleaner extraction processes, implementing rigorous monitoring systems, and fostering stakeholder engagement to ensure compliance and accountability [5]. Through these efforts, governments aim to create a sustainable framework that not only supports economic objectives but also actively contributes to the long-term health of our planet.

3. The Comparative Overview of Environmental Regulations in the Oil And Gas Activities

A comparative overview of environmental regulations in various countries, including the United Kingdom, the United States of America, and Nigeria are detailed below:

Environmental Regulation of oil and gas activities in the United Kingdom (UK)

Parliament primarily manages the regulation of offshore activities in the United Kingdom (UK), as offshore oil and gas issues are reserved, unlike in Nigeria [6]. While the national governments of Scotland, Wales, and Northern Ireland are responsible for implementing these regulations, the UK regulatory framework is dynamic and frequently updated to address environmental concerns. UK laws enforce strict rules that adhere to the precautionary principle, the polluter pays principle, and producer responsibility. The UK Offshore Operators Association (UKOOA) promotes voluntary codes and agreements with government agencies to support these regulations, all aimed at protecting the marine environment. These are some of the related UK environmental regulations, as seen in Table 1.

Table 1: Environmental Regulations (UK) [6]

S/N	Related Environmental Regulations (UK)
1	Protection Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005;
2	Offshore Chemical Regulations 2002;
3	Food and Environment Act 1985 (as amended);
4	Merchant Shipping (Prevention of Oil Pollution) Regulations 1996

The Department of Energy and Climate Change (DECC) regulates oil and gas in the UK, including the Offshore Pollution Prevention and Control (OPPC) Regulations. These regulations prohibit oil discharge into the sea without a permit and limit produced water discharge to 30 mg/l. Operators need licenses for oil transfers or exports and report monthly emissions to the UK Offshore Operators Association (UKOOA) / DECC. Permits are required before starting operations, and any chemical discharge applications must be submitted via a Petroleum Operations Notice (PON). The average dispersed oil concentration in displacement water must not exceed 40 mg/l, with a maximum of 100 mg/l. DECC must be notified if concentrations exceed 40 mg/l. Minor machinery space discharges are exempt due to cost and technical challenges. Offshore installations must also survey drainage systems to obtain a UKOPP or International Oil Pollution Prevention (IOPP) Certificate, renewed every five years.

Environmental Regulation of oil and gas Activities in the United States of America (USA)

Regulation of offshore activities in the United States is mainly federal, with coastal states managing resources within three nautical miles of shore. The Clean Water Act (CWA) of 1977 governs the discharge of offshore oil wastes administered by the EPA. It requires permits for pollutant discharges under the National Pollutant Discharge Elimination System (NPDES). It establishes effluent limitation guidelines (ELGs) for the exploration and production of wastes, as seen in Figure 1. Produced water discharges are limited to 29 mg/L monthly average and 42 mg/L daily maximum. Each permit is evaluated individually, requiring compliance through measures like sampling and spill-prevention plans. The UK has strict offshore waste regulations, while the CWA ensures robust procedures in the USA. Nigeria could adopt a unified regulatory approach similar to the USA's to avoid fragmented responsibilities [7].

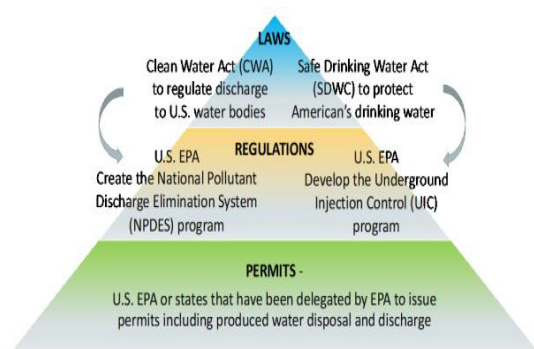


Figure 1. The U.S. Legal and Regulatory Framework for Produced Water Management [7].

Analysing produced water (PW) management and reuse in major U.S. oil and gas regions can help the industry and regulators address challenges and inform effective regulations. In the U.S., the PW cycle is governed by complex federal, state, and local laws related to water sourcing, transportation, storage, disposal, and beneficial use [8], as seen in Figure 2.

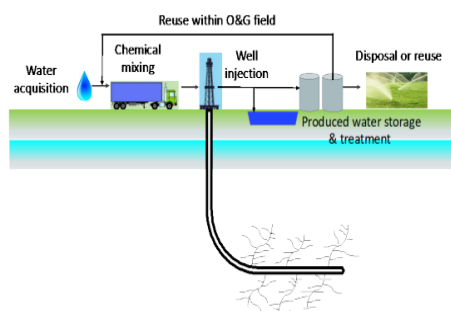


Figure 2. USA Oil and Gas Field Management [8].

Environmental Regulation of oil and gas activities in Nigeria

The Niger Delta, a region in Nigeria known for its ecological sensitivity, has seen the introduction of various laws to manage the environmental impacts of oil and gas operations. Recently, the Nigerian Federal Government enacted legislation to regulate exploration and production activities in both onshore and offshore oilfields to mitigate environmental damage.

Historically, earlier legislation did not prioritise ecological concerns, and it was only after public outcry following the 1988 Koko toxic waste incident that the government began addressing these issues. Over the years, a range of laws and regulations has been developed to manage the environmental and health risks associated with oil and gas activities in the Niger Delta. Key environmental laws and regulations have been put in place to promote better practices and minimize associated risks [7].

According to Ite et al., some of Nigeria's most important petroleum-related environmental laws and principal regulations are listed below (see Table 2).

S/N	Related Environmental Regulations (Nigeria)	Pollution Control
1	Oil Pipelines Act 1956 (amended in 1965);	×
2	Mineral Oils (Safety) Regulations (1963);	×
3	Oil in Navigable Waters acts (1968);	×
4	Petroleum Acts (1969);	×
5	Associated Gas Re-injection Act (1979);	×
6	the Federal Environmental Protection Agency (FEPA) Act (1988);	×
7	the National Policy on the Environment, 1989 (revised in 1999);	×
8	National Environmental Protection (Effluent Limitations) Regulations (1991);	×
9	Environmental Protection (Pollution Abatement in Industries Generating Wastes) Regulations (1991);	×
10	Environmental Impact Assessment (EIA) Act (1992),	×
11	Department of Petroleum Resources (DPR) Environmental Guidelines and Standard for the Petroleum Industry in Nigeria (EGASPIN) (2002).	✓

Table 2. Environmental Regulations in Nigeria [8]

Nigerian statutory laws provide a framework for petroleum exploration, but few effectively address pollution. Despite the establishment of FEPA in 1988 to impose penalties and require clean-up, environmental laws remain insufficient. Operators show limited commitment to enforcement, and international companies apply different standards in developing versus developed countries. Regulatory agencies prioritise investment over ecological goals, as seen in the inadequate Oil in Navigable Waters Act of 1968. While the 1956 Oil Pipelines Act and 1969 Petroleum Act aimed at pollution prevention, enforcement, and penalties were weak. Current laws rely on criminal sanctions, but authorities struggle to monitor and prosecute offenders. For example, the Oil in Navigable Waters Act lacks specified fines, and the 1967 Petroleum Regulations focus on revenue rather than robust environmental protection.

4. The Failure of Nigeria's Environmental Regulation

Technological limitations often influence government environmental regulations, the need to support industry, and public opinion. In Nigeria's Niger Delta, community participation in environmental decision-making is a recent and often ineffective process with few sustainable development goals. Despite regulations, multinational oil companies continue to engage in unsustainable practices, mainly due to the costs associated with compliance. Environmental degradation persists, partly because the Director of Petroleum Resources (DPR) must approve oil waste discharge permits [6]. Discharging oil waste without a license in Nigeria is illegal and punishable, yet operators frequently evade accountability for significant environmental harm. While countries like Norway, Denmark, the USA, and the UK require discharge permits, Nigeria's regulations under EGASPIN do not cover all discharge scenarios, leading to widespread non-compliance without sanctions.

The effluent limitation for oil discharge into Nigeria's offshore waters is 40 mg/l, compared to 30 mg/l in many developed nations. Moreover, the Department of Petroleum Resources (DPR) mandates weekly sampling and monthly reporting but lacks defined parameters for accurate monitoring. Consequently, unsustainable practices have severely influenced the environment and ecosystems in the Niger Delta for decades.

5. Environmental Conflict: An Overview and Types

Environmental conflicts are societal disputes related to the environment [9]. Studies highlight that environmental conflict often arises from confrontations over land and resource use, revealing challenges in decision-making and the growing demand for citizen involvement in shaping collectively shared territories. These conflicts extend beyond simple resource disagreements to include differing values and perceptions of resources for various social groups in territorial development. The interaction between society and specific locations, resource distribution, the development of emerging regions, cultural resistance to innovation, and environmental degradation are key drivers of these conflicts. A notable example is the ongoing struggle over scarce resources between communities in Nigeria's Niger Delta and oil and gas companies [10]. In this region, community members have resorted to damaging government infrastructure in response to frustration over the neglect of human development, despite the area's wealth from the oil industry. This situation underscores how disputes over the unequal

distribution of natural resources can escalate into environmental conflicts [11].

5.1. Types of environmental conflicts

There are various categories of environmental conflicts highlighted below.

This study examines various types of environmental conflict [12, 13], such as those over water, land, and air accessibility, which are emerging as significant global issues threatening national security and community livelihoods. By 2050, water demand is expected to rise, increasing competition and potential military disputes among nations sharing water sources. This tension may be exacerbated by resource conflicts within water bodies, such as oil. Environmental degradation, particularly in the Global South (e.g., Nigeria, Cameroon, Niger), worsens water scarcity, heightening the risk of conflict. Reduced water quality and agricultural productivity threaten food security, causing displacement, especially in Africa.

Land conflicts are similarly fueled by scarcity, leading to violence, particularly over valuable resources. In Sub-Saharan Africa, factors like environmental degradation, land tenure struggles, and socioeconomic inequalities contribute to these disputes. For example, while land issues didn't directly cause the Rwandan genocide, they intensified tensions, particularly among Indigenous communities. In areas like Nigeria's Niger Delta and Tanzania's Kisarawe and Rufiji districts, tensions rise due to limited land availability and population pressures.

Air quality concerns also drive conflict, with pollution posing health risks and disrupting natural processes. In developing countries, industrialization and transportation emissions worsen air pollution, heightening the potential for conflict. Additionally, climate change and resource depletion threaten human security, causing displacement as demand for goods and services increases. Addressing these interconnected conflicts is crucial for ensuring both local and global stability.

6. Manifestation of Environmental Conflict

Humans rely heavily on the environment for essential resources, including clean air, water, food, and medicine. However, various human activities, such as oil and gas extraction and unsustainable practices, have adversely affected the environment. Poor environmental management can lead to conflicts, particularly in situations where there is environmental scarcity, especially regarding renewable resources. This scarcity is often linked to social unrest and disputes over resources. For

instance, a lack of necessary resources can escalate into conflicts, as illustrated by water scarcity issues in places like Gaza and South Africa, exacerbated by industrial pollution. Environmental conflicts frequently stem from diminished access to vital resources, including land, fisheries, and clean air and water. Prolonged scarcity can result in violence among individuals and groups, while environmental degradation may contribute to economic decline and population displacement, further increasing the likelihood of conflict [7; 11].



Figure 3. The Relationship between Environment and Society [11].

There is a significant connection between conflict and environmental scarcity. A study by Ite indicates that while ecological scarcity is not the primary cause of conflict, it is a contributing factor that works alongside political, social, and economic systems, which respond nonlinearly to various pressures [7]. They also observed that the frequency of conflict increases with population growth and resource strain. When there are shortages in supply and demand, it can lead to environmental scarcity, resulting in ecological changes and conflicts. The study identifies three main sources of environmental scarcity, demand-induced, supply-induced, and structural, that can trigger conflicts, as illustrated in Figure 4.

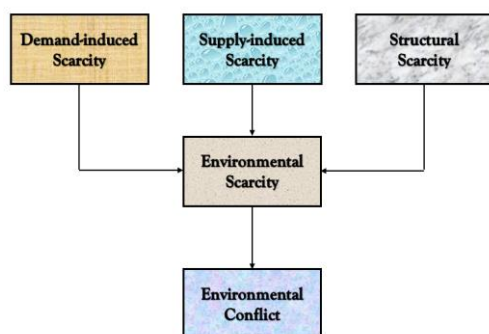


Figure 4. Manifestation of Environmental Conflict/ [7].

7. Environmental Scarcity and Conflict

Studies [13] and [14] highlight that while environmental scarcity is closely linked to conflict, it does not directly cause violence. Researchers identify three main categories of ecological scarcity that contribute to conflict: supply-induced, demand-induced, and structural factors. Supply-induced scarcity occurs when environmental degradation

reduces the availability of natural resources, creating a significant imbalance between supply and demand. Human activities, such as resource depletion, further compromise resource quality and availability, threatening ecosystems and diminishing vital resources like water and soil.

A notable example is South Africa, where pollution has forced millions to rely on contaminated water sources. Additionally, population growth, urbanisation, and intensified agriculture exacerbate environmental degradation, increasing the risk of conflict. Unchecked industrialization and urban expansion contribute to pollution, which negatively influences public health. As urban areas expand, deteriorating environmental conditions often force people to migrate in search of resources, potentially sparking conflicts over scarcity.

Moreover, environmental degradation has been linked to rising long-term unemployment and poverty in certain regions. In response, communities may turn to illicit activities, such as oil theft and sabotage, to survive. Thus, the relationship between environmental degradation and conflict is a complex interplay of interconnected factors contributing to both issues, as seen in Figure 5, the system map of environmental degradation and conflict.

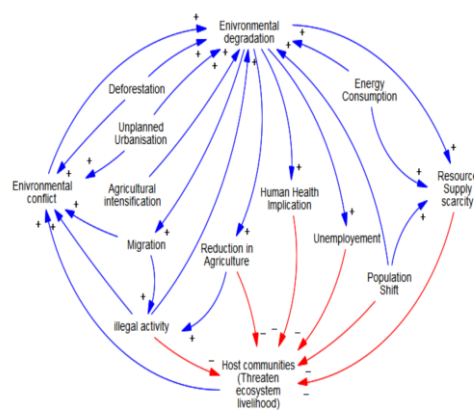


Figure 5. A Systems Map of Environmental Degradation and Conflict

Population growth has a profound impact on the distribution of natural resources, often resulting in intense conflicts over limited land availability [15]. As communities become increasingly dependent on these scarce resources, emotional attachments to the environment escalate tensions surrounding land ownership. This rapid increase in population can lead to significant challenges such as food scarcity, which threatens food security, and habitat loss, which endangers various species. Moreover, ongoing land degradation exacerbates these issues by diminishing the quality of arable land, while declining biodiversity weakens ecosystem resilience. During periods of relocation, affected populations frequently endure heightened stress levels and face environmental

marginalisation due to the scarcity of resources. This marginalization can manifest in various ways, including inadequate access to clean water and fertile land, leading to further social and economic instability. The competition for minimal resources not only fosters disputes but can also result in long-term socio-political ramifications, potentially igniting larger conflicts and undermining efforts for sustainable development.

8. Consequences of Environmental Scarcities and Conflicts in the Oil and Gas Activity

The oil and gas sector involves various stakeholders with differing expectations [11]: governments seek revenue, host communities desire better living standards, and companies aim for profits, as seen in Figure 7. These conflicting interests often result in environmental conflicts. The rise in oil and gas activities has led to heavy reliance on revenue generation, causing overexploitation and environmental degradation [13]. This has negatively affected traditional industries like agriculture and has resulted in ecological damage from oil spills, affecting livestock, wildlife, biodiversity, and leading to displacement [10]. Indigenous populations are increasingly forced to relocate due to oil contamination, which fosters persistent poverty, unemployment, and infrastructure delays. These issues threaten security by creating resource scarcity, fueling frustrations and grievances that can lead to conflict (4).

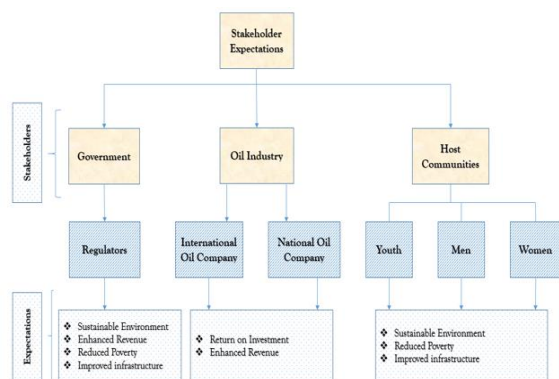


Figure 7. Major Stakeholder Expectations in Oil and Gas Activities

Weak institutional responses worsen tensions, as the government struggles to address the environmental and social challenges in oil development areas, resulting in ongoing conflicts over compensation, food shortages, and civilian relocation [15]. If poor socio-economic conditions persist, grievances will continue, leading to increased crime. Unaddressed, these grievances undermine

government legitimacy, fragment society, and elevate the risk of violent collective action. Issues like unemployment, poverty, and environmental degradation have fueled discontent among communities enduring prolonged hardship. In developing countries like Sudan, Angola, and Nigeria, resource scarcity has driven host communities to engage in illegal activities such as oil theft and kidnapping, as shown in Figures 8 and 9 [16; 17]. In Nigeria's Niger Delta, protests over unfair resource distribution since the discovery of oil in the 1950s have led to regional instability.



Figure 8. Illegal Refinery [16]



Figure 9: Oil Theft (Pipeline Vandalism) [17]



Figure 10. Niger Delta Militants [18]

Conflicts arising from oil and gas activities have led to power struggles over unequal resource distribution [18]. This has resulted in the emergence

of protest groups, including militants, as shown in Figure 10, particularly in Nigeria's Niger Delta, where various factions compete for a larger share of oil revenues. The power struggle involves both the government and local communities in oil-producing areas.

Saro-Wiwa's case exemplifies the Ogoni agenda, highlighting the tensions surrounding the oil and gas resources in the region. As Saro-Wiwa [18] observed, the abundance of resources leads to marginalization and unequal distribution, which fuel frustrations and efforts to unite. Power struggles often emerge as groups compete for control, especially in developing nations rich in resources but facing underdevelopment. This underscores the need for conflict management between the government and the oil industry (see Figure 11). Key consequences of environmental scarcity and conflict include grievances and struggles for resource control, particularly when issues like environmental degradation and unequal distribution remain unresolved [19]

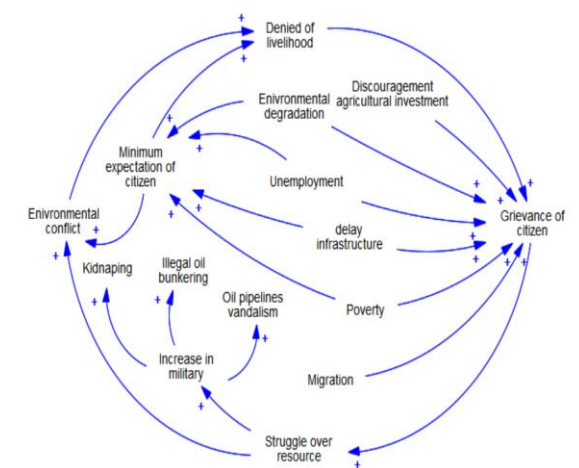


Figure 11. A Systems Map of Grievance and Power Struggling over Resource Control

9. Methodology

The paper intends to use systems thinking to understand the dynamics of environmental regulatory failures and environmental conflicts in Nigeria's oil and gas activities. The study adopts the Systems Thinking Methodology (STM) proposed by Professor Olaniyi [20] and Forrester [21]. The mono method is adopted in this study due to the complexity of the phenomenon. It examines the various situations of environmental regulations in countries such as the UK, the US, and Nigeria. Systems Thinking (ST) provides an approach to dealing with complex issues in which actors must see the big picture to enable shared understanding and collaboration to ensure effective management. It effectively manages recurring problems where past attempts to fix them

have created more problems. It offers a new way of thinking holistically whilst focusing on the components of the system, their interaction and net effect on the system [22]. Systems thinking is an important cross-sectoral, interdisciplinary, and diagnostic tool to understand interactions by improving communication and providing information on the vulnerabilities and resilience of a system as to avoid policy resistance and system collapse.

To understand how different variables interact, ST aims to map out the multiple points of interconnectivity of phenomena. ST is a qualitative approach that uses the individual's mental model to capture various interactive behaviour while looking at a complex problem. To inductively develop the CLD (casual loop diagram) of the interactions of the system, data will be collected from journal articles, online archives, and reference books on issues related to oil and gas activities, environmental regulation and conflicts from the global perspective and especially in Nigeria. Casual Loop Diagram is a Systems tool used to illustrate a feedback loop in an explicit diagram (As shown in Figure 12). This illustrates how several behaviour, such as environmental scarcity, food shortage, environmental degradation, inadequate infrastructure, and others, contribute to the causes of environmental conflict.

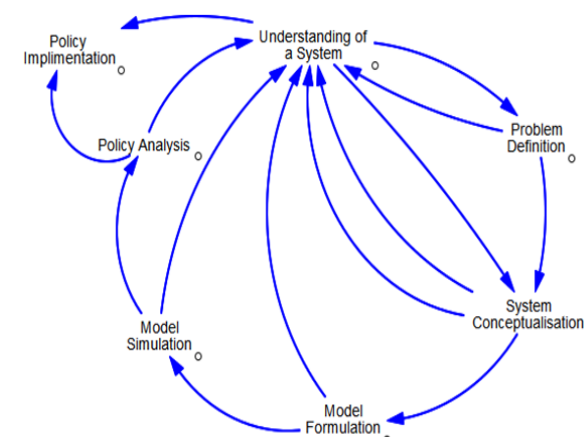


Figure 12. The Phases of Systems Thinking and System Dynamics [21]

A closed system with several variables and causation is called a loop. The causal loop diagram provides a high-level approach to conceptualizing models based on their feedback loop structure of expressing the causation relationships between different variables. A feedback loop, which can be either balancing (negative) or reinforcing (positive), is the fundamental building component of all systems [21]. It is designed to reinforce the loops if it has an even number of positive (-) and balance if it has an odd number of negative (-). There are six steps of STM, as indicated in Figure 11, adopted by [21], to provide a clear understanding of a system structure

problem definition, system structure conceptualisation, mode formulation, mode stimulation, policy analysis and model results and finally, policy formulation and implementation. Using STELLA STM software to analyse the dataset, a model was developed to illustrate the various implications of how the host communities and the oil and gas industries contributed to oil pipeline vandalism in Nigeria's Niger Delta. Utilising the ST approach as a framework is justified because it captures the system from a holistic point of view as opposed to the more conventional static point of view.

10. Conclusions

The discovery of crude oil in Oloibiri in 1956 marked a pivotal moment for the Niger Delta, leading to significant economic growth with daily production reaching approximately 2 million barrels. Despite this wealth, local communities remain entrenched in poverty, as development initiatives predominantly benefit oil companies rather than addressing the needs of the residents. The environmental degradation linked to oil production has resulted in severe health crises, including contaminated air and water, increased mortality rates from spills, and violence against protesters. This situation highlights the shortcomings of environmental regulation in effectively tackling these pressing issues. Stronger regulations are essential for achieving sustainability, yet Nigeria's approach differs significantly from the more proactive "polluter pays" strategy seen in the UK. The regulatory framework in Nigeria often fails to prioritize ecological concerns, a fact underscored by the 1988 Koko toxic waste incident. Efforts to mitigate the health and environmental impacts of oil production have been largely ineffective, impacted by high compliance costs for multinational oil companies and a bureaucratic permit approval process that exacerbates environmental harm. Additionally, a lack of accountability for illegal waste discharges further inflames tensions over essential resources. Research indicates a clear link between resource scarcity and social unrest, revealing that the degradation of clean air, water, and land can catalyze violence and conflict, underscoring the need for urgent action to address these critical issues.

11. Contributions to Knowledge

The paper offers three additional insights to the existing body of knowledge, focusing on the implications of environmental regulatory failures in Nigeria's oil and gas sector. It identifies specific issues unique to Nigeria, such as environmental scarcity caused by degradation, which leads to poverty, unemployment, and a decline in agriculture. These factors further contribute to environmental conflict, marked by grievances and power struggles over

resource control, which are significant issues influencing the country's economy. The findings from this study aim to inform decision-makers and planners about the environmental consequences and hazards associated with oil and gas activities in Nigeria. Additionally, the study highlights the importance of rehabilitation and maintenance efforts to mitigate the environmental conflicts arising from these activities.

12. Future Work

It is important to acknowledge this study's limitations, as they will influence future research efforts. One significant constraint is the reliance on secondary sources, which has led to a lack of comprehensive information. Furthermore, certain perspectives, particularly those of stakeholders such as oil and gas companies, host communities, and government entities, have not been adequately explored. The findings highlight the necessity of approaching the issue of environmental conflict from multiple viewpoints to ensure a more inclusive understanding.

13. References

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