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COMMUNITY-BASED INTERVENTION IN THE CONTROL OF ARTISANAL REFINING AGAINST THE ENVIRONMENT IN NIGER DELTA REGION, NIGERIA

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ABSTRACT

The paper evaluated community-based intervention in the control of artisanal refining against the environment in Niger Delta Region, Nigeria. It further evaluated concept of community-based intervention, artisanal refining and effect of artisanal refining on Niger Delta environments; some of which are pollution, global warming, waste disposal, ocean acidification, loss of biodiversity, deforestation and ozone layer depletion. It also applied analysis approach on how communities intervened in the control of artisanal refining against the environment in Niger Delta Region, Nigeria. Such as; town hall meetings, setting up of standard committees, the use of traditional beliefs and systems, etc. The paper identified few bottlenecks to community-based intervention in the control of artisanal refining against the environment in Niger Delta Region. The study concluded that artisanal refining has adverse effect on man and the environment, so communities must also help in controlling and fighting against artisanal refining and its related activities in the Niger Delta Region, Nigeria. The study recommended that there is need for government to allow both host communities and private investors to establish modular refinery and again, both federal government and its security agencies should be up and doing in providing surveillance jobs for host communities.

Keywords: Community-based intervention; control; artisanal refining; environment; Niger Delta Region.

1. INTRODUCTION

The Niger Delta area has endured years of intolerable suffering as a result of environmental problem caused by an individual, a group of individual, the government, and international corporations. Whereas, over 80% of the country's income comes from the sale of oil produced in the area, but only a pitiful amount equal to 13% of oil revenue goes to the oil-producing states, despite their significant contribution to the country's economic development [1]. Even though these environmental issues are very recent phenomena that only affects the Niger Delta area, they are still one of the worst health and mortality risks in the

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world. Environmental deterioration caused by human activity is exemplified by urbanisation, industrialisation, mining, and exploration. Both developed and developing nations are accountable for protecting the environment, although developed nations have performed better owing to more knowledge and stringent rules. Environmental pollution is the adverse alteration of our environment brought on us by human activity, either directly or indirectly, as shown in changes in the energy pattern, radiation levels, chemical and physical makeup, and species abundance. A decline in environmental quality as a consequence of pollution is indicated by the loss of flora, biological diversity, excessive levels of harmful chemicals in the ambient atmosphere and in food grains, as well as increased risks of environmental accidents and threats to life support systems (Elisha & Diri, 2021).

Olokor [2] claimed that the operations of illegal crude oil refineries in the Niger-Delta area have been called out as a hazardous trend by the Presidential Amnesty Programme. The group claimed that the home refinement of crude oil by local artists has detrimental effects on the nation's health and ecology. Additionally, the Federal Government noted that unauthorised crude oil refineries have caused Nigeria state to lose 53 million barrels of oil worth over $2 billion in the past. Olokor continued by saying that there are a number of issues with artisanal refining which have negative effects on both human health and the environment, but what should be done about them? To tackle these issues, it will need the combined efforts of all of us. The same is true of the problem of degrading vegetation, which is widespread in the region and has an impact on both soil and water. Reduced farmland, increased food insecurity, bushfires, and health issues for residents are the results of these illegal activities (Nkemakolem, 2018; Nwaejije, et al., [3]).

According to the Nigerian constitution, the federal government owns all of the country's natural resources. Since oil is a natural resource found on Nigerian soil, the federal government is the rightful owner. Therefore, transferring it from Nigerian land in any manner without the federal government's consent is oil theft. The federal government's oil is being stolen by whoever does it. The phrase "artisanal refining" is now used to describe activities that often take place in bushes (forests) and entail the use of local resources, technology, and other methods to refine crude oil that has been illegally extracted. As a result, when carried out in accordance with legal criteria, artisanal refining activities are legitimate businesses. When the law does not support them, they merely become unlawful. Because the word "artisanal refining" are also refereed to many forms of oil theft, such as, smuggling and diversion of petroleum products and others. Instead of focusing on oil theft in Nigeria, we will be talking about unlawful bunkering in Nigeria.

The Niger Delta region's developmental needs cannot be met with this sum. Despite Nigeria being a signatory to multiple summits dedicated to environmental sustainability, none of the rules passed by the federal government addresses environmental problems brought on by artisanal refining (Adetunji, 2006). The high pace of oil exploration and other human activities in the oil-rich Niger Delta are seen as contributing to environmental deterioration without concern for the health and wellbeing of the locals, including massive harm to the local flora and wildlife. The biggest danger to the existence of the population in the oil-producing area, apart from poverty and misery, is environmental exploitation and deterioration (Sagay, 2005). Oil spills, pipeline erosion and leaks, gas flare-ups, flood erosion, and salt water intrusion have all had a negative impact on the social and economic well-being of the local populace (Adedipe, 2002). In 1995, the World Bank conducted a thorough assessment of the area and came to the following conclusions, among others: that the environment was filthy and all development indicators were well below acceptable standards. In order to get the attention of the government for equitable development and socio-economic emancipation of the area, the people have over the years participated in various types of agitations and confrontations.

Because to pollution, the traditional economic activities of the residents (fishing and farming) have altered in the areas where oil is extracted (the Niger Delta region). Government sloppiness in managing accumulated money from crude oil and a lack of development of the oil-producing regions throughout time have added to this issue. Some of the locals in the Niger Delta region have been seriously rebelling as a result of these issues. As a result, crude oil is stolen from pipelines, syphoned locally, and refined in the regions [4], posing numerous health and environmental problems such as pollution, global warming, waste management, ocean acidification, loss of biodiversity, deforestation, and ozone layer depletion. In order to prevent the public's perception of the problems of crude oil pollution and the environmental effects of artisanal refining in the study area from being swayed by the sporadic reports of the government agencies monitoring the environment, it is crucial to periodically assess these environmental challenges related to artisanal refining and crude spills.

However, some best practices and strategies to protect the environment from the frequent occurrence of oil theft in the Niger Delta have been adopted by the Nigerian government by engaging its security agencies, some multinationals and indigenous oil and gas producing companies operating in Rivers State. Environmental pollution resulted from improper environmental management methods and a breakdown of Nigeria's environmental regulations, directly affects the socioeconomic well-being, health, and environment of the local populace (Likhitkar & Verma, 2016). The Joint Military Task Force (JTF), which the federal government has ordered to apprehend the perpetrators of this crime, has increased the amount of carbon that is released into the environment due to their careless destruction of the refining equipment. Despite the significant quantities of money voted to stop illegal bunkering (oil theft), manage the region, and reduce pollution, the situation keeps getting worse (Elisha & Diri, 2021). Artisanal refining is still forbidden and waxing in the nation.

In Niger Delta, the indigenous refining of crude oil has developed into a rich but unsettling industry. Camps are constructed and utilized for local crude oil processing in the Niger Delta's dense forest. Although it is obvious that the refiners would gain financially from this while the host communities will suffer greatly as a result of the actions of the "local crude oil refiners." Due to river and estuary pollution, farms have been destroyed and fishing communities evacuated, resulting in the loss of life's and properties [5]. Community-based authorities are pushing for measures to stop artisanal refining because of the unexpected impact these activities have on the surrounding areas. Extreme temperatures, corrosion, abrasion, fouling, and contaminants all common in refineries and petrochemical facilities as well as the release of hazardous gases into the atmosphere and the production of solid waste that is challenging and toxic to human and the environment are a few of the issues with artisanal refining. In light of the above, community-based organisations in Niger Delta region feel compelled to take action in preventing artisanal refining because of it negative environmental effects. This is the driving force for this investigation.

2. CONCEPTUAL CLARIFICATION

2.1 Community

The word "community" may be defined in a number of ways, such as a group of individuals who shared interests or who live in the same area and are subject to the same government. The first term conjures up ideas of a place where one belongs, whereas the second definition conjures up ideas of mutual understanding [6]. In the purpose of this study, a community is defined as a collection of individuals engaged in collective activity in a particular geographic area. The primary difference is that not all individuals or residents in a certain region are included in our concept of communities. They are united by the fact that they have similar local environmental problems and work together to address them. Our notion of a community does not include every citizen, but this definition enables everyone to take part if and when they become aware of these difficulties. In this sense, a community is an area that depending on each particular circumstance which may be expanded up in terms of participation [7].

Communities are also defined by the World Health Organization [WHO] [8] as a group of people, frequently residing in a specific geographic area, who share common culture, values, and norms and are arranged in a social structure based on relationships that have developed over time within the area [9]. Sharing views, values, and standards that has evolved around a community over time, may be modify in the future by giving members of the community their personal and social identity. They show signs of collective identity awareness and demonstrate a desire to fulfil shared demands. A community is also a collection of individuals who reside in a certain location or a group of people who are regarded as a single entity due to their shared nationality, social group, or hobbies [10].

A community is a social unit (a collection of living beings) that shares factors like geography, traditions, beliefs, values, or identity. Through communication platforms, communities may connect virtually or in a specific physical location (such as a nation, village, town, or neighbourhood). Long-lasting relationships form a feeling of community that is crucial to their identity, practice, and positions in social institutions like family, home, job, government, society, or humanity as a whole. These relationships go beyond simple genetic links [11]. Community may also referred to large group affiliations like national communities, international communities, and virtual communities, even though communities are often modest in comparison to personal social relationships [12].

2.2 Community Based Interventions (CBI)

According to the WHO's definition, a community-based intervention is a solution that is effective inside or on behalf of a community. A CBI should promote community involvement and participation, which leads to community engagement, where people of the community participate in decision-making, planning,

and programme execution as well as monitoring and evaluation. Community-based interventions are multifaceted efforts to avoid dysfunction and advance well-being across population groups in a particular local community. They often include human and environmental change tactics across a variety of contexts [13,14].

According to several of the studies analysed by Merzel and D'Afflitti [15], the phrase "community-based" referred to interventions that take place in the community as a whole. The community serves as the context for initiatives and is typically identified geographically. Such interventions can take place inside community institutions like neighbourhoods, schools, churches, workplaces, nonprofit organisations, or other groups, or they might take place citywide utilising mass media or other strategies. There are several layers of intervention that may be used, such as educational or other tactics involving people, families, social networks, organisations, and public policy. Advisory committees or community coalitions that help in designing treatments to particular target groups or in adapting programmes to community characteristics may also include community involvement in these community-based initiatives. However, the main goal of these community-based initiatives is to alter people's behaviour in order to lower the risk of irregularities in the general population. Populations may thus be the object of change, but population change is defined as the sum of individual changes [16].

The phrase "community-based" might also signify something quite different, such as the community being the object of change. The term "community as target" refers to the objective of establishing healthy communal settings via extensive systemic alterations in governmental practises and communally accessible organisations and services. In this paradigm, the community's health status characteristics serve as the intervention's goals, and the targeted outcomes are changes in the community, especially those that are assumed to be connected to health. This paradigm has been used in several notable public health programmes.

2.3 The Niger Delta Region and It Crusade against Artisanal Refining

The Ahoada, Brass, Degema, Opobo, Ogoni, Western Ijaw, and Warri administrative divisions make up the Niger Delta area since colonial times. The current Rivers, Bayelsa, and Delta States are where these administrative divisions were located. Today, any geopolitical entity having a significant amount of petroleum resources is included in the concept of an oil-rich producing area. According to this description, the area is now made up of the nine states of Abia, Edo, Delta, Cross River, Akwa Ibom, Bayelsa, Rivers, Imo, and Ondo [17,18]. Covering an area of 112,100 square kilometres, or nearly 12% of Nigeria's total land area, the region is located roughly between Latitudes 4000 and 7030 north and Longitudes 4000 and 7030 east [19].

The rural residents of the oil-rich Niger Delta area rely on these resources for their way of life. The Niger Delta ecosystem is a highly sensitive ecological zone recognised for high biodiversity. The predominant types of vegetation in the Niger Delta include mangrove forests, freshwater swamps, and brackish swamp forests. There are notable creatures that rely on the diurnal tidal cycle in the intertidal zones of tidal fresh and brackish water. The majority of the plant and animal life is either sedentary or mobile. The ecosystem in the Niger Delta has deteriorated over time as a result of oil and gas exploration and extraction operations [20]. Mobile species may escape a contaminated habitat when crude petroleum leaks into tidal waterways, while the substrate of stationary creatures becomes caked with oil transported by incoming tidal waves. Depending on the time and location of the spill within the tidal regime, the oil is dispersed using this method over the breadth of the intertidal zone as well as upstream and downstream limits of the tide along the river course.

Governor Nyesom Wike of Rivers State issued an order to all 23 local council chairmen to hire bulldozers and demolish any discovered artisanal refinery and illicit crude oil bunkering installations in the state. On January 14, 2022, Governor Wike gave the chairmen a 48-hour deadline to provide him a detailed list of all unlawful refinery installations and their operators in each region. The state government would help the local government area chairmen financially so they may employ bulldozers and swamp buggies to demolish all the sites, the governor stated after receiving the list of identified unlawful refinery sites (Agency Report, 2022). Following the directive of the governor, various council chairmen called on all traditional rulers to join and ensure the objectives of the governor is achieved. It is on this premises that several traditional rulers went home and call on town hall meetings to address and sensitize her subjects on the danger of illegal oil refining to man and the environment.

For instance, the Amayanabo of Ancient Bille Kingdom in Degema Local Government Area of Rivers State, HRM King Igbikingeri Ngowari CorneliusHerbert, monarch of Bille Kingdom when

reacting to the directive by the Rivers State Governor, Chief Barr. N. E. Wike, on shutting down illegal refineries in the State and its implication, if any traditional leader fail to comply with the directive. The monarch assured the governor of his leadership commitment in ensuring zero illegal bunkery activities as well as being at the forefront of the fight against kpofire activities, as it has greatly destroyed his peoples' only means of survival as fishermen [21].

He further expressed happiness that the kingdom has government backing on the fight against Kpofire, by setting up a committee from the youth, women, men and Community Development Committee (CDC) Bodies of Bille to monitor activities of illegal oil bunkering activities in the area, because the effect is much on our environment, our waterways are messed up, our mangroves dead, all the aquatic life in our waters is no more as fishermen and women. Their economic sustenance has been destroyed long ago, they no longer eat fresh fish, and instead we buy ice imported fish from the Port Harcourt market. Some other monarchs that also constituted committee to foresee these activities includes; Amayanabo of Opobo, Amayanabo of Okrika, the Amayanabo of Ogu, the Amayanabo of Bonny and the Gbenemene Nyo-Khana, Nne-Nwe-eli Emohua,Paramount Ruler of Akpor Kingdom, etc.

Bayelsa State: Bayelsa State government warned youths of the state to stay away from all forms of illegal oil refining activities and further urges Host Communities of Nigeria Producing Oil and Gas (HOSCON) to join has been charged to complement government efforts in sensitizing people of Niger Delta, particularly the youths, on the environmental and health hazards associated with illegal bunkering and refining of crude oil (Punch Newspaper, 13 January 2022).

HRM, King (Dr.) Alfred Papapereye Diete-Spiff, the Amanyanabo and Natural Ruler of Twon Brass Kingdom in Bayelsa State, responded to the state government's call by establishing the spirit of community leaders, active internal and external communication and networking, effective consensus-building mechanisms, and local ownership. As a result, the community was able to adopt several strategies to stop illegal bunkery activities in his kingdom**.** He also demonstrates action plans form the community-based initiatives that will discourage youths in engaging in environmental pollution and all other form of illegal activities in Kingdom Vanguard Newspaper, 2022). This was to maintain the sanity of the environment for children yet unborn. The success of a strategy is determined by how well certain indicators perform over time [22]. Mr. Golden, Ebiye Ipregha who is a stakeholder in Twon Brass Kingdom in Bayelsa State, condemned the call for legalization of illegal refining of petroleum products by some youths in the state, Mr. Golden further added that HOSCON has a strategic role to play in the ongoing sensitization efforts of government to discourage youths involved in the act [23]. The rulers of Ogbolomabiri, and rulers of Bassambiri all swing into action in the fight against illegal oil refining.

2.4 Artisanal Refining

To generate useful products like kerosene, gasoline, and diesel, artisanal refining is the small-scale or continuous distillation of crude petroleum across a defined range of boiling points. The use of huge tankers to carry and sell stolen petroleum in Nigeria is known as illegal oil bunkering, and it dates back to the 1970s, when the country was under military authority. The "artisanal" or local refining of crude oil into transportation fuels, on the other hand, is a relatively recent development. The use of huge tankers to carry and sell stolen petroleum in Nigeria is known as illegal oil bunkering, and it dates back to the 1970s, when the country was under military authority. The "artisanal" or local refining of crude oil into transportation fuels, on the other hand, is a relatively recent development [24].

Fig. 1. Artisanal refining

In essence, artisanal refining involves diverting crude oil from pipelines and placing it in tanks typically in bushes and forests where it is cooked at high temperatures to produce various petroleum products. Due to a faulty national grid, high prices, and intermittent shortages of consumer fuels, artisanal refineries were created to meet local energy needs. It mostly uses conventional knowledge abilities and relies less on cutting-edge technologies. The major raw material used in the technique is stolen crude. In southern Nigeria, artisanal refining has increased in popularity recently and is linked to significant environmental contamination [25].

When the source of the raw material (crude oil) is obtained via unauthorised ways or the style of operations is subpar, refineries might be considered to be illegal. Nigeria is the fifth-largest oil exporter in the Organization of Petroleum Exporting Countries and the top producer of petroleum in Africa (OPEC). It has been noted that illicit oil refineries and oil syphoning have grown into significant industries, with the stolen oil moving to the black market with relative ease. A portion of the oil is transported to tiny, crude refineries in creeks and mangroves, where it is boiled to create low-grade diesel fuel. As stated by Attah [25], the most common kind of sabotage is known as "bunkering," in which the saboteur tries to tap the pipeline. At every step of the bunkering process, oil leaks happen. There are situations when the pipeline is damaged or destroyed during the extraction process. Line damage may go undiscovered for days, and fixing broken pipes might take much longer. It has been highlighted that the saboteur's actions cost Nigeria more than just money in missed output, expensive repairs, clean-up expenses, and facility downtime. It is a tragic tale of individuals consistently polluting farmlands and rivers because they don't care about how their behaviour affects the ecosystem [16].

Results support the claims made by artisanal (illegal) fuel producers that they can create extremely high-quality fuel. Although the aforementioned demonstrates that importing gasoline is not the greatest choice for the nation, illicit refineries are discouraged since they are less competitive when it comes to kerosene. Depending on the extent of theft being done, unlawful refining is mostly cellular rather than hierarchical and requires regular coordination between a number of random actors. Each gang has a distinct function, and the big actors carry out oil bunkering and steal thousands of barrels of crude oil per day from established oil pipelines with which they operate illicit refineries. These techniques include hot tapping and cold tapping. Over the last forty years, local refinery has quickly expanded, giving communities job possibilities and bridging Nigeria's shortage of refined gasoline. Local populations experience the effects of oil production but do not receive any of the economic advantages, therefore the sector fills this economic gap [16].

3. METHODOLOGY

The study adopted the primary and secondary (qualitative and quantitative) research design. Data used for this research work were sourced by asking questions in order to collect data. The researcher is the primary instrument for monitoring and data collection by been participatory. For the secondary source, data were collected from the internet, related journals, newspapers, etc.

3.1 Effect of Artisanal Refining on Niger Delta Environments

It has been noticed that the artisanal refining of crude oil causes significant environmental harm. Two drums of crude oil are converted into one drum of product during the refining process, resulting in a significant amount of waste being deposited in rivers, streams, or on land. It has been said that throughout the refining process, a significant portion of the oil burns away and some seeps into the earth. The trash from tens of thousands of improvised refineries combined with the oil spills caused by damaged pipelines causes significant environmental degradation in the waterways and on land. In addition to the significant danger of self-harm associated with artisanal refining, many accidents, fires, and explosions frequently occur [26]. According to reports, refining petroleum produces solid, liquid, and gaseous waste that pollutes the environment. Basically, artisanal refining operations have the following effects on the Niger Delta environment:

Pollution: Any substance (solid, liquid, or gas) or energy source (such as heat, sound, or radioactivity) that is introduced into the environment at a rate that is faster than it can be dispersed, diluted, decomposed, recycled, or stored in a harmless form is referred to as a pollutant. When contaminants are introduced into the ecosystem and cause damage, pollution has occurred. Environmental pollution may be caused by chemical substances or energy sources like sound, heat, or light (Elisha & Diri, 2021). According to the environmental definition of pollution, the three primary categories are air, water, and land pollution. The pH of the soil is dramatically raised by crude oil pollution for artisanal refining, reaching 8.0, and the amount of accessible phosphorus in the soil is decreased. The levels of total organic carbon fluctuate greatly across the sample locations.

Fig. 2. Pollution from different source

Its burning as a fossil fuel from hand-processed refining adds to harmful emissions, particularly of carbon dioxide, one of the most hazardous greenhouse gases. In many of the host communities of the Niger Delta, there is a high likelihood of a wide range of toxic reactions, such as behavioural abnormalities, respiratory illnesses, suppressed growth, induced or inhibited enzymes, adverse physiological responses, blood disorders, poor reproductive outcomes, lowered immunity to disease and parasites, and cancers of various organs [27].

Global Warming: Global warming is the gradual increase in the planet's average temperature. Although this warming trend has been around for a while, the combustion of fossil fuels has greatly accelerated its speed during the last century. The amount of fossil fuels burnt has grown along with the growth of artisanal refining. Carbon dioxide, a greenhouse gas, is released into the atmosphere in massive quantities when fossil fuels are burnt. Global warming is caused by greenhouse gases, which trap heat in our atmosphere. Already, there has been a 1C rise in the average world temperature [28]. It is mostly brought on by human activities like burning fossil fuels, farming, and artisanal refining, which result in higher atmospheric concentrations of greenhouse gases.

Ocean Acidification: Ocean acidification is the term used to describe a long-term decrease in the pH of the ocean that is mostly due to the absorption of carbon dioxide (CO_2) from the atmosphere. The quantity of carbonate, a crucial component of seawater, decreases as a result of ocean acidification. The pollutants from these refinery facilities spread upstream and downstream of the river as they are discharged into it without any type of treatment. This makes it more difficult for marine animals to produce their shells and skeletons, such as coral and certain plankton, and preexisting shells may start to erode [29].

Loss of Biodiversity: Loss of biodiversity refers to both the local decline or loss of species in a particular environment as well as the global extinction of species (plant or animal). The loss of biodiversity often negates the ecological benefits of such variety. Plant and animal species are becoming extinct in the area at a pace that is unprecedented and far higher than the previous natural rate due to artisanal refining activities (although there is some uncertainty because only 1.75 million out of an estimated 14 million species have been scientifically described). Second, pollution, land conversion, and climate change are destroying whole ecosystems in coastal and marine regions, interior watersheds, forests, and drylands (i.e., deserts, grasslands, and savannahs) (Elisha & Diri, 2021).

Fig. 3. Global warming impact

Fig. 4. Ocean acidification

Fig. 5. Biodiversity loss

Deforestation: Deforestation is the term used to describe how many forest areas are being destroyed throughout the globe to make way for urban development, farming, or mining operations. Nevertheless, artisanal refining is one of the major drivers of deforestation worldwide. Oil coats aquatic creatures' breathing apparatuses and attenuates oxygen levels in the water column. In particular, it deprives mangroves of oxygen by covering their breathing roots and smothering the delicate aquatic macrophytes that grow in tidal fresh water vegetation [30].

Ozone Layer Depletion: The high atmosphere's ozone layer gets thinned due to ozone layer depletion. This occurs when ozone molecules come into touch with chlorine and bromine atoms in the atmosphere and are broken down. In the Niger Delta, one chlorine produced by artisanal refining may harm 100,000 molecules of ozone. It doesn't get made as rapidly as it gets destroyed. One of the primary sources of ozone layer depletion in the Niger Delta region is artisanal refining of manufactured goods, particularly produced halocarbon refrigerants, solvents, propellants, and foam-blowing agents (chlorofluorocarbons (CFCs), HCFCs, halons). The quantity of UVB that reaches the Earth's surface rises as ozone layer thickness decreases. The substances where studies in the lab and in the field show that UVB induces non-melanoma skin cancer and is crucial for the development of malignant melanoma [31].

Fig. 6. Deforestation and burning

3.2 Community-Based Intervention in the Control of Artisanal Refining in Niger Delta

It has been noticed that the artisanal refining of crude oil causes significant environmental harm. When two drums of crude oil are converted into one barrel of finished product via refining, a significant amount of waste is thrown in rivers, streams, or on land. It has been said that throughout the refining process, a significant portion of the oil burns away and some seeps into the earth. The trash from tens of thousands of improvised refineries combined with the oil spills caused by damaged pipelines causes significant environmental degradation in the waterways and on land. Community-based interventions were made to manage artisanal refining against the environment in the Niger Delta region as a means of reducing it. Among the community-based interventions are some of the following, but not only those**:**

Town Hall Meetings: Communities in the Niger Delta use this method to educate their residents about the dangers of artisanal refining to the environment, including how the waterways are damaged, mangroves are dead, and all the aquatic life in their waters has disappeared, including fishermen and women. How difficult, harmful, and dangerous these artisanal refining operations are to the national economy. Sadly, the livelihood of individuals who rely on forest products for a living is under danger since oil refining is increasing in the streams. They inform them of certain harmful health consequences associated with both participating in artisanal refining and living close to one, such as an increased risk of asthma, malignancies, birth defects, neurological damage, cardiovascular damage, breathing difficulties, and blood problems.

Setting up of Outstanding Committee: Following the menace of these artisanal refining activities, community leadership, stakeholders, religion leaders, men, women, youths and opinion leaders in most Niger Delta region set up a committee comprising members from the stakeholders, religion leaders, CDC, youths, women and men of their respective kingdoms to monitor illegal oil bunkering activities in the area to support the state government's effort to rid the state of the menace

The Use of Traditional Beliefs and Systems: traditional structures of managing and controlling crime is still very useful in most parts of Niger Delta, as such most in communities opt to applying the traditional spiritualists and family courts. Among other examples, these conventional arrangements are useful in managing and controlling crime. They think that by including organisations like this in Nigeria's contemporary criminal control systems, artisanal refining may be stopped in their area. These are carried out by calling the ancestral gods and spirits of the community against anybody engaging in illicit bunkery or artisanal refining. Communities turn to these deities in order to find quick solutions to their issues since they are unable to do so via contemporary security organisations like the Nigeria Security & Civil Defence Corps, Amry, Navy, etc.

Ostracism: Another kind of extrajudicial punishment is ostracism, which takes the form of exclusion from society or exile. This involves drawing the offender to a prominent location in the neighbourhood and mocking him or her for engaging in antisocial behaviour. In the Niger Delta, ostracism and mocking isolation are also utilised to govern and control artisanal refining.

Traditional Oath-Giving: Another intervention involves the community taking the traditional oath. When there is uncertainty or mystery around a situation, the involved parties are hesitant to reach a settlement, and there is a lack of conclusive evidence or proof, oaths are often utilised as a curse. According to popular belief, the penalties for breaking an oath may be anything from death to insanity. As a result, most young people avoid artisanal refining due to the consequences of the pledge.

Fig. 7. Meeting for awareness

Fig. 8. Traditional beliefs and systems

Fig. 9. Traditional oath-giving

Community-based interventions are significant because they represent many views on what constitutes a community, how stakeholders should participate in solving environmental issues, and the significance of various results. It is acknowledged that no one model is employed entirely with the practise of community-based on the environment when they are provided as pure types. Community involvement is seen as an effective strategy to save the natural world and enhance locals' standard of living in protected areas. In most developing nations, it has not, however, gotten enough attention on a practical level, and it is uncertain how significant it is in encouraging people' pro-environmental behaviours to meet eco-environmental protection objectives. Despite the clear vision limitations of community as setting, community as agent might be seen as idealised, particularly in light of the serious structural economic, social, and political inadequacies that certain communities face.

It was clearly obvious that active participation at the local community level was necessary to accomplish innovation and change for the development of a sustainable society. It is widely acknowledged that both in theory and in reality, sustainable development necessitates community involvement.

3.3 Bottleneck to Community-Based Intervention in the Control of Artisanal Refining against the Environment in Niger Delta Region

Numerous creative experiments have been conducted locally as a result of the increased understanding of the importance of innovation, change, and local communities. Communities have been putting into practise a broad variety of creative projects that may be distinguished by a few essential elements, such as stakeholder partnerships, public involvement, and the use of local expertise and resources. But while some communities have adopted these advances successfully, others have struggled greatly. There have been difficulties in building the political momentum required to test and finally adopt novel ideas. Strong political opposition is related to the fact that innovation and change sometimes need significant alterations to governmental and political systems. Therefore, it is crucial that we identify and analyse the essential components that support local community innovation in order to better understand how communities may effectively bring about innovation and change in order to construct a sustainable society. While there are community-based

interventions in the Niger Delta Region to prevent artisanal refining against the environment, they are also confronted with difficulties, such as:

Neglect of the Region: Businesses that disregard social responsibility and build unethical reputations are frowned upon in most communities. People in the community are forced to engage in artisanal refining and other illegal activities as a means of survival when businesses operating in the area fail to uphold their cooperative social responsibility, which includes protecting human and property rights, the environment, preventing corruption, corporate governance, gender equality, occupational integration, host community interests, taxes, and royalties. The same holds true for the government; if it fails to provide the essential necessities of an area feeding the country, the people will procure for themselves via artisanal refining.

Failure of the Federal Government and its Security Agencies: Despite being made aware of this issue and being asked to take action to stop the activities of artisanal crude oil refiners and illegal bunkering, which have been identified as the main sources of the soot pandemic, they are not acting. Instead, they are working with the offenders and giving them security protection so that they can commit this evil act against people and the environment**.**For instance, the Amayanabo of Opu-Nembe, King Biobelemoye Josiah, lamented over federal government failure in tackling oil spill and illegal oil refining. He therefore, urge relevant agencies of the Federal Government to show more concern for the well-being of the people of the kingdom.

Get Rich Quick Syndrome: it is very unfortunate, many youths today including elders; oft for easy life that does not require hard work and effort. They are suffering from get-rich-quick syndrome. Because the love of money they can go extra mile by engaging in artisanal refining and become rich over night against the environment. Some elders even have to compromise the community traditional beliefs and system with those involve in these artisanal refining just to make money for themselves.

Lack of Gainful Employment: most youths in Niger Delta are actively in searches for employment but unable to find work. Unemployment among the youths has been a major factor responsible for youth gangsterism as well as artisanal refining in most communities. The problem of unemployment gives rise to the problem of poverty and the practice of illegal activities.

4. CONCLUSION

The study came to the conclusion that artisanal refining and occasional crude leaks present environmental issues. Among these are deforestation, ozone layer loss, ocean acidification, loss of biodiversity, waste disposal, pollution, global warming, and trash disposal. And because of how it affected the environment, community-based intervention was used to curb artisanal refining in the Nigerian region of the Niger Delta. The benefit of community-based interventions is that they represent many views on the character of the community, the function of stakeholders in resolving environmental issues, and the significance of various results. Community involvement is seen as an effective strategy to save the natural world and enhance locals' standard of living in protected areas. In most developing nations, it has not, however, gotten enough attention on a practical level, and it is uncertain how significant it is in encouraging people' pro-environmental behaviours to meet eco-environmental protection objectives. Despite the clear vision limitations of community as setting, community as agent might be seen as idealised, particularly in light of the serious structural economic, social, and political inadequacies that certain communities face. The majority of environmental issues need complicated solutions that are achieved by closely coordinating the activities of several stakeholders with a variety of expertise and skill sets**.**

5. RECOMMENDATIONS

Based on the paper, the following recommendations where made:

- Government should allow the establishment of modular refinery by both host communities and private investors;
- Surveillance job on pipelines should be giving to host community;
- Federal Government and its Security Agencies should be up and doing on the fight against artisanal refining;
- Companies operating within the Niger Delta Region should carry outitCooperate Social Responsibility including the government providing the necessary basic amenities for the people of Niger Delta.
- Innovation and change are required: The complexity and ambiguity of the environmental issues the globe faces, as well as the reality that civilization must adopt innovative strategies to properly handle them, make them stand out.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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