

**MEDIATING EFFECT OF CONFLICT HANDLING BEHAVIOUR ON
ENVIRONMENTAL INFORMATION MANAGEMENT PRACTICES
AND CONFLICT OUTCOME AMONG THE NIGER DELTA COMMUNITY
LEADERS IN NIGERIA**

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CERTIFICATION

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DEDICATION

This thesis is dedicated to God Almighty who orchestrated my life's journey. This work would not have been completed without your grace, favour and mercy. Father, I gratefully return all glory, dominion, power, praise, worship and honour to you.

I equally dedicate this work to my husband, Dr Gideon Onyechere Emeahara and my son Joseph Benedict, C. Emeahara.

I also dedicate this thesis to my irreplaceable parents, Major and Mrs S.O.Okocha, senior sister Mrs. Philomena Aneke and siblings.

I finally dedicate this work to the concerned stakeholders working tirelessly for the cause of sustainable peace in the Niger Delta communities.

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ABSTRACT

Environmental information management practices and conflict outcome are the dispositions for environmental decision making at the community level. However, reports have shown that Niger Delta community leaders have poor environmental information management practices and conflict outcome. Previous studies have concentrated on the political and economic perspectives in resolving negative conflict outcomes, while little attention has been paid to environmental information management and the mediating role of the conflict handling behaviour exhibited by community leaders to resolve the conflicts. This study, therefore, was carried out to investigate the mediating effect of Conflict Handling Behaviour (CHB) on Environmental Information Management Practices (EIMP)-(information creation, capture, organisation, storage, retrieval, dissemination, use and disposal) and Conflict Outcome (CO) among the Niger Delta community leaders.

Information Utility, Information Richness, and Conflict Transformation theories were used as the framework, while the survey design was adopted. Purposive sampling technique was used to select two states, (Rivers and Delta) with high incidence of oil induced environmental challenges out of the six Niger Delta states. Three local government areas each from the two states were randomly selected. Thirty communities (15 from each in the states) were randomly selected. Three hundred and sixty community leaders were also randomly selected. The instruments used were Environmental Information Management-Information Creation ($\alpha=0.92$), Capture ($\alpha=0.93$), Organisation ($r=0.66$), Storage ($\alpha=0.81$), Retrieval ($\alpha=0.90$), Dissemination ($\alpha=0.92$), Use ($\alpha=0.92$) and Disposal ($\alpha=0.90$), Conflict Handling Behaviour, ($\alpha=0.93$), Conflict Outcome ($\alpha=0.96$) scales. These were complemented with in-depth interviews. Quantitative data were subjected to descriptive statistics, Pearson's product moment correlation and hierarchical regression analysis at 0.05 level of significance, while the qualitative data were content-analysed.

The respondents' age was 53.41 ± 4.32 years, and 71.7% were males. There were significant relationships between EIMP (creation: $r=0.31$; capture: $r=0.27$; organising: $r=0.31$; storage: $r=0.23$; retrieval $r=0.25$; dissemination: $r=0.21$; use: $r=0.22$; disposition: $r=0.22$) and CO of the respondents. There was significant relationship between CHB ($r=0.45$) and CO. The EIMP (creation: $r=0.15$; capture $r=0.25$; organisation: $r=0.14$; storage: $r=0.27$; retrieval: $r=0.28$; dissemination: $r=0.40$; use: $r=0.49$; disposition: $r=0.29$) had significant relationships with CO. The EIMP ($\beta = 0.57$, $\text{Adj.R}^2=0.28$, $F_{(7;257)}=12.00$) and CHB ($\beta = 0.32$, $\text{Adj.R}^2=0.30$, $F_{(4;254)}=8.98$) had significant effects on CO, while EIMP and CHB had significant interaction effect on CO ($\beta=0.407$, $\text{Adj.R}^2=0.38$, $F_{(28;230)}=7.97$). The CHB mediated the effect of EIMP and CO. Community leaders interviewed largely agreed that improved conflict handling behaviour and better managed environmental information among community leaders would enhance peaceful conflict outcome.

Environmental information management practices enhanced conflict outcome through conflict handling behaviour among the Niger Delta community leaders in Nigeria. Therefore, community leaders should adopt these variables for managing the prevalent environmental information challenges in the communities to mitigate negative conflict outcome.

Keywords: Environmental information management practices, Conflict handling behaviour, Conflict outcome, Community leaders in Niger Delta

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LIST OF ABBREVIATIONS

AAPW	Academic Associates Peace Works
AMOS	Association of Minority Oil States
CASS	Centre for Advanced Social Science
CDC	Community Development Committee
CHB	Conflict Handling Behaviour
CO	Conflict Outcome
CORI	Community Rights Initiative Academic
CRTN	Conflict Resolution Trainers Network
DLP	Development Leadership Programme
EEA	European Environmental Agency
EIA	Environmental Impact Assessment
EIMP	Environmental Information Management
ERA	Environmental Rights action
FEPA	Federal Environmental Protection Agency
FOS	Federal Office of Statistics
IHRHL	Institute of Human Rights and Humanitarian Law
IPIECA	International Petroleum Industry Environmental Conservation Association
IYC	Ijaw Youth Council
MORETO	The Movement for Reparation to Ogbia
MOSOP	Movement for the Survival of the Ogoni People
NDBDA	Niger Delta Basin Development Authority
NDDC	Niger Delta Development Commission
NDES	The Niger Delta Environmental Survey
NDHERO	Niger Delta Human and Environmental Rescue Organisation
NIPC	Nigerian Investment Promotions Commission
OMPADEC	Oil Mineral Producing Area Development Commission
OND	Our Niger Delta
SPDC	The Shell Petroleum Development Programme
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCC	United Nations Framework Convention on Climate Change

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Globally, conflict outcome is the aftermath of positive or negative processes or activities that could occur in different contexts. When the context is environmental, certain negative activities alter the stable state of the environment in such a way that it could negatively affect the biodiversity and humans inhabiting the area. As Ross and Peša (2021) observed, resource mining, oil and gas industries inclusive, has historically caused intense environmental changes across the globe. Negative mining activities or processes mostly caused by humans if unchecked could ultimately cause instability, or outright conflict among humans living in the negatively-impacted environment. Conflict is the process by which people or groups perceive that others have taken some action that has a negative effect on their interest (Levi, 2013).

In Nigeria, oil exploitation occurs in the Niger Delta region which is one of the world's largest wetlands and includes by far the largest mangrove forest in Africa with a biological diversity of global significance (Ohanmu, Bako, Ohanmu and Ohanmu, 2019.) The oil exploitation activities, resulting in negative environmental changes such as oil spills and gas flaring in varying intensities in the Niger Delta communities, have been observed and reported by many scholars for many decades (Ibeanu, 2000; Ikporukpo, 2001; Ikporukpo, 2002; and Idemudia, 2009).

These undesirable environmental changes caused by oil exploration activities in the Niger Delta communities, have caused untold negative conflict outcomes on different scales and levels. Odoemene (2011) in his study on the social consequences of environmental change in the Niger Delta observed that the Niger Delta region is ethnically varied and has a predominantly disadvantaged population that has been exposed to risks related to oil and gas exploration and production, and is typically unable to mount a challenge to the technical expertise provided by the oil companies or to muster the political power necessary to challenge government and its agencies.

The negative environmental conflict outcome experienced in the Niger Delta appears to be an outcome of many processes that could have been better managed by change agents among whom are librarians. The nature of the information work done by librarians qualifies them as change agents. Librarians play a key role in any geographic context in which they practise their profession because of the information work they do. Globally, the work of librarians is felt not just in the urban centres but in rural settings as well. Hoq (2015) in his study on rural libraries mentioned the environment as one of the critical concerns that are most relevant in the lives of rural people and that it requires library information services because the environment is in a special area of development. This makes environmental information indispensable in rural life. Where adequate and timely environmental information is provided in the Nigerian rural settings, meaningful community decisions could be reached by community leaders. This ultimately could positively influence the direction of conflict outcome within the communities.

One cannot presume that the relationship between environmental factors and conflict in most cases is automatically straight. Conversely, environmental conflict outcome have also been traced to the social effects produced by environmental stress, among which decreased are agricultural productions, economic decline, disruption of regular and social relations that are legitimised (Homer-Dixon, 1991). According to the United Nations Development Programme (2005), an environment that is healthy reinforces human life and security by providing food, clean water, disease control, and protection from natural and man-made disasters.

Certain situations and circumstances are the catalyst that could spark off more conflict outcome. It is therefore important to understand these triggers. Mullins (1999) highlighted several universal causes of conflict. Some of these causes are inadequate resources, violation of territory and environmental change. These causes relate to the environmental focus of this study which hinges on environmental conflict outcome in the Niger Delta. Edwards and Walton (2000) acknowledged in their study that conflict is not necessarily negative if handled appropriately. Lowe and May (2011) proposed that violence and non-violence are on one scale and are the outcomes of a process and they suggest that everyone has the ability to engage in violence, given appropriate inferred reasons. They further explained that, as individuals perceive circumstances as becoming more physically threatening to them and or their loved ones, they are more likely to respond more

aggressively to the situations. Indeed, the environmentally- degraded situation in the Niger Delta area aptly fits into their submissions.

The forms of conflict outcome in the Niger Delta seem to be on the destructive side because of the high -profile negative occurrences that have happened in the area over time. One of such is the contentions over Shell `s involvement in the killing of Ken Saro-Wiwa and eight other Ogoni environmental activists in Nigeria (Sullivan, 2005; Isumonah, 2015). Ken Saro-Wiwa`s execution in 1995 by the Nigerian state informed the world about the devastating impact of the oil industry in the Niger Delta communities. This devastation included how the environmental damage caused by the oil industry was damaging the health conditions and livelihoods of communities in the Niger Delta region (Akpabio and Essien, 2004; Amnesty International, 2009 and Onuoha, Bassey, and Ufomb, 2018).

Shell is the leading oil company among the numerous international oil companies operating in Nigeria today. As at 2013, there were about 606 oil fields in the Niger Delta area, 355 were on-shore while the remaining 251 were offshore (Nigerian Investment Promotions Commission, 2013). Literature has shown that the amount of oil spilled over 50 years is at least 9-13 million barrels, which is equivalent to 50 Exxon Valdez spills (Federal Office of Statistic; 2012). It is unfortunate that the situation persists up-to-date. These statistics on oil fields roughly reveals the magnitude of environmental challenges present in the Niger Delta communities. Olawoye (2010) in her study on sustainable rural development identified environmental degradation as one of the major challenges to sustainable rural development. She mentioned the case of increased vulnerability and poverty from declining livelihoods which is a major consequence of environmental degradation resulting from the activities of oil companies. As Ogege (2013) captured it, the extensive environmental damage associated with oil extraction has ruined livelihoods, polluted water and undermined health in the Niger Delta communities. It is from these negative environmental experiences that environmental information is derived.

These damages to the environment have led to a high degree of food insecurity in the Niger Delta communities. Food security and security in other areas of community life are important and it is the responsibility of community leaders to provide the kind of leadership that will build the people`s confidence in their leadership. Environmental information management practices is, therefore,

strategic and good leadership especially at the grassroots is vital if proper environmental information management practices and functional peaceful conflict outcomes will be actualised.

President Joyce Banda of Malawi, a one-time prominent African female national leader, was reported to have linked the African continent's woes to alleged greed and reckless governance style of most of those in leadership (at all levels) in many African countries. In her opinion, she stated that conflicts can be mitigated if African leaders become more open and liberally make information available to the people they lead. President Banda also noted that the leaders who carry their people along in governance issues would not only earn the people's respect but their trust as well. She emphasised that when trust is lacking, there will be suspicions, fighting over resources and civil unrest (Odunuga, 2012). In an earlier study, Ibaba (2008) stated that in spite of the fact that Shell Petroleum Development Company (SPDC) has created wealth for Nigeria, the wealth does not profit the Niger Delta people due to the culture of politics which promotes individual and narrow-minded interests as against public good.

Akpabio and Essien (2004) identified a major methodological limitation of the government conflict resolution approach. Their study found that the local people, host community members, were not invited to actively participate in the conflict management decision-making process that directly affects them in their communities. Consequently, the community leadership is bottom-up input in the Niger Delta environmental conflict situation is necessary for any meaningful and sustainable peaceful outcome to be attained.

Agenda two, in the 2006 seven-point development agenda proposed by the United Nations Development Programme (UNDP), stated their goal through planned interventions that will ensure that the needs of the local people are met through effective and responsive local governance. The UNDP knows that governance especially at the local level, is very central to achieving meaningful development outcomes. They asserted in their report that local governance is an issue of serious concern. They also stressed that at the core of promoting effective governance is the urgent need to institutionalise the practices of accountability, transparency, and integrity to guide the flow of development resources at all levels (UNDP, 2006). The UNDP (2005) report also highlighted the importance of political leadership at all levels within a nation-state as the primary force for progress (UNDP, 2005). This

explains why leadership, even at the community level, matters significantly. Community leaders' behaviour will always result in one outcome or the other and this will tilt more to the positive or negative direction. Leadership, as explained by the Developmental Leadership Program (2014) cited in Suberu (2014), is a political process that involves mobilising people and resources in search of shared or negotiated goals to minimise conflict. Good leadership, therefore, will entail that community leaders exhibit rational conflict handling behaviour which in turn will help to positively resolve oil-induced environmental challenges within their communities.

Conflict handling behaviour, which is a mediating variable in this study, as described by Blake and Mouton (1964) Kilmann and Thomas (1977) Schneer and Chanin (1987) and Kraybill (2008) presents five conflict handling dimensions. This includes a classification scheme for modes of handling conflict. They are: competing, which has to do with one's viewpoint at the expense of others; collaborating, that is, confronting disagreement directly in a problem-solving manner; compromising, which has to do with searching for a middle-ground solution; accommodating, which is demonstrated when common points are emphasised and differences are de-emphasised; and avoiding, conveyed as withdrawing from the conflict situation.

The term *conflict handling behaviour* used in this study have other similar terms that have been used in the literature to describe how people react to conflict: *conflict management styles, conflict management skills, conflict management strategies, conflict resolution strategies, The Thomas killmann conflict modes, The style matters, five conflict modes* etc. All these similar terms still show that people in conflict situations exhibit diverse behavioural patterns to resolve their conflicts. This compound term partly derives from the word conflict. An understanding of the mediating role of these conflict handling behaviour styles and how they are used by community leaders in relation to their environmental information management capabilities and its consequent conflict outcome is valuable in the façade of the current environmental conflict existing in the Niger Delta communities. It has been observed that what the Niger Delta community leaders have done or did not do, even to this time in the course of mediating and managing environmental information issues within their communities and their conflict handling behaviour styles, grossly affect the final conflict outcome within their communities. Detlor (2010) fittingly

observed that information management in the current leaning in literature is less about solving technical problems and more about addressing the human-side of information management. The writer further argued that humans add the context, meaning and value to information (of any kind including environmental information) and it is humans who benefit and use this information. There are bound to be conflict outcomes anywhere these principles are not upheld and observed. The proper management of environmental information among community leaders appears tactical and their mediating role derived from their conflict handling behaviour is important in improving the conflict outcome within the Niger Delta communities. This is because of the community leadership roles they occupy.

Leadership has been studied from many perspectives such as personality traits, power relationships and behaviour change. It has also been studied by many different fields such as sociology, psychology and political science. In the last 30 years, the philosophy that leadership is both transformational and transactional has received much consideration (Bass, 1985, 1998; Burns, 1978 cited in Tatum and Eberlin, 2007). Both transactional and transformational community leadership styles are necessary even in small communities like those found in the Niger Delta communities. Jaiyeoba (2018) also sharply pointed out in her lecture that leadership forms vary and that anyone who meets the requirements of a leader, such as the case of community leadership, can embrace one leadership style or a blend of leadership styles.

The concept of community leadership in this study is taken to mean empowering the community to face issues, deal with problems and realise aspirations in the most-effective way (Stewart, 1995 cited in Hartley, 2002). Community leadership is very decisive in the Niger Delta environmental challenge. This is important because community leaders are usually the mediators between the oil companies, government and community members. The community leadership made up of the men, women and youths are key players in the conflict outcome in the area because they represent the local people. From observation, the community leadership formation has a well-defined structure in the Niger Delta. This structure is made up of the paramount ruler, his council of chiefs and elders, the Community Development Committee (CDC) chairmen and all their officers such as secretaries and public relations officers, the women and youth leaders. The position of the paramount ruler and his council of chiefs and elders are usually hereditary while the

other community leadership positions are elective and rotational in the Niger Delta leadership formation. The Niger Delta is home to many small minority groups, each of which is composed of numerous clans. Each clan cherishes its own private space and uniqueness.

In a United Nations Development Programme (2006) report, endorsing environmental sustainability to preserve the means of people's sustainable livelihoods formed agenda seven. The locus of the UNDP (2006) report is that the mainstreaming of environmental sustainability into all development activities must be complemented by proactive steps to conserve natural resources, reduce pollution especially from oil spills and gas flares as well as set and achieve adequate targets for clean air and water and soil fertility. The study also reported that firm implementation of environmental laws and standards should be put in place. These kinds of documentation are the kind of information that concerned governmental agencies like public libraries should make available to environmentally-challenged communities in the Niger Delta.

Extensive environmental degradation and its effects are major development issues. The communities in the Niger Delta have firsthand experience of this degradation because of oil exploitation in their communities. The history of environmental concerns started with nations balancing the environment and development (1972, 1980). This moved on to incorporating the intergeneration justice concept (1987) and then a more holistic approach (1992, 2000, 2012, and 2015). In September 2015, the 2030 UN agenda for sustainable development was formally adopted along with 17 goals and 169 targets to terminate poverty, safeguard the planet, and bring richness to all human beings over the next 15 years. Goals 6 (clean water and sanitation), 11 (sustainable cities and communities), 12 (responsible consumption and production), 13 (climate action), 14 (life below water) and 15 (life on land) seem to directly affect the environment. (Sunyoung and Jiwon, 2017).

The UNDP (2005) reported that developing countries need to concentrate on integrating environmental strategies (one of which is environmental information management) into all sectorial policies and, more specifically, promoting direct investments in environmental management among others to reduce environmental degradation, and improve environmental monitoring. Examples of direct investments in environmental management are decreasing chemical pollution to protect human health and ecosystems, and preserving critical ecosystems to protect biodiversity.

A weighty part of the 10point communiqué, at the end of the Copenhagen summit reported in Abiolu and Okere (2012) on climate change, included credible measurement, reporting and verification of emission. To achievedependable measurement, reporting and verification of emission in communities in the Niger Delta communities, the input of all stakeholders within that space is required. This must include the oil companies, who create the emissions and the host communities who are at the receiving end of these emissions occurring within their geographic space. This kind of interaction underscores the significance of environmental information management especially in the Niger Delta communities.

Ideally in reporting on the environment for instance, useful environmental information is being created in formats which could be audio, print, video, text or graphics. All these formats form an information base on the state of the environment and over time, this should translate into a knowledge base for all stakeholders concerned with environmental challenges in the Niger Delta communities. It is not clear how much of this reporting is actually done by key stakeholders such as community leaders in the Niger Delta communities.

As reported in a 2009 Amnesty International document, some oil companies operating in the Niger Delta have failed to take preventive action towardsensuring that their operations do not harm the environment. The 2009 report also stated that oil companies have hindered effective monitoring of the impact of the oil industry on the environment and communities by failing to release information in a clear and systematic way. According to Albert (2001), information determine how people react in relation to disagreements, differences, annoyances, competitions or inequities. It is a very crucial component in managing environmental crisis. Albert (2001) also reported on the issue of information mismanagement, among others, as a possible conflict factor. The author noted that strategies for information dissemination in a community could either cause conflict or build peace. The author also observed that where information is used to stir up negative emotions, the result is destructive conflict whereas sustainable peace results from situations where information is creatively used to bring people together and not divide them. Environmental information, therefore, can be creatively used by community leaders in the Niger Delta to unite and not divide community members as well as ensure peaceful conflict outcome.

Environmental information has been defined by Popoola (2006) as news, messages, ideas, facts, and processed data obtained from published and unpublished sources that are capable of increasing or improving the knowledge state of the users or recipients on matters relating to environmental problems and how best to manage their environment for good living. Taiwo (1997), cited in Popoola (2006), highlighted the importance of adequate, current and accessible environmental information, without which the objective and purposeful management of the environment might not be appreciated. The Scottish Information Commission (2019), a Scottish government-owned body, elaborately defined environmental information as any information in written, visual, aural, electronic or any other material form on the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically-modified organisms and the interaction among these elements. This definition also includes other things that affect the environment, such as emissions, radiation, noise and other forms of pollution and policies, plans and laws on the environment. Environmental information usually aims at developing peoples' knowledge and understanding of the environment, the forces that contribute to its deterioration and how environmental quality could be greatly improved (Popoola, 2006).

Three eras stand out universally in the discourse of environmental information. Haklay (2017) succinctly describes the first era from 1969 to 1992 as the period where environmental information rested in the hands of only experts, those who exceptionally qualified to analyse and interpret environmental trends and information of all kinds and was made available to only experts. The second era the author identified (1992 – 2011) was the period environmental information was created by experts, for experts and the public. The public in this era, as observed, played a non-participatory role in decision-making based on available environmental information. The third era, as described by Haklay (2017), began from 2011, the scenario now being environmental information by experts and the public, for experts and the public. This environmental era demonstrates increased citizen acceptance, NGOs and other intermediaries such as community leaders as producers of information, environmental information inclusive. It, therefore, follows in the principle of logic and reasoning that community leaders in the Niger Delta have an active participatory role in decision-making about their communities, which can no

longer be ignored, based on the available environmental information experienced within their communities. All these phases of environmental information antecedents have global environmental agreements (documentation) agreed upon by member countries around the world, these including the US National Environmental Policy Act (NEPA) and the UK creation of the Royal Commission on Environmental Pollution both enacted in 1969, and the Stockholm United Nations Conference on the Human Environment in June 1972. This gave birth to the United Nations Environmental Programme (UNEP), the Charter of Environmental Rights and Obligations, following its declaration at the Rio Conference of 1992, and the Aarhus 1998 Convention which is a document emanating from the Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters promoted by the United Nations Economic Commission for Europe (UNECE). The nations of the world started thinking about environmental concerns as an international issue, which progressed to acknowledging that their present development objectives must not disregard the needs of the future and, now, these nations are in the phase of understanding the critical balance between the integrated and interdependence spheres of environment, society, and economy. (Sunyoung and Jiwon, 2017).

This study is guided by the principles and philosophies of the third environmental information era. Universally, it can be observed from the literature that environmental information derived from reports, conferences and regulations is crucial to decision-making about the state of the global environment. Public access to environmental information is a recurring theme in many international environmental law regimes. Nigeria has ratified and committed itself to many such regimes over the years. And yet, until recently, (2011) it had a culture of secrecy in (environmental) governance that was sustained by legislation, with the attendant harm to the environment and public well-being (Etemire, 2014).

This is why community leaders in the Niger Delta communities, where much environmental information is produced as a result of oil exploratory activities by oil companies operating in the area, are in the best position to mediate and lead community level decision-making processes about their negatively-impacted physical environment through their conflict handling behaviour styles as community leaders. It also follows that there will be improved conflict outcome at the community level once environmental information is properly managed by community

leadersthrough the information lifecycle management from its point of creation, capture, organisation, storage, retrieval, dissemination, use and disposition.

Environmental information managementprocess is the capability to manage environmental information effectively over the lifecycle of information. It is also the art of mobilising environmental information processes through the information lifecycle management from its creation, capture, organisation, storage, retrieval, dissemination, use and disposition for environmental planning, decision-making and controlling activities at the community level.

According to Popoola (2006),certainuniversal characteristics define good environmental information possesses, which include reliability of content, timeliness, relevance and accessibility among others. The author also highlighted increase in the knowledge base of the citizenry about the forces that contribute to the deterioration of the environment and how environmental quality could be enhanced to minimise environmental stress which could lead to conflict.Abiolu and Okere (2012) were of the opinion that the right level of understanding that will build a world population that is ready to relate more positively in environmentally-sustainable ways with the earthwillinclude grassroots enlightenment, by information professionals in developing economies.

In an interview reported by Okiy (2005), in that 2005 report, Professor Aina was of the opinion that local governments, district councils and all government agencies at the grassroots level can recruit librarians to help manage their records, as well as provide and disseminate information (part of which is environmental information) to rural inhabitants. Professor Aina's vision for the information profession is that all Africans, regardless of their educational background, would be provided with relevant, usable and timely information by information professionals.Community leaders in the Niger Delta form a very critical population because of their power of influence as community leaders and they constantly require relevant, usable and timely information, especially environmental information that is capable of yielding improved conflict outcome within their community spaces.One way conflicts, especially the kind focused in this study, could be resolved is in the understanding of how information can be managed. Information management, according to Prytherch (1994),embraces the strategies and technologies of acquiring, organising, retrieving and exploiting information in any context. Wilson (2003) highlighted the scope of the field of information management to include the

information lifecycle among other areas. This cycle begins from the point of information creation and ends at its point of disposition. Detlor (2010) comprehensively defined information management as the management of the processes and systems that create, acquire, organise, store, distribute, and use information. This could also be information on the environment or any other phenomenon. In the context of environmental conflict, environmental information management which is process-driven is an important resource that can progressively facilitate and transform the entire conflict outcome to a positive one. How this resource is managed by concerned parties such as the government, oil companies and the host community leaders largely depends on the proper application of environmental information management principles to achieve a lasting and sustainable peace in the Niger Delta communities.

The Niger Delta conflict outcome question demands a more holistic environmental information management approach, embracing the key stakeholders: government, oil companies, and the host communities and change agents like librarians in the communities that will effectively address the various stages and issues of the conflict outcome in existence through their deliberate efforts. To this end, an investigation into the mediating effect of conflict handling behaviour among the community leaders and how this phenomenon relates with the environmental information management practices and conflict outcome in the Niger Delta, could proffer some beneficial solutions.

Universally, the concepts of environmental information management practices, conflict handling behaviour and conflict outcome have been used by researchers in various contexts; however, there seems to be a dearth in the literature on the use of these constructs among community leaders in the Niger Delta communities. This study has therefore, examined the way the conflict handling behaviour of community leaders have mediated on the relationship between environmental information management practices and conflict outcome in the Niger Delta communities of River and Delta states.

1.2 Statement of the problem

The environmental damages of the Niger Delta communities which range from oil spills and gas flaring to extensive pollution of land, as well as water and air disposal of waste of varying chemical compositions, among others, have led to conflictual and

unstable environmental conflict outcome. These negative conflict outcomes presently seen in the area have their origins in the discovery of oil within the community environment by the multinationals in the late 1950s and in present times. The exploration, exploitation, and production activities of the multinational oil companies have created vast amounts of negative environmental information over time within the communities, a development which has been inadequately reported, documented and managed by the community leaders who, along with other community members, are the direct victims of the negative environmental impact caused by the activities of the extractive sector.

From observation, the Niger Delta community leaders, also lack baseline environmental information about damages to their land, air and water bodies because of their lack of proper documentation and environmental information management practices about environmental information on gas flaring and oil spillages among others created in their communities. This has also caused a lack of an effective means of stating their communities cases to concerned stakeholders such as the oil companies and government as well as independent agencies that could assist them determine whether spills are caused by sabotage on the part of communities or equipment failure on the part of oil companies.

From observation, community leaders have also not sufficiently realised the importance of developing environmental information management systems at the community level. This is perhaps due to the almost non-existence of community-based libraries manned by library professionals to give direction and provide appropriate assistance to the peculiar oil-induced environmental problems they encounter as Niger Delta community leaders. The absence of this very significant rural information infrastructure could have accelerated the negative conflict outcome witnessed in the Niger Delta.

The strategies adopted by community leaders who mediate in their attempt to respond to, and resolve, environmental conflict matters generated within their communities in many cases have yielded negative outcomes on environmental issues. One major case in point was the Umuechem massacre in 1990 which claimed lives of prominent personalities, who were leaders in their communities, as a result of clashes between security agencies and the community. Similarly, the killing of four prominent sons and the subsequent killing of nine Ogoni activists in 1995 by the Abacha-led military government are cases of outright negative conflict

outcome involving leaders. In all of these crises, the traditional institutions of governance, the elite and the youths were deeply involved. In fact, they were part and parcel of the causes of these crises because, at some point, these community leaders had accused each other of corruptly enriching themselves through collaboration with the Nigerian state and oil multinationals in terms of benefitting from development projects sited within their spheres of leadership perhaps because of lack of flexibility in their behaviour in applying the various conflict handling styles within their communities.

There is the notion also that conflict outcome could be more positive or peaceful if community leaders improve on their conflict handling behaviour strategies because of the mediating effect it has on their ability to effectively and efficiently manage their environmental information processes from its creation to its disposition within their communities. It is against this background that this study investigated the mediating effect of conflict handling behaviour on relationship between environmental information management and conflict handling behaviour on conflict outcome among the Niger Delta community leaders in River and Delta states, Nigeria.

1.3 Objectives of the study

The broad objective of this study examined the mediating effect of conflict handling behaviour on relationship between environmental information management practices and environmental conflict outcome from the perspective of community leaders in the Niger Delta communities of states. The specific objectives studied are to:

- i. Find out the environmental information management practices (creation, capture, organisation, storage, retrieval, dissemination, use and disposition) adopted by community leaders in the selected Niger Delta states;
- ii. Determine the Conflict handling behaviour of Niger Delta community leaders in Rivers and Delta states;
- iii. Ascertain the opinions of the Niger Delta community leaders about conflict outcome in relation with their environmental information management practices;
- iv. Ascertain the opinions of the Niger Delta community leaders' about conflict outcome in relation with their conflict handling behaviour styles.

1.4 Research questions

The following research questions were raised to guide the study.

1. What are the environmental information management practices (creation, capture, organisation, storage, retrieval, dissemination, use and disposition) adopted by community leaders in the selected Niger Delta states?
2. What is the Conflict handling behaviour of the Niger Delta community leaders in River and Delta states?
3. What are the opinions of the community leaders in Rivers and Delta states about conflict outcome in their communities in relation with their environmental information management practices?
4. What are the opinions of the community leaders in Rivers and Delta states about conflict outcomes in relation with their conflict handling behaviour styles?

1.5 Hypotheses

The following null hypotheses were tested in the study at 0.05 level of significance:

- Ho 1 There is no significant relationship between environmental information management practices and conflict outcome of the Niger Delta community leaders in River and Delta states Nigeria.
- Ho 2 There is no significant relationship between environmental information management practices and the conflict handling behaviour of the Niger Delta community leaders in River and Delta states Nigeria.
- Ho 3 There is no significant relationship between the conflict handling behaviour and conflict outcome of the Niger Delta community leaders in states Nigeria.
- Ho 4 There is no significant effect of environmental information management practices on conflict outcome of the Niger Delta community leaders in River and Delta states Nigeria.
- Ho 5 There is no significant effect of conflict handling behaviour on conflict outcome of the Niger Delta community leaders in River and Delta states Nigeria.

Ho 6 Conflict handling behaviour will not significantly mediate the relationship between environmental information management and conflict outcome of the Niger Delta community leaders in River and Delta states Nigeria.

1.6 Significance of the study

The concepts of environmental information management, conflict handling behaviour and conflict outcome are essential information-driven process in the pursuit of sustainable peace in any environmentally troubled region, such as the Niger Delta communities of Nigeria. This study provided new and in-depth understanding of how the environmental information management practices investigated through the principles of the information lifecycle management, from its creation to its disposition, affect the conflict handling behaviour of community leaders and their ability to resolve or improve environmental conflict outcome caused by oil exploration in River and Delta states.

The study has also uncovered the conflict handling behaviour styles harnessed by community leaders within the oil-bearing communities of states in relation to environmental conflict outcome caused by oil exploration. This was done with a view to provide practical information that will hopefully enhance their future leadership strategies.

Findings derived from this study could assist community leaders understand their own local idiosyncrasies in terms of environmental information management factors and conflict handling behaviour. This understanding could eventually lead to improved conflict outcome in River and Delta states.

Findings from this study have also attempted to reveal the relationships between environmental information management, conflict handling behaviour and conflict outcome at the community level to assist policy maker's decision-making processes in their efforts to broker sustainable peace in the Niger Delta communities. Development assistance agencies can use the study's finding and recommendations to inform their future decisions on their project-funding preferences in environmental information management, conflict handling behaviour and conflict outcome in respect of communities in states particularly and the entire Niger Delta area. Result emanating from the study could enable non-governmental organisations (NGOs), community-based organisations (CBOs), public library outreaches to rural communities (especially in the Niger Delta communities) and private sector

organisations concerned with issues relating to environmental crisis to identify opportunities for building more effective initiatives and innovations for the actualisation of peace in the Niger Delta area. Findings derived from this study have also added to the body of literature on environmental conflict management, conflict handling behaviour and conflict outcome in River and Delta states.

1.7 Scope of the study

The study focused on environmental information management practices, (this cycle begins from the point environmental information is created, captured, organised, stored, retrieved, disseminated, used and disposed) and how this phenomenon relates to the environmental conflict handling behaviour (cooperating, accommodating, directing, compromising and avoiding styles) and conflict outcome (namely, peace, unstable peace and outright conflict) of selected community leaders. Specifically environmental information management which is an independent variable in this study comprises eight subthemes; namely, information creation, information capture, information organisation, information storage, information retrieval, information dissemination, and information use and information disposition. The mediating variable, conflict handling behaviour, comprises these five styles: cooperating, accommodating, directing, compromising and avoiding. Three components which make up the dependent measure, conflict outcome, are peace, unstable peace and conflict.

The community leaders comprise of the community development committee (CDC) chairmen, the Vice CDC chairmen, secretaries and assistant secretaries to the CDC chairmen, public relations officers and their assistants attached to the CDC chairmen, women leaders, assistant women leaders, youth leaders and their assistants, and the community paramount leaders and their deputies in the two Niger-Delta states. The study also focused on environmental conflicts within the communities. It excluded conflicts between armed groups within the region, the oil companies and Nigerian security forces. The geographic scope was limited to two states; (River and Delta) and communities around in-land oil facilities only. The study excluded all communities having offshore oil facilities.

1.8 Operational definition of terms

Community leaders: The recognised and respected persons from all walks of life and age groups within a community, who take responsibilities for the wellbeing and improvement of their communities by acting as a point of liaison between communities and authorities.

Conflict handling behaviour: The established styles or strategies community leaders adopt in their attempt to respond to, and resolve, environmental conflict issues within their communities. These styles include: controlling/competing or directing, compromising, problem-solving or collaborating/cooperating, accommodating or harmonising and avoiding.

Conflict outcome: This is an element of conflict theory that generally distinguishes between the root of conflict, the dynamics of the conflict process and the conflict results or conclusions which could be peaceful, unstable and conflictual in nature.

Environmental information: It comprises news, messages, ideas, facts and processed data obtained from published and unpublished sources on the state of the elements of the environment such as air, and atmosphere, water, soil and land. that are capable of increasing or improving the knowledge state of the users or recipients such as the community leaders in the Niger Delta oil-bearing communities on issues relating to environmental problems and how best to manage their environment for sustainable living.

Environmental information management practices: It is the art of mobilising environmental information processes through the information lifecycle management from its creation, capture, organisation, storage, retrieval, dissemination, use and disposition for environmental planning, decision-making and controlling environmental information activities at the community level.

Niger-Delta region: The oil-bearing states of Nigeria. It includes the six states of the South-south geo-political zone of Nigeria, namely, Delta, River, Cross River, Akwa Ibom, Bayelsa, and Edo.

CHAPTER TWO

LITERATURE REVIEWED AND THEORITICAL FRAMEWORK

2.0 Preamble

This chapter discussed fundamental concepts in information, conflict, and environmental conflict, conflict handling behaviour and conflict outcome and how these concepts relate in the study on the Niger Delta of Nigeria. Literature was reviewed under the following subthemes:

- 2.1 Origins, causes and consequences of environmental degradation in the Delta region of Nigeria;
- 2.2 Concepts in information, conflict and information management studies;
- 2.3 Environmental information management and conflict outcome among the community leaders in Nigeria's Niger Delta region;
- 2.4 Conflict handling behaviour among community leaders in the Niger Delta region;
- 2.5 Conflict outcome among community leaders in the Niger Delta;
- 2.6 Constraints to environmental information management for improved conflict outcome among community leaders in the Niger Delta;
- 2.7 Theoretical Framework
- 2.8 Conceptual model and
- 2.9 Appraisal of literature reviewed.

2.1 **Origins, causes and consequences of environmental degradation in the Delta Region of Nigeria.**

The Niger Delta communities span over nine states of an estimated 20 million. The area covers most of the Atlantic coast of Nigeria and approximately 70% of these people live in rural areas in what can be described as small isolated villages (Asuni, 2001). The Niger Delta is reported to be the world's largest wetland. This is about 36,000 square kilometres (14,000 square miles) of marshland, creeks, tributaries, and

lagoons that drain the Niger River into the Atlantic at the Bight of Biafra. A third of this area, about 12,000 square kilometres, is fragile mangrove forest, probably the largest in the world. The biodiversity of the Niger Delta is very high, containing diverse plant and animal species, showing that the ecology of the area is easily disequibrated. There is also a serious scarcity of arable land and fresh water. This apt description sums up the Niger Delta as a very sensitive ecosystem (Ibeanu, 2000). It is one of the 10 most important wetland and coastal marine ecosystems in the world and home to over 20 million people. The Niger Delta is also the location of massive oil deposits, which have been extracted for decades by the government of Nigeria and multinational companies (Amnesty International, 2009). According to Wurthmann (2006), as at 2005, oil in Nigeria has generated an estimated \$600 billion since the 1960s. This figure would have appreciated over the subsequent decade ago.

The Niger Delta region population has also been described by scholars as heterogeneous, multi-cultural, and culturally diverse (Omeje, 2006; Emmanuel; Olayiwola and Babatunde, 2009). Since the 1990s, violent anti-oil protest in the oil-bearing communities has increased and intensified (Omeje, 2006). Ogundiya (2011) also reported that the oil-rich Niger Delta region of Nigeria has been one of the prominent trouble spots in the world for more than three decades. According to Akpabio and Essien (2004), the government continued to marginalise the people and militarise the area, among other goal-blocking behaviour practised by government and oil companies in that period. They reported that the locals have now opted for hostage taking, hijacking and kidnapping of expatriate oil company workers and demand of ransom, and repeated invasion and blockading of oil installations. Another alarming dimension in the Niger Delta crisis is the proliferation and use of arms as reported by (Isumonah, 2012). The conflict outcome as a result of the environmental stress appears to have been more in the negative.

Ogundiya (2011), drawing from the works of Ikime (1980), Anyaegbunam (2000) and Eboreime and Omotor (2008), succinctly gave an etymological background of the Niger Delta people. He reported that the Niger Delta was narrowly referred to as the group of people who occupy the estuaries of the river Niger. These people, according to him, were historically divided into two zones namely, the lower and upper Delta. The lower Delta is the home of the Ijaw, the Itsekiri while Aboh, and the upper Delta is inhabited by the Isoko, Urhobo and Ukwuani. In its historical

connotation, the core Niger Delta is made up of three states of Bayelsa, Delta and Rivers, with an area of about 20,000 square kilometres (kms).

Politically, the present conception is a product of series of state creation exercises. In this connotation, Niger Delta simply refers to the South-South geopolitical zone of Nigeria and oil-producing states. In its new geopolitical construction, Niger Delta covers an area of about 70,000 kms, extending eastward of the longitude 430°E to the Nigeria-Cameroon border and bounded by the Atlantic Ocean. The Delta lies within some 22 major estuaries linked locally by a complicated network of mangrove creeks, rich in wetlands, biodiversity, oil and gas, as well as human resources (Ogundiya, 2011). Within this context, Jike (2004) cited in (Ogundiya, 2011) defines Niger Delta as a panoply of geographically contiguous states and convenient nomenclature for resource allocation and distribution among nine states in the south of Nigeria, These states are Delta, Edo, Bayelsa, Rivers, Cross Rivers, Abia, Imo, Ondo and Akwa Ibom. It is important to note that Ondo State in the South West and Abia and Imo states in the South-East region are part of the present Niger Delta region.

The Niger Delta has also been defined by scholars geographically, carthologically, hydrologically, politically, economically and sociologically. Sociologically, the region would be as a society with people whose major economic activities revolve around coastal waters and who possess similar cultural similarities and relative convergence of history. The major economic activities of the people of this region include: fishing, farming and hunting. (Omeje, 2006; Emmanuel et. al, 2009). Ibeanu (2006) aptly described the official Niger Delta as consisting of nine states: Abia, Akwa-Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers. However, because of the politics of oil revenue distribution, there have been persistent debates over the areas that legitimately constitute the Niger Delta. The arguments are skewed towards socio-political and geographic basis of the existence of the area. The Niger Delta, in this study, refers to communities within the South-South geopolitical region of Nigeria.

Defining the rural community in sub-Saharan Africa, Uzuegbu (2016) stated that a community can be viewed as rural when it has the following 10 features: relatively small population with a higher number of children, elderly people and youths respectively; it has a common ethno-linguistic feature such as race, tribe, language, etc.; community members loyally answer to one main leader; its members

are predominantly farmers who largely depend on farming occupations; the ownership system of inheritance determines who acquires what among the dwellers; community members usually adhere to one religion belief and practice; community members approach their general affairs collectively (in communal style) as against the individualistic lifestyle; its members depend directly or indirectly on the natural resources (land and forest, stream, market, road etc.) in their community space for their livelihood; its members usually share institutional structures such as market, bank, school, health centre, etc., and members of the community do not see the various components of life, economic, social, political, religious and secular, as distinct from each other. Rather, to the community members each of these components affects the other and reaching them on one of the components means approaching them on all of them. This description by Uzuegbu (2016) typifies the Niger Delta communities.

Otubanjo (1993) sociologically defined a typical Nigerian community as a relatively small, isolated, centre with a stable population, in which all economic and social services necessary for life can be maintained. Otubanjo (1993) noted that, in its ideal form, social relations are direct and personal, and that common values are reinforced and supported by a rich ceremonial and rural life as well as folktales and traditions. In his submission, the term community generally denotes any small, localised, political, economic and social unit whose members share values in common. According to Dye (1986), cited in Black and Muddiman (1997) communities, like nations, are governed by tiny minorities. The community itself, and the lives of the people who live in it, are shaped by a small number of people'. It is in this context that community leadership is discussed in the study.

The introduction of petroleum exploration and drilling in this very fragile environment, however, has had a devastating effect on the environment. Ibeanu (2000) observed that some ethnic group elites manipulate the environmental question to their own benefit, which has further degraded the legitimate claims of those communities truly in need. He added that the paucity of infrastructure and widespread deprivation in the Niger Delta present a stark contrast to the widespread financial value of the extracted resources and thus explains the local demands for more resources, including schools, roads and hospitals. Ogbogbo (2005) stated that:

Historically speaking, it is not the presence or myriad of problems but the utter neglect, levity and indifference of the Nigerian state and oil multinational corporations over the complaints of the Niger Delta people that have activated the degree of agitations in the region despite the enormity of her contributions to national revenues.(Ogbogbo, 2005: p169)

The crisis associated with the exploration of oil in the Niger Delta has become one of Nigeria's most intractable problems. Omeje (2006) also summarised the domestic security threats faced by oil companies in the Niger Delta region to include: office related threats such as gate barricade and road blockade, abduction and kidnapping of oil workers, non-violent seizure or occupation of oil facilities, sometimes with staff taken hostage, attacks on non-oil facilities (e.g., vehicles, guest houses, recreation sites), seizures of non-oil facilities (e.g., vehicles and consignments, attacks on oil sites and installation, (e.g. wells, pipelines, flow stations) violent seizure of oil sites/facilities sometimes with hostage taking of staff, environmental conflict, ethno-violence, and pipeline vandalism among others. Kalu (2008), cited in Bette and Ude (2011) and Dode (2012) summarised the serious security issues in the Niger Delta as protracted poor governance, social injustice, poor development, environmental degradation, social and family dislocation as well as corrupt leadership.

According to Bette and Ude (2011), the Niger Delta region of Nigeria is richly endowed with huge quantity of petroleum resources but the region has also suffered prolonged neglect and official marginalisation of rights from the time petroleum was discovered. The major environmental crisis faced by this region arises from exploration of oil. Over time, there has been a disconnection between promises made by successive governments to the people of the region. Furthermore, these authors reported that the government was unable to address the deliberate marginalisation of the people who are the custodians of the wealth of the nation due to low political will on the part of past governments. The people of the region, therefore, resorted to unlawful methods to draw government attention towards addressing the problems of the region. Further describing this scenario, what was prevalent in the Niger Delta communities, according to Nweke and Nyewusira (2011), was the continuous groaning of the people in abject poverty, worsening and depleting infrastructure as well as environmental degradation due to oil exploration and exploitation activities in the area for decades. For these abysmal neglect, levity and indifference by the

Nigerian state and multinational oil companies operating in the region, the communities of the Niger Delta which used to be relatively peaceful, suddenly witnessed unprecedented social conflicts that have disrupted oil exploration and exploitation activities, thereby leading to loss of lives and a sharp decline in oil revenues accruing to the Nigerian state and its allies –the oil multinationals. In professor Dode’s words:

The major source of conflicts in Nigeria’s Niger Delta is environmental in nature; a difference between the people and the federal government on how lives, property and environment should be preserved, in the midst of oil prospecting activities. To the Nigerian government, oil is the national interest of the country, and it’s exploitation should not be disrupted. On the other end of the divide is the oil bearing communities who completely disagree with the position taken by the government. To the communities, oil is their God-given resource, which exploitation should have direct, positive impacts on their lives and environment.(Dode, 2012: p.6).

This background became one identifiable cause of incessant unrest that has made the Niger Delta region highly volatile. The percentage of monetary resources derived from oil production that filter back to the communities, as noted by Ibeanu (2000), has dropped from about 50 percent after following independence to about 13 percent in 1999. Corroborating this report, Leadership newspaper (2021) reported that the Niger Delta states have received huge payments in trillions under the 13 percent derivation principle over the last almost two decades but the deplorable living conditions in the oil producing communities remain horrifying, raising questions about the application of such large sum by those charged with the responsibility of disbursing the money. According to Ikporukpo (2001) the Niger Delta is arguably the most controversial part of Nigeria. The state of peace especially in the Nigerian Niger Delta area has to a large extent, been compromised (Osaghae, 1994; Naanen 1995; Ikporukpo, 2001; Ogege, 2013). There has been a phenomenal growth in violence in the area. Peace has eluded many communities in this area who are agitating for environmental resource control, and adequate compensation by oil companies and government for exploitation rights and ecological damage. Part of this ecological damage was reported by Adeyemo et al. (2009), cited in Adeyemo (2019) who observed that in the Niger Delta water bodies (Urie River in Igbide-Isoko and Uzere creek both in Delta) polluted by oil spillage, some fishes as at the time of the report

were severely coated with crude oil, making them inedible while other fishes were found dead and floating. This situation is persisted in some Niger Delta water bodies in 2019. Describing the Niger Delta scenario Peša, and Ross, (2021) observed that the discovery of crude oil has often done more harm than good to many people living above valuable mineral or oil deposits. They asserted that Nigeria in many ways epitomise the problem of crude oil extraction becoming a resource curse and has led to environmental wreckage, territorial dispossession, political repression, and massacres by state forces doing double duty as security forces for unanswerable petroleum transnationals or mineral cartels'. Also in many cases in the Niger Delta, the level of damage to local environments, health, livelihoods, and lifeworlds was simply too great to be overlooked. Indeed, the majority of persons living in areas near extractive sites are extremely aware of, and concerned about, the threats they face from the pollution they daily experience.

Ibeanu (2000) stated that the Niger Delta attained the status of a violent region only from the 1990s when the people, irritated by a feeling of neglect and injustice arising from the allocation of the benefits of the region's oil resources among the component units of Nigeria, organised various forms of protest to draw attention to the situation. The tension in the Niger Delta is the result of competing demands of better living conditions for communities and elite self-interest. The Federal Government, with the financial support of the oil companies, has responded in two notable ways. Historically, the military government responded with force as major tool of oppression (with the oil companies themselves directly inviting the military on occasion) and, in this dispensation, a new strategy of appropriate compensation has been introduced through the Niger Delta Development Cooperation bill. This programme aims to send resources back to local communities in the Niger Delta. However, complications have emerged with this approach with struggles over which ethnic groups are located in the Niger Delta.

Ibeanu (2000) stressed that the conflict has persisted as a result of a continued misunderstanding of the problem on the part of the Federal Government, the oil companies, and the international community. Ibeanu (2000) recommended that instead of pouring more money in, some fundamental policy changes should be encouraged to overcome the conflict through increasing local participation, encouraging further decentralisation and democratisation, re-addressing the issue of Nigerian federalism, and changing the mindset of both local communities and

Federal Government elites among others. This is one area where librarians and their professional activities in the rural communities in Nigeria can find impactful relevance for sustainable peaceful outcomes and community development through information. He opined that, despite past grievances, local communities need to begin moving away from viewing the government as the enemy while seeking to cooperate with the government, and their agencies to ensure change.

On the other hand, he added that oil companies must be re-oriented in their focus. He observed that the oil companies concentrate too much on improving their image through public relations rather than viewing their activities in the long term. He argued that transparency and openness in their activities will help alleviate tension, especially if combined with infrastructure investment, rather than payment of compensation, which feeds corruption. He stated categorically that oil companies must adhere to international environmental standards to show their commitment to protecting nature (Ibeanu, 2000).

In another article titled “Oiling the friction: Environmental Conflict Management in the Niger Delta, Nigeria, Ibeanu (2000) wrote about the violence in the sensitive ecosystem of the Niger Delta that is rich in biodiversity. The Niger Delta people, over time, have been pushed into deeper poverty and deprivation fuelled by conflict which has led to a pervasive sense of powerlessness and frustration. The multidimensional crisis has been driven by the actions of the security forces and militant groups, extensive pollution of land and water, corruption, corporate failures, and bad practice and serious government neglect (Amnesty International, 2009). All these negative conflict outcomes are traceable to the prevailing negative environmental impact in the Niger Delta communities on which this study has focused.

Obida, Blackburn, Whyatt, and Semple (2021) aptly described the extensive tidal river network and mangroveswamps in the Niger Delta region that have facilitated the spread of oil, with its geographic Delta formation becoming a sink for the oil that is dispersed but not removed. Over 1 million people live within the area contaminated by oil and have potentially been exposed to pollution through direct and indirect pathways over a prolonged period. The population in the impact area is particularly vulnerable to chronic illness due to its young age structure and pre-existing very low life expectancy.

In a historical overview Ibeanu (2000), backdated petroleum exploration in Nigeria to the first few years of this century. He stated that organised marketing and distribution started around 1907 by a German Company, Nigerian Bitumen Corporation. In 1956, the Anglo-Dutch group Shell D'Archy discovered oil in commercial quantities at Oloibiri, a town in the Niger Delta. By February 1958, Nigeria became an oil exporter with a production level of 6,000 barrels per day. Over time, other multinational oil companies like Mobil, Elf Aquitaine, Chevron, and Agip have since joined Shell. According to Olujobi (2021) Nigeria is the eighth leading producer of crude oil globally and is the fifth largest in the Organisation of Petroleum Exporting Member States.

Gas flaring is another major factor challenging the environment. According to Ibeanu (2000) prior to the Bonny Project, the practice of oil companies was to flare the gas. Enormous amounts of natural gas were flared annually, usually in the vicinity of human dwellings. This situation persists in some of the oil communities today. In her inaugural lecture, Adeyemo (2019) reported ongoing gas flaring in a community around Uzere creek, Delta State. She explained that gas flaring can have potentially harmful effects on the health and livelihoods of the human communities in their vicinity, as they release a variety of poisonous chemicals. Many other examples abound in the present Niger Delta. Shell burnt over 944 million cubic metres of gas in 1982. Gas is still flared in the Niger Delta communities even in 2019. In 1991, Nigeria exceeded the world average for natural gas flaring by 72 percent. In that year, while the world average for gas flared as a percentage of total production was 4 percent, Nigeria flared 76 (See appendix 3). Apart from the huge quantities of greenhouse gases that gas-flaring pumps into the atmosphere, constant flares affect both wildlife and human beings negatively; at temperatures up to 1,400°C, the "Sauna bath" effects that gas flares produce make living in many communities nearly impossible (Ibeanu, 2000).

According to Ibeanu (2000) the Niger Delta environment is being destroyed in many ways. High-pressure pipelines criss-cross villages carrying crude oil, premium motor spirits, diesel, and gas. Spills and leaks from these pipelines and other installations destroy wildlife, farmlands, forest, aquifers, and human lives. In 1999, separate fires in the Jesse and Ngwa areas in the states of Delta and Abia respectively, claimed hundreds of lives. The oil companies and the government often claim that spillage is due to sabotage by local communities for purposes of illegally

obtaining petroleum products and monetary compensation. This process of compensating the host communities as observed by Owolabi, and Okonkwo, (2014) is a complex one and the mass media ought to play a watch dog role and ensure transparency through professionally promoting programmes that will benefit the rural communities. Also, the discharge of refinery effluents into fresh water sources and farmland devastates the environment and threatens human lives. Such effluents contain excessive amounts of very toxic materials like mercury and chromium. For instance, fish store mercury in their brains for a long time, which can then easily pass into the human food chain with adverse effects on human populations (Ibeanu, 2000; Adeyemo, 2019). Recent studies of some communities in the Niger Delta by the environmental group Environmental Rights Action (ERA) showed that most of the underground aquifers are heavily contaminated by a cocktail of dangerous metals and chemicals. (ERA, cited in Ibeanu, 2000).

Ibeanu (2000) highlighted that badly-constructed canals and causeways built to facilitate activities of oil companies have devastated the hydrology of the region, causing flooding in some areas and water deficiency in others. Large forests have atrophied as a result. Most of these artificial canals also let saline waters of the Atlantic into fresh water sources, thereby increasing the scarcity of drinking water and killing many species of plants, animals, and fish. In some cases, the entire vegetation is precipitously altered as fresh water is destroyed by oil company canals and cause ways. For instance, water hyacinths have become very common in many areas where they were previously unknown. The same can be said of the ‘Nypa palm, a very strange plant specie, which has displaced mangrove trees known for their very high economic value to the people (Saro-Wiwa, 1992).

Although oil companies and successive governments in Nigeria would want to paint a contrary picture, the devastation that petroleum production has inflicted on the environment is a central factor in understanding the conflict dynamics, in the Niger Delta. The Niger Delta contains most of Nigeria’s hydrocarbon deposits and by implication, the Niger Delta holds the bulk of the economic resources that sustain the public treasury in Nigeria but the years of neglect and ecological devastation have left much of the Niger Delta despoiled and impoverished and this contradiction of riches is a constant refrain in most conflicts in the Delta. Many recent studies have also shown the harmful effect of petroleum or oil spillages resulting in irreparable environmental dilapidation and other potential hazards to human health, agriculture,

climate system, and the ecosystem in general (Ukhurebor, Athar, Adetunji, Aigbe, Onyancha, and Abifarin, 2021; Orisakwe, 2021; Ugwu, Ogba, Ugwu 2021). A catalogue of specific factors is often adduced for the protracted conflict in the Niger Delta. They include neglect by government and oil companies, unemployment, military rule, the minority question and a badly structured Nigerian federalism, especially as it concerns finances. According to Ibeanu (2000), at the heart of conflicts in the Niger Delta, are different security meanings of attached to crude oil. Put simply, security for local communities means recognition that mindless exploitation of crude oil and the resultant ecological damage threaten resource flows and livelihoods. For state officials and petro-business, security consists of an unencumbered production of crude oil at competitive costs.

In a report from the Guardian Newspaper, Ezomon (2003) observed that attempts had been made in the past to constitute a viable body capable of handling the ecological peculiarities of the Niger Delta communities; the Niger Delta Development Commission (NDDC) emerged in the new polity. OMPADEC an acronym for Oil Mineral Producing Area Development Commission was set up in 1993. This institution rapidly went the way of its predecessors, owing chiefly to lack of a master plan, inadequate funding, official recklessness and unfavourable political climate. He further stated that OMPADEC left in its wake several unfinished projects in the Niger Delta and a worsening of the economic woes of the people who thus demanded redemption and prevention strategies to resuscitate the rich ecosystem of the Niger Delta. He added that the people, however, resorted to unorthodox means, including force of arms, to express their views (Ezomon, 2003). Empirical evidence has also shown from the Niger Delta that competition among groups for scarce resources such as land, oil, or other natural resources breeds conflict (Etadon and Jimoh, 2015).

Onduku also (2001) traced the origins of the Niger Delta conflict to the federal constitution, which he noted as suffering from two fundamental and stabilising flaws. The first was the division of the country into three unequal regions, with the population of the northern region alone exceeding that of the two southern regions put together. The second flaw involved the political and demographic domination of the northern, western, and eastern regions by the majority ethnic nationalities as well as the attendant marginalisation of the minority ethnic nationalities that comprise approximately one third of the population of each region. He added that the Niger Delta people form the

largest group amongst the ethnic minorities spread over the South-South geopolitical zone of the nation today.

Recalling history, Onduku (2001) noted that, at Nigeria's independence in 1960, the injustice against the Niger Delta people prompted Isaac Adaka Boro, a young radical nationalist, an Ijaw-born revolutionary and master campaigner of resource control to champion a revolt against the oppressors of the people of the Niger Delta to effect a change on the negative impact caused by oil extraction on the environment which was then caused by oil extraction. The despoliations of the Niger Delta environment and the resultant conflicts have their roots in the discovery of oil exploitation, exploration and production activities by the multinationals in the late 1950s (Onduku, 2001).

The late environmentalist and minority rights crusader, Ken Saro-Wiwa, summed it up by describing his 500,000 Ogoni people in the Niger Delta as being consigned to slavery and extinction. "The internationalisation of the Ogoni case in the 1990s committed a global audience into the Niger Deltans plight" (Onduku, 2001). This was possible because environmental information created, stored used and disseminated was available to the community leaders.

The government continues marginalising the people, militarising the area, and suppressing intellectualism as exemplified by the killing of Ken Saro-Wiwa and countless of numbers of promising youth activists. Consequent on these developments, the locals opted for hostage-taking, hijacking and kidnapping of expatriate oil company workers and demand of ransom as well as repeated invasion and blockading of oil installation (Onduku, 2001). Amnesty International (2009) reported that these oil companies often see the Niger Delta communities as a 'risk' to be pacified, rather than as stakeholders with critical concerns about the impact of oil operations on their communities. And this risk-based approach underpins several damaging strategies in the Niger Delta. Some oil companies have effectively paid off communities and youths, hoping to prevent protest. This gesture, according to Amnesty International (2009), underscores the fact that threats, protests and violence are ways to access oil money, and has only led to unstable peace in the area.

Corroborating this assertion Uwakwe, Chijioko, and Audu-Bako, (2021) Also stated in their study on strategies for managing oil spill related conflict in the Niger Delta that community neglect, community violence and community conflict became frequent occurrences in the Niger Delta because of long years of neglect suffered by

these communities. The fall out of these negative outcomes led to the region becoming the hotbed for kidnappings, pipeline vandalism, and many more vices which eventually led to the emergence of various warlords and agitators who carved out territories of influence for themselves between 1999-2009. This period became a decade when the Niger Delta region was breeding ground of many insurrections with Bayelsa state at the epicentre of these insurrections.

Nigeria is the most populous country in Africa and the 10th most populous country in the world. The country is experiencing air, water and soil pollution derived in large part from the polluting practices of the oil and mining industries. Oil spills have created major environmental damage and gas flaring in Nigeria is affecting climate change throughout sub-Saharan Africa (Luciani; 2011) Toxic chemicals released in the flaring process have created major health hazards, such as cancer. In 2006, scientists at Yale University ranked Nigeria 123rd of 132 countries on environmental performance, the lowest scores were received in the categories of environmental health and biodiversity and habitat (Purdy, 2007). According to Ijatuyi (2005), there are increasing global concerns about the declining quality of the environment, especially on issues relating to scarcity of natural resources.

Abiolu and Okere (2012), in their study on “Environmental literacy and the role of information professionals in developing economies; listed the various international agreements made at the Earth Summits: The United Nations Conference on the Human Environment held in Stockholm in 1972, the World Commission on Environment and Development, known as the Brundtland Commission in 1987, the UN Conference (Agenda 21) held in Rio de Janeiro, Brazil in 1992, and the most recent 2009 World Convention on Climate Change called the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen, Denmark to renew the climate protocol aimed at preventing climate changes and global warming. All these meetings were held in an effort to forge a plan for global sustainable economic development and environmental protection (Ilgü, 2007).

This is imperative because environmental conflicts are caused by certain ecological problems of particular intensities when there is overuse of renewable resources, overstrain of the environment's sink capacity (pollution), and impoverishment of the living space (Libiszewski, 1992; Baechler, 1998). This is proof that the challenges faced by the environment then are still current concerns to people all around the world. Man's interaction with his environment over time has generated

considerable anxiety especially in the present age. The debate has always been hinged on positive or planet friendly ways of interacting with the environment that will engender a more sustainable planet for all. In Nigeria, gas flaring is one of the oil-extracting activities depleting the ozone layer, leaving us with global warming challenges among other environmentally- damaging issues. This position is also maintained by Ikporupko (1996) who asserted that there is hardly any natural resource that has generated so much political and economic conflict as petroleum (Ikporupko, 1996). He also noted that one of the conflict dimensions arising from petroleum, which has received little attention over the years is the struggle for control between the producing regions on the one hand and the state and the non-producing areas on the other in multi-ethnic federations. Unfortunately, “the setting for the conflict in Nigeria is the situation where the resource which is the mainstay of the economy is available only in areas whose ethnic groups have little or no access to or control of political power” (Ikporupko, 1996).

Comparing the Nigerian federation to what obtains in other federations of the world, Ikporupko (1996) observed that Nigeria’s petroleum resources are much more accessible to the central government and the non-producing regions than the producing areas. He stated that the current pattern of access has generated much dissent in the producing areas whose inhabitants assert that the pattern is a reflection of the majority ethnic groups bid to oppress the minority groups. Such protests, he added, included advocacy – based protest, civil disobedience, sabotage and armed struggle. Explaining the forms of protest in greater details, Ikporupko (1996) described the Advocacy – based protests as not only the most popular as widespread as protests by government, groups, and individuals. Those who engage in this form of protest aim to draw attention through appeal to the conscience of the Federal Government and all well-meaning individuals to the perceived injustice. Ikporupko (1996) cited two well-known examples, Association of Minority Oil States (AMOS), and the Movement for the Survival of Ogoni People (MOSOP), both of which, as he observed, pursued a policy of non-violence through publication of facts and figures on the perceived injustice.

Secondly Ikporupko (1996) stated that protest marches and civil disobedience are a common form of dissent. He noted that most oil-producing communities have at one time or other engaged in this kind of protest. A common feature of such protest, he also stated, is that they start as protest marches and end up as blockade of oil-

producing facilities and locations. Even women have participated in this type of protest and a recent report titled ‘Nigerian women in oil-rich Delta Region protest’ supports the fact. It revealed how angry women of the Ijaw and Itsekiri communities in the Niger Delta occupied oil-drilling facilities of Chevron Nigeria Limited because of the unemployment of their children and husbands, and the neglect of infrastructure and their economic empowerment by successive governments and multinational oil companies since production of oil began over four decades ago. The report further revealed that these women occupied Chevron’s airstrip, docks and stores and prevented aircraft from landing and boats from docking at the terminal. This action, the report added, disrupted production activities at the company’s 400-million-US-dollar Escravos Gas Plant. The report noted that seizures of platforms or oil production sites had, in the past, been undertaken by armed gangs of local youths who often threatened to kill staff or burn down the plant unless their demands were met. But, notably, this was the first time women had taken over an oil plant (Third World Network, 2002).

A third type of protest highlighted by Ikporupko (1996) is sabotage of oil exploitation and distribution installations, especially pipelines. He noted that this has been an important aspect of the protest mechanism. The fourth kind of protest is armed protest. Ikporupko (1996) stated that this occurred once. In present times, especially in the Warri axis of the Niger Delta, armed protest has been the order of the day since 1998. Ikporupko (1996) noted that, although the Federal Government collects revenues from petroleum and pays some of that to oil-producing states, the proportion has been declining over the years and, according to him, this is the factor that has really generated much controversy.

The major problems of the Niger Delta are traceable to economic deprivation. The youths are ‘restive’, because they are unemployed, hungry and therefore, angry because vast sums of money realised from the sale of petroleum and gas derived from the Niger Delta are siphoned to other places. The youths, are restive and the communities struggle for imagined benefits they hope to derive from oil companies operating in their territory. The late professor Claude Ake, Director of the Centre for Advanced Social Science at Port Harcourt and former member of Shell’s Niger Delta Environment Survey, has claimed that “gas flaring in Nigeria leases 35 million tons of CO₂ a year and 12 million tons of methane, which means that Nigerian oilfields contribute more in global warming than the rest of the world together (Claude,

1996). According to Cayford (1996), the placement of pipelines and other oil facilities has also had a damaging effect simply by taking-up large amounts of precious farmlands, for which the Ogoni claim they are poorly paid and, occasionally, not even consulted (Cayford, 1996).

Furthermore, Cayford (1996) stated that little has been done to compensate the Ogoni for the deleterious effects of oil production on their land despite the immense wealth the Federal Government acquires from the region. Analysing the issue, Cayford (1996) stated that, since 1980, a portion of oil revenues should have been allocated to oil-producing areas but this measure did not appear very effective. In 1992, the Oil Minerals Producing Areas development Commission (OMPADEC) was established to look into complaints that state governments were diverting funds intended for oil-producing areas to other purpose. As well, the commission was established to execute development projects based on the principles of demand by the community, balance and priority. But this, Cayford (1996) noted, appears to have been too little and too late to compensate for the infrastructural and social amenities neglect suffered by the Ogonis as described in 1981 G.N. Loolo's book: *A history of the Ogoni* (cited in Osaghae, 1994). This tumultuous relationship between Shell and the small region of the Niger Delta known as Ogoniland, started in 1956.

Under a joint venture with the British government, the multinational Royal Dutch/Shell discovered the first "commercially viable" Nigerian oilfield. Oil production followed in 1958 and Shell continued to produce oil in Nigeria after the country gained independence in 1960. One Sister Majella, a Catholic nun, who met with Shell representatives in Lagos in 1994, noted that Shell "spends a lot of time planning and very little time effecting "community assistance programs (Majella, quoted in Kretzmann, 1995). According to Kretzmann, critics said Shell was providing valuable foreign capital to the then repressive regime bent on suppressing internal dissent – particularly dissent directed against Shell – by whatever means necessary. Shell is not just the dominant economic player in Nigeria, "Whether they like it or not, Shell is deep in the politics of Nigeria", said Sister Majella, a Catholic Missionary who has worked in Nigeria since 1964 (Quoted in Kretzmann, 1995).

As at 2005, there were about 18 international oil companies operating in Nigeria (Nigerian Investment Promotions Commission cited by Evuleocha, 2005). These companies and the year they were established are: Shell Petroleum Development Company Ltd (1937), Mobil Producing Nigeria Unlimited

(1955),Texaco Overseas Nigerian. Petroleum Co. Ltd. (1961), Elf Petroleum Nigeria Limited (1962), Philip (1964), Pan Ocean Oil Corporation (1972), acquired Ashland Oil Nigeria Limited (1973), Agip Energy and Natural Resources (1979), Statoil/BP Alliance (1992), Esso Exploration & Production Nig. Ltd. (1992), Texaco Outer Shell Nigeria Limited (1992), Shell Nig. Exploration & Production Co. (1992), Total (Nig). Exploration & Prod. Co. Ltd (1992), Amoco Corporation (1992), Chevron Exploration & Production Co. (1992), Conoco (1992), and Abacan (1992) (Evuleocha, 2005).

According to Ogedengbe (2007), oil exploration in the Niger-Delta since its discovery, has always taken place in the rural areas of the region due to the fact that oil is found in abundant quantity in swampy areas that are mainly inhabited by the rural dwellers. These rural dwellers are poor and depend on primary activities such as farming and fishing as their major occupations. Oil exploration in the Niger Delta has long been marked by protests by local communities about the negative impact of the oil industry. More recently, armed groups and criminal gangs (which emerged and feed on local frustrations) have explicitly sought resource control on behalf of the oil-producing areas, and have engaged in theft of oil and acts of violence (Amnesty International, 2009; Isumonah, 2012). The unhappiness and annoyance at the lack of benefits from oil extraction is exacerbated by the damage the oil industry has done in many communities. Oil, up till now is the single most important commodity in Nigeria, and Shell is the backbone of the oil market. Shell Petroleum Development Company(SPDC) is currently the largest oil and gas production company in the country. And as at 1995, it accounted for more than 50 percent of Nigeria's crude oil output. Oil, as at 1995, also accounted for more than 90 percent of the country's foreign exchange, and more than 80 percent of Federal Government revenue.

Shell acknowledges the occurrence of many political problems in Nigeria (during the military regime) but maintains that these are issues where private companies have neither the right nor the competence to be involved and must be addressed by the people of Nigeria and their government. However a Green Peace official cited in Kretzmann, (1995) stated that, Shell's professions of innocence ignores the fact that the Nigerian government was far from being democratic (during the military era) and that Shell itself is the most powerful political actor on the Nigerian state – both historically and currently. According to the Green Peace official (cited in Kretzmann, 1995), the power in Nigeria does not come from the people, it comes from Shell and it was possible for Shell (executives) to make a positive

difference if they wanted to. From observation, there has been constant tension and conflict of interest about oil spillage in the Niger Delta. The extractive industry blamed the locals for deliberate sabotage of oil pipelines whereas the locals blame the oil companies for equipment failure. Shell, for instance, has long maintained that it had conducted a full environmental assessment of the area and denied request by the Ogoni and non-governmental organisations to scrutinise this documented assessment (Kretzmann, 1995).

In March 1994, Shell Nigeria agreed to allow a consultant to access to its assessment reports. The consultant noted that the studies seem to have been conducted after the construction of the two pipelines that were their subject. The standard practice is to determine the environmental impact of an action prior to undertaking that action. In addition, the consultant concluded that the studies lacked a focused assessment of significant impacts and do not lend themselves to aiding either the planning authorities or Shell in putting the levers in place to effectively manage the environmental implications of (Shell's) operations. The environmental information derived from assessment studies of the Niger Delta communities created and made available to community leadership is in most cases unavailable and inaccessible.

Researchers have mostly focused attention on the negative impact of armed conflicts on the environment and how 'wrong' environmental policy choices by African governments have resulted in conflicts. However, what has been most seriously neglected is how environmental pollution and degradation generate conflicts. He observed that such clashes are becoming a common feature of life in many rural communities in Africa. In other words, the link between environmental pollution and conflicts especially in rural Africa, have been seldom delimited, conceptualised and empirically studied. (Ibeanu, 2000). Oil is clearly a matter of life and death for Nigeria's ruling groups, especially petro-business. Their concern is to continue to produce oil at a very cheap cost. In this, the environment and local communities feature very little. Obviously, environmental protection and the welfare of local communities will only feature in their calculations if their operations are threatened.

According to Ibeanu (1999), local communities hold the oil companies and government responsible for their deprivation due to their increasing awareness of the contrast in wealth between themselves on the one hand, and petro-business and people in government on the other. This is demonstrated in the demands being made for

roads, schools, hospitals, employment, and support for farming; indeed, everything to improve their livelihoods. Oil companies and government insist that these claims are exaggerated. In Ibeanu's view, the demands reflect the strong feeling of deprivation in oil-producing communities.

Environmental degradation directly affects agriculture by diminishing crop-yields, food supplies and water resources. Today, there are problems of land degradation in all regions of the world and Gbadegesin (2001) stated that, there is the additional issue of the capacity of the existing land resources to provide food for the rapidly-growing population. This, according to McNamara, cited by Gbadegesin (2001), arises because the majority of the sub-Saharan Africa (SSA) are depending on land and water resources for their living. Gbadegesin (2001) noted that the situation is worsened and complicated in areas such as the Niger Delta area of Nigeria by petroleum exploration activities that are wildly and intensely exploited. He observed, also, that most of the oil companies had been carrying out their operations in the Niger Delta area with lower environmental standards that would never be permitted in North America or Europe. In addition, Gbadegesin (2001) noted, that, despite decades of oil exploration and production in the Niger Delta region of Nigeria, neither, the oil companies nor the Nigerian government has funded the scientific research that would allow an objective assessment of the damage caused by oil exploration and production activities. Rather, as noted by Omoweh (1998) and Gbadegesin (1999), most oil companies relied heavily on foreign consultants for the analysis and interpretation of data generated from environmental studies commissioned in the region. Expectedly, Gbadegesin (1999) explained that such reports have limited circulation and are only available and acceptable to oil companies that commissioned the studies.

According to Gbadegesin (1999), oil production activities in Nigeria's oil industry consist of three major phases. These are crude oil exploration and production, oil refining and petroleum product transportation as well as marketing. These phases involve seven major oil operations: exploration, geophysical investigation, production/processing, onshore and offshore tanker loading, storage depots, transport and refinery operations. All these operations with the exception of oil transportation and marketing take place exclusively in the Niger Delta area of Nigeria. Consequent on this, is the continued degradation of the oil-producing environment and the destruction of the means of livelihood of the inhabitants as a result of oil exploration activities. Citing examples during oil exploration, vegetation, farmlands and human

settlements are destroyed. Describing it in detail, he stated that because substandard drilling methods are used at this stage, the major constituents used during drill cuttings such as barites and bentonitic clays are usually dumped on the ground after usage. Unfortunately, Gbadegesin noted that the materials prevent local plant growth until new topsoil is developed through natural processes. In addition, if the materials are dumped in the water system, the materials disperse and sink and may eventually bury living plants and animals inhabiting the benthonic layer of the river system (Nwankwo and Ifeadi, 1988 cited in Gbadegesin, 2001). Furthermore, during production stage, various wastes that can pollute land, water and air are introduced into the environment. Atmospheric contaminants from refinery operations include oxides of nitrogen, carbon and sulfur. Liquid refinery effluents containing oil and grease, suspended solids, and biologically demanding organic litters that may pollute land and water are produced. Gbadegesin also stated that it is at this stage that gasses from flaring which suppress as the growth and flowering of plants are emitted into the environment (Gbadegesin, 2001).

Uma (1989 cited in Gbadegesin, 2001) reported the effects of hydrocarbon gas flaring on the quality of rain water, surface water and ground water from crude oil flow stations located in certain areas of the Niger Delta region (Uma, 1989 cited in Gbadegesin, 2001). The transportation and marketing stages generate oil spills that have more serious effects on the environment than all the other operations put together. This he stated, is because the toxicity of the oil adversely affects the soil, plant, animal and water resources (Odu, 1977, cited in Gbadegesin, 2001) and during onshore and offshore tanker loading, disruption of seabed, water pollution and spillage may occur.

Generally, there has been a rise in ecological and global health concerns regarding environmental contamination with heavy metals. Although these metals occur naturally and are found throughout the earth's crust at low quantities, human exposure generally results from anthropogenic activities such as smelting, mining, agricultural and industrial activities most of the oil exploration activities involve the release of heavy metals that are acutely toxic at low concentrations into the environment (Tchounwou, Yedjou, Patlolla and Sutton, 2012). Some of these heavy metals such as Lead and Cadmium could also accumulate through the food chain mechanisms. Explaining this further, Wang and Fowler (2008) and Enegeide and Chukwuma (2018) observed from their study that Niger Delta residents may be at risk

of heavy metal co-exposures produced by oil spills. They stated that there are several mechanisms by which metals from contaminated aquatic and terrestrial environments can enter the human body, including eating crude-oil contaminated farm products, fish from polluted ponds/rivers, and untreated cooking and drinking water from polluted sources. As Uwakwe, Chijioke, and Audu-Bako, (2021) succinctly described it “Oil spill appears to have found a permanent abode in Bayelsa state; from Southern Ijaw to Sagbama local governments, Olodiana to Azuzuama communities. Local communities are faced with the problem of continuous oil spill”.

The soil is central to the sustainability of both natural and managed ecosystems because it is the medium from which terrestrial production emanates. Since peasant agriculture is one of the dominant economic activities in the Niger Delta region, the survival of this activity depends largely on the soil conditions of the area. Unfortunately, the soil of the area has been disturbed and polluted over the years as a result of oil spillage (Gbadegesin, 2001).

In some parts of the Niger Delta, gas flaring is known to have caused inferno as a result of faulty gas pipe. In Kpean area of Ogoni land, some households have lost their buildings while, in some cases, economic trees such as oil and raffia palms as well as plantains have been burnt down due to gas flaring. Gbadegesin (2001) added that the continuous discharge of pollutants into the atmosphere poses danger to both the inhabitants of the affected areas and the world populace in general. Firstly, it causes acid rain deposits on the immediate terrestrial and aquatic environments. Secondly, the production of carbon oxides during gas flaring constitutes global dangers since it can lead to the depletion of the ozone layer. Furthermore, other poisons gases like nitrogen oxides, ammonia, ozone and sulfur dioxide produced during gas flaring have been attributed to the prevalence of sore-eyes and throat, shortness of breath, nausea and running nose near gas flaring sites (Gbadegesin, 2001; Luciani, 2011).

According to Gbadegesin(1999), the issues surrounding the environmental, social and economic impacts of multinational oil extraction have been a major source in internal political issues within Nigeria for decades and the material inequities resulting from the oil business are indisputable. Despite this, the indigenes of the Niger Delta area have the lowest overall standard of living in the country while living in the region that produces the great bulk of Nigeria’s wealth. The reasons for the incidence of poverty among the Niger Deltans include the massive and persistent

degradation of the oil-producing areas through oil exploitation. In addition, the Federal Government has been inequitable in distributing and utilising the large oil rent that accrues to it over the years. The control over oil resources by the Federal Government and allocation of resources by the major ethnic groups outside the oil producing areas remain some of the reasons for the pauperisation of the people in the Niger Delta region. To support this fact, a recent World Bank report noted over-fishing, soil pollution, excessive logging, lack of basic sanitation and access to health care as a few of the many environmental and social problems that degrade the quality of life of the Niger Delta area.

With the prevalent situation of misery and squalor, Gbadegesin (2001) was of the view that the average inhabitant of this region has so much to be discontented about. The expectation is that, if so much is derived as revenues from this area and the means of survival are daily compromised, justice and equity demand that much revenue should be committed to redress the situation in forms of amenities, employment opportunities and other forms of social services. The type of economic policy pursued by the Nigerian government and the dependency relationship the country has with the creditor nations have disallowed the Nigerian government from ameliorating the agony of this suffering people. Indeed, Gbadegesin (2001) noted that the little effort of the government to redress the situation through the establishment of Oil Mineral Producing Areas Development Commission (OMPADEC) was frustrated by the corruption that has become an endemic problem in the Nigerian society. It is therefore this economic crisis at the macro and micro levels that produced the present state of anomie in the Niger Delta.

In the view of Gbadegesin (2001), all the agitations by the minorities of the Niger Delta can be translated to mean the failure of the Nigerian state. He noted that the crisis of power relations, the poverty and misery in the face of abundant resources, the tension between the state and the society, the inability to recognise the need to achieve sustainable development are all indications of a failed state. According to Gbadegesin (2001), the essence and the purpose of the state is the management of the resources – over economic, social and environmental – in such a way that social justice will be achieved. The inability of the Nigerian state to manage these enormous resources is the reason for the present imbroglio in the Niger Delta. Not only that the failure of the Nigerian project must also be placed at the doorstep of a weak state that is ever being hijacked to serve private rather than common interests (Gbadegesin,

2001). He also added that the crisis of the Niger Delta and the violent conflicts between groups within the society and the state are due to the failure of the state to manage effectively and without grievances the burdens and benefits of the commonwealth.

Ibeanu (2000) recounted that with the unbending resistance of oil-bearing communities and the steady international condemnation of the policies of the military government and oil companies in the Niger Delta, petro-business began to preach a new “community-based “approach to its activities in the Niger Delta. The new approach sought to negotiate access directly to oil communities rather than through government. This is where the conflict handling behaviour of community leaders is relevant. Before then, oil companies sought to absolve themselves from the desolation of the Niger Delta by claiming to be tenants of the government and not the local communities. The oil companies also claimed that they met all their contractual obligations to the Nigerian government and so could not be held responsible for the failures of government. This claim may well be correct in law because a previous military regime had passed an unpopular decree in 1978 declaring all land and minerals under it the property of the state. The change in attitude by the oil companies was a realisation that with the situation on the ground, that law was unrealistic.

The new emphasis was based on Memoranda of understanding (MOU) by stakeholders. Each MOU, Ibeanu (2000) explained, details the duties, responsibilities, and benefits of the stakeholders. Essentially, the oil companies committed themselves to the development of host communities. In return, the communities pledged to protect installations and solve problems through dialogue. For its part, the government was expected to serve as the umpire. An added element of this “new” approach was the increasing involvement of Non-Governmental Organisations (NGOs) and community-based organisations (CBOs) with the oil companies. This element, according to Ibeanu (2000), came about partly because of the prominent role these organisations played as advocates of the oil-bearing communities against military dictatorship and petro-business.

The MOUs, Ibeanu (2000)observed, remain elitist in both conception and content. The youths remain the powder keg. Unable to get proper schooling or stable employment, they constitute a reserve army” for social discontent. Frustration associated with aspirations to elite status makes the youth of the Niger Delta very volatile. Ibeanu (2000) pointed out that it is wrong to assume, as the oil companies

presently do, that their host communities are internally monolithic. He stated that differences of class, gender, and generation should be addressed if productive community relations and conflict resolution systems are to be developed in the Niger Delta. He noted that existing MOUs do not seem to be doing that. Ibeanu (2000) also observed that finding the legitimate representatives of the communities is a problem encumbering MOUs. He noted that during the period of military repression in the Niger Delta, the oil companies shot themselves in the foot by helping to hunt down the true representatives of the communities who were described as troublemakers and security risks. Many of them were killed, others went on exile, and most have been cowed. According to him, the vacuum created has been filled by illegitimate, government –installed chiefs, extortionists, and other charlatans. Consequently, in many cases the response of the ordinary members of the communities has been cynicism or distrust towards the recent overtures.

Ibeanu (2001) highlighted two approaches to conflict resolution in the Niger Delta which, he claimed, emerged when the new civilian government came into office. The first suggests that the civil society organisations have done their work by mobilising communities to resist the militarist state and insensitive oil companies. Now, they and the communities must allow the elected representatives of the people acting through democratic structures like local councils, state assemblies, governors, the national assembly, and the presidency, as well as the judiciary to tackle the problems. This approach, he noted, advocates patience and an understanding that the wheel of democratic government grinds slowly.

The second approach insists that, while occupants of structures that dictated the problems in the Delta may have changed, the structures themselves and their internal dynamics have changed very little. Therefore, communities and civil society need to practise continued vigilance to ensure fundamental transformations. In Ibeanu's (2001) view, an important aspect of this transformation is to renegotiate Nigeria's fiscal federalism to ensure that communities of the Delta retain the bulk of resources generated from their land. As such, they (Niger Deltans) note that the constitution given by the military, which gave birth to the present government, is flawed and requires renegotiation at a sovereign national conference. The Niger Delta has come to be perceived as a turbulent region because various forms of protest have been organised by the people against government and the oil companies. The feelings of utter neglect

and social injustice in the distribution of the benefits of petroleum resources and environmental injustice have led to this situation on the part of the people of Niger Delta (Saro-Wiwa, 1995; Naanen, 1995; Osaghae, 1995; Ikporupko, 1996; Human Rights Watch, 1999a, 1999b; and Ikporupko, 2001).

Ibeanu (2001) and Chukwunka (2019) observed that the continued violence in the Niger Delta suggests, that the two positions are still not reconciled; hence, violence conflicts occur across the Delta, between governments and communities, as well as among communities themselves. Part of the problem is the militarist disposition among individual members of the civilian government and the communities of the Niger Delta. On the part of the Niger Delta people, years of military repression have left them brutalised but militarised. The culture of violence is deep-seated in the region (Nwabueze, 1999).

Ikporupko (1998) suggested three critical aspects in developing the Niger-Delta; these are the developing of the region, of the people, and putting in place the institutional framework for development (Ikporupko, 1998). The Niger Delta Environmental Survey (NDES) puts forward some programmes necessary to address all aspects of the development crisis; these include mainly environmental management, poverty alleviation, infrastructure development, social justice and conflict resolution. Issues of the institutions needed to effect development are also addressed (NDES, 1997; NDES, 2000). Ikporupko highlighted that the main centre of petroleum production, which is the Niger Delta Region, faces development challenges. Despite widespread poverty, decaying social and physical infrastructure, massive youth unemployment and rising crime, there is little visible social investment in the areas by government or traditional donors. Poor government has led to revenue allocation practices unfavourable to the region and has also discouraged donor investment. Historically, overall support to the Delta appears to have been less substantial and intensive than in many other and more prosperous areas of the south.

In many Delta communities, underdevelopment has led the people to perceive SPDC as the only form of 'government' they know. Ikporupko (2001) reiterated that these challenges require not only systematic analysis but also deliberate intervention. He added that the development of the areas, given its scale, requests the participation of government, donor agencies, oil companies and communities. He further stated that perceptive approaches emphasising with the development of the region and the people are necessary (Ikporupko, 2001). According to Soyibo, Alayande and

Olayiwola(2001), poverty is a multifaceted concept that manifests itself in different forms, depending on the nature and extent of human deprivation. In absolute terms, they posited that poverty refers to insufficiency or the total lack, of basic necessities like food, housing and health care. It also includes the inadequacy of education and environmental services, consumer goods, recreational opportunities, neighborhood amenities and transport facilities. In relative term, people are poverty-stricken when their living standards fall radically below the community range. This implies that such people cannot have what the larger society regards as the minimum necessity for decency (Soyibo, 2001).

Sané, UNESCO's one-time assistant director general in the editorial of the management of social transportation newsletter, viewed poverty as not just economic, but social, political and cultural. He described it as something that undermines human rights in the following areas: economic (the right to work and have an adequate income) social (access to health care and education), political (freedom of thought, expression and association) and cultural (the right to maintain one's cultural identity and be involved in a community's cultural life). He argued that poverty results from the violation of these human rights and that these rights must be respected to ensure the dignity of all humans (Sané, 2001).

These definitions aptly describe the pervasive poverty in the Niger Delta region. The much needed systematic approach to the issue of environmental policy for formulation and implementation, environmental monitoring and enforcement of environmental laws particularly as they pertain to the oil, and urban industrial/commercial sectors, improved with the introduction of FEPA, an Acronym for federal Environmental Protection Agency (Chokor, 1993; Egunjobi, 1993). Although Areola (2001) noted that the essential ingredients in environmental policy formulation have been lacking, he added that policy formulation in the Nigerian experience has been largely limited by paucity of real technical data and information on the environment. He observed that there is very little contribution to policy formulation on the vexed issue of sustainable management of resources and the environment. Thus, environmental policy has never been viewed or approached in a systematic or holistic manner.

Ibeanu (2001) observed that, as far back as November 1990, about one month after the Ogoni Bill of Rights was issued, the Ogoni experience already appeared to be pointing to the future relationships between the state, petro-business and the local

communities from which crude oil is exploited. As a result he saw a situation where ‘the politics of sharing’ is grafted on to the politics of ethnic majorities and minorities, giving a recipe for negative conflict outcome. Community leadership conflict handling behaviour will and should be used to improve environmental conflict situations, translating these conflicts to positive conflict outcome with time. In his 2002 inaugural lecture, Professor Ikporupko stated that there was no justifiable reason why the Niger Delta should continue to be disadvantaged.

Odoemene (2011) examined some of the social consequences of environmental degradation and climate change in the Niger Delta. These consequences included: Youth Militancy and Gangsterism, Kidnapping and Hostage Taking, State Violence and Suppression, Intractable Inter-Communal Conflicts, Breakdown of Cultural Values and Mores, Increased Poverty and Destitution amongst Indigenes, Reinforced Human Underdevelopment. He also discussed the gender perspectives on the existing Niger Delta social challenges which he observed have suffered consistent scholarship neglect. The gender perspective highlighted two broad themes which are the destruction of women’s capacities as well as limitation of their potentials for innovation and socio-economic development; and secondly, women’s sexual exploitation by their men, the state and petrobusinesses.

The Nigerian government has for many years (decades) taken various actions, through the establishment of a range of institutions to address the problems, which are poverty, conflict and under-development, in the Niger Delta. The post -independence government set up the Niger Delta Development Board in 1961. Subsequent bodies included the Niger Delta Basin Development Authority (NDBDA) set up in 1976, and the Oil Mineral Producing Areas Development Commission (OMPADEC), set up in 1992. In 1999, the Niger Delta Development Commission (NDDC) was established to replace OMPADEC. The major challenges faced by these bodies ranged from lack of resources, capacity and legitimacy, to corruption and mismanagement (Amnesty International, 2009).

Other prominent initiatives included the House of Representatives Ad Hoc Committee on the Niger Delta, established on 27 October 2008 to conduct a public hearing on the crisis in the Niger Delta and make recommendations to the house. Another was the Presidential implementation committee on the clean-up Ogoni project which was established to oversee progress in implementing solutions to the environmental and social problems in Ogoniland. Another initiative was the Niger

Delta Peace and Conflict Resolution Committee (established on 2 July 2007, to make recommendations to the government on how to adequately address the issues of the Niger Delta), and the present establishment in September 2008 of the Ministry of the Niger Delta, which was set-up to lead and coordinate initiatives to address the problems facing the region, including environment-related issues.

Many reputable civil society organisations such as Our Niger Delta (OND), Community Rights Initiative (CORI), Academic Associates Peace Works (AAPW), Institute of Human Rights and Humanitarian Law (IHRHL), Niger Delta Human and Environmental Rescue Organisation (NDHERO), Movement for the Survival of Ogoni People (MOSOP), Women light Foundation, Ijaw Youth Council (IYC) Conflict Resolution Trainers Network (CRTN) and Centre for Advanced Social Science (CASS), and many others have, through their activities, positively impacted the Niger Delta communities in the area of conflict resolution, peace-building, community development research, advocacy, human rights awareness, capacity building and development among others. All these initiatives are commendable; however, the bottom-up approach to solving environmental-related issues should be strongly considered in achieving sustainable peace in the Niger Delta. At the core of this bottom-up approach are community leaders who are major stakeholders as representatives of the oil-bearing communities. In the words of Professor Jacqueline McGlade (2008) who was the Executive Director of the European Environment Agency (EEA) cited in Haklay (2017):

Often the best information comes from those who are closest to it, and it is important we harness this local knowledge people are encouraged to give their own opinion on the quality of the beach and water, etc., to supplement the official information (Haklay; 2017:pp.11)

Environmental information management processes can, therefore, affect environmental peace and its mismanagement can cause environmental conflict. In the same vein where a dearth of environmental information for users exists, the quality of such an environment will be negatively impacted because information is an essential resource in the management of the environment (Popoola, 2006). The possibilities, therefore, exist that most of the environmental conflict in the Niger Delta could be ameliorated if government and all other stakeholders adopt adequate environmental information management strategies.

According to Newman, Chandler, Clyde, McGreavy, Haklay, Ballard, Gray, Scarpino, Mellor, and Gallo (2017) This is often achieved via contributory, collaborative and/or co-created approaches. The studies of these scholars suggest that active public participation of those directly affected by environmental impacts like the one in the Niger Delta region is mutually benefitting to society, relevant and necessary for sustainable peace. The Distrust and widespread suspicion already observed in the Niger Delta by scholars such as Idemudia (2009) also extend to environmental data transparency, as local communities tend to suspect validity of environmental impact assessment data (Zabbey et al., 2021) However Co-produced data facilitated by active community participation in environmental data gathering will enable community participants to own the data generated from which they can also make informed decisions and this could lead to data transparency and trust building among concerned stakeholders consequently contributing to mitigating the prevalent conflicts in the Niger Delta region. Onduku (2001) reiterated that efforts at preventing violent conflict in the region should be based on the aspiration and interests of the people. He added that genuine peace efforts in the Niger Delta by all concerned parties can be achieved by participation, equitable distribution of resources, appropriate development, conscientisation and environmental suitability.

The methods employed by some oil companies operating in the area is a central part of the problem. Their lack of transparency in the award of compensation and clean-up contracts has continually fed inter and intra-community tensions and conflicts in the Niger Delta. Ibeanu (2006) summarises the Niger Delta conflicts in three theses. The first one postulates on how wealth impoverishes the Niger Delta. The second thesis describes how national security generates insecurity in the Niger Delta and the third thesis describes how development underdevelops the Niger Delta. The first thesis discusses the Niger Delta poverty state as part of the negative consequence of oil production, particularly its environmental consequences which have destroyed livelihoods by destroying farmlands and fishing waters. The second thesis depicts how the nations security contradicts the security of nationals, inclusive of the Niger Delta communities, because of the politics of oil. The third thesis describes how the destruction of the Niger Delta environment, as a result of the petroleum extraction industry, not only destroys local livelihoods now, but also undermines the future prospects of community members inhabiting the area.

A 2021 study carried out by Oghenetega, Ojengbede, Okunlola, and Ana showed that the local residents in the Niger Delta were knowledgeable about the causes and the adverse effects of oil pollution. It was also reported that the burden of health challenges, was high as a result oil pollution by the researchers. Conflict especially the one experienced in the Niger Delta is not without a huge economic cost. The macroeconomic implications of conflict was reported by Novta, and Pugacheva, in a 2021 study on the macroeconomics of conflict. Macroeconomic costs of conflict are generally very large, with GDP per capita about 28 percent lower ten years after conflict onset. This is overwhelmingly driven by private consumption, which falls by almost 25 percent ten years after conflict onset. Conflict is also associated with dramatic declines in official trade, with exports (imports) estimated to be 58 (34) percent lower ten years after conflict onset.

2.2 Concepts of information, conflict and information management studies

Examining some fundamental concepts in information, Lester and Koehler (2007) posited that information, as a concept, is found several disciplinary contexts, such as communication, cybernetics, computer science, physics, chemistry, biology, psychology and a host of others. As part of their theoretical structure, they argued that information and information activity go beyond humans and human behaviour. They observed information as the primary concern of information professionals. In their work on levels and forms of information, they suggest that an understanding of the differences among several related terms such as symbols, data, information and knowledge will help hone the intuitive understanding of what information is. The concept of information starts for the point of data, becomes useful information and consequently produces knowledge. In the words of Kaniki:

Information is defined as ideas, imaginative works of the mind, and data of value that are potentially useful in decision making, question answering, and problem solving. Information makes one aware of the application of available data. The acquisition of information and its appropriate application can lead a person to a state of knowledge. (Andrew M. Kaniki, 2004: p.81)

Kirk (2005) presented Braman's very useful hierarchy of definition of information. This hierarchy is described as consisting of four levels and each is based on a category of definitions drawn from many different fields. In summary, they are information as a resource, information as perception of pattern and information as a force in society. Explaining the last two levels, that is, information as perception of pattern and information as a constituent force on society. Kirk (2005) described the former as a broadened concept of information because of the addition of context. Information here is seen as having a past and a future and is affected by motive and other environmental and casual factors, and itself has effects at this level of its own although its effects are isolated. Taking information as a constituent force in society; it has a role in shaping context. Information is not just affected by its environments, but is itself an actor affecting other elements in the environment (Braman, 1989 cited in Kirk, 2005). According to Porat (1977), "information is data that have been organised and communicated. Derr (1985) cited in Lester and Koehler (2007) drawing on the work of theorists such as Warren Weaver and Claude Shannon, defines information as a record of resolved uncertainty. Information means any stimulus that modifies the reasoning structure in the receiver. Debons, Horne, and Cronenweth (1988) also defined it as the cognitive state of awareness (as being informed) that is given representation in physical form (data) which, in turn, facilitates the process of knowing.

When information is considered as a process or as an event, it leads to several questions as discussed in the work of Neil (1992) cited in Lester and Koehler (2007) in *Dilemmas in the study of Information: Exploring the Boundaries of Information Science*. Does information exist external to or outside of the human mind? Does it somehow reside in the symbols (the geographic record) but become useful only when interpreted by the mind? What is the match between information (assuming it exists) and the reality (assuming that exists) it represents? Is there something external to the mind that the mind then does something with?

Lester and Koehler (2007) maintained that, regardless of whether we think of information as an event, a process, or a commodity as external and existing or not information can be described as having certain characteristics. These characteristics have classified by them under two major categories, namely, information may be good or bad, correct or incorrect, and information may be complete or incomplete, perfect/imperfect. Explaining further, Lester and Koehler (2007) stated that when

information may be good or bad, correct or incorrect it implies that, Data may be accurate and of high quality but of a volume too large to be processed, so they do not provide “good” information. And data may be accurate, of high quality of appropriate volume so they can be processed into information and resolve uncertainty but be considered “bad” because of the nature of that resolution.

In the second major category, Lester and Koehler (2007) explained that information may be complete/incomplete, perfect/imperfect, thus by implication, they explained that information we use is usually incomplete information. Lester and Koehler (2007) concluded here that decisions are made on the basis of imperfect information, but even the nature and extent of that imperfection is not known until later. Lester and Koehler (2007) submitted that the degree of “incompleteness” or “imperfection” depends on the individual and the individual’s previous knowledge state.

Lester and Koehler (2007) have, therefore, broadly defined information as anything that changes the knowledge state of the receiver. They also hold the view that it is impossible to separate information from the context in which it occurs. In further consideration of information as a process that occurs, a critical need on how information transfer happens is important. Information transfer can be defined as a sequence of events leading to a transmission of information from a source to a destination (Cleveland, 1992 cited in Lester and Koehler, 2007). This information transfer process or communication process has three key elements: Source – Channel – Destination. Illustrating this, Lester and Koehler (2007) stated that the source may be an individual, a group, an institution, a government, or some other originating entity. They assert that the source puts the message into form that can be received at the destination.

A very formal definition of information comes from the field of engineering. Shannon and Weaver (1959) defined it essentially as a measure of the absence of uncertainty. The word, information, in communication theory relates not so much to what one does say, as to what one could say. That is, information is a measure of one’s freedom of choice when one selects a message. According to these authors, the concept of information applies not to individual messages (as the concept of meaning would), but rather to the situation as a whole. Lester and Koehler (2007) suggested that trust has a strong informing component and eases corporate behaviour among participants who not only trust one another, but are also able to communicate that trust

to the group. They submitted that a final element of power may lie in the ability to enhance or diminish the sense of trust and to communicate those changes. They are of the opinion that as the technological aspects of the informing function expands, the radius of the trust arenas will also expand. The onus is now on those negatively impacting the physical environment of the Niger Delta to come up with solutions that will engender trust among the host communities in which they operate.

A related definition, according to Meadow (1988), has it that information is what is used to affect a decision. This version ties in the concept of reduction of uncertainty. Citing the example of a decision maker he stated that a decision maker who is faced with a set of alternatives is uncertain about which to select, and needs information to make the choice. He argued that, if the person were not uncertain, that is, if he knew for certain what to do, then it would not be called a decision situation. He added that there have to be alternatives for there to be uncertainty. This sense is implied in this quotation, from the comic strip character Andy Capp's caustic comment on his wife's drawing of conclusions from rumour: information is the intelligent interpretation of facts before they ever occur (Capp, 1989 cited in Meadow, 1988). Rumour, Meadow (1988) added, whether true or not, can change the state of a system. The concept of information, as observed by Martin (1988), is bedeviled by the frequently-contradictory nature of existing definitions, and by the absence of any consensus on the nature and characteristics of information. Martin (1988) also observed that progress has been made by adopting a conceptual rather than a definitional approach to information which has, thereby, shifted the focus from the correctness or otherwise of the definitions to the usefulness of the concepts (Belkin, 1978). In his argument, Martin (1988) maintained that the popular perception of information revolves around the meaning and content conveyed by the information transaction. He further stated that information is sought and provided on the assumption that the person receiving it will be better informed. Kochen (1983) emphasised, as used in his technical sense, that information is completely separated from meaning and the less -precise forms of usage that could connect it to the kinds of information to be found in books and documents.

These examples, Martin(1988) observed, demonstrate not just the essential differences between the everyday and the technical concepts of information, but also the difficulties inherent in the wholesale transfer of concepts from one professional environment or academic discipline to another. According to Martin (1988), few

would dispute the existence of a relationship between data, information and knowledge although there is unlikely to be unanimity about its nature and significance. Data and information are frequently treated as equivalents; however, there is also a tendency to regard data as unevaluated facts, as the raw material of information. Information, by extension, is data processed into some useful form.

Horton (1979) declined to translate conceptual difference into strict hierarchical form with, for example, information being seen as more important than data, but less significant than knowledge. Instead, he viewed each element as being uniquely important to the communication and decision-making process, an approach which appears to have validity given that data, information and knowledge are marketable assets and potential sources of power and influence. In an attempt to understand more about these related concepts, other alternative definitions of the concepts of data, information and knowledge by other scholars have been well articulated by Faucher, Everett and Lawson (2008) from a time frame spanning 1970 to 2006 (Appendix 4).

The interrelationship among data, information and knowledge are hierarchical where data represents the elementary and crude form or existence of information; information represents data endowed with meaning; and knowledge represents information with experience, insight, and expertise (Broadbent, 1998; Zins, 2007 cited in Kebede, 2010). The general understanding of the related concepts of data, information and knowledge explained in Appendix 4 will improve the understanding of the concepts of environmental data, environmental information and environmental knowledge discussed in section 2.3.

The basic feature of this relationship, Martin (1988) opined, is that the distinction between information and knowledge is much more marked than that between information and data. This distinction is valid for both the popular and the technical concepts of information, because there is no corresponding polarisation with regard to knowledge. Both in the everyday world and within the orbit of specialist theory and practice, knowledge is universally regarded as a much wider concept than information. Data either may be retrieved in raw form or used as raw material for the cognitive processes (thinking). This fact is equally reported by Lester and Koehler (2007) who agree that information is encountered in a variety of modes which are; visually, through the sense of sight; aurally, through hearing; tactilely, through the sense of touch; olfactorily, through the sense of smell; and gustatorily through the sense of taste. The interpretations of these perceptions, their

conceptualisations, are socio-culturally-defined phenomena shared by the group experiencing the data. In distinguishing between information and knowledge, the four interrogatives, what, when, where and who fall within the realm of information, whereas only knowledge would answer the other two interrogatives of how and why. This could be applied to environmental information.

Onwubiko (1996) highlighted the concept and essence of information repackaging to meet the demand of providing library and information service to rural Nigerian dwellers who are largely non-literates. Information, according to him, is recognised as a veritable tool for the elevation of man in his environment. He alluded that there will be limitations if the format in which information is provided, the people for whom it is provided (that is the audience and their level of literacy) are not considered. Onwubiko (1997) also observed that the majority of Nigerians who live in rural areas have to contend with the problem of information famine. He, therefore, was of the view that the library has a role to play in tailoring its services to accommodate the illiterate rural majority in Nigeria as most of the Niger Delta people are rural dwellers.

The Niger Delta communities have diverse languages. Information and, by extension environmental information, therefore, must be repackaged in these diversity of languages for it to hold value and meaning to the rural dwellers. Onwubiko (1997) stated that the idea of information repackaging which was postulated by Aboyade (1987) as the collection and redesigning, remodeling, restructuring, reorganisation and dissemination of information to a peculiar group of people, implies that the information collector/repackager should tailor information such that the varied information needs of rural communities in the language and format they understand are met. This understanding was also discussed by Abiolu and Okere (2012) in their work on environmental literacy and the emerging roles of information professionals in developing economies. Kamba (2009) stated in his work on rural community development, that information is both a basic resource and an asset for African communities which they may use to improve their conditions of living and accelerate their rural development process. This includes environmental information. Corroborating this fact also Babalola, Babalola and Okhale, (2010) in their study on environmental information awareness and accessibility in Delta state Nigeria recommended the presentation of environmental information, particularly

those related to global ecological changes in the local languages through the mass media.

Defining this concept, in his own words Onwubiko (1996) stated that information repackaging is an outstanding design to the collection and creation of a piece of information and disseminating same in a more indigenous style while recognising the essentially community-oriented nature of the African countryside (Onwubiko, 1996). Aboyade (1987) recapitulated that the illiterate rural Nigerian dweller needs information on the sale of fertiliser and other farm inputs as well as where to obtain credit facilities, health and education-related matters, new methods of cultivating certain crops and general environmental and sanitary conditions (which this work focuses upon). Emphasising the environmental aspects, Hassan (1992) cited in Ugboma (2002), posited that there is the dearth of a credible dynamic environmental information system for a better and proper understanding of the situation to provide for appropriate management system. Surveys have revealed that communication gadgets like radio, television and natural communication systems are important (Oduaran, 1989; Babalola, Babalola and Okhale; 2010). In the words of Aboyade (1987), for the rural, non-literate and agrarian communities, however, there is the need for the involvement of libraries and information centres which have trained personnel in the collection, packaging and dissemination of information (Aboyade, 1987).

Oil companies have a role to play in the dissemination of environmental information to host communities (Ugboma, 2002). In a study carried out by Ugboma (2002), it was observed that there was a conscious effort by oil companies to keep in touch with the host communities that were understudied; namely, Oleh, Uzere, Igbide and Owhe in Delta State. These efforts, she further explained, are the use of community liaison officers, agricultural extension workers, and community development officers, she adding that oil workers disseminate information with the objective to educate and develop these communities. They inform the communities on improved agricultural methods, compensation, community development, community affairs, water provision, health and damages to pipelines at oil-well sites (Ugboma, 2002). Furthermore, Ugboma's (2002) study revealed that oil companies publish news and information bulletins on various topics on the environment, health and women. She stated that they are also involved in the provision of training for the youths to enable them become self-reliant. The study also revealed that community

liaison officers regularly dialogue with leaders and, at such fora, information is passed as may be required. Her study also noted that there is the annual peoples' parliament which is an open forum for enlightenment, while seminars and conferences are organised from time to time by oil companies for the stakeholders who are drawn from oil-producing communities. These seminars and conferences are done with a view to minimise ambiguity. Uzuegbu (2016) also observed that the communal lifestyle in the rural areas in sub-Saharan Africa has made rural dwellers effective participants in interpersonal communication within their environment.

The concept of conflict is as indispensable for development studies as it is for peace studies. This concept also has implications in information studies. According to Albert (2001), a sine qua non in third-party conflict intervention is information. He added that the better the quality of information available to the intervener, the better his ability to put in place an intervention mechanism that has the chance of success. He, therefore, advocated that any meaningful intervention project should commence with an action research into the conflict (Albert, 2001). It entails information gathering among other activities.

Conflict has also been defined as a natural occurrence involving individual perceptions of a continuous process between two or more relating parties with unharmonious goals, ideas, values, behaviour, or emotions (Schneer and Chainin, 1987). McKibben (2017) explained in her study that conflict arises from issues with interpersonal relationships, change and poor leadership. According to Lippt (1982), research and theory propose that conflict should be encouraged, tolerated, and resourcefully channeled into effective problem solving of issues. Conflict is an essential concept in contemporary management matters and it must be properly managed to produce positive conflict outcome (Schneer and Chainin, 1987).

Galtung (1996) stated that to develop is to create and that the same is true of peace, but peace, according to him, also has emphasis on violence reduction and non-violent conflict transformation. He believes that deep inside every conflict lies a contradiction; something standing in the way of something else. This belief of Galtung (1996) is shared by other scholars who defined conflict as an interaction between interdependent people who perceive incompatible goals and who expect interference from the other party if they attempt to achieve their goals. According to Fisher et al. (2000), wherever there is conflict, there is the potential for peace-building.

According to Barash and Webel(2002), Ellis and Abbott (2011) and Marquis and Huston (2014), peace truly is the formation of positive, life -sustaining and life-enhancing ideals and social structures and not just the absence of war. They added that positive steps can be taken to diminish man's reliance on violence in attempting to settle disputes. One of these positive steps could be ensuring that information is adequately managed to minimise the negative conflict outcome. The major focus of positive resolution to conflict, therefore, rests in addressing these conflict root causes such as mending relationships, improving communication, all of which may be enabled through effective leadership. Conflicts,if handled ingeniously, could end beneficiallywhere the levels of contribution from all concerned stakeholders in attempting to resolve the conflict are high, and the proper channels exist for them to express such disagreements and the mechanisms are also available for handling these disagreements in an acceptable manner that could broker peace eventually. The various stakeholders in the Niger Delta community therefore should have asay, therich and poor, disabled and able-bodied,women and men, young and old, employed and unemployed.

James and Curle (1985) argued that peace studies must be concerned with approaches to reshaping society and the world order in such a way that, not only is violence-overtly and covertly-eliminated, but harmony and cooperation are established and maintained. Violence consists of actions, words attitudes, structures or systems that cause physical, psychological, social or environmental damage and or prevent people from reaching their full human potential. The environmental damages that have been observed in the Niger Delta could be likened to a form of violence. Fisher et al.(2000) noted that from the micro, interpersonal level, through to groups, organisations, communities and nations, all human relations- social relations, economic relations and relations of power-experience growth, change and conflict; hence, they asserted that conflicts are not only a fact of life but also inevitable and often creative. They happen when people pursue goals which clash, but these disagreements and conflicts are usually resolved without violence and often leads to an improved situation for most or all of those involved. They observed that conflict arises from imbalances in relationships; namely, that is unequal social status, unequal wealth and access to resources and unequal power leading to problems such as discrimination, unemployment, poverty, oppression, and crime. They observed that each level connects to the other, forming a potentially -powerful chain of force either

for constructive change or for destructive violence (Fisher, Abidi, Lydin, Smith, and Williams, 2000).

Additionally, conflict, according to Large (1997), is a situation where parties pursue opposing goals. Galtung (1996) referred to classical situations, particularly if the problem is highly solution-resistant, such as something standing in the way of something else. He exemplified these by statements such as “I want something badly, but so does somebody else”. I want something badly but I also want something else. Galtung (1996) referred to these classical situations as the elementary conflict formations or conflict atoms. Conflict can also be manifested in a relationship between two or more parties (individuals or groups) who have, or think they have incompatible goals (Fisher, 2000). It also occurs when different social groups are rivals or otherwise in competition. (Barash and Webel, 2002). Conflict can also be viewed as an antagonistic situation or adversarial process between at least two individuals or collective actors over means or ends such as resources, power, status, values, goals, relations or interests. Conflict is present when two or more parties perceive that their interests are incompatible, express hostile attitudes, or pursue their interests through actions that damage the other parties. These parties may be individuals, small or large groups, and countries (Lund, 1997).

Galtung (1996) also defined two lexicons in conflict known as “dispute” and “dilemma”, he described dispute as “two persons, or actors pursuing the same scarce goal, while dilemma has to do with one person, or actor, pursuing, two incompatible goals. Furthermore, he said that disputes easily lead to efforts to harm that actor whose pursuit is standing in the way while dilemma may lead to efforts to deny something in oneself; that is, self-destruction.

Galtung (1996) observed that there may also be self-destruction in dispute (that is, denying one’s own pursuit of that evasive goal, for instance, leadership of a group) and other destruction in the dilemma (taking ‘it’, the frustration out on somebody else). According to him, most people experience both everyday. He opined that conflict generates energy, but the problem lies in how to channel that energy constructively.

According to Galtung (1996), conflict theory has as its point of departure on the one hand incompatibility, and on the other, the actors and their conflict formation. Sometimes it is possible to resolve an incompatibility without really touching the actors and their relations, even without really touching the conflict

formation. Compromise, according to Galtung (1996), does exactly this; he noted that the actors are still there, with their structure basically untouched. But the conflict is settled because both parties can now relax their conception of what is acceptable to them so that their modified goals become compatible. The opposite approach also, according to Galtung (1996), is in a sense an even better example, explaining that the borderline for the compatible is pushed outward, more and more, until it begins to touch what is acceptable. The incompatibility itself is transcended (Galtung, 1996). One of the key concepts that could help the understanding of conflict, especially environmental conflicts, and its outcomes is information management.

According to Detlor (2010), various models of information processes exist and some of the major processes involved in information lifecycle concern those that create, acquire, organise, store, distribute and use information. Macevičiūtė and Wilson (2002), cited by Detlor (2010), also suggested that information management draws upon ideas from both librarianship and information science. Detlor (2010) recognised three major perspectives of information management: the organisational, library, and personal perspectives. It is the personal perspectives of IM that relate to this study. The organisational perspective of information management deals with the management of all information processes involved in the information lifecycle with the goal of helping an organisation reach its competitive and strategic objectives.

The author further reiterated that the personal perspective of information management is similar to the organisational perspective in that it involves the management of all information processes in the information lifecycle. The major difference, he noted, was that the organisational perspective concerns the management of interest to the success and well-being of an organisation, while the personal perspective deals with the management of information of importance and concern to the individuals. This study focuses on the personal perspectives of information management. Community leaders, in this study, manage the environmental information they perceive as important and of great concern to them as community leaders and members of the communities they lead. The style of leadership they provide as mediators and their environmental information practices result in certain conflict outcomes.

Information management from the personal perspective refers to how individuals create, acquire, organise, store, distribute, use and dispose information for personal purposes. It involves the handling, and processing, of information over the

entire information lifecycle (Detlor, 2010). By implication, environmental information management also involves the handling and processing of environmental information over the entire information lifecycle, and this includes information disposition highlighted in the works of Horton and Pruden (1988) and Goodman (1994).

According to Detlor (2010), the need to maintain the information processes of information creation, acquisition, organisation, distribution and use so that the right information is accessible and available in the right place, in the right form, and of sufficient completeness and quality to meet personal information needs is central to the personal perspective of information management. These have implications for community leaders in the Niger Delta, in relation to their environmental information management capabilities, their conflict-handling behaviour as well as subsequent conflict outcome. Where environmental information is not accessible, available in the right place and form and where it is not sufficiently complete and qualitative, gaps in efficiency and effectiveness of the environmental information management process could arise and, ultimately, negatively affect conflict outcome within the communities.

Furthermore, Detlor (2010) stressed that the goal of information management is to help people access, process, and use of information efficiently and effectively and, by this, people are able to realise their task and become better informed. It follows that the principles of information management (IM) could be applied in the context of environmental information management practices because environmental information management practices also appears to draw ideas from information management principles. Community leaders in the Niger Delta communities have been observed to access, process and use environmental information in their communities. These leaders could become better informed as they access, process, and constructively use information especially environmental information within their communities in an efficient and effective manner to accomplish the leadership task of ensuring positive conflict outcome within their communities.

Environmental information management ideals could, therefore, be aimed at helping community leaders in the Niger Delta access, process and use information efficiently and effectively. These leaders could better accomplish their leadership task and will be better informed about the environmental information created in their communities. They process orientation towards information management adopted by

Detlor (2010) who views information management as the control over the information lifecycle. This cycle begins from the point environmental information is created, captured, organised, stored, retrieved, disseminated, used and disposed.

The library perspective of IM recognises the unique role of information providing organisations such as libraries. Detlor (2010) noted that with respect to information resources, libraries are neither the creators nor users of information resources. He observed that it is in the library perspective that terms like knowledge organisation, classification, cataloguing, digital libraries, indexes, and information retrieval systems have relevance.

Macevičiūtė and Wilson(2005) looked at information management from a disciplinary point of view in research, and observed that it has become increasingly diversified and increasingly specialised. An understanding of information management principles will aid our understanding of environmental information principles. Wilson (2003) presented the scope of the field of information management including information requirements, the information life-cycle, the information resources, the economics of information, tools such as information and communication audits and information mapping, information access, networks and internets, legal aspects of access and privacy, information policy and strategy, and strategic information systems.

According to Kirk (2005), the traditional view of information management has focused very much on information as a resource and as a commodity and information management as providing a service to the organisation. That service has taken the form of providing access to information in a range of services. The definition of information, as perception of patterns, transfers information management into a constitution force and gives it a place in achieving the goals of any organisation.

Kirk (2005) pointed out that information management has shifted from service provision to this strategy formation relevant to work. Kirk (2005) concluded that information management needs to encompass the full range of information from a resource to a force for change and development. This is what the proper practice of environmental information management attempts to achieve. Secondly, that information can be integrated into organisational process and, so, it can influence organisational culture, structure and work patterns. Thirdly, that Information Management can properly address information products, services information flow and use in an organisation. And fourthly, useful measures of the effectiveness of

Information Management can be based on the impact of information on the organisation. It therefore, could be inferred that, where environmental information is properly managed by good leadership, it could lead to more useful and effective and informed decisions-making processes and conflict outcome that will ultimately impact the Niger Delta communities.

Information management(IM) is essential in our society and has been described by Choo (2002)(cited in Kirk, 2005) as a continuous cycle of related activities encompassing the information value chain. The activities in the cycle are: identification of information needs defined by subject requirements and situation, information acquisition involving evaluation and assessment of sources and matching sources to needs, information organisation and storage of the organisation's memory, information products and services aimed at enhancing the quality of information, information distribution through sharing information informally or formally, and interpretation of information in decision-making process.

An important element in(IM) is information politics, which indicates the assumptions made about how people generate and use information in organisations (Kirk,2005). The effectiveness of information can be measured by the extent of knowledge creation or innovation in organisations. Kirk (2005) suggested evaluation of information management to take into account different views on information. She argued that evaluation based solely on information as an object will be misleading. In her opinion, the focus of evaluation needs to include information process. Kirk (2005) posited two approaches to the evaluation of IM.

The first point Kirk (2005) stated could be based on the process of information management, including information management as aligning information strategy and business strategy and, secondly, another approach might be based on innovations in the organisation and might include consideration of the information capabilities of managers and their co-workers. She concluded that the measures of the effectiveness of information management will be very similar in SMEs and large organisations. Information management has multiple meanings. Its meanings are shaped by different perspectives on information organisations and on the work of managers. Information management has the potential to transform organisations but only when information and business strategies are integrated.

According to Macevičiūtė and Wilson (2005), there have been numerous attempts to define the framework for information management. The concept they

observed largely depends on the content put into the term information management. They reported that information management depends on not only the concept of information as such, but the multiple meanings of the phrase, the emphasis of its elements, or the word order as well as the scientific perspective.

The definition of information management by Wilson (2003), cited by Macevičiūtė and Wilson (2005), explains the processes of information management principles as the acquisition, organisation, control, dissemination and use of information relevant to the effective operation of organisations of all kinds. 'Information' here refers to all types of information of value, whether having their origin inside or outside the organisation, including data resources, such as production data records and files related, for example, to the personnel function, market research data, and competitive intelligence from a wide range of sources.

Information management deals with the value quality, ownership, use and security of information in the context of organisational performance. Information can contribute to the success of organisations and the achievement of organisational goals, whether information is regarded as a resource or as a force for change and development (Kirk, 2005). One of the key factors for success in the context of business reinforces the need for integration of business strategy and information, a factor that has to do with environmental issues (Abell, 1994 cited by Macevičiūtė, and Wilson, 2005). This factor rests on information, its use, creation, storage, and distribution. Issues regarding the quality of information (i.e., accuracy, validity, and timeliness), its accessibility, availability, and presentation and ease of use. Organisation and storage of information are the concern of teams or task forces developing projects in relation to environmental issues. In trying to broker peace in any context, these same principles could apply.

According to Kirk (2005), if Information Management is to influence the development of any viable project (for instance the peace building processing in the Niger Delta), then it should be recognised as many categories of information as possible, as broad range of sources and media as possible, and as broad range of uses of information as possible. Information experts have a role in enhancing the information capabilities of individuals in organisations such as those stakeholders in the Niger Delta. Kirk (2005) noted that systems capturing information needs and use patterns are needed.

Kirk (2005) stated that there are several approaches to adding value to information already in use but concluded that there is room for further development. He is of the view that information experts might discuss with managers (whoever occupies a significant position of influence) about their media preferences, information use strategies and any barriers they have encountered in using and applying knowledge, and then tailor information products and services to enable managers or decision makers to perform their work roles better.

Taylor (1986), cited in Kirk (2005), sees adding value to information as helping users to match the information provided by a system with their needs. The added values include ease of use, noise reduction (which has to do with conflict) quality, adaptability, time savings and cost savings. Another approach to adding value to information noted by Simpson and Prusat (1995), cited by Kirk (2005), is reducing information overload for manager by increasing the quality of information.

According to Kirk (2005), the task of Information Management is to enable managers in any context, to engage effectively in knowledge work. Key contributions by information management include developing information filters so that the volume of information is contained, enhancing the quality of information, building know-how databases and facilitating information sharing across teams. Information sharing is an important component of information management. This has implications for the community leaders in the Niger Delta area. The question now is what factors (in order of their priority) are critical to the success of business organisations, such as the oil companies operating in the Niger Delta region and among the host communities? Research has found that personal contacts are used to gain access to information that could not be acquired through formal sources, and also when, information is needed quickly. White and Wilson (1988), cited by Tibar (2005), found that information users rely on personal contacts because they regard them as trusted sources of information. Choo and Auster (1993), also cited in Tibar (2005), stated that informal sources, including personal contacts, are sometimes even more important than formal information source. This has implications in the peace - building process in the Niger Delta crisis. This finding is supported by Okocha (2003) in an unpublished study on the role of information in environmental conflict management. Okocha (2003) discovered that the extent to which the respondents in her study on the role of information in environmental conflict management

'believed' was an indication that they trusted and valued the source of environmental information available to them.

Adekola, Fischbacher-Smith, and Fischbacher-Smith (2017) also reported a significant lack of trust between actors, in particular between local communities and multinational companies and government, as also pervasive and a potential barrier to effective risk communication of the negative consequences of oil exploration activities. Findings from their study showed that, while most respondents emphasised the central role that government and corporate organisations need to play in risk communication, there is, as a consequence, a tendency for the locals to view any message from the government and corporate organisations with suspicion, and this mistrust is prevalent amongst the key community stakeholders in the region. There was a high level of distrust among these major stakeholders. This distrust was further entrenched by the perceived injustice in the distribution of costs and benefits of oil exploration activities. Agbola and Alabi (2003) observed in their report that the local people believed that, while they directly bore the environmental consequences of oil development, the benefits accrued mainly to the oil companies and central government without commensurate development in their communities. These position has further entrenched their distrust.

2.3 Environmental Information Management and Conflict Outcome among the community leaders in the Niger Delta

According to Carvalho and Fidelis (2011), the management of environmental problems, through the proper handling of environmental information is one of the most important challenges facing local authorities (among which are community leaders). It therefore follows good logic and reasoning that negative or positive conflict outcome could result in the mismanagement or proper management of environmental information. It is necessary to define the concept of environmental information as this will help in the understanding of the wider concept of its management. According to Popoola (2006), environmental information is defined as news, messages, ideas, facts and processed data obtained from published and unpublished sources that are capable of increasing or improving the knowledge state of the users or recipients on matters relating to environmental problems and how best to manage their environmental problems for good living.

In their study on local environmental governance, Carvalho and Fidelis (2011) found that the information gathered from public complaints on environmental issues has the potential to reveal the most significant environmental problems from the standpoint of local actors. These suggest that environmental information gathering, especially by those directly affected in the communities, is a key component in environmental information management practices. Record keeping which, in this case is the keeping of environmental information records is best entrusted in the hands of professionals such as librarians who are trained to handle any kind information and work with knowledge of various kinds. Librarians are not limited in geographic spread or context of work. It is the very nature of where they work that defines them. In the words of Jaiyeoba (2018); “Records keeping enables proper understanding of the background, nature and activities and helps to assess the past and present, and project into the future” (pp.27).

Citing literature, Hoq (2015) also suggested that in developing countries rural people rely heavily on informal and non-institutional sources for their day-to-day information. Environmental information management, therefore, is the application of management principles to the acquisition, organisation, control, dissemination and use of information relevant to human affairs and activities and the physical environment of man on the same equilibrium level (Popoola, 2006). Idemudia (2009) aptly described the oil industry and the Niger Delta in Nigeria as dominated by two of its three key stakeholders; that is, the Federal Government of Nigeria (FGN) and foreign oil companies. The consideration of the host communities as stakeholders in the Nigeria oil industry is a relatively new phenomenon.

This perhaps explains the negative conflict outcome experienced in the Niger Delta region. The scope of environmental information in any nation, among other things include toxic and hazardous waste management, water pollution bio-diversity management and natural resources management and conservation. This kind of information abounds in the Niger Delta as a result of the negative impact of oil exploration activities. Numerous scholars have, over time, reported the negative impacts of oil exploration on virtually every facet of life in the Niger Delta region of Nigeria (Osaghae, 1995; Ikporukpo, 1996; Onduku, 2001; Ali, 2002; Ugochukwu and Ertel, 2008; Idemudia, 2009; Oluwaniyi, 2010; Islam and Islam, 2011 and Takon, 2014).

According to Popoola (2006), good environmental information (EI) has certain characteristics which he described under the following headings; commodification (pricing), value (meeting the needs of the user), and reliability of content (ensuring accuracy, credibility, correctness and validity). Other features of good environmental information includes the reliability of source, timeliness, generality and specificity (that is, this kind of environmental information should be applicable to a broad subject or a highly -specific one in terms of coverage or degree of depth on environmental management) and environmental information should be easily understood. Similarly, importantly, it should be quantifiable, relevant and accessible.

Iwe (2003), in her study on libraries and information in sustainable rural development in Nigeria, emphasised the need for rural librarians to provide information materials that will inform villagers on how to keep a clean environment, how to deal with the different types of pollution such as the one caused by oil exploration in the village areas and how to improve their lives.

Hillenbrand (2005), equally observed in her article on *Librarians in the 21st Century* that public libraries, specifically, are in a vantage position through their information activities, to play an essential role in building communities and connecting people. The author noted, that in providing local communities with a harmless place to go, libraries in general are in an exclusive position to facilitate the building of trust and relationships between members of the communities they serve. The trend, the author concluded, for the future of the profession of librarianship, therefore, is towards a community development role whereby librarians can act as facilitators and partners in the advancement of their local communities. It is in taking these initiatives and translating them into action that libraries could create collaborative platforms with other community agencies committed to a similar vision.

Jain and Nfila (2011) observed that information centres and libraries often do not play an active and proactive role in national development issues owing to lack of initiatives to prove their existence to government and communities. Jain and Nfila (2011) also suggested that partnerships can be developed, through consultative meetings and forums, to improve access to information for both national and community development.

Achtabwino (2007) highlighted several roles that libraries can play towards national development, and by implication communities, through partnerships with

other stakeholders. Firstly: libraries serve as vital repositories of knowledge where accumulated information can be disseminated over time to all (including communities) when needed. Secondly, libraries serve as pivotal political point in democracy promotion and socio-economic development in a country through the supply of information that empowers citizen participation in the democratic process, allowing public debates, and informing policy-making process (such as decisions on the environment that affect citizens in environmentally-challenged environments).

Thirdly, libraries function significantly in the health sector by making health information accessible to all users. They also provide people with correct information on diseases and prevention measures, health care, side effects of premarital affairs, dangers of early pregnancy and any other health-related information, which could include the information derived from environmentally challenged communities

Fourthly, libraries provide information to problems related to population increases, such as land degradation, food shortages, and deforestation, drying rivers, drought and other environmental issues. Fifthly, libraries play a significant role in national development through the support to the education sector by means of information dissemination and, finally, libraries contribute to national development through their support of the agricultural sector by harnessing information on different areas of agriculture that include farming methods, marketing, and crop diseases.

Achtabwino (2007) further stated that libraries and information centres can also function as community centres in addition to providing access to relevant information resources. He suggested that public libraries and information centres can function as places where topical issues affecting communities are discussed and shared.

Information centres and libraries are well-known for handling and facilitating access to information relevant to the lives of community or society members and, therefore, are appropriately positioned to manage indigenous knowledge in various formats which could include video and audio recordings, photographic pictures, digital images (Nkatha, 2002 cited in Jain and Nfila, 2011). Jain and Nfila (2011) also reported that the indigenous knowledge, stored and accessed through these formats, relate to lives of local people in terms of using that information for health (medicinal plants), agriculture (food and crop production), handicrafts, environmental conservation, and education to solve the socio-economic problems. Public libraries in particular have a general utility value, which could serve as a multipurpose

facility, a community centre, and an educational, social and cultural asset in the community. It is one library that is best positioned to promote and provide access to information (environmental information inclusive) for individual sustenance, enlightenment, education, empowerment, self-actualisation and personal development, which will translate into national development (Issa, 2018).

2.4 Conflict handling behaviour among community leaders in the Niger Delta region

Balay (2006) in his study on conflict management strategies asserted that conflict management strategy refers to the behaviour participants display when in conflict. According to Morrision (1998) cited in Balay (2006), people will react to potential conflict in one of four main ways: fight, flight, freeze and assertiveness. Other studies reported that the five methods of conflict handling behaviour are avoiding, smoothing or accommodation, forcing or directing, compromising and cooperation (Blake and Mouton, 1964; Kilmann and Thomas, 1977; Cheung and Chuah, 1999(cited in Balay, 2006); Schermerhon et al. 2000(cited in Balay, 2006); Skjorshammer, 2001 (cited in Balay 2006); and Kraybill, 2008.

Explaining each conflict handling behaviour in detail these scholars described the approaches of conflict management. In the avoidance style, the individual simply pretends that the conflict does not really exist, and hopes that it will go away. The second style which is smoothing or accommodating, conflict handling behaviour emphasises the common points, and de-emphasises or even suppress any difference in viewpoints among persons. The third is the compromise conflict handling style, in which individuals try to resolve the conflict cooperatively by gaining some grounds and losing some other grounds to the others involved. The fourth style is forcing or directing wherein individuals use the conflict to promote their goals at the expense of others. The fifth conflict -handling style is collaboration or cooperative style where individuals directly confront with a favourable attitude, which encourages solving the problem at hand and jointly generating the best possible solution.

Events in the Niger Delta region suggest that community leaders in their behaviour patterns fit into some or a combination of behaviour patterns as discussed in this section. There have been cases where environmental issues have been appropriately handled or inappropriately handled by leadership behaviour in the Niger Delta whether these leaders were male or female. These leadership behaviour trends

have either yielded positive, negative or unstable outcomes in the region. Jaiyeoba (2018) highlighted certain qualities expected of a good leader as including motivational and communication skills, good interpersonal relationship and transparency. She pointed out that leaders could adopt one style or a combination of styles from the different leadership styles.

This theoretical approach to leadership maintains that transformational leaders are charismatic, intelligent people who create a vision of the future and inspire their followers to question the status quo, see beyond the here and now, and pursue a new purpose. Transactional leaders, by contrast, represent efficient managers who can focus on the task at hand, communicate clear expectations to their subordinates, solve immediate problems and reward performance. Leadership, therefore, entails both the microscopic and telescopic. By implication, leadership is both transactional (microscopic) and transformational (telescopic). Observations about the Niger Delta leadership style reveal that most leaders adopt a blended leadership style and act according to context. Leadership refers to people's ability, using minimum coercion, to influence and motivate others to perform at a high -level commitment (Bass, 1985, 1999, cited in Kurdland, Peretz, and Hertz-Lazarowitz, 2010).

Focusing on the Niger Delta community leaders and their conflict -handling behaviour, Nweke (2012) recommended in his work on the role of traditional institutions of governance in managing social conflicts in Nigeria's oil-rich Niger Delta communities that there is the urgent need to re-invigorate and revitalise the traditional institutions of governance in the Niger Delta to work in synergy with other stakeholders such as the Nigerian state institutions and trans-national corporate actors in evolving processes that would lead to sustainable peace in the region.

Traditional institutions are the keepers of their people's norms, cultures and practices. In most African settings, as observed by Nweke (2012), selection of persons into the offices of traditional institutions is hereditary or by selection or election by the instrument of relevant traditional methods in the Niger Delta. The mode of selection of the occupant of traditional institutions varies in Africa in general and in Nigeria in particular from ethnic groups to ethnic groups or communities to communities. Traditional institutions are symbols of indigenous people's rights, privileges, laws, customs and traditions which include but not limited to paramount rulers and their councils. The traditional institutions, in the Nigerian context are inclusive of the chiefs-in-council, elders-in-council, title holders who may be appointed based on their

contributions to the growth and development of their communities with or little no executive, legislative or judicial powers.

According to Nweke (2012), rather than traditional institutions engaging relevant stakeholders in conflict management and peace-building, they have fanned embers of conflicts which have plunged the Niger Delta communities into protracted social unrest. This infers that the conflict handling behaviour of such leaders in the Niger Delta was poor since the ways they acted have yielded negative outcomes. Among the Niger Delta communities, the traditional approaches to conflict management and resolution could vary from community to community, especially when viewed against the background of diverse ethnic groups making up the region. However, most of the Niger Delta communities share common traditional approaches, especially the Igbo-and Ijaw -speaking groups in view of their common historical antecedents-oil exploration and exploitation(Nweke, 2012).

The youths within the Niger Delta constitute a very productive, energetic and active segment of the Niger Delta communities. Their conflict handling behaviour styles seen for instance in their declarations, such as the Kaima Declaration by Ijaw Youths in 1998, all brought the Niger Delta issues on the front burner of both national and international discourses. It created some forms of awareness. However, this according to Orlunwene (2008), deepened the conflicts in the Niger Delta with the proliferation of ethno-regional organisations and movements with pronounced agenda all over Nigeria. Another scholar, Hubbard (2010), further observed that the region had witnessed unprecedented violence and crises that had persistently disrupted smooth oil exploration and exploitation activities in the area, leading to local social unrest and eventually deteriorated into armed struggle. Armed struggles from observation have always witnessed unstable conflict outcome and outright negative conflict outcome wherever it is experienced.

There have been inter and intra-communal conflicts arising mainly from the oil exploration and exploitation activities in the Niger Delta region. This, in turn, has yielded negative outcomes within the area among community leaders because of the way they handled environmental crises emanating from their communities. One major case in point was the Umuechem massacre in 1990 which claimed lives of prominent personalities, who were leaders in their communities, including the death of the clan head (Onye-ishi Agwuru) of Igbo, in the Etche Local Government Area of Rivers State, Eze A.A. Ordu, as a result of clashes between security agencies and the

community. Again, the killing of four prominent Ogoni sons and the subsequent killing of nine Ogoni activists in 1995 by the Abacha military junta are cases of outright negative conflict outcome involving leaders.

In all of these crises, the traditional institutions of governance, the elite and the youths were deeply involved. In fact, they were involved in the instigation of these crises because at some point these community leaders had accused each other of corruptly enriching themselves by their collaboration with the Nigerian state and oil multinationals in terms of benefitting from development projects sited in their spheres of leadership influence. According to Oruwari (2006), traditional institutions such as the chiefs, age-grades and elders who were supposed to have positively intervened into these conflicts to facilitate peaceful conflict outcome in time became immersed in the crises. As Nweke (2012) observed, traditional institutions of governance which used to wield more influences in the pre-militancy era suddenly lost and, hence plunged the Niger Delta region into decades of negative conflict outcome. Traditional institutions of governance, comprising community leaders, which were supposed to be partners with the Nigerian state at the community level and oil multinationals in conflict prevention, management and resolution became victims of the conflicts themselves because of their conflict handling behaviour.

2.5 Conflict outcome among community leaders

Conflict outcome largely reflects the degree to which the objectives of each party have been satisfied (Maoz, 1984). According to Schmid (2000), conflict outcome is an element of conflict theory that generally distinguishes between the roots of conflict, the dynamics of the conflict process, and the conflict outcome or results. An assessment of the outcomes of conflict can consist of a comparison of originally-intended results and actually-achieved results. Though the preferred outcome of any conflict is victory, this could sometimes be an uncertain goal, where conflict is mishandled, leaving those involved in unresolved situations (Reychler, 1995, cited by Schmid, 2000).

Conflict outcome over time, have been manifested as zero-sum, where the gain of one part corresponds to the loss of the other and non-zero-sum situations, where both sides gain or lose. This means that possible conflict outcome could result in one side winning and the other side losing; both sides winning and both sides lose. Perhaps the best outcome is that both sides win (Schmid, 2000). Logically,

environmental conflict outcomes are the result of previous actions and processes caused by the extractive industry occurring within a defined geographic space. The actions or processes that fall short of the ideal occurring in these environmental conflict situations in the Niger Delta which have not been properly managed by all concerned stakeholders, especially the extractive industry, consequently informs the nature of the conflict outcome in that context. According to Orisakwe (2021) Agitations and restiveness remain characteristic features of Niger Delta following claims of exploitation and neglect of the local population by the multinationals.

Gandhi(1992), a theoretician and practitioner of non-violence, rejects any idea that allows the application of direct and structural violence since that will be against the whole idea of non-violence. To him, non-violence is an admonition to struggle against both kinds of violence, and an equally-strong admonition not to use them in the struggle. Where this is practicalised, peaceful conflict outcome will emerge.

Gandhi's way to struggle belongs to the Satyagraha approach, a non-violent means of conflict transformation, that peace is the way, to be taken. Gandhi(1992) believes in this puritan approach to conflict basically because resolving the conflict is only one element of the desired outcome of a conflict in his view, and equally desirable is the impact or outcomes the conflict is to have on both parties to the conflict. To him a conflict resolved, but leaving the parties unchanged, even worse, is no success.

Uppermost in the mind of Galtung (1996) are the three basic concerns of non-violent action, that action is to be directed against the bad relation between self and others, not against others as such. Secondly, that action should build love rather than hatred, and peaceful outcomes rather than violent behaviour, and thirdly that others are at all times invited to share this enriching experience including assurances to others that there is space for them in future society. Galtung (1996) pointed out that human behaviour can be played out in such a way that the conflict becomes transformed upwards, and ultimately, leads to functional peace. Gandhi (1992) believes that parties should emerge from the conflict, not only with better social relations, but also become better persons than they were before the conflict and better equipped to take on new conflicts non-violently. He stated that those inclined to violence yesterday or today may thus become the mediators of tomorrow. Galtung(1996) argued the hypothesis that violence never works as follows: Firstly,

there are the number of people killed and bereaved, the number of people traumatised in body, mind and spirit, and those affected by that, the physical damage to human habitat and nature, as seen in the Niger Delta communities of Nigeria. He observed that most of this harm done is irreversible. And these are only the visible effects of violence, ignoring basic side-effects.

Secondly, Galtung (1996) added that if violence leads to change in self-other relations, then this is obtained by incapacitating the other. But an enforced outcome according to him, is not sustainable because it is not accepted and it is unacceptable because a defeated other is no longer other. Thirdly, there has been no positive transformation of other, but possibly a negative transformation since that defeat may also trigger an addiction to violence and lead to revenge, one barrier having been removed through having been the object of violence, so that there is no danger of incurring a moral deficit. This only leads to negative outcomes.

As a tool for positive outcomes, negotiation is another key concept. It is a dynamic and mobile process whose purpose is for the two sides to achieve an agreement (Kraus, 2001). The author here also stated in a nutshell that this process requires preparation, effort, open mindedness, creativity, good communication, and a desire to come to an agreement on the part of both sides. Kraus (2001) noted that conflict is caused by three major factors which she highlighted as; differing goals/objectives, unfounded perceptions and poor communication. She noted that every negotiation is a unique interaction, but equally stated that successful negotiation can be achieved when certain principles are followed.

These include preparing, in advance, establishing goals and having an awareness of own and opponent's perceptions, communication skill, and emotional reaction which include; tossing aside biases, good communication and understanding and controlling the emotions. It also includes recognising own and opponent's underlying motivations and interest rather than just the demands made, identifying and openly discussing areas of agreement, disagreement, and shared interests, problem-solving together (two heads can be better than one) and utilising objective criteria that address the issues or outcomes of past similar conflicts as a guide in reaching an agreement. This is the kind of approach required in attempting to mitigate the problems in the Niger Delta communities.

Kraus (2001) noted that a successful negotiation process achieves three objectives or outcomes, which are, a mutual agreement, improving or maintaining the

relationship between the parties which make it efficient. She observed that there could be gender difference in negotiation style. According to Guirdham (1999), conflict resolution is predominantly a communication activity. She stated in support to her claim that there is widespread agreement among conflict theorists, and conflict resolution practitioners (who she noted are often interestingly one and the same) that communication is an important factor. She added that, even those structuralists who believe that the core of most conflicts is what they call interest-resources, territory, and so on, usually acknowledge that the periphery, which tends to increase as the conflict goes on, consists of prejudices, misperceptions, misunderstandings and so on, which are affected by communication, for good or ill. It is adequate information that fuels effective communication. And this is necessary if conflict outcome will end positively.

Guirdham (1999) noted that structuralists recognise the danger of unskilled communication exacerbating interest-based conflict and the need for skilled communication to achieve two goals; firstly, identify overlapping interest and secondly, change mindsets. A positive mindset change could lead to positive outcomes. Conflict resolution, according to Schmid (2000), implies approaching the conflict in a problem-solving constructive and non-violent way, recognising the value of the identities of all parties in the relationship, their human needs and interests. It also involves building bridges between hostile communities, working to clarify issues which represent points of confrontation between them, and creating opportunities for developing new relationships based upon a process of peaceful change and grassroots level reconciliation. It is an outcome or distribution of benefits acceptable to all sides.

Guirdham(1999) also observed that those who are actually engaged in the grassroots peace-building processes, essentially,often refer to the need for communication skills which include adequate listening skills, understanding of the other persons perceptions, motivations and interest. This, according to Andries (1998), leads to better mutual understanding which consequently strengthens the imperative for the mediator to reach an inclusive solution where the interest of all parties concerned counts.In a society where positive peace prevails, Fisher(2000) are of the view that people in that society are empowered enough to take active part in decision-making while conversely noting that where negative peace and oppression prevail, people tend to be passive with little interest in fulfilling social or political roles.This underscores the value of good leadership in any conflict process.

Fisher (2000) explained nine tools and frameworks for conflict analysis and illustrated how they have been used in specific cases. They include, stages of conflict, timelines, conflict mapping, the attitude behaviour context triangle, the onion or doughnut framework, the conflict tree analysis, the force-field analysis, the pillars framework and the pyramid model. According to Fisher et. al. (2000) Analysing a conflict can help us achieve three main objectives, which are, to find out more about what is going on in a conflict, to identify areas where we need to know more and then begin to see ways in which we can influence the situation. The authors are of the view that analysis can be an intervention as well as a preparation for action. This action could then lead to more peaceful conflict outcome.

Tracing antecedents, Ibeanu (1999) argued that it is the sense of relative lack, the gap between expectation and actualisation, hidden in these claims of community people living in the Niger Delta that is important. This author also believed that it is also this sense of lack that is progressively inducing oil-producing communities into conflict with the state and oil companies in Nigeria. This has resulted in conflict outcomes experienced in the area today. Shell and other oil companies' disregard for those living on oil-rich land has led communities in the Niger Delta to try and prevent further damage to their environment and their actions defined the kind of conflict outcome experienced at that time in the history of the Niger Delta communities and even now. There are documented examples of some communities along the delta region between 1990 and 1993 that held grievances against Shell (one of the many oil companies in the area) and their conflict outcome.

In August 1992, the Igbide community youth members in Delta, August 1992, blocked a road to Shell's Oroin flow station for five days demanding employment, water and electricity. Also In September 1992, Diebu youths from South Ijaw blocked a shell flow station to protest against damage caused to fishing nets after an oil spill. Ogbia community members, for instance, produced a 'Charter of Demands' in November 1992 and established MORETO (The Movement for Reparation to Ogbia). In November 1992, the Peremabiri community in Southern Ijaw sealed Shell's Dieby Creek flow station to protest against non-payment by Shell for an oil spill which occurred in February 1992. Etche community members in Rivers state also experienced negative conflict outcome in 1990 when about 80 people were shot dead by the Mobile Police Force and 495 homes were destroyed during a peaceful protest against Shell, after the company requested the assistance of the

Mobile Police Force (Guardian, 1992 cited in Greenpeace).The Izon Youth Vanguard, inBurutu and Bomadi, areas of Delta state, threatened to destroy the Escravos and forcados terminals in 1992. This apparently stemmed from a complaint against Shell as these youths demanded electricity in their communities. There were no casualties but the peace in the area was compromised as it became unstable.In June 1993, the Irri community in Delta State claimed that many of their houses were damaged after seismic testing was conducted by a Shell contractor in their community.In 1992, the Uzere community according to an article in the National Concord, following a protest against Shell, some oil wells were shut down and demonstrators, mostly women and children blocked roads carrying placards stating that there was no portable water, electricity or hospitals, even though oil exploration in the area had started about 36 years earlier. It is reported one of the most -neglected areas in the region. These negative conflict outcome would have been minimised if attention was devoted to ensuring that environmental impact assessments (EIA) carried out in these areas were transparent and properly executed in the communities. Environmental information was mismanaged by the extractive industries.

Falade, Ogedengbe andBickersteth (2006) in their study on the management of environmental conflicts in the oil -producing areas in the Niger Delta observed that, though EIAstudies have been more or less required in Nigeria's petroleum industry since the 1980s, most of these studies have been done without formally engaging the community stakeholders who ultimately have to live with the consequences of their explorative and extractive actions. Amnesty International (2009) noted that greater transparency and access to information in the extractive sector are critical factors in building trust and better cooperation with communities. This could also lead to positive conflict outcome in the region.

To further buttress the point on transparency and access to information (especially environmental information to the communities by the extractive sector),IPIECA (2004) reported that disseminating findings of environmental impact assessments is critical to developing effective plans for mitigating adverse impacts and optimising benefits. The international association is of the opinion that dissemination should be a continuous process incorporating the ongoing learning about the communities and changes in the conceptual design of the project and,where possible it advocates that this process should be integrated with the findings of other

impact assessments (International Petroleum Industry Environmental Conservation Association (IPIECA), 2004).

Adeyemo, Ubiogoro and Adedeji (2009), cited in Adeyemo (2019), reported that very little documented information is available on the quantity of oil spilled by the oil industry offshore jetties. They, however, observed that indirect evidence from the oil washed unto coastal shorelines and beaches in the Niger Delta area suggests that the pollution is significant. This has serious implications for the conflict outcome in the area because of the people inhabiting the communities who have to live with the negative environmental consequences of oil spillage. This was succinctly captured in the words of Etemire:

The atmosphere of widespread and perverse secrecy in Nigeria took its toll on the environment and public well-being. The Niger Delta region of Nigeria – where crude oil exploration and exploitation have devastated the environment, especially through frequent oil spills and continuous gas flaring – is a telling example. Many people in this region drink, cook and wash in polluted waters; many eat fish contaminated with crude oil and breathe in gas-polluted air, leading to health problems that could have been avoided. These problems have persisted on such a large scale partly because many inhabitants are unable to make informed personal choices since, according to Amnesty International, ‘they have almost no information on the impacts of pollution . [as] no law in Nigeria compels the publication of basic environmental monitoring data’. This lack of access to environmental information has also contributed to fuelling serious conflicts between communities, governments and private corporations in the region. It has rendered meaningless public participation in environmental decision-making processes and has negatively impacted on the ability of communities to seek legal redress for harm caused by extractive projects. (Etemire, 2014:p.157-158)

2.6 Constraints to environmental information management for improved conflict outcome among community leaders in the Niger Delta.

Adekola, Fischbacher-Smith, and Fischbacher-Smith (2017) extensively reported that local communities within oil producing countries in Africa repeatedly face formidable environmental challenges that generate conflicts and concerns around exploitation, environmental impact, and health risks. They noted that a key feature of these concerns has been the scarcity of effective risk communication mechanisms and the impact this has on the public understanding of risk. They identified risk communication as a significant factor in explaining why the health consequences of environmental degradation have remained unabated in oil -producing communities.

They argued that the health of the local population is being impaired by risk incidence relating to oil and gas exploration activities, the effects of which are amplified by inadequate communication of health risks to the public. They concluded that, if citizens are provided with adequate and timely risk-based information about a particular hazard, such as health risk from oil spillages and gas flares, they can then make choices about risk exposure. This holds implications for rural librarianship practised in environmental-conflict -prone areas such as the Niger Delta region.

Aboyade (2001) opined that many people, especially in developing countries do not seem to appreciate the importance of information resources in any human endeavour. She noted, however, that awareness about the role of information had become heightened by the middle of the last century in the advanced countries of the world. She observed that Western nations were quickly persuaded to take the matter of information more seriously as they realised that their progress and very survival depended to a large extent on it. They even began to speak of the due consequences of ignoring this fact in apocalyptic terms (Aboyade, 2001). Generally, she noted that the importance of information is more widely acknowledged in the world, especially with the realisation that there is hardly any human endeavour that is not information-driven.

The author observed that the present problem for countries like Nigeria which have been slow in appreciating the importance of information is that they have fallen much behind in this area and coincidentally in their development efforts, and trying to catch up with the rest of the world has become an uphill task. It follows that environmental information may have suffered the same fate as information especially in Nigeria.

Another problem Aboyade (2001) observed is that, while poor countries are now beginning to realise their right and they are earnestly wishing to do something about it, they do not seem to be able to give what it takes to establish an effective information system for their countries. Aboyade (2001) discussed the role of information in five sections which, in her view, appear most likely to affect the development process in Nigeria and which the author chose as a basis for the intervention of information. These included politics, problem of illiteracy, rampant corruption, widespread poverty and globalisation. The author also noted that the non-resolution of these factors have militated against past development efforts in the country and are likely to continue to impact negatively on them. This has implications for conflict outcome in the Niger Delta.

Aboyade (2001) suggested that for a country such as Nigeria to overcome this inadequacy, it must first fashion out an information policy guiding the establishment, maintenance and use of various information activities, tools and services needed in the area. The author keenly observed that past administrations in Nigeria thought of information policy only in terms of media houses in the sense of not embarrassing the government of the day. The regulations were not meant to liberalise access to information but to provide a way of constraining erring media people. According to Aboyade, (2001) the policy for total information delivery, however, should embrace not only media information but also communication, telematics and information technology, as well as institutions such as the libraries and archives, and publishing activities. Aboyade (2001) argued that without a well-defined policy, all these areas cannot be developed in a systematic and integrated fashion. She was of the view that policy formulation must be primarily to formalise government commitment to giving its people easy access to all types of information resources and not just to punish those who do not go along some political line. She added that a good national information system does not just happen, but is consciously planned (Aboyade, 2001). That planning will be more effective if it considers the communities at the grassroots, especially the Niger Delta area.

Kolawole (2016), citing his works of 2002 and 2004, where he wrote on content and process in the English curriculum and stakeholders' opinion of the role of education in tackling negative values in Nigeria, reiterated that some of the problems confronting our country Nigeria which has stifled her development could be traced to the inadequacies in our educational curricula at all levels of education. He further explained that one of the critical aims of a good education is to make the recipient a useful and acceptable member of his or her community. He specifically mentioned the case of environmental degradation/pollution, in which the Niger Delta is affected, and how this has distorted our development plans as a nation. One structure that is capable of lending strong support to proper curriculum delivery which is ultimately necessary for development is the existence of functional libraries that could serve Nigerian communities in urban and rural settings.

Part of an effective education system is one in which libraries, especially community-based ones, are stocked up with relevant and up current information materials that could inform the citizenry on the dangers of violent conflicts as a means of addressing environmental pollution/degradation which is one of the biggest

problems confronting Nigeria today in the Niger Delta communities. Obanya (2014) also described the rarity of libraries in the contemporary public school system. He recounted that school libraries in the past were supported by regional and local government libraries, and this complemented the state government run -mobile libraries.

More specifically, Ugboma(2002) in her study of some Niger Delta communities, found the information dissemination effort commendable to an extent. She, however, made two observations: firstly, oil company workers and even the category of officers dealing directly with the communities hardly reside in the host communities;secondly, their information bulletins are not deposited in any libraries for future reference by the community members. The outcome of these observations, shenoted, is that community members receive information at the discretion of the oil companies or would have to travel to oil companies' headquarters at Warri, to get information. This, she said, was both time- and money-consuming, making the idea a costly one (Ugboma, 2002).

Ugboma (2002) also revealed that the many uprisings and demonstrations in the oil-producing communities attest to the fact that respondents to her survey experienced constraints in obtaining environmental information. Her findings revealed that lack of adequate information system and the oil companies officers not being easily accessible were the main constraints on obtain relevant information.Ugboma (2002) noted that various libraries such as branches of the Delta State Library, academic libraries and a few school libraries are sited in two out of the four local government areas used in her the study. Her research findings revealed that they had not been involved in the dissemination of environmental information to these oil-producing communities. She also noted that they did not even participate in the various environmental management bodies set up by the government, a scenario which makes them irrelevant to environmental information seekers.Ugboma (2002) was of the view that libraries can do a lot in the provision of environmental information by evolving a closer cooperation with the oil companies and act as information brokers. This, she stated, can be done by acquiring adequate literature on the subject matter, translating information into the local language, and mounting exhibitions to display information in graphic, visual and audio forms to the people on a regular basis.

Part of the established missionof public libraries for instance is to ensure access to all sorts of community information (including environmental information) for citizens and providing adequate information services to local enterprises,

associations and interest groups. These interest groups include community leaders of the Niger Delta communities whose leadership strategies can be complemented and enhanced from an unbiased informed position. This is where public libraries can find relevance through their professional activities (Issa, 2018). The public library in Nigeria as at today has not been able to fulfil her mandate. There are challenges that have limited her function. Some of these include inadequate funding, lack of interest by the stakeholders, unstable educational policy, and misplacement of societal priority, oral nature of the society and misunderstanding the public library's role in the society among others (Adewuyi, 2009; Ogbonna, 2018; Issa, 2018).

Ntui, Ottong and Edem (2009) all agreed in their work on the role of library in conflict and peace process in Bakassi Area of Nigeria that the existence of community libraries significantly reduced the conflict in the area they focused in their study. Their findings also revealed that libraries and information centres have very significant roles to play when social conflicts, and other kinds of conflict like environmental conflicts, arise. They concluded that conflicts are based on deficiency of information and, therefore, submitted that access to high -quality information is, therefore, of great importance in the Nigerian society.

Ntui et al. (2009) suggested recommendations were based on what they found lacking from their research and they were of the opinion that proper implementation could significantly control increasing levels of conflict in the communities. Their first recommendations suggested that a robust and innovative library is an essential factor to resolve conflict (which could be environmental) and improve the quality of life of any community. Secondly, they were of the opinion that libraries, especially government-owned ones should use the limited resources at their disposal to ensure every community has access to information. Thirdly, there was need to repackage information so that it benefits a wide spectrum of the community and, lastly, they recommended that libraries should stretch their boundaries and make themselves relevant to the communities they are serving. Since most Niger Delta communities are within the rural settings, librarians could harness environmental information repackaging processes using the indigenous communication systems which Ojebode in his 2019 inaugural lecture had investigated with other scholars and found that this form of communication holds greater promise in restoring peace and promoting post-conflict healing, where things have degenerated to outright conflict or unstable peace, and this leads to participatory development.

Librarians, particularly rural librarians in their professional capacity and function, are in a vantage position to take advantage of the indigenous communication system existing in each community, which Wilson (2006) cited in Ojebode (2019) described as the sum total of behaviours and means of communication that are natural to an indigenous people. Where there are improved conflict outcomes without constraints, then true development will thrive. Ojebode (2019) viewed development, which can only be experienced in the absence of negative conflict outcome in this case arising from environmental challenges, as a people oriented community matter where the people within the community define development ; plan for their development, execute it; and evaluate it.

These community based people also have to live with the consequences of mismanaging their community based development process. Ojebode (2019) suggested four key aspects for true people based community development to take place: community-based media of communication (which should function as a community rallypoint for community organising both horizontally (within the community) and vertically (government –community); community radio(which is a strong channel of information dissemination) as well community newspapers and community-focused social media. All this is possible from information centres within the communitylibraries manned by professional librarians because they work with information and handle knowledge professionally.

In terms of information access, provision and management in a developing economy like Nigeria, Abiolu and Okere (2012) asserted that apart from the print format, which only serves a limited percentage of the population, information must not only come in visual and audio forms, but must also be presented in local languages if the goals of universal access to information will be realised. Librarians, according to Aboyade (1987) and Aina (2006), agreed that librarians have the potential to work closely with extension workers in community information services in rural communities. Librarians, especially public librarians, also could spearhead community library activities by the very essence of their professional work.

As reported by Abiolu and Okere (2012), information managers could work together with interest groups concerned about environmental challenges and stakeholders in environmental information. They must also emphasise acquisition of local content in the provision of environmental information to their target groups. These environmental information interest groups include the Niger Delta community

leaders. These submissions hold much value in the management of environmental information in the Niger Delta. Librarians can partner with the traditional gate keepers of information in the Niger Delta region. This kind of partnership requires funding, passion and continuous action from concerned change agents for the desired community changes to progressively become fully manifested.

In the same vein, Dike (2014) also affirmed that the librarian's full potential and calling is in their larger relevance to society. The author also stated that part of this relevance could be achieved as librarians project the role of library and information services in the whole society by being agents of empowerment for rural dwellers in capturing, preserving and disseminating indigenous knowledge and Nigerian cultural heritage. Other relevant information which could be captured, preserved and disseminated in the rural communities is environmental information. Careful and systematic detailing of this kind of information in rural communities such as the Niger Delta could improve environmental conflict situations, and ultimately, minimise disputes arising from these environmental circumstances. Librarians could, therefore, through their information work in Nigeria as observed in some other nations of the world become effective problem -solving agents.

2.7 Theoretical framework

The four major theories that guided this study are the Conflict strategies theory, the Information richness theory, the Information utility theory and the conflict transformation theory. According to Bercovitch and Houston (2000), theoretical assumptions cannot meet all the expectations of reality but can provide insight into the interpretations of an event.

2.7.1 The Conflict Strategies Theory

The conflict strategies theory used in empirical research by Johnson and Johnson (2003), cited in Stevahn and King (2005) is derived from social psychology. This theory alerts us to the role interpersonal relationships play in determining the course of conflict. In this study, community leaders by virtue of their leadership influence and role significantly result in different conflict outcomes unless they tactfully manage their personal conflict-handling behaviour styles. Conflict can progress from being conflictual to being unstable and, finally, stable peace. This theory generally provides an explanation on how those involved in conflict situations respond. Their response could be by pushing to get their way, retreating to avoid the

issue, appealing to promote harmony, striking a deal for partial gain or problem solving for mutual satisfaction.

The conflict strategies theory by Johnson and Johnson (1991), Johnson and Johnson (1995) and Johnson and Johnson (2003) cited in Stevahn and King (2005) explicates these five types of responses which have also been articulated by a variety of researchers cited in Stevahn and King (2005) (e.g., Filley, 1975; Thomas, 1976; Rahim, 1983; Pruitt and Rubin, 1986; and Pruitt and Carnevale, 1993). Kraybill (2008) also corroborated the studies of these researchers in his work on conflict handling styles known as the Kraybill conflict style inventory, a theory which originated from Blake and Moutons's (1964) managerial grid cited in Stevahn and King (2005). The conflict strategies theory suggest that people face two sets of concerns in conflict situations: the first is achieving desired goals/interest and the second concern is maintaining positive working relationships. Placing these dual concerns on intersecting continua from *low* to *high* reveals important results in the five strategies for dealing with conflict.

In others words, Conflict strategies theory assumes that disputants in a conflict have two concerns: First, is achieving personal goals (community leadership goals in this context) and Second, is maintaining a good relationship. (conflict handling behaviour on the part of the leaders). Applying these propositions constructively prevents negative conflict, outcomes that may arise if oil -induced environmental conflicts are mismanaged. In the context of this study, community leaders who tackle oil -induced environmental challenges among community members want to ensure that their personal leadership goals are maintained and, at the same time, they want to maintain good relationship with the community members. It is when those two concerns are considered in combination that five conflict strategies result as follows: withdrawing/avoiding, forcing/directing, smoothing/accommodating, compromising, and negotiating.

As already stated, these conflict handling behaviour styles are cooperating (cooperative problem -solving), accommodating (appeasing), directing (forcing or wanting to conquer), compromising (splitting 50 – 50) and avoiding as used in this study to determine the various conflict -handling behaviour strategies of the community leaders in the Niger Delta. The originators of the theory have used a two axis model: namely; relationships which has to do with “concern for people.” It is plotted using the vertical axis, and goal: which deals with “concern for task” along the

horizontal axis. This axis interact so as to diagram five different styles of management. This grid posits the interaction of task versus relationship and shows that according to how people value these, there are five basic ways of interacting with others. This theory demonstrates that there are strategies or conflict handling behaviour styles that must be adopted by community leaders to handle environmental conflict depending on the context and intensity of conflict. In all cases, flexibility in their application is vital. This is illustrated in Figure 2.1.

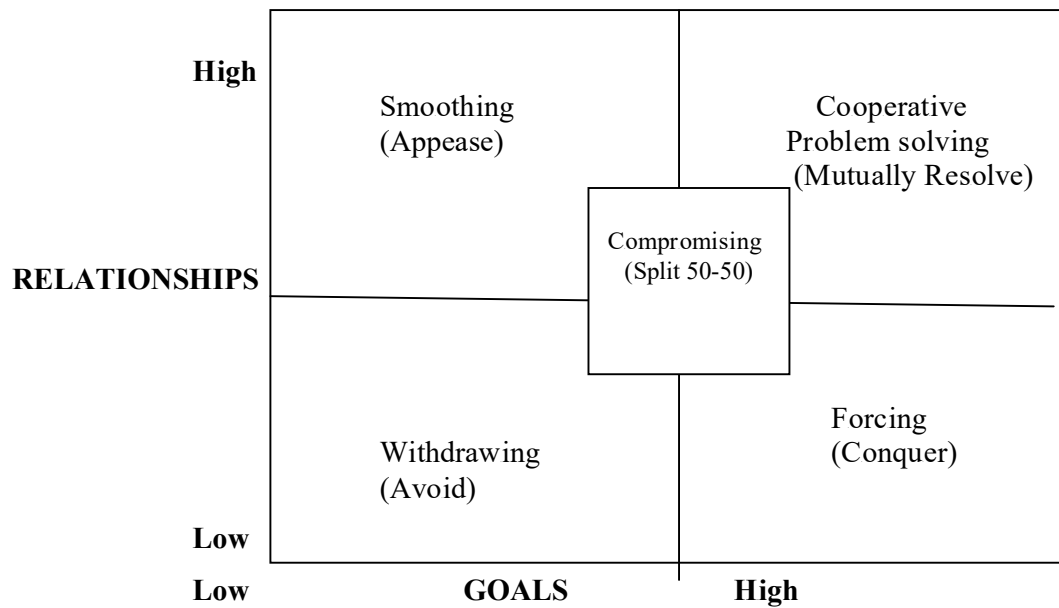


Figure: 2.1: Conflict Strategies Theory

Source: Adapted from Johnson and Johnson (1995) cited in Stevahn and King (2005).

2.7.2 The Information Richness Theory

The Information Richness Theory, graphically represented in figures 2.2 and 2.3 respectively, is based on contingency theory and information processing theory (Galbraith, 1977). Daft and Lengel (1984) were among the first proponents of the theory. The Information Richness Theory postulated by (Daft and Lengel, 1986) provides a background for describing a communication medium's capacity to replicate the information sent over it without loss or distortion. In other words, a medium of information which could be in audio, print, text, video or graphic form is said to be rich when the encoded information it carries is received as pure signal without noise by the receiver. The authors define richness as, "the potential information-carrying capacity of data." The Information Richness Theory is an attempt to provide users (community leaders) with pathways on how to appropriately make choices of the medium of information that fits their particular information purpose which in the study context is environmental information. This theory provides a guide to the construct of environmental information management used in this study.

The process of environmental information management which begins at the point of its creation and terminates at the point of its disposition is information - driven and this information is processed through various information media such as audio, print, video, text and graphic. The theory of information richness explains media selection used by the community leaders in this study. The theory postulates that one media of information is richer than the other and the richer medium is the one that has the highest information carrying capacity in terms of cues and feedback. There are two assumptions derived from this theory. The first assumption is that organisations (which could be community leaders in their communities) process information to reduce uncertainty and ambiguity (Daft and Lengel 1986). Therefore as environmental information increases and is well-managed, uncertainty decreases and ultimately the decrease of environmental information uncertainty will encourage positive outcomes in the communities.

The second assumption is that commonly used-media in organisations (which could also be among community leaders in their communities) work better and are trusted for certain tasks or activities than others. This has implications for community leaders on the conflict-handling behaviour styles they adopt as a result of the

environmental information feedbacks they get from community members. The outcome of their decisions will lead to certain conflict outcome within the communities they influence. Daft, Lengel, and Trevino (1987) present a media richness hierarchy which incorporates four media classifications; face-to-face, telephone, addressed documents, and unaddressed documents. They based their rankings on feedback capability, communication channels utilised, source, and language. The richness of each medium is based on four criteria; feedback, multiple cues, language variety, and personal focus. The richest communication medium is face-to-face meetings followed by telephone, e-mail, and memos and letters (Rice and Shook, 1990).

According to Daft and Lengel (1984), task performance increases when the task needs are matched to the medium's richness. Community leaders tend to use the medium of environmental information with a richness level most suited to their task of leadership. This is demonstrated in the conflict-handling behaviour styles they adopt to communicate environmental information issues to community members and the oil companies operating in their communities. Their ability, as community leaders, to make richer media choices of the information medium they use to manage environmental conflict could lead to outcomes that are likely to improve the peace status in their communities. Daft and Lengel (1984) consider richer the communications that can overcome different frames of reference and clarify ambiguous issues in a timely way to promote understanding. Communications that take a longer time to convey understanding are less rich. This means that the medium used in communicating determines the potential richness of the information processed and, consequently the outcome of the processed information. Information richness theory is considered relevant to the study on the basis of the information media that convey environmental information along the environmental information management process from its creation to its disposition. The Information richness theory states that richer formats of media best suit uncertain tasks or issues and this has been applied to the environmental information issues existing in the Niger Delta.

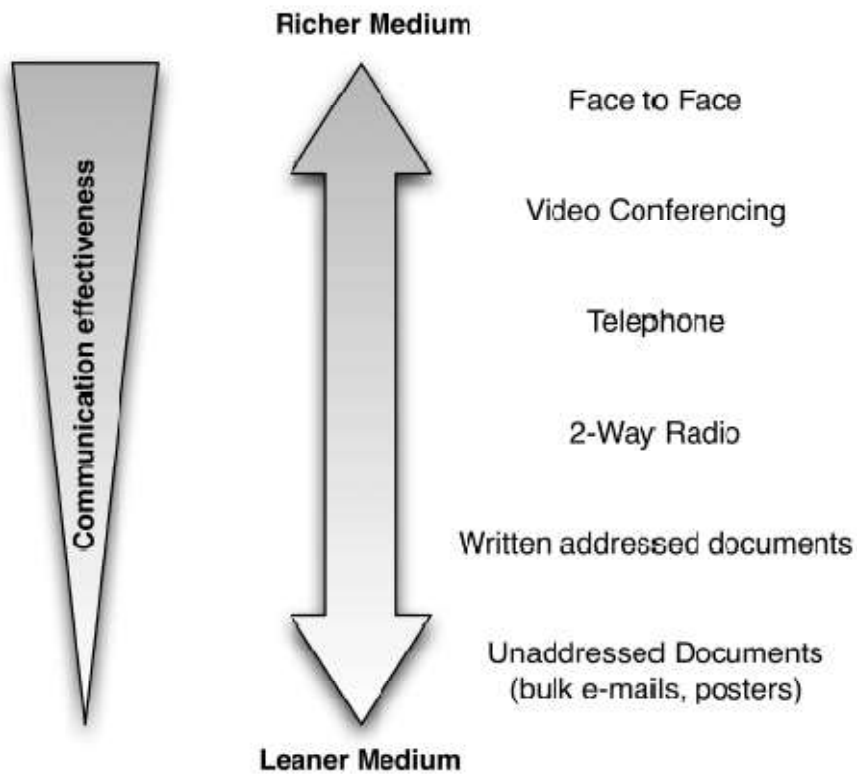


Figure: 2. 2: Media Richness Theory Diagram by Daft and Lengel

Source: https://www.researchgate.net/profile/Alessio-Maria_Braccini/publication/228098048/figure/fig3/AS:669309558857733@1536587242402/Media-richness-theory-45_W640.jpg

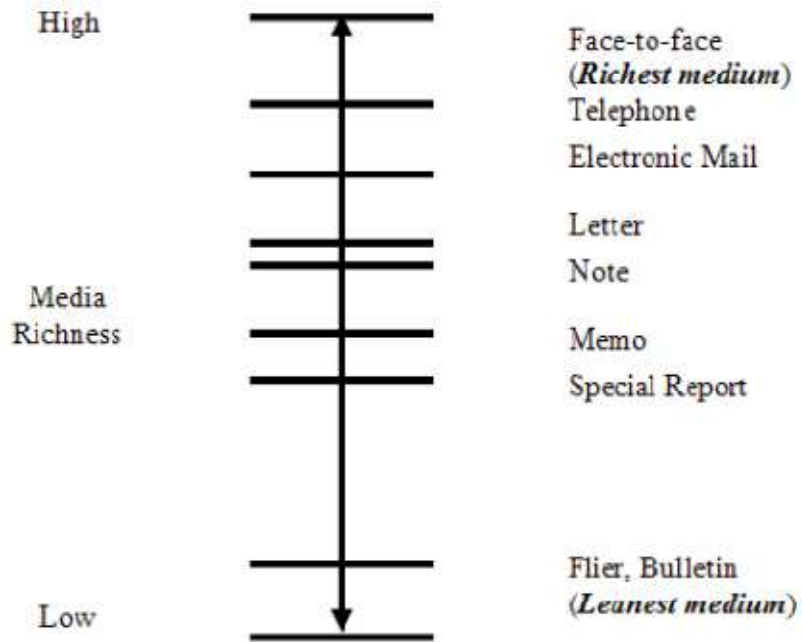


Figure.2.3: Media Richness Hierarchy
Source:Daft, Lengel, and Trevino (1987)

2.7.3 The Information Utility Theory

The information utility theory traces its ancestry back to the efforts of economists and mathematicians to develop an application theory of how a rational person ought to behave in the face of uncertainty and how such a person acts (Anon., 2008). The term “utility” refers to the satisfaction that each choice provides the decision maker. This theory, therefore, illustrates the value and satisfaction users (community leaders) attach to the use of information. This means that, to the user, information must be useful and important at a specific time (Kinias, 2013). The assumption of utility theory is that users of information seek to know all possible outcomes, always assign accurate probabilities to the outcomes they recognise, or consistently select the best payoff from considered alternatives (Isenberg, 1989 cited in Sebora and Cornwall, 1995). The value of perfect information, according to Schlee (1990), is always positive and the value of imperfect information may be negative.

It is also possible for information to have zero value, making it useless or not useful to the user. Fishburn (1968) also stated that utility theory is interested in people’s preferences or values and with assumptions about a person’s preferences that enable them to be represented in useful ways. He further argued that, on the practical level, utility theory is concerned also with people’s preference and with judgments of preferability, worth, value, goodness or related concepts. Interpretations of utility theory are often classified under two headings, predictive and prescriptive. The predictive approach is interested in the ability of a theory to predict actual choice behaviour. The prescriptive approach is interested in stating how a person ought to make a decision.

The utility theory (Information Utility Theory) provides a methodological framework for the evaluation of alternative choices made by individuals, community leaders and so on. The information utility theory assumes that any decision is made on the basis of the utility maximisation principle; that is, the best choice provides the highest utility (satisfaction) to the decision maker (Encyclopedia.com, 2009). In their work, Sebora and Cornwall (1995) described utility theory in relation to choice behaviour under three parameters: consistency of preferences, linearity of decision weights, and reference point. In terms of consistency of preference, they stated that the decision maker’s preferences are consistent (transitivity), ordered (dominance), and context -insensitive (invariance). That is, decision makers can rank their choices on the attractiveness of each alternative, dominated alternatives can be eliminated,

and preference is not influenced by how the choice is required to be made or how the alternatives are presented to the decision maker.

Under the linearity of decision weights, utility functions are subjective maps of the objective values of possible outcomes, where the shape of the function reflects the nature of a decision maker's attitude towards risk. In terms of the reference point, decision makers make choices based on the change in final value of the outcomes of their choices, not on whether the change is a gain or a loss. This theory has relevance in the context of this study because community leaders in the Niger Delta area of Nigeria must satisfactorily inform the members of their communities on environmental information issues that affect them. Their environmental information choices have implications for peace, unstable peace or conflict in the communities. In conclusion, as long as the channel of information satisfies the community leaders who are the information users, they will continue to use that channel until they become less satisfied and dispose it.

2.7.4 Conflict Transformation Theory

The theory of conflict transformation draws on many of the familiar concepts of conflict management and conflict resolution. It also rests on the same tradition of theorising about conflict. Conflict transformation is about transforming the very systems, structures and relationships which give rise to violence and injustice. In the face of violence, there are three main impulses. The first is an immediate one – to stop it. The second is a medium-term one – to deal with the wounds resulting from it. The third, finally, is a long-term one – to change the underlying conditions that have led, and may lead again, to violence.

Conflict transformation is the comprehensive approach that attempts to achieve the last of these three goals, without neglecting the others. Conflict transformation is best described as a complex process of constructively changing relationships, attitudes, behaviour, interests and discourses in violence-prone conflict settings. Importantly, it also addresses underlying structures, cultures and institutions that encourage and condition violent political and social conflicts. (Bergh of Foundation, 2012). Conflict transformation can then, in principle, happen at all levels of conflict, global, social, and inter/intra-personal at the Macro, meso and micro levels.

This theory is relevant to the study because conflict occurs in phases and the best outcome of conflict is when it has transformed from a conflictual phase to a state of compromise (unstable peace) and finally transforms to a peaceful or functional phase.

Relating the four theories used in this study; the information richness theory, the information utility theory, the conflict strategies conflict and the conflict transformation theory, it is evident that a synergy in their application can be derived from this study. Their common area of convergence lies in the fact that they are framed to work towards achieving stability in the communities. All the theories used in this study require a strong information element to drive them.

In order to achieve peace, environmental information needs to be appropriately managed because its mismanagement has negative conflict outcome. Community leaders require adequate information cues and feedbacks through appropriate information channels in the strategies they employ to resolve environmental crisis in their communities. The strategies they deploy are totally dependent on available information in context which could lead to certain conflict outcome. Timely information is also required to ensure that positive conflict outcome are maintained in the communities. Therefore, properly managed and used environmental information found in rich media, from its creation to its disposition holds very positive implications in the conflict handling behaviour styles of community leaders in the Niger Delta and this, in turn, could lead to sustainable peace in the communities which is a positive conflict outcome.

2.8 Conceptual Model

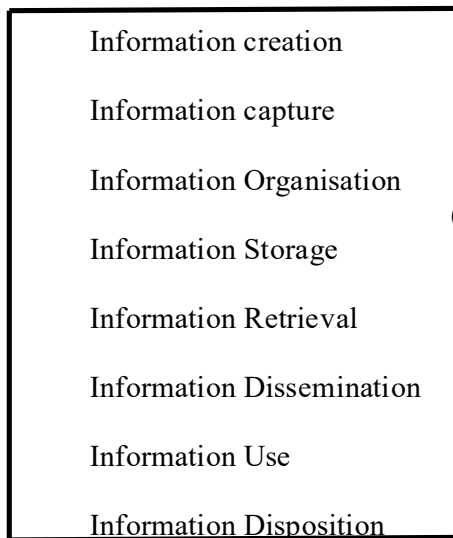
The conceptual model designed for this study is based on environmental information management practices through the information management lifecycle, the conflict handling behaviour strategies and conflict outcome indicators. The model, which is a framework of analysis that abstracts from the details of the real world, attempted to highlight the interactions in the study variables by revealing the study process. The model, proposed linkages and interactions between the independent variables, environmental information management, conflict handling behaviour as a mediating variable on the dependent variable (conflict outcome). The interactions between the mediating variable, independent variable and the dependent variable are both relative and composite. The model illustrates how the multivariate independent

variable (environmental information management factors) and conflict handling behaviour (as a mediating variable) affect the dependent variable (conflict outcome).

The study proposed that the environmental information management is affected by the conflict handling behaviour styles of the community leaders in the Niger Delta and, consequently, this leads to certain conflict outcomes. The conflict-handling behaviour styles, being the mediating variable, will in turn mediate in bringing about improved conflict outcome in the Niger Delta area. The conflict outcome could be peaceful, unstable or conflictual. The model proposes that, if the community leadership in the Niger Delta area can adequately manage their environment through information and if they possess good conflict handling behaviour, which has a mediating influence, then the conflict outcome will improve in their communities.

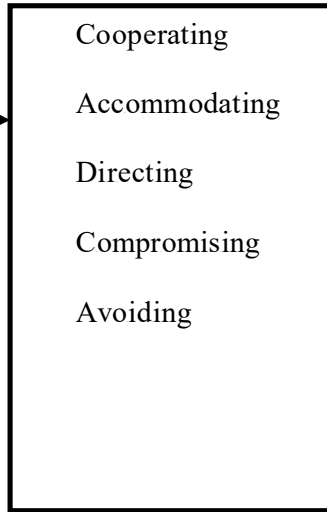
Conceptual model

Environmental Information Management (Independent Variable)



Conflict Handling Behaviour

(Mediating Variable)



(Dependent Variable)

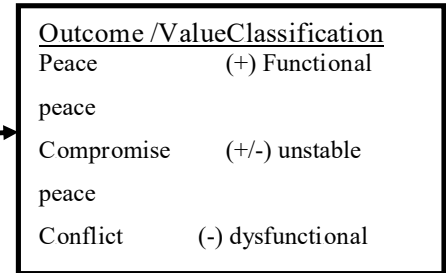


Figure: 2.4. A self-developed Conceptual model of Environmental information management conflict handling behaviour and conflict outcome.

2.9 Appraisal of the literature reviewed

Fundamental information concepts in terms of levels and forms proffered by various scholars were reviewed in the literature. Information is one of the primary concerns of this study, especially environmental information. The review on information highlighted the differences among several related terms such as symbols, data, information and knowledge. These related terms on information were exhaustively reviewed to provide the background understanding of information. The relationship between trust and information was reviewed as this has a bearing in the Niger Delta host communities studied. The literature on the need to repackage information to meet the demand of providing relevant information service to rural Nigerian dwellers, especially in the area of environmental information, was discussed in the literature.

Previous studies, as shown in the literature, have highlighted the non-participation of Nigerian libraries in environmental information dissemination to oil communities and how this weakens their relevance to rural information seekers within the Niger Delta region. The literature is replete with in-depth definition of the concept of conflict as demonstrated in the study. Conflict is present when two or more parties perceive that their interests are incompatible, express hostile attitudes or pursue their interests through actions that damage the other parties.

An understanding of the concept of conflict is essential in this study because of its implications on the independent variable (environmental information management), the mediating variable (conflict handling behaviour) and the dependent variable, (conflict outcome). The inter-relationships between environmental information management and conflict outcome among the Niger Delta community leaders at the community level were discussed in the literature. Environmental information management is the capability to manage environmental information effectively over the lifecycle of information. The management of environmental problems through the proper handling of environmental information, is one of the most important challenges facing local authorities (among which are community leaders in the Niger Delta). Some articles reviewed in this study revealed that information gathered from public complaints on environmental issues are the most significant environmental problems from the perspective of local actors. Some of the literature reviewed in this study also showed host communities as stakeholders in the Niger Delta environmental issue. This, according to the literature, is a relatively new

phenomenon. This perhaps explains the negative conflict outcome experienced in the Niger Delta region as a result of their being marginalised in decision on environmental issues that directly affect them.

The review also highlighted numerous scholars' contributions on the negative impact of oil explorations on the livelihood of the people in the Niger Deltacommunities of Nigeria. It discussed the views of scholars who have written extensively on conflict outcome as a construct. Conflict outcome to a large extent, reflects, the degree to which the objectives of each part involved in conflict have been satisfied. These outcomes could either be peaceful, unstable or conflictual. Most of the works reviewed in this study support non-violent approaches to conflictual situations. The discourse on conflict handling behaviour by various scholars was captured in the review. Conflict handling behaviour is conflict management strategies, and it suggests emphasis on behaviour displayed in conflict handling. This explains various actions taken by community leaders in the Niger Delta region on the environmental crisis.

The origin, causes and consequences of environmental degradation in the Niger Delta region of Nigeria were discussed in detail. The review highlighted environmental degradation as a major factor and this has implications for the focus of this study in terms of environmental information and environmental information management. Constraints to environmental information management underscore the importance of information in all human endeavours. Studies reviewed in the literature pinpointed the fact that societal progress and survival largely depend on information-driven processes. In this study the variables of environmental information management, conflict handling behaviour and conflict outcome are information driven constructs. Finally, previous studies have looked at the three constructs of environmental information management, conflict handling behaviour and conflict outcome in different contexts. However, no study has combined these variables in any one study from the context of community leadership in the Niger Delta and this is the knowledge gap this study has filled.

CHAPTER THREE

METHODOLOGY

3.0 Preamble

The methodology for this study was discussed under the following headings:

- 3.1 Research design
- 3.2 Population of the study
- 3.3 Sampling technique and sample size
- 3.4 Data collection instruments
- 3.5 Data collection procedure
- 3.6 Validity and reliability of instrument
- 3.7 Method of data analysis
- 3.8 Ethical considerations

3.1 Research design

The study adopted a survey research design of the correlational type which is suitable for the study. This adequately described the relationships that exist among the identified variables in the study. The variables used in this study include an independent variable (environmental information management), a mediating variable (conflict handling behaviour) and the dependent variable (Conflict outcome).

3.2 Population of the study

The population of study comprised 360 community leaders in six local government areas of Rivers (three LGAs) and Delta (three LGAs) states in Nigeria. This population was made up of the CDC chairmen, the CDC Vice chairmen, CDC secretaries and assistant CDC secretaries to the CDC chairmen, public relations officers and their assistants attached to the CDC chairmen, women's leaders, assistant women's leaders, youth leaders and their assistants, the community paramount leaders and their deputies in the two Niger Delta states studied (see Table 3.1).

3.3 Sampling technique and sample size

Purposive sampling technique was used to select two states (Rivers and Delta) in the Niger Delta region. These, were chosen because they have the highest concentration of oil facilities. Subsequently, digital administrative maps (see appendix 5) of the two states were obtained from the Department of Geography, University of Ibadan. The maps provided the base on which other digital data such as settlement locations and oil facility locations were superimposed. In addition, information on oil facility locations mainly well heads were then superimposed on the administrative maps. The combination of these two maps showed the distribution of oil facilities in Rivers and Delta states. Data on locations of settlements in the Niger Delta area were subsequently overlaid on the map showing the distribution of oil facilities. Thereafter, three local government Areas (LGAs) that have the highest number of oil facilities were selected from states.

A total of six local government areas in the two states were selected. A distance corridor of 300 metres was subsequently superimposed on the map showing the communities and oil facilities with a view to identify communities within this corridor. Five communities each were purposively selected within the corridor because of their proximity to oil installations. Therefore, since five communities were visited in each chosen LGA; a total of 30 communities were covered during the survey. In addition, 12 major categories of people within each community were purposively selected, because of their strategic community leadership positions as major stakeholders for the survey.

These were the CDC chairmen, the CDC vice chairman, secretaries to the CDC chairmen, their deputies, public relations, officers attached to the CDC chairmen, their assistants, public relations officers, the assistant women leaders, assistant women leaders, youth leaders, deputy youth leaders the community paramount leaders and their deputies. These respondents, drawn from 30 communities in the states, made a total of 360 community leaders surveyed across the six local government areas within the two states selected and used for this study. The details of the selected Niger Delta states, local government areas and communities used for the study are listed in Table 3.1.

Table 3.1. Selected Niger Delta states, local government areas, Communities and community leaders.

STATES	LGAs	COMMUNITIES	NUMBER OF COMMUNITY LEADERS
DELTA	WARRI NORTH	Opuama	12
		Ago George	12
		Bresibi	12
		Bear Town	12
		Dudu Town	12
	ISOKO SOUTH	Oleh	12
		Enwhe	12
		Uzere	12
		Irri	12
		Olomoro	12
	NDOKWA EAST	Beneku	12
		Ebedei	12
		Igbuku	12
		Opkai	12
		Akoku Uno	12
RIVERS	ONLEGA	Egita	12
		Obite	12
		Ede	12
		Amah	12
		Ogbogu	12
	OYIGBO	Okoloma	12
		Izuoma Asa	12
		Oyigbo	12
		Obeama	12
		Mirinwanyi	12
	ETCHE	Umuechem	12
		Umuebulu	12
		Egwi	12
		Abara	12
		Okoroagu	12
TOTAL			360

Source: Department of community development in each local government area of the two states (Rivers and Delta) 2017.

3.4 Data collection instruments

Three research instruments were used to collect data in this study. These instruments were synchronised into a questionnaire titled: Environmental Information Management, Conflict Handling Behaviour, and Conflict outcome Scales (EIMPCHBCOS). An interview guide containing 13 major questions relating to the study variables was also used for the study (see Appendix 2). The questionnaire used was divided into 11 sections namely: A, B, C, D, E, F, G, H, I, J and K.

Section A elicited the demographic details of the respondents such as state, local government area (LGA), Name of community, position held in the community, gender, age, marital status, and educational qualification of community leaders. Sections B to L used contained items that measured the three variables used in the study. Specifically, section B to I measured the first independent variable in the study (environmental information management). Section J measured the mediating variable, (conflict handling behaviour) and section K measured the dependent variable (conflict outcome). Guided by the conceptual model in this study, all statements in the questionnaire instruments were self-constructed by the researcher with the exception of the scale on conflict -handling behaviour, adapted from a standardised instrument called the Kraybill Conflict Style Inventory by Kraybill (2008). The details of the entire questionnaire are hereby discussed:

Section A: contained the background information on the respondents, such as: state, local government area (LGA), and name of community, position held in the community, gender, age, marital status, and educational qualification/level of education of the respondents. There are eight demographic items of interest to the study in this section.

Section B: consisted of one scale on information creation. This scale had five items on the environmental information creation format used to create environmental information by community leaders at the community level. Here respondents evaluated each item according to the degree to which they used each format to create environmental information. the five items listed on the five-point scale: Never used to create EI (1), rarely used to create EI (2), moderately used to create EI (3), highly to create EI (4). and Very highly used to create EI.

Section C: contains 12 items on “environmental information capture.” The statements here are grouped into five broad categories according to the information

formats, these as follows: audio, print, graphic video, and text. Respondents assessed each statement according to the degree to which they agreed or disagreed with the statements, using a five-point rating scale: Undecided (1) strongly disagree (2), disagree (3), agree (4), and strongly agree (5).

Section D: contained one scale with six items on environmental information organisation. Respondents evaluated each item here using a four-point rating scale provided in the questionnaire. The scale was tagged: never organised (1) occasionally organised (2), Highly organised (3) and Very highly organised (4).

Section E: This section contained eight items on the environmental information storage practices of community leaders. Respondents evaluated each item using the four-point scale provided in the questionnaire: never stored (1), occasionally stored (2) highly stored (3) very highly stored (4).

Section F: featured 20 items on the environmental retrieval methods of the community leaders. Items here were also grouped according to the five broad formats which are audio, print, video, text and graphics. Respondents indicated the degree of easiness to recall environmental information on a four point rating scale: never easy (1), sometimes easy to recall (2), easy to recall (3) and very easy to recall (4).

Section G: The scale used had 19 items on the environmental information dissemination practices of community leaders. Respondents indicated the extent to which they used any of the information channels to disseminate environmental information: Never (1), Little extent (2), High extent (3) and very High extent (4).

Section H: comprised 19 items on environmental information use by community leaders. Respondents indicated the degree to which they utilised environmental information on a four -point scale: Never utilised (1), utilised (2), highly utilised (3) and very highly utilised (4)

Section I: contained seven items on the environmental information disposition of community leaders. Respondents evaluated each item here using the four-point scale provided in the questionnaire: never used disposition method (1), occasionally used disposition method (2), moderately used disposition method (3), and highly used disposition method (4).

Section J: contained 20 statements on conflict handling behaviour which is the mediating variable. The first 10 sentences addressed conflict handling behaviour styles community leaders would take when they first discover that differences exist and feelings are not yet high in their communities. The remaining 10

sentences addressed conflict -handling behaviour styles community leaders will exhibit if differences persist and feelings escalate or rise. The two groups of 10 statements each are arranged in two statements per conflict handling behaviour style as they appear in the conceptual model developed for this study. Respondents evaluated each of the 20 statements in a six -point scale ranging from rarely to usually; the options are: Tends not to be typical of the way I think or act in conflict (1), Not typical of the way I think or act in conflict (2), Definitely not typical of the way I think or act in conflict (3) Tends to be typical of the way I think or act in conflict (4) Typical of the way I think and or act in conflict (5), Definitely typical of the way I think or act in conflict (6).

Section K: consisted of two scales A and B. the first scale consists of 24 statements measuring environmental information management on conflict outcome. Respondents assessed each statement here according to the degree to which they agreed or disagreed with the statements on a four-point scale: Strongly Disagree (1), Disagree (2), Agree (3) and Strongly Agree (4). And the second scale contained 15 statements measuring conflict -handling behaviour on conflict outcome. Respondents assessed each statement here according to the degree to which they agreed or disagreed with the statements using a four-point scale: Strongly Disagree (1), Disagree (2), Agree (3) and Strongly Agree (4).

3.5 Data collection procedure

A total of 360 copies of the questionnaire were administered to the respondents in the 30 communities surveyed in states within the Niger Delta region. To facilitate access to the respondents, the researcher collected a letter of introduction from the Head of the Department of Library, Archival and Information Studies (LARIS). This letter was given to the community leaders in the six local government areas to gain their consent to the research work carried out in their administrative jurisdiction and facilitate the process of data collection. Six research assistants assisted the researcher on the field during the administration of the questionnaire for 18 months of data collecting. The interview guide was also administered on two resourceful community leaders per community.

3.6 Validity and reliability of the instrument

The research instruments used for this study were given to the research supervisor and lecturers within the University of Ibadan community whose research interests and expertise are in the areas of environmental information management and peace and conflict studies to ascertain its face validity. The comments of these experts were used to improve the quality of the research instrument. To further establish its validity and reliability, 33 copies of the questionnaire were administered to community leaders in six communities (Omuosi, Egberu Ndoki, Umuagbai Ndoki, Obeakpu Ndoki and Afam-Ukwu) in Oyigbo Local Government Area of Rivers State. These communities did not form part of the actual communities the study sampled.

The Cronbach Alpha method was used to analyse the data collected from the six communities in Oyigbo LGA by measuring the co-efficient alpha of the scales for each of the sections (B, C, D, E, F, G, H, I, J, K and L). The details of the results obtained on all the sections, apart from section A (Demographic profile), are as follows:

Table 3.2. Results of the Cronbach Alpha of the scales used in the study

Sections and scale description of questionnaire	Cronbach alpha of the scales
(Section B) Environmental Information creation scale	$\alpha = 92$
(Section C) Environmental information capture scale	$\alpha = 93$
(Section D) Environmental information organisation scale	$\alpha = 66$
(Section E) Environmental information storage scale	$\alpha = 81$
(Section F) Environmental information retrieval scale	$\alpha = 90$
(Section G) Environmental information dissemination scale	$\alpha = 92$
(Section H) Environmental information use scale	$\alpha = 92$
(Section I) Environmental information disposition scale	$\alpha = 90$
(Section J) Conflict handling behaviour scale	$\alpha = 93$
(Section K) Conflict outcome	$\alpha = 96$

3.7. Method of data analysis

Descriptive statistics was used to analyse the demographic data in Section A of the research instrument (EIMPCHBCOS). Descriptive statistics of mean standard deviation, frequency and percentages was used for the research questions while hierarchical regression and correlation analyses were used for the entire hypothesis tested in this study. The research hypotheses were tested at 0.05 level of significance. The rationale for these methods is substantiated, because this study attempted to determine the effect of one independent variable (environmental information management) and one mediating variable (conflict handling behaviour) on the dependent variable (conflict outcome) of community leaders in Rivers and Delta states Nigeria. Thematic analysis was used to group the responses derived from all community leaders interviewed in the surveyed communities.

3.8 Ethical considerations for the study

I affirm that this thesis is my own work and all sources of materials used have been properly acknowledged. The ethical consideration observed in the course of the study is hereby presented under various headings.

(a) **Plagiarism:** The study has been subjected to the Turnitin software to check the percentage of originality of the study. The report of plagiarism has thereafter been communicated to the appropriate University officials. All works used in the study were appropriately referenced in line with University of Ibadan Manual of Style (UIMS).

(b) **Confidentiality:** All respondents (community leaders) were informed in the instrument used that their information would be kept in confidence, and used solely for research purpose. In compliance with these requirements, the instrument for the study had no provision for the name of the respondents. Personal information of the participants was treated as confidential throughout the study and, after the study had been completed, to avoid future leakage.

(c) **Informed consent:** Community leaders and other participants were briefed fully on the purpose and conduct of the research. It was made very clear to them that participation was voluntary and they could withdraw at any stage. The rationale

behind the study was explained. Data collection and analysis were described clearly to them so that they would understand what they were doing.

(d) Falsification and fabrication of data: The researcher ensured that only the findings emanated from the study were reported, and no manipulations were done to the data collected for the study.

(e) Risk concern: This study dealt with community leaders in Rivers and Delta states(South-South Nigeria) who worked with the researcher individually along with trained research assistants. Additionally, there was no sensitive information or questions that bordered on religious biasness of the researcher in the instrument, which could cause any distraction to the participants. Essentially, there was no risk involved. Therefore, the possible benefits of this study apparently outweighed the risks.

(f) Beneficence: The observable benefits of the study were immediate as the community leaders who were the research participants specified that they liked the variables used in the study and appreciated the statements in the questionnaire. The respondents all seemed to engage freely in the conversations and this indicated that the questionnaire allowed the participants to share their stories in a safe environment and without being judged. As delineated in chapter 2, the researcher is optimistic that this study has added to the body of literature on a recognised positive impact of all the variables assessed in the study, in Nigeria or elsewhere. It is anticipated that the research findings, which may not be generalised, has added value to society in general by providing resourceful insights into the environmental challenges faced by community leaders, their followership and other major stakeholders in the Niger Delta communities of Rivers and Delta states and this, consequently, holds significant implication for sustainable peaceful outcome in the Niger Delta.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Preamble

The results of the study are presented, interpreted and discussed in this chapter.

A total (360) copies of the questionnaire instrument were administered in 30 communities covering Rivers and Delta states and 258 (72%) copies were found valid and used for the analysis of results presented in this chapter. This is reported in table 4.1a and table 4.1b. The results and discussion are captured under the following subheadings:

- 4.1 Questionnaire and interview response rate
- 4.2 Demographic information of the respondents
- 4.3 Answers to the research questions
- 4.4 Testing of Hypotheses
- 4.5 Discussion of the findings

4.1 Questionnaire and interview response rate

Table 4.1. Questionnaire distribution/response rate and interview of the community leaders

RIVERS STATE.	Communities	Copies of Questionnaire administered	Copies of questionnaire retrieved and valid for analysis	Interviews Granted in the communities surveyed
ONELGA (LGA)	1. Egita	12	7	2
	2. Obite	12	10	2
	3. Ede	12	12	0
	4. Amah	12	11	1
	5. Ogbogu	12	6	2
		60	46	7
ETCHE (LGA)	1. Umuechem	12	8	0
	2. Umuebulu	12	5	1
	3. Egwi	12	7	0
	4. Abara	12	5	0
	5. Okoroagu	12	12	0
		60	37	1
OYIGBO (LGA)	1. Okoloma	12	8	1
	2. Izuoma Asa	12	10	4
	3. Oyigbo	12	7	4
	4. Obeama	12	6	0
	5. Mirinwanyi	12	8	2
		60	39	11
TOTAL		180	122	19
DELTA STATE:	Communities	Copies of Questionnaire administered	Copies of questionnaire retrieved and valid for analysis	Interviews Granted in the communities surveyed
ISOKO SOUTH (LGA)	1. Oleh	12	10	3
	2. Enwhe	12	10	0
	3. Uzere	12	10	2
	4. Irri	12	10	2
	5. Olomoro	12	9	0
		60	49	7
WARRI NORTH (LGA)	1. Opuama	12	7	4
	2. Ago	12	12	3
	3. George	12	12	0
	4. Bresibi	12	9	3
	5. Bear Town	12	7	3
		60	47	13
NDOKWA (LGA)	1. Beneku	12	10	3
	2. Ebedei	12	8	3
	3. Igbuku	12	6	3
	4. Opkai	12	11	3
	5. Akoku Uno	12	5	3
		60	40	15
TOTAL		180	136	35

	Communities	Copies of Questionnaire administered	Copies of questionnaire retrieved and valid for analysis	Interviews Granted in the communities
GRAND TOTAL	30	360	258	54

Tables 4.1 shows the distribution, response rate and actual record number of community leaders who participated in the survey and interviews conducted in the communities. The highest number of interviews was granted in Ndokwa East while community leaders in Isoko South recorded the highest number of returns on the copies of questionnaire completed. In all, 258 copies of the questionnaire, out of the 360, were found usable for analysis and 54 interviews, yielding a response rate of 72% were granted in the surveyed Niger Delta communities.

4.2 Demographic information of the respondents

Table 4.2 describes the demographic background of selected community leaders surveyed in Rivers and Delta states communities of the Niger Delta.

Table 4.2 Demographic characteristics of the respondents

Gender	Frequency	Percentage %
Male	185	71.7
Female	73	28.3
Age	Frequency	Percentage %
< 25 years	38	14.7
26-29 years	35	13.6
30-34 years	41	15.9
35-39 years	52	20.2
40-44 years	47	18.2
45-49 years	24	9.3
50-54 years	21	8.1
Marital Status	Frequency	Percentage %
Single	34	13.2
Married	221	85.2
Divorced	1	.4
Separated	1	.4
widowed	1	.4
Educational Qualification	Frequency	Percentage %
First school leaving certificate	16	6.2
GCE/WAEC(O levels)	67	26.0
NCE/OND	72	27.9
HND/B.Ed	93	36.0
MSC/M.A	8	3.1
Others	2	0.8
Total	258	100.0

As shown in Table 4.2, there were more male community leaders surveyed (71.7%) than female community leaders (28.3%) in the Niger Delta communities of two states. This implies that community leadership in the Niger Delta communities surveyed is male -dominated. In terms of age, community leaders within the 35 to 39 years age range (20.2%) ranked first and those within the 40 to 44years age bracket ranked second (18.2%). These age ranges fall within the most productive human years, implying that the community leaders surveyed were within the energetic prime of their life to function as effective leaders within their communities. Considering the marital status of the surveyed community leaders, the results in Table 4.2 revealed that most of the community leaders were married (85.2%) while only 13.2% were single. Finally, most of them had HND/B.Ed. (36.0%), this category of community leaders ranked highest. Those with NCE/HND ranked second (27%) while those with GCE/O levels ranked third (26%). This implies that the majority of community leaders had a measure of literacy skills and could communicate in the English language where necessary.

4.3 Answers to the research questions

Research question 1: Find out the environmental information management practices (creation, capture, organisation, storage, retrieval, dissemination, use and disposition) adopted by community leaders in the selected Niger Delta states.

Research question 1 is demarcated into eight sub-sections as conceived in the conceptual model of this study and is hereby presented as eight sub-research questions 1a to 1h.

Research question 1a: What type of environmental information formats are used to create environmental information (EI) by community leaders in Rivers and Delta states?

Table 4.3.1: Type of environmental information format used to create environmental information (EI) by community leaders in Rivers and Delta states

s/n	Items	Never used to create EI		rarely used to create EI		Moderately used to create EI		Highly used to create EI		Very Highly used to create EI		\bar{x}	S.D
		N	%	N	%	N	%	N	%	N	%		
1	Audio (e.g., Town criers Public, Address System, etc).	23	8.9	34	13.2	37	14.3	41	15.9	123	47.7	2.80	0.38
2	Print (i.e, Letter, flyers, bulletins, Books, Magazines	20	7.8	36	14.0	102	39.5	57	22.1	43	16.7	2.26	0.13
3	Graphics (pictures, etc.)	30	11.6	59	22.9	57	22.1	73	28.3	39	15.1	2.12	0.25
4	Text (e.g., SMS, memos, word processed files etc.	25	9.7	88	34.1	39	15.1	63	24.4	43	16.7	2.04	0.28
5	Video (VCDs, DVDs, etc.)	35	13.6	67	26.0	69	26.7	54	20.9	33	12.8	1.93	0.23
Weighted Mean = 2.23													

Table 4.3.1 shows the ratings of information formats for creating environmental information by community leaders in the Niger Delta. Out of the six options listed in Table 4.3, the most used information format by community leaders is the audio formats. This is their use of town criers and public address system to create environmental information ($\bar{x}=2.80$). The 2nd 3rd and 4th positions by their mean score ratings in Table 4.3.1 representing Print (i.e. letters, flyers, bulletins) ($\bar{x}=2.26$), Graphics (pictures, etc.) ($\bar{x}=2.12$) and Text (SMS, memos, word processed files) ($\bar{x}=2.04$) are also more used to create environmental information than videos ($\bar{x}=1.9$). Overall, all five options are in use in varying degrees by community leaders in the Niger Delta. This implies that community leaders create environmental information mostly on audio mediums such as the use of town criers and public address systems.

They also use print such as letters and flyers; graphics such as pictures; text such as SMS, handwritten memos and word -processed files; and videos such as DVDs formats in varying degrees within the communities as indicated in Table 4.3. The community leaders interviewed also found town criers the most reliable and preferred format used in creating environmental information arising from environmental challenges observed in their communities. Interview report found gas flaring information the prevalent environmental information created by the community leaders. This was followed by the issue of oil spillage among other environmental information challenges such as gas explosions resulting from equipment failure, river dredging and acid rain caused by oil and gas extractive activities in their communities.

Research question 1b: What are the methods of environmental information used by the Niger Delta community leaders in Rivers and Delta states?

Table 4.3.2a. Methods of environmental information capture used by community leaders in Rivers and Delta states

s/n	Items	U.D		SD		D		A		SA		\bar{x}	S.D
		N	%	N	%	N	%	N	%	N	%		
	Audio Formats:												
1	Captured in audio digital format such as mp3s, and mp4	32	12.4	46	17.8	83	32.2	55	21.3	20	7.8	2.69	0.37
2	Captured in audio tapes	61	23.6	44	17.1	56	21.7	65	25.2	14	5.4	2.51	0.41
Weighted Mean = 2.60													
	Print Formats:												
1	noted inminute books of community meetings held	28	10.9	35	13.6	47	18.2	94	36.4	36	14.0	3.08	0.46
2	Recorded in forms, notes and tables	18	7.0	50	19.4	59	22.9	90	34.9	21	8.1	2.95	0.36
3	Published in books and reports	37	14.3	68	26.4	54	20.9	56	21.7	19	7.4	2.53	0.41
Weighted Mean=2.85													

Key: UD= Undecided (1), SD=Strongly Disagree (2), D=Disagree (3), A=Agree (4), SA=Strongly Agree (5)

Table 4.3.2b. Methods of environmental information capture used by community leaders in Rivers and Delta states

s/n	Items	U.D		SD		D		A		SA		\bar{x}	S.D
	Graphic Formats:	N	%	N	%	N	%	N	%	N	%		
1	Captured in snap shots/photos	50	19.4	30	11.6	36	14.0	97	37.6	31	12.0	2.95	0.50
2	Documented in maps	32	12.4	84	32.6	42	16.3	40	15.5	35	13.6	2.56	0.49
Weighted Mean = 2.76													
	Video formats	N	%	N	%	N	%	N	%	N	%		
1	Capture in DVDs.	38	14.7	75	29.1	50	19.4	55	21.3	19	7.4	2.53	0.38
2	documented in videos, (CVDs)	45	17.4	76	29.5	59	22.5	46	17.8	12	4.7	2.40	0.30
Weighted Mean = 2.47													
	Text Formats:	N	%	N	%	N	%	N	%	N	%		
1	Captured in hand written notes.	16	6.2	24	9.3	33	12.8	135	52.3	28	10.9	3.27	0.41
2	Captured on my phone's inbox or archive	26	10.1	38	14.7	49	19.0	99	38.4	25	9.7	2.98	0.44
3	Captured in a database	28	10.9	67	26.0	52	20.2	65	25.2	20	7.8	2.63	0.43
Weighted Mean = 2.96													

Key: UD= Undecided (1), SD=Strongly Disagree (2), D=Disagree (3), A=Agree (4), SA=Strongly Agree (5)

Tables 4.3.2a and 4.3.2b show the mean score rankings of statements raised to find out how environmental information is captured by community leaders in the Niger Delta in five major formats namely: Audio, Print, Graphics, Video and Text. The format with the highest mean score ranking ($\bar{x}=3.27$) used for information capture by community leaders in the Niger Delta is the text format, particularly the handwritten notes as indicated under item 1 (Table 4.3.2b). This is closely followed by item 2 in the same Text format category. This finding was similar to the finding of community leaders interviewed because they also agreed that community environment matters are mostly captured in writings which could be in form of letters or minutes of meeting held in the communities.

Item 2 in Table 4.3.2b describes community leaders using their phones to record environmental information in their phone's inbox or archive ($\bar{x}=2.98$). The print format ranked second on the mean score rating with a mean score of 3.08. Results on this mean score (3.08) revealed that community leaders get environmental information captured in the minute books of meetings they hold.

Recording environmental information in forms/notes/tables ($\bar{x}=2.95$) in the Print format category ($\bar{x}=2.95$) and keeping snap shots/photos about damage to the environment ($\bar{x}=2.95$) in the Graphics format category yielded a mean score tie of 2.95. Overall, the mean score ratings in tables, 4.3.2a and 4.3.2b for all format categories and options under them for environmental information capture is above 2.0. This implies that community leaders actually capture environmental information in the five major formats but use the text format more than the others listed in tables 4.3.2a and 4.3.2b.

Research question 1c. What are the methods of environmental information organisation in the community by the respondents?

Table 4.3.3. Methods of environmental information organisation adopted by community leaders in Rivers and Delta states

s/ n	Items	Never organised		Occasionally organised		Highly organised		Very Highly organised		\bar{x}	S.D
		N	%	N	%	N	%	N	%		
1	Organised Chronologically along timelines	37	14.3	79	30.6	57	22.1	46	17.8	2.13	0.29
2	Byformat	65	25.2	74	28.7	39	15.1	51	19.8	2.07	0.28
3	No specific arrangement	64	24.8	45	17.4	42	16.3	59	22.9	2.00	0.44
4	Organised by type of environmental challenge documented	67	26.0	69	26.7	39	15.1	39	15.1	1.85	0.30
5	By mixed format	63	24.4	73	28.3	44	17.1	34	13.2	1.85	0.27
6	Listed or indexed	62	24.0	73	28.3	43	16.7	29	11.2	1.76	0.26
Weighted Mean = 1.94											

Table 4.3.3 shows the methods used by community leaders to organise environmental information in their communities for easy consultation. Arranging environmental information chronologically along timelines (that is, weekly, monthly, or yearly) ranked highest ($\bar{x}=2.13$). The option of environment information arrangement by formats (i.e. audio, print, video, text, and graphics) ranked second ($\bar{x}=2.07$). Some community leaders indicated that the environmental information available in their communities are not organised in any specific order ($\bar{x}=2.00$) this ranked third. The fourth position where community leaders indicated that they arranged environmental information by the type of environmental information (oil spillage, gas flaring etc.) ($\bar{x}=1.76$) tied with the community leaders who indicated that they used a mixed format ($\bar{x}=1.76$). This implies that most community leaders in the Niger Delta communities surveyed attempted to organise environmental information available as these occurrences happen. The numbers of leaders who have never considered using any form of arrangement were also.

Research question 1d: What are the dominant methods of environmental information storage used by community leaders in Rivers and Delta states?

Table 4.3.4. Opinions of community leaders on the dominant environmental information storage methods they use in the Niger Delta communities of Rivers and Delta states.

s/n	Items	Never stored		Occasionally stored		Stored		Highly stored		\bar{x}	S.D
		N	%	N	%	N	%	N	%		
1	Shelves	70	27.1	54	20.9	45	17.4	58	22.5	2.11	0.35
2	File cabinets	51	19.8	51	19.8	43	16.7	63	24.4	2.07	0.46
3	Cartons	69	26.7	52	20.2	67	26.0	31	12.0	1.93	0.27
4	Stored online	72	27.9	61	23.6	35	13.6	47	18.2	1.89	0.34
5	Computer systems	70	27.1	56	21.7	44	17.1	43	16.7	1.88	0.34
6	Loose papers in folders	64	24.8	83	32.2	39	15.1	21	8.1	1.67	0.19
7	Bound volumes	83	32.2	73	28.3	26	10.1	25	9.7	1.58	0.19
8	Ring binders	82	31.8	70	27.1	37	14.3	18	7.0	1.57	0.16
Weighted mean = 1.84											

Table 4.3.4 shows how environmental information is stored by community leaders. Storage on shelves ranked highest with a mean score rating of 2.11. Community leaders interviewed also agreed with this finding. This was closely followed by file cabinets ($\bar{x}=2.07$). The least ways in which environmental information is stored are bound volumes and ring binders with mean score ratings of 1.58 and 1.57 respectively. Cartoons ($\bar{x}=1.93$) also are used by community leaders. Results in table 4.6 reveal the use of online storage ($\bar{x}=1.89$) and computer systems ($\bar{x}=1.88$) by community leaders. Online storage and use of computer systems ranked among methods with a mean below 2.0. This implies that community leaders place value on information they get on their environment by the way these records are stored. However, online storage as well as the use of computers for storage is not widely used.

Research question 4.1e: How easy is it for community leaders to retrieve environmental information for consultation?

Table 4.3.5a shows the mean score rankings of the ease of recalling environmental information by community leaders in five major media formats (Audio, Print, Video, Text and Graphics). Retrieving environmental information in audio formats; Audio tape cassette ($\bar{x}=2.34$), Town criers ($\bar{x}=2.24$), Radio broadcast ($\bar{x}=2.23$) and Voice calls (e.g. GSM) ($\bar{x}=2.11$), ranked highest. This implies that community leaders have found these audio formats easy in a retrieval process and more reliable for information retrieval. Community leaders interviewed said they mostly retrieved environment information from meetings written down, letters on environmental issues, the human memory of other community leaders and reports made by community members affected by environmental challenges.

Table 4.3.5a. Ease of retrieving environmental information when needed by the respondents

s/n	Items	Never easy to retrieve		Sometimes easy to retrieve		Easy to retrieve		Very easy to retrieve		\bar{x}	S.D
		N	%	N	%	N	%	N	%		
	Audio Formats										
1	Audio tape cassette	62	24.0	41	15.9	53	20.5	75	29.1	2.34	0.39
2	Town criers	77	29.8	27	10.5	34	13.2	86	33.3	2.24	0.50
3	Radio broadcast	48	18.6	37	14.3	70	27.1	61	23.6	2.23	0.42
4	Voice calls (e.g. GSM)	67	26.0	25	9.7	57	22.1	64	24.8	2.11	0.47
5	Public Address System (PAS)	60	23.3	31	12.0	47	18.2	54	20.9	1.86	0.50
6	Talking drums	69	26.7	40	15.5	33	12.8	57	22.1	1.84	0.48
Weighted Mean = 2.10											
	Print Formats										
1	Books	67	26.0	36	14.0	62	24.0	68	26.4	2.31	0.36
2	Letters	59	22.9	34	13.2	67	26.0	58	22.5	2.17	0.41
3	Periodical (e.g. Bulletins and magazines)	37	14.3	41	15.9	94	36.4	37	15.1	2.16	0.35
4	Reports	59	22.9	44	17.1	58	22.5	51	19.8	2.03	0.40
5	Government documents	40	15.5	62	24.0	79	30.6	30	11.6	2.02	0.29
6	Flyers	63	24.4	39	15.1	67	26.0	40	15.5	1.96	0.37
Weighted Mean = 2.11											

When print formats are used for environmental information retrieval by community leaders, results in this study (Table 4.3.5a) found Books ($\bar{x}=2.31$), Letters ($\bar{x}=2.17$), Periodical (e.g, Bulletins and magazines) ($\bar{x}=2.16$), Reports ($\bar{x}=2.03$), and Government documents ($\bar{x}=2.02$) ranking among the highest. This implies that print formats are highly used to retrieve environmental information by community leaders in the Niger Delta. In addition, community leaders interviewed revealed that environmental retrieval is done numerically, one of the communities mentioned the use of computer, others reported chronological retrieval methods, alpha-numeric and simple listing retrieval methods. Some other community leaders said they mostly retrieved environmental information from past meetings written down, letters on environmental issues, the human memory of other community leaders, and reports made by community members affected by environmental challenges such as oil spillages on their farms among other oil-induced environmental challenges.

Table 4.3.5b. Ease of retrieving environmental information when needed by the respondents

s/n	Items	Never easy to retrieve		Sometimes easy to retrieve		easy to retrieve		Very easy to retrieve		\bar{X}	S.D
		N	%	N	%	N	%	N	%		
	Video formats										
1	Videos(DVD,/V CD)	105	40.7	47	18.2	29	11.2	55	21.3	1.96	0.31
	Text Formats										
1	Manuscripts (hand written notes)	36	14.0	40	15.5	92	35.7	75	29.1	2.68	0.20
2	Minutes of meetings	48	18.6	31	12.0	55	21.3	81	31.4	2.32	0.49
3	SMS (text messages)	65	25.2	30	11.6	53	20.5	74	28.7	2.25	0.45
	Weighted Mean = 2.30										
	Graphic Formats										
1	Photographs/pictures	59	22.9	30	11.6	79	30.6	74	28.7	2.53	0.29
2	Maps	103	39.9	30	11.6	42	16.3	43	16.7	1.79	0.35
3	Diagrams	99	38.4	38	14.7	37	14.3	38	14.7	1.70	0.32
4	Charts	96	37.2	42	16.3	39	15.1	31	12.0	1.63	0.21
	Weighted Mean = 1.91										

Results in table 4.3.5 reveals that video formats (DVD /VCD) (\bar{x} =1.96) are used for environmental information retrieval.

In terms of Text Formats (4.3.5b) used by community leaders in the Niger Delta, manuscripts (handwritten notes) (\bar{x} =2.68), minutes of meetings (\bar{x} =2.32) and SMS (text messages) (\bar{x} =2.25) yielded a mean score above 2.0 indicating that community leaders in the Niger Delta highly use text formats for the retrieval of environmental information when they need it.

Research findings in Table 4.3.5 also revealed that Graphics formats particularly Photographs/pictures (\bar{x} =2.53), are highly used for information retrieval by community leaders in the Niger Delta. The least used for information retrieval in this graphics category is charts (\bar{x} =1.63). When table 4.3.5a and 4.3.5b are taken together the highest ranking mean came from the text category under manuscripts that is handwritten notes. The least used category was video formats (\bar{x} = 1.96) There is evidence that all the five major formats presented in tables 4.3.5a and 4.3.5b are used by community leaders for environmental information retrieval, although some are more used than others.

Research question 1f: What is the extent to which methods of Environmental Information dissemination are adopted by the respondents?

Tables 4.3.6a and 4.3.6b show results on the perception on environmental dissemination by the community leaders. The first 13 channels itemised in tables 4.3.6a and 4.3.6b: Town crier, Traditional rulers, Voice calls (e.g. GSM), Local meetings and associations, Market associations, Environmental enlightenment campaigns, Religious associations, Radio, Personal contacts, Public Address System, Newsletters, Magazines and SMS(Text messages) yielded a mean score above 2.0.

Table 4.3.6. Extent to which methods of Environmental Information dissemination are adopted by the respondents.

S/N	Environmental information channels	Never		Little extent		High extent		Very high extent		\bar{x}	S.D
		N	%	N	%	N	%	N	%		
1	Town criers	23	8.9	32	12.4	61	23.6	114	44.2	2.81	0.26
2	Traditional rulers	22	8.5	49	19.0	72	27.9	86	33.3	2.64	0.32
3	Voice calls (e.g. GSM)	59	22.9	53	20.5	29	11.2	78	30.2	2.64	0.32
4	Local meetings and associations	15	5.8	62	24.0	82	31.8	70	27.1	2.58	0.26
5	Market associations	13	5.0	63	24.4	69	26.7	72	27.9	2.46	0.37
6	Environmental enlightenment campaigns	38	14.7	46	17.8	63	24.4	75	29.1	2.40	0.40
7	Religious associations	21	8.1	75	29.1	68	26.4	60	23.3	2.38	0.29
8	Radio	37	14.3	80	31.0	66	25.6	52	20.2	2.34	0.21
9	Personal contacts	28	10.9	77	29.8	58	22.5	58	22.5	2.28	0.32
10	Public Address System	24	9.3	68	26.4	52	20.2	57	22.1	2.11	0.43
11	Newsletters	58	22.5	82	31.8	39	15.1	47	18.2	2.04	0.27
12	Magazines	67	26.0	80	31.0	43	16.7	40	15.5	2.00	0.22
13	SMS(Text messages)	52	20.2	74	28.7	36	14.0	52	20.2	2.00	0.36
14	Letters	54	20.9	75	29.1	50	19.4	40	15.5	1.99	0.28
12	Television	41	15.9	79	30.6	39	15.1	45	17.4	1.92	0.36
16	Local and national newspapers	47	18.2	82	31.8	36	14.0	43	16.7	1.90	0.33
17	Posters and leaflets/hand bills	57	22.1	78	30.2	45	17.4	27	10.5	1.77	0.25
18	Motion pictures/slides	88	34.1	53	20.5	23	8.9	31	12.0	1.50	0.28
19	E-mails /Internet tools	80	31.0	54	20.9	25	9.7	30	11.6	1.48	0.30
Weighted Mean = 2.17											

In Table 4.3.6, town criers ranked highest with a mean score of 2.81 while E-mails /Internet tools with a mean of 1.48 ranked lowest as channel for disseminating environmental information. The results also shown in Table 4.3.6 imply that there are many channels available to community leaders to disseminate environmental information to the community members and other stakeholders concerned with environmental community matters dealing with oil exploration.

Research question 1g: What are the opinions of the respondents on Environmental Information they utilised through available information channels?

Table 4.3.7 shows the degree of environmental information utilisation through the channels of environmental information studied among the Niger Delta community leaders in Rivers and Delta states. Table 4.3.7 also revealed that town criers as environmental information channels, ranked the highest with a mean score ranking of 3.12. in the communities. This is closely followed by Market associations and local meetings and associations ranking second and third with 2.89 and 2.88 mean score ranking respectively.

Table 4.3.7. Environmental information use through information channels among community leaders in Rivers and Delta states

s/n	Environ. information channels	Never Utilised		Utilised		Highly Utilised		V. Highly Utilised		\bar{x}	Standard Deviation
		N	%	N	%	N	%	N	%		
1	Town criers	26	10.1	35	13.6	64	24.8	117	45.3	3.12	0.16
2	Market associations	16	6.2	66	25.6	72	27.95	75	29.1	2.89	0.37
3	Local meetings and associations	18	7.0	65	25.1	85	33	73	28.3	2.88	0.26
4	Environ enlightenment campaigns	41	15.9	49	19	66	25.6	78	30.2	2.77	0.40
5	Religious associations	24	9.3	78	30.2	71	27.5	63	24.4	2.73	0.29
6	Public address system	27	10.5	71	27.5	55	21.3	60	23.3	2.69	0.43
7	Personal contacts	31	12.0	80	31.0	61	23.6	61	23.6	2.65	0.32
8	Voice calls (e.g. GSM)	62	24.0	56	21.7	32	12.4	81	31.4	2.57	0.32
9	Radio	40	15.5	83	32.2	69	26.7	55	21.3	2.56	0.21
10	Television	44	17.1	82	31.7	42	16.3	48	18.6	2.43	0.36
11	SMS (text messages)	55	21.3	77	29.8	39	15.1	55	21.3	2.41	0.32
12	Local and national newspapers	50	19.4	85	32.9	39	15.1	46	17.8	2.36	0.33
13	Newsletters	61	23.6	85	33	42	16.3	50	19.4	2.34	0.27
14	Letters	57	22.1	78	30.2	53	20.5	43	16.7	2.34	0.28
15	Traditional rulers	25	9.7	52	20.2	75	29	89	34.5	2.26	0.32
16	Magazines	70	27.1	8	32.2	46	17.8	43	16.7	2.25	0.22
17	Posters and leaflets/hand bills	60	23.3	81	31.4	48	18.6	30	11.6	2.21	0.25
18	E-mails/Internet tools	83	32.0	57	22.0	28	11	33	13	2.05	0.30
19	Motion pictures/slides	91	35.3	56	21.7	26	10.0	34	13.2	2.01	0.28
Weighted Mean = 2.50											

Items 4 to 9 which include Environmental enlightenment campaigns, Religious associations, Public address system, Personal contacts, Voice calls (e.g. GSM), Radio, Television, SMS (text messages), Local and national newspapers, Newsletters, and Letters are the environmental information channels used by community leaders in Table 4.10. These channels yielded mean score rankings above 2.56 to 2.77. Overall, all mean score rankings were over 2.0. This implies that virtually all information channels listed in Table 4.10 are used by community leaders.

Research question 1h: What methods of environmental information disposition do community leaders in Rivers and Delta states adopt?

Table 4.3.8. Environmental information disposition methods adopted by community leaders in the Niger Delta

s/n	Items	Never adopted		Occasionally adopted		Moderately adopted		Highly adopted		\bar{x}	S.D
		N	%	N	%	N	%	N	%		
1	They are kept away and recalled when needed	39	15.1	41	15.9	61	23.6	104	40.3	2.79	0.26
2	They are kept away but not destroyed	33	12.8	40	15.5	78	30.2	71	27.5	2.45	0.38
3	They are discarded	76	29.5	48	18.6	75	29.1	20	7.8	1.85	0.22
4	They are burned	97	37.6	61	23.6	43	16.7	24	9.3	1.72	0.16
5	They are shredded	84	32.6	65	25.2	52	20.2	18	7.0	1.71	0.15
6	given as waste papers to foodvendors	110	42.6	41	15.9	55	21.3	8	3.1	1.51	0.10
7	Pulverised,	142	55.0	30	11.6	30	11.6	13	5.0	1.30	0.04
Weighted Mean = 1.90											

It was found, as shown in Table 4.10, that most community leaders organised and kept away environmental information and can use them where necessary. This option ranked highest with a mean score of 2.79 as shown in Table 4.13 This was closely followed by the option of keeping them without destroying them ($\bar{x} = 2.45$). The least utilised methods were giving these documents as gifts to food vendors ($\bar{x} = 1.51$) and pulverising them (That is, crushing them into powder) ($\bar{x} = 1.30$). This implies that they understand the value of information derived from documents on the environmental challenges they encounter.

The results presented in Table 4.3.9 reveal a summary of mean and standard deviation scores for all the variables in the environmental information management process.

Table 4.3.9. Environmental information management summary table of mean and standard deviation score

S/N	Item	Mean	S.D
1	Creation	2.23	0.34
2	Capturing	2.76	0.28
3	Organisation	1.94	0.15
4	Storage	1.84	0.21
5	Retrieval	2.11	0.27
6	Use	2.50	0.30
7	Dissemination	2.17	0.38
8	Disposition	1.90	0.53
	Overall mean	2.18	0.32

Research question 2: What is the Conflict handling behaviour of the Niger Delta community leaders in Rivers and Delta states?

Table 4.4a and 4.4b show the mean and standard deviation scores of the conflict handling behaviour styles of the respondents. The test norm of the conflict handling behaviour scale used for tables 4.4a and 4.14b is: Q score of 1- 40 which implies poor conflict handling behaviour; 41-80 depicting a fair conflict handling behaviour and 81-120 implying good conflict handling behaviour.

Table 4.4a. Mean and standard deviation scores showing conflict handling behaviour styles of community leaders in Rivers and Delta states

S/N	Items	1		2		3		4		5		6		\bar{x}	S.D.
		N	%	N	%	N	%	N	%	N	%	N	%		
2a	I give priority to harmony	12	4.7	16	6.2	28	10.9	57	22.1	74	28.7	60	23.3	4.21	0.63
2b	It matters more to me to keep things relaxed between us	14	5.4	10	3.9	40	15.5	55	21.3	69	26.7	43	16.7	4.21	0.63
1a	I take steps to make sure all views are out in the open equally	36	14.0	14	5.4	12	4.7	51	19.8	45	17.4	45	17.4	4.17	0.19
1b	I state clearly what I want and make sure the other person feels heard as well	32	12.4	17	6.6	18	7.0	51	19.8	53	20.5	78	30.2	4.10	0.85
2b	I focus on mutual understanding;	22	8.5	21	8.1	18	7.0	76	29.5	63	24.4	52	20.2	4.07	0.61
2b	I give in. and adapt so there is harmony	12	4.7	12	4.7	26	10.1	72	27.9	67	26.0	52	20.2	4.07	0.68
3b	I put forth greater effort to get the job done, and less effort into pleasing others	22	8.5	16	6.2	32	12.4	78	30.2	55	21.3	51	19.8	4.04	0.55
3a	I am concerned with goals or responsibilities than with how others feel about things	25	9.7	20	7.8	30	11.6	60	23.3	59	22.9	58	22.5	4.02	0.68
4b	I make sure I get at least some of what I want	20	7.8	15	5.8	33	12.8	68	26.4	64	24.8	47	18.2	3.97	0.65
4a	I give a little here and get a little there on issues	13	5.0	23	8.9	34	13.2	72	27.9	50	19.4	52	20.2	3.92	0.68
Weighted Mean = 4.08															

Since the overall mean score of the respondents on conflict handling behaviour is (\bar{x} = 78.71; S.D. = 19.63) and falls within 41-80, one can infer that the respondents (community leaders Rivers and Delta states) exhibited fair conflict handling behaviour. The majority of community leaders as shown in tables 4.4a and 4.4b claim that they give priority to harmony and set aside their personal preferences as necessary to achieve harmony in their communities and that it matters to them to keep things relaxed between them and community members than it does for them as community leaders to have the last word (\bar{x} = 4.21).

Table 4.4b. Mean and standard deviation scores showing conflict handling behaviour styles of community leaders in Rivers and Delta states

S/ N	Items	1		2		3		4		5		6		\bar{x}	S.D.
		N	%	N	%	N	%	N	%	N	%	N	%		
5a	I try to avoid the topic or person causing difficulty.	17	6.6	22	8.5	45	17.4	55	21.3	59	22.9	49	19.0	3.90	0.67
1a	I devote as much energy to understanding	18	7.0	24	9.3	19	7.4	58	22.5	63	24.4	54	20.9	3.85	0.87
4a	I tone down and try to strike a bargain somewhere in the middle	23	8.9	23	8.9	38	14.7	60	23.3	61	23.6	42	16.3	3.80	0.69
4b	I urge moderation and compromise	23	8.9	22	8.5	31	12.0	67	26.0	47	18.2	53	20.5	3.80	0.78
3a	I am more concerned with getting the job done than with pleasing others	13	5.0	15	5.8	34	13.2	61	23.6	57	22.1	72	27.9	3.79	0.84
2b	I set aside my own preferences and go along with the other person	21	8.1	33	12.8	47	18.2	52	20.2	45	17.4	53	20.5	3.79	0.68
5a	I change the topic to withdraw from discussion about it	31	12.0	26	10.1	37	14.3	56	21.7	53	20.5	43	16.7	3.65	0.77
5b	I move away from the topic or the person causing difficulties	32	12.4	33	12.8	40	15.5	54	20.9	46	17.8	42	16.3	3.55	0.76
3b	I focus more on my goals and less on how others feel about things	31	12.0	18	7.0	37	14.3	67	26.0	51	19.8	33	12.8	3.48	0.81
5a	I back off and let things rest as they are	40	15.5	23	8.9	53	20.5	53	20.5	51	19.8	29	11.2	3.43	0.68
Weighted Mean = 3.70															

Key to conflict handling behaviour styles in table 4.14a and 4.14b: 1a & 1b=Cooperation; 2a & 2b=Accommodating (harmonising); 3a & 3b=Directing; 4a & 4b=Compromising; 5a & 5b=Avoiding.

Key: 1a-5a Calm settings: (when community leaders discover that differences exist and feelings are not yet high).

Key: 1b-5b Storm settings: (When community leaders discover that differences persist and feelings escalate/rise).

The conflict handling behaviour style dominantly exhibited in tables 4.13a and 4.13b is the Accommodating/harmonising style which yielded the highest mean score ranking of 4.21 on the two statements used in Table 4.13a. This further implies that the majority of community leaders in the two states surveyed keep a high focus on their relationship with the people they lead and maintain a low focus on their own agenda as leaders, making them flexible.

Research question 3: What are the opinions of community leaders in Rivers and Delta states about Conflict outcome in their communities in relation with their environmental information management practices?

In this section, Table 4.5 is divided into four parts (4.5a, 4.5b, 4.5c, 4.5d) for better manageability of information presented on conflict outcome when measured with the eight environmental information management practices practised by community leaders in Rivers and Delta states. These processes include environmental information creation, environmental information capture, environmental information organisation, environmental information storage, environmental information retrieval, environmental information dissemination, environmental information use and environmental information disposition) and the three conflict outcome categories are: Peace, unstable peace and conflict outcomes.

In all, 24 items were measured with the highest mean score rating of 3.94 measuring environmental information creation on peaceful outcomes and the lowest mean score tie of 3.17 measuring environmental information disposition on peaceful and conflict conflict outcome respectively. In all the sections of table 4.5 (4.5a, 4.5b, 4.5c, 4.5d). All the mean score ratings for the 24 items yielded mean scores above 3.0. Results in Table 4.5a, 4.5b, 4.5c, and 4.5d also revealed high mean score ratings for information creation($\bar{x} = 3.94$), information capture($\bar{x} = 3.90$), information storage ($\bar{x} = 3.76$), information retrieval($\bar{x} = 3.78$), information dissemination($\bar{x} = 3.83$) and information use($\bar{x} = 3.79$) when these items were measured against peaceful conflict outcome in each category.

Table 4.5a. Mean and standard deviation scores showing the conflict outcome of community leaders in Rivers and Delta states in relation with their environmental information management practices

s/n	Items	UD		SD		D		A		SA		\bar{x}	S.D
		N	%	N	%	N	%	N	%	N	%		
	As a community leader: Information creation:												
1a	When the oil company responsible for the community environmental challenges(CEC) attend to it , it can lead to peaceful outcome	30	11.6	17	6.6	10	3.9	62	24.0	135	52.3	3.94	0.46
1b	When the oil company responsible does not take steps in addressing the community environmental challenges(CEC) this may or may not lead to conflict	35	13.6	42	16.3	32	12.4	72	27.9	68	26.4	3.27	0.51
1c	When the oil company responsible for the community environmental challenges(CEC) does not take steps in addressing it, this can lead to conflict	30	11.6	34	13.2	15	5.8	91	35.3	81	31.4	3.53	0.47
Weighted mean = 3.58													
	Information capture												
2a	Properly documented EI within the community can lead to peaceful outcomes	17	6.6	25	9.7	23	8.9	81	31.4	109	42.2	3.90	0.29
2b	Improperly documented EI within the community may or may not lead to peaceful outcomes	34	13.2	29	11.2	43	16.7	81	31.4	63	24.4	3.33	0.45
2c	Improperly documented EI within the community it can lead to conflict outcomes	21	8.1	33	12.8	41	15.9	72	27.9	84	32.6	3.56	0.41
Weighted mean = 3.40													
	Information organisation												
3a	Well -organised EI can lead to peaceful outcomes in the community	14	5.4	28	10.9	13	5.0	103	39.9	96	37.2	3.38	0.46
3b	Unorganised EI may or may not lead to conflict in the community	26	10.1	26	10.1	47	18.2	81	31.4	66	25.6	3.75	0.25
3c	Unorganised EI could lead to conflict in the community	15	5.8	22	8.5	48	18.6	84	32.6	85	32.9	3.74	0.25
Weighted mean = 3.62													
	Information storage												
4a	proper storage of EI minimises conflict within the community	24	9.3	19	7.4	22	8.5	98	38.0	90	34.9	3.76	0.35
4b	Improper storage of EI within the community may or may not be minimise conflict	42	16.3	32	12.4	36	14.0	85	32.9	58	22.5	3.27	0.45
4c	Improper storage of EI within the community can escalate conflict	27	10.5	29	11.2	39	15.1	81	31.4	78	30.2	3.53	0.38
Weighted mean = 3.52													

Key: UD= Undecided (1), SD=Strongly Disagree (2), D=Disagree (3), A=Agree (4), SA=Strongly Agree (5) Environmental information (EI), Community environmental challenges(CEC)

In all, 24 items were measured with the highest mean score rating of 3.94 measuring environmental information creation on peaceful outcomes and the lowest mean score tie of 3.17 measuring environmental information disposition on peaceful and conflict outcomes respectively.

In all the sections of Table 4.5 (4.5a and 4.5b), the mean score ratings for the 24 items yielded mean scores above 3.0. Results in tables 4.5a and 4.5b, also reveal high mean score ratings for information creation($\bar{x} = 3.94$), information capture($\bar{x} = 3.90$), information storage ($\bar{x} = 3.76$), information retrieval($\bar{x} = 3.78$), information dissemination($\bar{x} = 3.83$) and information use($\bar{x} = 3.79$) when these items were measured against peaceful conflict outcome in each category.

Table 4.5b. Mean and standard deviation scores showing the conflict outcome of community leaders in Rivers and Delta states in relation with their environmental information management practices

S/ N	Items	UD		SD		D		A		SA		\bar{x}	S.D
Cooperation													
Information retrieval		N	%	N	%	N	%	N	%	N	%		
5a	Ability to retrieve EI facilitates peaceful outcomes in the community	23	8.9	18	7.0	21	8.1	103	39.9	88	34.1	3.78	0.33
5b	Inability to retrieve EI may not lead to conflict in the community	23	8.9	32	12.4	35	13.6	86	33.3	75	29.1	3.53	0.40
5c	Inability to retrieve EI can lead to conflict in the community	22	8.5	34	13.2	34	13.2	93	36.0	70	27.1	3.54	0.34
Weighted mean = 3.62													
Information dissemination													
6a	Ability to disseminate EI can lead to peaceful outcomes in the community	16	6.2	27	10.5	30	11.6	78	30.2	103	39.9	3.83	0.31
6b	Inability to disseminate EI may or may not lead to peaceful outcomes in the community	19	7.4	34	13.2	44	17.1	82	31.8	75	29.1	3.57	0.31
6c	Inability to disseminate EI can lead to conflict outcomes in the community.	21	8.1	35	13.6	46	17.8	81	31.4	70	27.1	3.50	0.34
Weighted mean = 3.63													
7a	Ability to use EI has brought about peaceful outcomes in my community	15	5.8	22	8.5	34	13.2	102	39.5	82	31.8	3.79	0.21
7b	Inability to use EI may or may not lead to peaceful outcomes in my community	30	11.6	24	9.3	34	13.2	84	32.6	74	28.7	3.43	0.51
7c	Inability to use EI has brought about conflict outcomes in my community	29	11.2	25	9.7	63	24.4	66	25.6	67	26.0	3.36	0.41
Weighted mean = 3.53													
Information disposition													
8a	EI disposition helps to keep peace within the community	23	8.9	53	20.5	59	22.9	52	20.2	61	23.6	3.17	0.43
8b	EI disposition may or may not lead to conflict within the community	36	14.0	25	9.7	51	19.8	67	26.0	67	26.0	3.26	0.52
8c	EI can lead to conflict within the community	44	17.1	30	11.6	39	15.1	78	30.2	57	22.1	3.17	0.52

Results captured in tables 4.5a and 4.5b imply that community leaders value functional peaceful outcomes within their communities and they agreed from the findings that environmental information management, when practised correctly, is necessary in ensuring improved conflict outcome. From the findings, it can be seen that the mean score ratings for environmental information organisation (\bar{x} =3.75) and environmental information disposition (\bar{x} =3.26) on Table 4.5a and Table 4.5d respectively are highest on unstable conflict when measured on the three conflict outcome (peaceful outcomes, unstable peaceful outcomes and conflict outcomes). These results imply that more community leaders agreed that unstable conflicts will arise where environmental information is not well organised and also well disposed.

Research question 4: What are the opinions of the community leaders in Rivers and Deltastates about Conflict outcome in their communities in relation with their conflict handling behaviour?

In this section table 4.6 is split into three tables (4.6a; 4.6b; and 4.6c). The Results on these tables: 4.6a 4.6b; and 4.6c reveal a mean score ranking of 3.0 and above on all five styles measured against the conflict outcome of community leaders in Delta and Niger state.

Table 4.6a. Mean and standard deviation scores showing the conflict outcome of community leaders in Rivers and Delta states in relation with their conflict handling behaviour

S/N		1		2		3		4		5		6		\bar{x}	S.D.
		N	%	N	%	N	%	N	%	N	%	N	%		
	Cooperation														
1a	Highly focusing on my own ideas and my relationship with members of my community on EI issues leads to peaceful outcomes	14	5.4	13	5.0	50	19.4	176.6	9336.0	7127.5	3.45	0.47			
1b	Highly focusing on my own ideas and my relationship with members of my community on EI issues may or may not lead to peaceful outcomes	15	5.8	34	13.2	32	12.4	6224.0	7830.2	3714.3	3.03	0.43			
1c	highly focusing on my own ideas and relationship with members of my community on EI issues leads to conflict outcomes	12	4.7	15	5.8	65	25.2	5420.9	7629.5	3614.0	3.07	0.33			
Weighted mean = 3.18															
	Accommodation														
2a	Having a low focus on my own ideas and a high focus on my relationship with community members on EI issues leads to peaceful outcomes in my community	11	4.3	17	6.6	20	7.8	6926.7	8231.8	5922.9	3.44	0.33			
2b	Having a low focus on my own ideas and a high focus on my relationship with community members on EI issues may or may not lead to peaceful outcomes in my community	3	1.2	29	11.2	22	8.5	4617.8	10942.2	4919.0	3.46	0.27			
2c	Having a low focus on my own ideas and a high focus on my relationship with community members on EI issues leads to conflict outcomes in my community	9	3.5	27	10.5	47	18.2	6324.4	7428.7	3814.7	3.09	0.34			
Weighted Mean = 3.33															

Key: SD=Strongly Disagree (1), D=Disagree (2), A=Agree (3), SA=Strongly Agree (5)

**Key to conflict outcome scale measured against conflict handling behavior styles:
1= cooperating; 2=accommodating; 3=Directing; 4Compromising; 5= Avoiding
Environmental Information (EI)**

The highest mean score ranking ($\bar{x}=3.93$) was measured on the directing style used by community leaders in Rivers and Delta states. This implies that community leaders in their opinion, predominantly give their own ideas a high focus and place a low focus on their relationship with community members on environmental information issues to maintain peace in their communities. The above 3.0 mean score ranking on all the other styles show that these leaders utilise other leadership styles and this shows their flexibility in the use of the conflict handling behaviour styles to maintain peace within their communities.

Table 4.6b. Mean and standard deviation scores showing the conflict outcome of community leaders in Rivers and Delta states in relation with their conflict handling behaviour

s/n		1		2		3		4		5		6		\bar{x}	S.D.
		N	%	N	%	N	%	N	%	N	%	N	%		
	Directing														
3a	Giving my own ideas a high focus and placing a low focus on my relationship with community members on EI issues lead to peaceful outcomes		1.4	6	2.3	11	4.3	21	8.1	171	66.3	44	18.6	3.93	0.84
3b	Giving my own ideas a high focus and placing a low focus on my relationship with community members on EI issues may or may not lead to peaceful outcomes	11	4.3	35	13.6	33	12.8	41	15.9	99	38.4	39	15.1	3.16	0.42
3c	Giving my own ideas a high focus and placing a low focus on my relationship with community members on EI issues lead to conflict outcomes	13	5.0	23	8.9	40	15.5	39	15.1	102	39.5	41	15.9	3.23	0.40
Weighted mean = 3.44															
	Compromise														
4a	Giving my own ideas as well as relationship with community members a medium focus on EI issues leads to peaceful outcomes within the community	5	1.9	19	7.4	19	7.4	79	30.6	85	32.9	51	19.8	3.45	0.21
4b	Giving my own ideas as well as my relationship with community members a medium focus on EI issues may or may not lead to peaceful outcomes within the community.	12	4.7	41	15.9	30	11.6	38	14.7	104	40.3	33	12.8	3.09	0.44
4c	Giving my own ideas as well as my relationship with community members a medium focus on EI issues leads to conflict outcomes with the community.	10	3.9	28	10.9	23	8.9	88	34.1	70	27.1	39	15.1	3.15	0.32
Weighted mean = 3.23															

Key: SD=Strongly Disagree (1), D=Disagree (2), A=Agree (3), SA=Strongly Agree (5)

Key to conflict outcome scale measured against conflict handling behavior styles:
1= cooperating; 2=accommodating; 3=Directing; 4=Compromising; 5= Avoiding Environmental Information (EI)

Table 4.6c. Mean and standard deviation scores showing the conflict outcome of community leaders in Rivers and Delta states in relation with their conflict handling behaviour

S/ N		1		2		3		4		5		6		\bar{x}	S.D.
		N	%	N	%	N	%	N	%	N	%	N	%		
	Avoidance														
5a	I attain peaceful outcomes when my focus on my own ideas and my relationship with community members on EI issues are low	3	1.2	22	8.5	52	20.2	79	30.6	65	25.2	37	14.3	3.13	0.21
5b	I may or may not attain peaceful outcomes when my focus on my own ideas and my relationship with community members on EI issues are low	9	3.5	31	12.0	35	13.6	38	14.7	90	34.9	55	21.3	3.26	0.43
5c	I attain conflict outcomes when my focus on my own ideas and my relationship with community members on EI issues are low	10	3.9	22	8.5	37	14.3	46	17.8	76	29.5	67	26.0	3.38	0.42
Weighted Mean=3.26															

Key: SD=Strongly Disagree (1), D=Disagree (2), A=Agree (3), SA=Strongly Agree (5)

**Key to conflict outcome scale measured against conflict handling behavior styles:
1= cooperating; 2=accommodating; 3=Directing; 4Compromising; 5= Avoiding
Environmental Information (EI)**

4.4 Thematic analysis of the qualitative data

In this section, qualitative responses from the in-depth interviews held with community leaders in the surveyed states (Rivers and Delta) are presented and analysed. These responses from the interviews are supplements to the data obtained from the questionnaire administered during the fieldwork. In keeping with the ethical consideration for the study, efforts have been made to ensure respondents anonymity was assured and responses from the interviews are presented in a manner that they cannot be identified with actual individuals.

4.4.1 Question 1: Briefly tell me about yourself sir/ma...in terms of:

- a) State**
- b) Name of community**
- c) Position held in the community**
- d) Gender**
- e) Age**
- f) Marital Status**
- g) Educational qualification/level of education**

4.4.1.1 Demographics of community leaders interviewed

Responses from the community leaders interviewed showed a similar pattern of demographics as obtained from the questionnaire. With respect to their states of origin, there were more from Delta State than Rivers State. The communities the interviewees came from included: Umuebulu, mirinwami Asa, Okoloma Ndoki, Izuoma, Asa Oyingbo, Oyingbo Urban, Ogbogu, Egita Amah, Obite, Akuko uno, Ebedei, Igbuku, Beneku, Opkai, dudu town, Opuama, Bresibi, bear town, Uzere, Irri and Oleh. In terms of position held, the community leaders interviewed in order of their ranking were paramount rulers, deputy paramount rulers, community development committee chairmen (CDC), youth leaders, assistant youth leaders, youth general secretaries, youth PROs, women leaders and assistant women leaders. This ensured that the various strata of community leaders were interviewed in order to have a balanced perspective of their community environmental information situations. Considering gender, there were more men than women interviewed. This also is a reflection of the questionnaire outcome on gender. The majority of the interviewees were married while a small fraction were unmarried. The educational qualifications of those interviewed comprised bachelors' degree as the majority while some others were HND and OND

certificates and that WASCE/SSCE and primary certificates were in the minority. This is significant because it shows the level of intellectual engagement these leaders are capable of because they are academically exposed.

4.4.2 Question 2: How long have you been a community leader?

4.4.2.1 Leadership duration of community leaders.

All paramount leaders, with the exception of Igbuku and Beneku (whose leadership tenure lapses after the agreed number of years in their communities), had lifetime service duration. The paramount rulers who participated in the interviews had served their communities for over 25 years. The other community leaders such as the community development chairmen, the general secretaries as well as youth and women leaders practised rotational leadership tenures that had different lengths of service which could vary from two to eight years in the various offices they occupied (depending on the community agreement). The highest number of community leaders interviewed had spent between two to four years as at the time the interviews were conducted. One paramount leaders had this to say:

The position of paramount ruler is for a life time unless there's no heir to take over, then the position will be passed to the next family in line or the family that is qualified to produce a leader...

Another respondent corroborated the lifetime paramount leadership claims of the first respondent:

Community leadership as an Eze is as long as you live, unless you commit a crime that will take you off the seat...

Another respondent also stated:

Although I am new in my current office as an assistant general secretary to the community development chairman, I have been in community leadership since 2001...

It can, therefore, be assumed from these responses that rotational and lifetime community leaders exist and work together to achieve community goals and objectives with respect to environmental challenges peculiar to their communities.

4.4.3 Question 3: Do you live among the community members?

4.4.3.1 Community leaders residence

Most of the interviewees lived within the community they lead and this proximity makes them very available and accessible to their people while a few of them lived outside their communities but in nearby places as one of them said:

I do come to my community frequently but live in another town with my family...

Another respondent confirmed:

I stay in another town but visit everyday...

One can infer that these leaders who stay off their actual communities are still very much involved on a daily basis in the community life of the people they lead inspite of their apparent physical absence at certain times.

4.4.4 Question 4: What are the environmental challenges experienced in the community?

4.4.4.1 Community environmental challenges

Community leaders largely mentioned gas flaring as a major source of environmental challenge experienced in their communities. Some other community leaders mentioned the issue of oil spillage as another major environmental concern. Community leaders also mentioned other issues such as gas explosions, as a result of equipment failure, which they blame on the negligence of the oil companies, river dredging and acid rain caused by oil and gas extractive activities in their communities. The community leaders themselves; that is, the traditional rulers and youth leaders, often call for meetings to discuss environmental challenges. One of the community leaders had this to say:

the environmental challenges we are facing are mostly oil spillages, stunted growth in plants and gas flaring...

Another respondent also said:

Explosion and flaring of gas has been a major issue in the community as plants suffer a lot from all these issues...

Yet another leader declared:

Before now, we have been faced with the issue of oil spillage which has caused so much hardship on the people of this community as crops are being affected by this continuous spillage...

One female respondent spoke thus:

Our major challenge here is oil spillage and it has affected us a lot mostly we the women that are farmers as our farms or crops are dying after and oil spillage happen...

One other female community leader, from Warri North stated from another environmental angle:

We have environmental challenges that can only be solved by the government for instance, the dredging activities going on now is causing a bit of problem to the community

Based on the responses from the respondents, it is clear that oil -induced environmental challenges exist within the communities (creating environmental information) and it is affecting the agrarian livelihood of the entire host communities in the Niger Delta.

4.4.5 Question: How is environmental information created in the community?

4.4.5.1 The Creation process of environmental information in the communities

The community leaders all agreed that print, letters, documented minutes and photographs taken on site formed ways in which they create their awareness on environmental challenges confronting their communities from the activities of the oil extractive industries. A community leader as follows:

Yes we usually get verbal reports from community members who run to us whenever they notice oil spillage on their farms or blow outs and we also on our part write letters to concerned stakeholders and make phone calls or SMS...

Another respondent said this:

Town criers are the best way for us to create awareness on any environmental challenge in our community. We sometimes have special community gatherings to verbally discuss the environmental challenges confronting us...

One can infer that the community leaders prefer face-to-face contact with people within their communities because these are trusted sources.

4.4.6: How is environmental information captured in your community?

4.4.6.1 Demonstrating the process of capturing environmental information

Interviewees agreed that environmental information derived from the environmental challenges they experienced within the Niger Delta communities surveyed are captured mostly in writings which could be in form of letters or minutes of meeting held by these community leaders (men, women and youths).

One respondent declared:

Yes, we take photographs sometimes when this challenge occur in our community. We also document pollution reports in our minute book during our community meetings...

Another respondent had this to say:

Environmental information are captured through photographs and through writings of pollution reports...

These environmental information are also captured in photographs as demonstrated here. Other means include the use of SMS and self-witnesses residing in the communities affected.

4.4.7 Question 7:How environmental information is organised/arranged in the communities?

4.4.7.1 Organising community environmental information

Most of the community leaders interviewed said a form of arrangement is used in organizing community environmental information. These methods included arranging

them by formats (audio, print, video, text and graphics such as pictures) or as they occur in chronological order (that is as they occur week by week, month by month or year by year). There were still a substantial number of community leaders that had no specific arrangement applied to the environmental information that is created and captured in their communities. One respondent had this to say:

Environmental information is organised as they occur in time, week by week...

Another respondent also had this to say:

We have no specific way of arranging the environmental information we get...

This is one area that will require serious intervention from external agencies such as NGOs, CBOs and Government agencies such as public libraries. Information, especially environmental information can only be a powerful resource where it is deliberately organised.

4.4.8 Question 8: How is environmental information is stored and kept in the communities?

4.4.8.1 Environmental information storage process deployed by community leaders

All the community leaders confirm the use of shelves, files and envelopes for environmental information storage. Some community leaders also store the documents on environmental issues with trusted and competent individuals such as the paramount rulers (who were found to be most trusted) in that community or the CDC secretary General appointed by the community. One respondent had this to say:

If the environmental information is relevant or incomplete they are kept in files to be discussed in the next meeting...

Another respondent had this to say:

In terms of storing environmental information, they are kept with the secretary general of the community...

From these responses it is clear that the community secretaries are entrusted and deemed as competent to keep environmental information for security reasons.

4.4.9 Question 9: How is environmental information retrieved in the communities?

4.4.9.1 The process of community environmental retrieval

Most community leaders interviewed agree that they mostly retrieve environmental information from minutes of past meetings written down, letters on environmental issues, the human memory of other community leaders, and reports made by community members affected by environmental challenges such as oil spillage on their farms etc., one community leader has this to say:

We retrieve environmental information from files and letters addressing such subjects...

One other respondent had this to say:

This information is usually retrieved from the minutes of the meetings we hold in our community...

The community leaders are very deliberate about this process of environmental information retrieval

4.4.10 Question 10: How is Environmental Information disseminated in the communities?

4.4.10.1 Disseminating environmental information

All respondents agreed that town criers are essentially their main agents of information dissemination in the various communities surveyed. Mention was made of other agents such as use of public address systems, letters and village gatherings. one on one reporting, passing of circulars and use of phone calls and sending out SMS. One respondent explained:

We spread environmental information through public address systems, letters to the wards when it is needed and we also send out SMS to community members. The secretary general usually writes these letters and call for meetings. The town crier is also deployed for these purposes...

Another respondent had this to say:

When we hold community leaders meetings our chiefs, CDC leaders, women and youth carry the messages back to the wards within our communities to our people...

This conclusively demonstrates that both community leaders and members trust the face to face dissemination method as it helps them to build trust among themselves.

4.4.11 Question 11: How is environmental information used in the communities?

4.4.11.1 Using environmental information in the communities

All the community leaders interviewed agreed that they use environmental information mostly as evidence to engage in cases with applicable oil companies. One community leader declared:

This information is very useful and it is used to write the oil companies responsible for the environmental damage in our community so that they can take action. We usually give them time to react...

Another community leader spoke thus:

Environmental information available is discussed at our meetings we use them as evidence to make our case(s) with those oil companies responsible for the environmental problem...

One respondent had this to say:

I remember a case where we published our aggrieved position about the state of our community environment to a local newspaper and that yielded a positive reaction from the oil company who built a standard road for our area after that report...

Community leaders rely on environmental information within their sphere of influence to drive home their grievances about the oil - induced environmental challenges confronting them.

4.4.12 Question 12: How is environmental information disposed in the communities?

4.4.12.1 The outcomes of environmental information disposition in the communities

The interview findings showed evidence that community leaders occasionally discarded environmental information only after they are sure it will not be needed again. One of the leaders responded to the question on how environment information is disposed:

Environmental information are not disposed, they are kept for reference purposes we sometimes revisit environmental matters discussed especially if the matters remain unresolved...

Another community leader spoke as follows:

We hardly hold on to the content of our discussions except the secretary general who does that and I guess they are disposed because we hardly talk about previous environmental discussions...

Some community leaders said that it depended on the nature of the environmental issue in focus while some stated that said they donot dispose of them at all.

4.4.13 Question 13: Which Conflict handling behaviour style (1.cooperating, 2. accommodating, 3.directing, 4.compromising and 5.avoiding) best describes what you practise as a community leader?

4.4.13.1 Conflict- handling behaviour styles used by the community leaders

Community leaders who combined two conflict handling behaviour styles mostly exhibited the cooperating and compromising styles. The cooperating conflict handling behaviour style means that community leaders in the Niger Delta communities of Rivers and Delta states confronted environmental problems from the environmental information they get in their communities with a favourable attitude, which encourages solving the problem at hand and jointly generating the best possible solution. The compromising style used here means that community leaders try to solve the environmental problems derived from the environmental information they get in their communities by cooperatively gaining some grounds and losing some other grounds. When community leaders use this conflict handling behaviour style, they search for a middle ground solution. A few community leaders interviewed said they used all the conflict handling behaviour styles (that is, a blended approach) at one point or the other in leading the community, depending on the context. This implies a high measure of flexibility on their use of conflict handling behaviour styles. One had this to say:

All measures are used. We sometimes use the cooperating style, we can sometimes accommodate or use force, in some other cases we can compromise or use the avoidance method it depends on the context of the conflict...

Another respondent also stated:

I will prefer to use the directing/force methods especially to check those that think only about themselves...

Evidently, it is not one method that fits into all environmental conflict situations. The context of conflict matters usually determines how it is resolved by the community leaders.

4.4.14 Question 14: What kind of conflict outcome do you expect to experience in the future of your community?

4.4.14.1 Community leaders' opinion on future conflict outcome

Almost every community leader interviewed agreed that the present environmental challenges experienced within their communities which have generated the environmental information in their communities can be better managed and peacefully resolved if they continue to mediate well as community leaders and exhibit the kind of conflict handling behaviour styles that will enhance peaceful conflict outcome in their communities. One community leader had this to say:

I expect conflict to occur when issues that affect community members are skipped by those that ought to resolve them for unknown reasons and this can create a chaos within the community leaders and others...

Another community leaders confessed

Sometimes community leaders are in conflict with themselves when minutes are been read and the major part affecting the community is being skipped...

This implies that they hold themselves accountable to the people they lead and the overall environmental good is what really matters to them.

4.5 Testing of Hypotheses

Six hypotheses were advanced in this study and they were tested at 0.05 level of significance.

4.5.1 Hypothesis one: There is no significant relationship between environmental information management practices and conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

Table 4.7. Zero Order Correlation (MATRIX Table) showing the relationship between Environmental information dimensions and Conflict outcome

	Conflict outcome	Use	Creation	Capture	Organising	Storage	Retrieval	Dissemination	disposition
Conflict outcome	1								
Use	.236* (.000)	1							
Creation	.307 (.012)	.217* (.000)	1						
Capture	.267* (.007)	.151* (.015)	.611* (.000)	1					
Organizing	.310 (.077)	.615* (.000)	.332* (.000)	.375* (.000)	1				
Storage	.234* (.032)	.647* (.000)	.255* (.000)	.345* (.000)	.800* (.000)	1			
Retrieval	.251* (.015)	.740* (.000)	.475* (.000)	.425* (.000)	.722* (.000)	.733* (.000)	1		
Dissemination	.218* (.000)	.986* (.000)	.186* (.003)	.153* (.000)	.638* (.000)	.672* (.000)	.742* (.000)	1	
Disposition	.220* (.000)	.425* (.000)	.144* (.021)	.119 (.056)	.456* (.000)	.515* (.000)	.430* (.000)	.446* (.000)	1
Mean (\bar{x})	137.88	38.79	81.18	33.07	22.76	28.67	42.11	49.65	12.59
S.D	26.94	14.50	21.95	9.71	7.34	11.21	15.91	17.01	5.15

* Sig. at .05 level overall $r = 0.414$; $p = 0.028$ $p < 0.05$

Key: 1= Conflict outcome, 2= Environmental information use, 3= Creation, 4= Capture, 5=Organisation, 6= Storage, 7= Retrieval, 8=Dissemination, 9= Disposition

Table 4.7 shows that there were significant relationships between Conflict outcome and Environmental information use ($r = .251, p(.000) < .05$), Capture ($r = .267, p(.007) < .05$), Storage ($r = .234, p(.032) < .05$), Retrieval ($r = .151, p(.015) < .05$), Dissemination ($r = .218, p(.000) < .05$), and Disposition ($r = .220, p(.000) < .05$). (organisation $r = .310, p(.027) < .05$); creation ($r = .307, p(.012) < .05$). This means that environmental information management practices have positive associations with conflict outcome (Peaceful). The null hypothesis one is therefore rejected.

4.5.2 Hypothesis two: There is no significant relationship between Conflict outcome and the conflict handling behaviour dimensions of the Niger Delta community leaders in River and Delta states Nigeria

Table 4.8. Zero Order Correlation (MATRIX Table) showing the relationship between conflict handling behaviour dimensions and Conflict outcome among communities in Rivers and Delta states

	Conflict outcome	Cooperating	Accommodating	Directing	Compromising	Avoiding
Conflict outcome	1					
Cooperating	.485* (.000)	1				
Accommodating	.356* (.000)	.673* (.000)	1			
Directing	.459* (.000)	.734* (.000)	.628* (.000)	1		
Compromising	.274* (.000)	.617* (.000)	.649* (.000)	.566* (.000)	1	
Avoiding	.324* (.000)	.586* (.000)	.566* (.000)	.645* (.000)	.540* (.000)	1
Mean (\bar{x})	137.8837	15.7713	15.6822	15.7248	15.1822	15.5271
S.D	26.94110	5.15726	4.77181	4.83158	4.28209	4.45920

* Sig. at .05 level * overall r = 0.416; p<0.05 p=0.008

Table 4.8 shows that there were significant relationships between Conflict outcome and Cooperating ($r = .485$, $p(.000) < .05$), Accommodating ($r = .356$, $p(.000) < .05$), Directing ($r = .459$, $p(.000) < .05$), Compromising ($r = .274$, $p(.000) < .05$), and Avoiding ($r = .324$, $p(.000) < .05$) respectively. This implies that conflict handling behaviour has positive association with conflict outcome of the respondents in the studied states of the Niger Delta area ($r = 0.447$; $p = 0.008$; $p < 0.05$). The null hypothesis two is therefore rejected.

4.5.3 Hypothesis three: There is no significant relationship between Environmental Information Management and Conflict handling behaviour of the Niger Delta community leaders in Rivers and Delta states Nigeria

Table 4.9. Zero Order Correlation (MATRIX Table) showing the relationship between Environmental information management and Conflict-handling behaviour dimensions

	Conflict handling behaviour	Cooperating	Accommodating	Directing	Compromising	Avoiding
Environmental info. Management	.416* (.000)	.276* (.000)	.473* (.000)	.275* (.000)	.343* (.000)	.343* (.000)
Creation	.145* (.020)	.142* (.023)	.190* (.002)	.032 (.607)	.097 (.119)	.153* (.014)
Capture	.250* (.000)	.248* (.000)	.229* (.000)	.198* (.001)	.186* (.003)	.206* (.001)
Organisation	.137* (.028)	.027 (.661)	.241* (.000)	.072 (.248)	.125* (.045)	.072 (.252)
Storage	.270* (.000)	-.054 (.386)	.153* (.014)	.002 (.975)	.095 (.129)	.055 (.376)
Retrieval	.283* (.000)	-.032 (.613)	.205* (.001)	-.014 (.827)	.081 (.193)	.070 (.261)
Dissemination	.398* (.000)	-.040 (.526)	.226* (.000)	.017 (.782)	.103 (.098)	.056 (.375)
Use	.494* (.000)	-.046 (.464)	.214* (.001)	.009 (.891)	.113 (.069)	.060 (.333)
Disposition	.286* (.000)	-.126* (.044)	.051 (.413)	-.078 (.213)	.017 (.791)	-.116 (.062)
Mean (\bar{x})	78.7093	15.7713	15.6822	15.7248	15.1822	15.5271
S.D	19.6265	5.15726	4.7718	4.8315	4.2822	4.4592

* Sig. at 0.05 level overall $r = 0.447$; $P = 0.000$ $p < 0.05$

Table 4.9 shows that there was a significant relationship between environmental information management practice and conflict handling behaviour. This indicates that environmental information management practices have positive association with conflict handling behaviour of the respondents in the studied Niger Delta states.

Hypotheses 4, 5, and 6 were explained in the detailed summary of hierarchical regression analysis of environmental information management, conflict handling behaviour and conflict outcome of the respondents presented in Table 4.10

4.5.4 Hypothesis four: There is no significant effect of environmental information management practices on conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

The hypothesis four was rejected as seen in Table 4.10 showing details of the summary of hierarchical regression analysis of environmental information management, conflict handling behaviour and conflict outcome of community leaders in Rivers and Delta state.

4.5.5 Hypothesis five: There is no significant effect of conflict handling -behaviour on conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

The null hypothesis 5 was rejected as seen in Table 4.10 showing details of the summary of hierarchical regression analysis of environmental information management, conflict handling behaviour and conflict outcome of community leaders in Rivers and Delta states.

4.5.6 Hypothesis six: Conflict handling behaviour will not significantly mediate the relationship between environmental information management practices and conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria. The null hypothesis 6 was rejected as seen in Table 4.10 showing details of the summary of hierarchical regression analysis of environmental information management, conflict handling behaviour and conflict outcome of the community leaders in Rivers and Delta states.

Table 4.10. Summary of hierarchical regression analysis of Environmental information management, Conflict handling behaviour on Conflict outcome of the community leaders in Rivers and Delta states

Steps	Variable	Standard regression coefficients (Beta)	Adj R ²	Change adj R ²	F	Sig. P	Remarks
Step 1	EIM	0.574	0.278	0.278	12.000	.000	Significant
	Environ. Info. Creation	0.550					Significant
	Environ. Info. Capture	0.064					n.s
	Environ. Info. Organisation	0.224					Significant
	Environ. Info. Storage	0.227					Significant
	Environ. Info. Retrieval	0.338					Significant
	Environ. Info. Dissemination	0.103					n.s
	Environ. Info. Use	0.705					Significant
	Environ. Info. Disposition	0.210					Significant
	Step 2	CHB					0.322
Cooperating		0.237	Significant				
Accommodating		0.151	n.s.				
Directing		0.213	Significant				
Compromising		-0.067	n.s.				
Avoiding		-0.016	n.s.				
Step 3	Creation x CHB	0.394	0.384	0.098	7.972	.036	Significant
	Capture x CHB	0.845					Significant
	Organisation x CHB	0.742					Significant
	Storage x CHB	0.929					Significant
	Retrieval x CHB	0.599					Significant
	Dissemination x CHB	0.800					Significant
	Use x CHB	0.219					Significant
	Disposition x CHB	0.240					Significant
	EIM x CHB	0.407					Significant

Key: Significant at p<0.05; n.s. = Not Significant

Key: EIMP = Environmental Information Management practice, CHB = Conflict Handling Behaviour

Table 4.10 presents a summary of hierarchical regression analysis of environmental information management, conflict handling behaviour and conflict outcome of the respondents, and it explains hypotheses 4, 5, and 6.

Environmental information management was found to have significant effect on conflict outcome of the respondents (Beta = 0.414, $P < 0.05$). This implies that if community leaders truly value peace and really want to achieve positive environmental conflict outcome in their communities, the proper application of the processes of managing environmental information in their communities cannot be ignored.

When the conflict handling behaviour variable was introduced into the regression model at the second step of the analysis, Conflict handling behaviour had significant effect on the conflict outcome of the respondents. (Beta = 0.310, Adj. $R^2 = 0.236$, R^2 change = 0.1040, $F = 3.78$, $P < 0.05$). This implies that conflict handling behaviour has a significant effect on conflict outcome for the respondents. Explaining this further, conflict handling behaviour in all its forms (cooperation, accommodation, directing, compromise and avoidance) examined as a mediating variable in this study, really matters, if community leaders want to achieve functional and sustainable peace within their communities

At the third step of the analysis, the product of environmental information management and conflict handling behaviour had significant interaction effect on conflict outcome of the respondents (Beta = 0.242, Adj. $R^2 = 0.182$, R^2 change = 0.054, $F = 3.16$, $P < 0.05$). This means that Conflict handling behavior have significant mediating effect on the relationship between environmental information management and conflict outcome on community leaders surveyed in Rivers and Delta states. This further implies that community leaders who are the traditional gatekeepers within the Niger Delta communities studied hold the key to the progress that will be achieved as environmental information processes improve under their leadership, whether they be men, women or youths and by extension this improvement will lead to improved and sustainable conflict outcome within their communities.

4.6 Discussion of the findings

The discourse on environmental information management, from its creation to its disposition, has a direct relationship on the leadership behaviour styles expressed as conflict handling behaviour among community leaders in the selected Niger Delta communities of Nigeria. This consequently impacts on conflict outcome which could present as peaceful, unstable and conflict within the communities. Community leaders agree that some form of management of the environmental information processes within their community spaces will enhance the conflict outcome status in their communities.

This is evidenced by the responses to questions they were asked when the processes of environmental information management (from its creation to its disposition) was measured against three possible conflict outcome [(stable peace (+), unstable peace (-/+), and conflict (-)]. Overall, community leaders exhibited the five conflict handling behaviour styles in this study in varying degrees this agrees with the work of Kraybill (2010) who observed that part of the principle of conflict handling behaviour style is its diverse and flexible nature.

The directing conflict handling behaviour style which has a high focus on the leaders own agenda and low focus on his or her relationship with those being led in the communities dominated the other conflict handling behaviour styles such as: cooperating, accommodating, compromising and avoiding modes surveyed in this study. According to Kraybill (2010) emergency and time constraint are top on the list of reasons people, especially leaders in this study, exhibit the directing style. The issues of environmental degradation, resulting in the magnitude of environmental information generated by the extractive companies require urgent intervention by all stakeholders, including librarians, because environmental challenges such as gas flaring and oil spillage in some of the communities examined are at crisis point.

One can infer that librarians whose professional role it is to provide information to all, including rural dwellers living in environmentally -challenged environments like the Niger Delta communities, are needed. Librarians certainly need to model and assist rural dwellers by providing them with relevant information in the area they are mostly challenged such as information on managing environmental information process, information on leadership styles and how to handle and use them advantageously to serve community needs as well as information on conflict outcome.

This inference agrees with the submissions of Jain and Nfila (2011) that libraries and information centres often do not play an active and proactive role in national development issues, such as the environmentally -challenged spaces of the Niger Delta communities of Rivers and Delta states, owing to lack of initiatives to prove their existence to government and communities. Jain and Nfila (2011) also suggested that, through consultative meetings and forums, partnerships can be developed to enhance access to information for national development. These positions are shared by renowned librarians, such as Aboyade (1987) and Aina (2006) who, through their studies, observed the potential of librarians to work closely with extension workers in community information services in rural communities. Jain and Nfila (2011) added that information managers may collaborate with interest groups and stakeholders in environmental information dissemination.

The study is proof that environmental information management skills and conflict handling behaviour skills in all formats are critical and required by community leaders for improved conflict outcome. This conclusively agrees with the findings of Abiolu and Okere (2012) in relation to the centrality or importance of information access, information provision and information management in a developing economy like Nigeria. These authors asserted that apart from the print format, which only serves a limited percentage of the population, information must not only come in visual and audio forms, but must also be presented in local languages if the goals of universal access to information will be actualised. The study is further discussed according to the research questions and hypotheses raised in the study:

4.6.1a Types of formats used by community leaders in Rivers and Delta states to create environmental information

Community leaders in Rivers and Delta states prefer to generate environmental information mostly on audio media such as the use of town criers and public address systems. The audio medium is readily accessible to these community leaders and it is a fast means of communicating with community members whenever issues caused by oil exploration on the environment arise. They also use print such as letters and flyers; graphics such as pictures; text such as SMS, handwritten memos, word processed files; and videos such as DVDs format in varying degrees within the communities. Dike (2014) is of the opinion that librarians, because of the nature of their professional activities, can and should be involved in providing information services in the society

by being agents of empowerment for rural dwellers in capturing, preserving and disseminating indigenous knowledge, including environmental information generated in the Niger Delta communities.

These efforts at disseminating indigenous knowledge by librarians in rural communities, especially in the Niger Delta communities, will complement the efforts of community leaders who have a responsibility to the members of the community they lead. Information management, when viewed from the personal perspective as reported by Detlor (2010), depicts how individuals, community leaders inclusive, handle and process information, in this context, environmental information over the entire information management lifecycle. Since the preferences of these community leaders are known, librarians can work around these preference in very creative ways with the aim of improving the quality of environmental information available to the communities and their leadership.

Information on gas flaring was found to be the most prevalent in the two Niger Delta states studied. From observation during the questionnaire administration and interviews conducted , the devastating effects of flaring gas was a serious challenge with visible impact seen on roofs turning burnt and rusted, massive destruction of arable land, acid rain, soot was seen on surfaces around the communities and gas-polluted air inhaled by the community members, was observed. Community leaders found this particular environmental issue more prevalent within their communities.

This finding was in line with the study carried out by Claude (1996) who reiterated that Nigerian oilfields contribute more to global warming than the rest of the world together. Ibeanu (2000) also reported that it is the practice of oil companies to flare enormous amounts of gas in the vicinity of human dwellings. Gbadegesin (2001) reported that gas flaring has been known to cause inferno as a result of faulty gas pipes. He also observed in his report that communities in the region have lost their buildings, economic trees, soil and raffia palms as well as plantains that have been burnt down due to gas flaring. Communities within a certain radius of gas flares will definitely require constant information that could, over time, improve their understanding of the full consequence of their daily reality and experience within their communities. Strategic information on how the Niger Delta community leaders and community members affected could peaceably resolve environmental crisis arising from gas flaring is critical. The findings of Achtabwino (2007) emphasised that

libraries especially should provide information to problems related to population increases, such as land degradation, food shortages, and deforestation, drying rivers, drought and other environmental issues such as gas flaring.

Traditional rulers and village heads were found to create the highest environmental information available to community members in the surveyed Niger Delta states. Community meetings, youth leaders and community-based organisations, non-governmental organisations, oil companies, local government agencies state and Federal Government agencies also create environmental information in varying degrees. According to Aina (2004), “the creation/origination of information involves writing...”. This implies that anyone can create information, including community leaders, in the Niger Delta through meeting minutes among other community activities.

This finding is in line with Hoq (2014) who observed from literature that rural people rely heavily on informal and non-institutional sources for their day -to -day information. This implies that community members in the Niger Delta communities trust and rely more on the information they get from their leaders. In her opinion, Odunuga (2012) observed that Joyce Banda, a one-time president of Malawi, was vehement on the fact that African leaders can reduce conflicts if they become more open and freely make information available, in this case information on the environment to the people they lead. Joyce Banda also noted that the leaders would not only earn the people`s respect but also their trust when they carry their people along.

The environmental information generated also implies that environmental information can be created by all stakeholders, especially the oil companies whose activities create the environmental information (e.g. information on oil spillages and gas flaring) occurring within community spaces and community leaders who are living witnesses to these environmental challenges within their community spaces.

Community leaders need to properly document and process environmental information because it is a strong means of making serious cases for members of their communities to the concerned stakeholders, such as government, following the proper channels and to the oil companies directly responsible for the environmental damage due to their oil exploratory activities within the affected communities. In this regard, librarians can find relevance and contribute significantly through their professional activities. This point was well -articulated in the report by Abiolu and Okere (2012)

who maintained in their study that information managers such as librarians may collaborate with interest groups and stakeholders in providing environmental information and that they must also emphasise acquisition of local content in the provision of environmental information to their target groups. These environmental information interest groups include the Niger Delta community leaders and their followership. The idea of rural libraries, ideally manned by librarians as reported in the study of Hoq (2014), depicts these libraries as those that educate, inform and empower the communities they serve were they exist.

4.6.1b Methods of environmental information capture by communities in Delta and River states.

Findings reveal that community leaders rely mostly on text formats especially the handwritten ones derived during their meetings. This was also corroborated in the interview findings as community leaders revealed that environmental information derived from the environmental challenges experienced within the Niger Delta communities surveyed are captured mostly in writings which could be in form of letters or minutes of meeting held by these community leaders (men, women and youths). They also stated that these environmental information are also captured in photographs (which is the second means deployed by these leaders). Other means include the use of SMS and self-witness. Dike (2014) and Aina (2015) in their works both agree on the larger relevance of captured information particularly in rural settings and the role of librarians as powerful key change agents and experts from who rural dwellers can find information that will add immeasurable value to their well-being. Other relevant information which could be captured, preserved and disseminated in the rural communities is environmental information. Careful and systematic detailing of this kind of information in rural communities, such as the Niger Delta, could improve environmental conflict situations and, ultimately, minimise disputes arising from these environmental circumstances.

4.6.1c Methods used by stakeholders in organising environmental information in the Niger Delta communities.

The preferred method used by community leaders in organising environmental information in the Niger Delta communities as revealed by findings, is the arrangement by format. The term arrangement here reveals how they keep this document which is in the format in which they appear. These formats could include audio, print, video text and graphics cutting across all possible formats. Audio/Aural here refers to the use of town criers sent out by the community leaders especially the paramount rulers as noted in the interviews conducted on community leaders in the course of data collection for the study.

As Detlor (2010) observed, the personal perspectives of information management deals with the management of information of importance and concern to the individuals, and a major component of this process is the organisation of information in the major formats for community leaders in the surveyed communities of Rivers and Delta states. Detlor (2010) also stated that humans add the context, meaning and value to information and this information includes information on the degraded environment caused by oil exploration in the Niger Delta. The study of Nkhatha (2002), cited by Jain and Nfila (2011) discussed libraries and information centres as well known for managing and facilitating access to information relevant to the lives of community or society members and how these institutions are appropriately positioned to manage indigenous knowledge in various formats which could include video and audio recordings, photographic pictures, digital images among others. Librarians could assist community leaders organise the content, meaning and value of the environmental information within the Niger Delta communities in a bid to curtail the negative consequences of inaction in this regard.

4.6.1d Opinions of community leaders on environmental Information storage

Shelves and file cabinets were the most recognised and used facilities by community leaders for storing information they get on the environment in their communities. In some of the communities, the leaders reported the use of online storage and computers. There is more use and value for documents in hard forms than electronic formats among the community leaders. According to Popoola (2006) one of the goals of environmental information is to increase peoples' knowledge and

understanding of the environment, the forces that contribute to its deterioration and how environmental quality could be greatly improved if carefully kept.

Achtabwino (2007) in his study identified several library functions one of which asserted that libraries and information centres can also serve as community centres in addition to providing access to information resources. This means that rural communities can directly benefit from the wealth of information stored in community libraries where they exist, and this information should include resourceful information sources on the environment if such libraries exist in environmental conflict prone areas.

4.6.1e Retrieval of environmental information when needed by the community leaders in Rivers and Delta states

Findings on the ease of recalling environmental information by the surveyed community leaders showed that text formats (manuscripts, minutes of meetings, SMS that is text messages) on environmental challenges was the easiest to recall in the communities by the community leaders in Rivers and Delta states when compared with the other formats such as audio/aural video, graphics and print. While manuscripts and minutes of meeting do not require the use of electronic gadgets, text messages require it. Evidently, most community leaders keep phone transactions with the people they lead through text messages on environmental issues caused by oil exploration that bother them. The minutes of meetings where these environmental issues are discussed for instance is usually a product of the face to -face interaction among these leaders, whether they are men, women or youths meeting to discuss environmental issues.

This style of recalling environmental information agrees with the observation of Uzuegbu (2016) who observed that the communal lifestyle in the rural areas in sub-Saharan Africa has made rural dwellers effective participants in interpersonal communication within their environment.

4.6.1f Opinions of community leaders on environmental information dissemination

Results on community leaders environmental information dissemination practices indicated that town criers, traditional rulers, voice calls, local meetings and associations and market associations ranked highest in descending order in this study. This holds implication for who the community members will likely trust. Choo and Auster (1993), cited in Tibar (2005), agreed with the findings of this study that informal sources, including personal contacts, are sometimes even more important than formal information sources. This holds true for the Niger Delta communities.

4.6.1g Opinions of community leaders on environmental information channels utilised

Results revealed that community leaders used town criers more as an environmental information dissemination channel than any other environmental information channel in the Niger Delta communities. Other highly -used channels are market associations and local meetings and associations. These channels are informal in nature and, at the community level, leaders interface more with local trusted community structures like town criers and local meetings where community members converge. Uzuegbu (2016), in his study on effective information service delivery to rural dwellers, broadly grouped this form of information delivery under personal contacts. The author observed that, in practice, personal contacts are made through interpersonal communication and that the communal lifestyle in rural areas has made rural dwellers effective participants in interpersonal communication within their environment. This finding by Uzuegbu (2016) agrees with the finding of this study on information channels utilised. The over 2.0 mean score ranking achieved on all the other channels of environmental information used by community members such as environmental enlightenment campaigns, religious associations, public address system, personal contacts, voice calls, radio, television, SMS (text messages), local and national newspapers, newsletters, letters, traditional rulers, magazines, posters and handbills, as well as email/internet tools among others used by community leaders is proof that these other channels are recognised and used by community leaders.

4.6.1h Environmental information disposition methods used by community leaders in communities in the Niger Delta

From the study findings, the majority of community leaders practise keeping away environmental information they get in an organised manner until the need arises to use it. They keep this practice because of the value they attach to the documents whenever they have to make a case on any environmental challenge experienced by the community. This finding agrees with the submission of Detlor (2010) on the personal perspectives of information management which he explained involving the handling and processing of information over the entire information lifecycle which includes information disposition.

4.6.2 Conflict handling behaviour of community leaders in Rivers and Delta states

Results revealed that the community leaders in Rivers and Delta states exhibited fair conflict handling behaviour. The Harmonising conflict style at the calm and storm settings dominated all other conflict handling styles utilised by community leaders whether they be men, women, or youths. The harmonising or accommodating leadership style focuses more on building relationships than promoting personal leadership agenda. The fair result derived in this study shows that leaders surveyed in Rivers and Delta states can still improve upon the leadership styles they exhibit. Kraybill (2010), explaining the benefits of the harmonising style, observed that the harmonising style is most useful while keeping others happy is the most important goal.

4.6.3 Opinions of community leaders about conflict outcome on environmental information management.

The positive results, measuring the perception of community leaders on environmental information creation against peaceful outcomes, imply that community leaders agree that environmental information can be created by all stakeholders; namely, host communities and government agencies, especially the extractive industries whose activities create the environmental information. Some instances where environmental information is created include information on gas flaring and oil spillages occurring within community spaces.

Community leaders also could create their environmental information baseline as they become more aware of environmental changes in their community environment.

This environmental information baseline could assist the leaders where they have to make cases for members of their communities to concerned stakeholders such as government, following the proper documentation channels, and the oil companies directly responsible for the environmental damage caused by their oil explorative activities within their communities.

The result of some community leaders, highly focusing on their own agenda and keeping a low focus on their relationships with community members, depicts the directing leadership style. According to Kraybill (2010), correctly using this leadership style is beneficial because it brings about speed in decision -making and is very useful during emergencies where time is essential.

The positive result derived from measuring environmental information capture and peaceful outcomes imply that community leaders perceive and agree to a high extent that adequate environmental information capture, using the five basic media formats (audio, print videos, text and graphics), could lead to peaceful outcomes within their communities if these information formats are well -documented when captured.

The results on environmental organization, when measured against conflict outcome, had more community leaders agreeing that a lack of proper environmental information organisation could lead to unstable peace within their communities. Some other leaders believed that failure to organise the environmental information they get will outrightly lead to conflict within their communities and the rest agreed that if they adequately organised their environmental information, the subsequent conflict outcome would be stable peace. Results derived on environmental information storage and retrieval imply that community leaders understand the positive peace value of storing and retrieving environmental information in their communities. This trend is also noticed from the results derived on the environmental management processes of disseminating, using, and disposing environmental information. Further results derived on information disposition reveal that more community leaders agreed that unstable outcomes would occur where these practices were absent.

4.6.4 Opinions of community leaders about conflict outcome measured on their conflict handling behaviour

Research results derived from this study measuring the five conflict handling behaviour styles (cooperating, on accommodating, directing, compromising and avoiding) on the three conflict outcomes (Peace, Unstable peace and conflict) reveal that community leaders in Rivers and Delta states value peaceful outcomes within their communities and will use any conflict handling behaviour studied here to achieve that aim.

The various conflict handling behaviours exhibited by these community leaders which have ultimately lead to positive conflict outcome show the diversity of their behaviour and that, clearly, environmental conflict which has been part of their human experience in their communities can be better managed. This agrees with the findings of Krabill (2010) that conflict handling behaviour styles are diverse and should be used in a flexible way since no conflict handling behaviour style is always the best.

4.6.5 Relationship between environmental information management practices and conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

Findings derived from the study established that a significant positive relationship exists between environmental information management practices from its point of creation to its disposition and conflict outcome which could present as peaceful, unstable or outright conflict among community leaders in the two states studied in the Niger Delta region. Aspects of the 2006 study done by Falode, Ogedengbe and Bickersteth on the management of environmental conflicts in the oil producing areas of Nigeriasuggest that communication which is powered by timely and adequate information at the grassroots can yield peaceful outcomes in the Niger Delta communities of Rivers and Delta states. These authors also described the value of public involvement at the grassroots as one of the tools that can be used in resolving conflicts within the communities of the Niger Delta. Falode et al. (2006) are of the opinion that information sharing, education and appropriate communication elements are necessary in attempting to resolve the environmental conflicts experienced in the Niger Delta.

These findings agreed with some aspects of the findings of this study as a significant positive relationship exists between environmental information

management practices and conflict outcome in the surveyed Niger Delta states. The aim of the study by Falode(2006) evolved a possible outcome that offered a solution acceptable to all stakeholders in the Niger Delta, thereby transforming the conflict experienced into a cooperative situation where sustainable peaceful outcomes dominate.

4.6.6 Relationship between environmental information management practices and the conflict handling behaviour of the Niger Delta community leaders in Rivers and Delta states Nigeria.

The study results indicated a positively significant relationship between environmental information processes and conflict handling behaviour as a mediating variable. Leaders at any level to a large extent determine the direction and pace of progress in their spheres of influence. This has played out among the community leaders surveyed in the Niger Delta region. Studies on conflict handling behaviour have reported five methods of conflict handling which are: avoiding, smoothing or accommodation, forcing or directing, compromising and cooperation (Balay, 2006 and Kraybill, 2008).

4.6.7 Relationship between conflict handling behaviour as a mediating variable and conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

Results derived from this study show a significant relationship between conflict- handling behaviour and conflict outcome in the surveyed communities of Delta and Rivers states. This result implies that as community leaders continually improve on the conflict handling behaviour they exhibit by being flexible with their use of the various conflict handling behaviour styles as well as managing environmental challenges within their community spaces appropriately on their own merit, there will consequently be improved conflict outcome within their communities.

This improved conflict outcome means that community members will begin to experience sustainable peace in their communities as leaders become better informed about how their conflict handling behaviour could fuel or quell conflict within their spheres of community leadership influence. This outcome is what could engender desirable community development. For development at any level, especially at the community level to materialise, information is a crucial component. This has been

substantiated by the findings of Dent (2007) in his study on local economic development in Uganda and the connection with rural community libraries and literacy. Among the change agents capable of providing relevant information in accessible formats that could meet the information needs of community leaders on conflict- handling behaviour are librarians. This could be done through information outreach services offered by librarians or community -based information centres accessible to community members and their leadership where they could learn non-violent ways of resolving environmental conflict experienced within their communities.

4.6.8 Effect of environmental information management practices on conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

The research findings of this study have shown that environmental information management practices have a significant effect on conflict outcome of the respondents. These have shown that community leaders in the Niger Delta communities believe that positive conflict outcome which translates into sustainable peace within their communities is achievable where they can adequately manage the environmental information available in their communities from its creation to its disposition. The goal of information management, according to Detlor (2010), is to help people access, process, and use information efficiently and effectively and, by this, people are able to accomplish their task and become better informed, which means that the principles of information management (IM) could be applied in the context of environmental information management. Community leaders in the Niger Delta communities surveyed essentially should be open and cooperative to change agents such as rural librarians whose professional activities can positively influence conflict outcome within their communities.

4.6.9 Effect of conflict handling behaviour as a mediating variable on conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

Results showed a significant mediating effect of conflict handling behaviour on conflict outcome of community leaders in the Niger Delta communities surveyed. This implies that leadership behaviour can influence conflict outcome at the grassroots in the Niger Delta communities of Rivers and Delta states. The conflict handling

behaviour styles examined in the study are the ones explained by Balay (2006) and Kraybill (2008). According to these authors, people tend to exhibit five major conflict handling behaviours and these are: avoiding, smoothing or accommodation, forcing or directing, compromising and cooperation. Community Leaders in Rivers and Delta states combined these conflict handling behaviour styles in handling environmental conflicts arising from their various communities.

The community leaders interviewed all agreed in their responses that they exhibited these conflict handling behaviour styles because they want peaceful outcomes within their communities. Kraybill (2008) highlighted six conflict handling behaviour principles which touch on our human diversity and conflict which is a part of our human existence. Also, the human self-management, self-awareness, flexibility in applying the conflict handling behaviour styles, the uniqueness of each style and the fact that applying these styles is a continuous learning process that could sometimes not achieve the desired conflict outcome though but the person applying it can learn from his or her mistakes. Community leaders need to apply these principles to their leadership in their spheres of community influence in the Niger Delta communities.

4.6.10 Conflict handling behaviour significantly mediated the relationship between environmental information management practices and conflict outcome of the Niger Delta community leaders in Nigeria.

Results derived from this study showed that conflict handling behaviour have significant mediating effect on the relationship between environmental information management and conflict outcome of the community leaders surveyed in Rivers and Delta states. This shows to a large extent that community leaders in the two states surveyed possess some skills in the choice of the conflict handling behaviour they exhibit within their communities and this cuts across the various kinds of leadership examined; namely, men, women and youths. According to Kraybill (2010), each conflict-handling behaviour style has strengths and weakness and persons (community leaders in this context) are known to manage conflict in a healthy manner when they are able to use each conflict handling behaviour style well.

This ultimately achieves the goal of flexibility which is the product of appropriate use of each conflict handling behaviour style. These leaders form the critical group within the communities because they are “the interface” between the

community members they lead and external actors. These select groups of community leaders hold the key to any meaningful progress that will be achieved as their practice of environmental information management improves sequel to the conflict handling behaviour styles they exhibit as youths women and men. This leadership improvement will ultimately ensure improved, sustainable and functional peaceful outcomes within their communities.

This can happen when change agents like librarians take their rightful place by providing reading materials relevant to the needs of community leaders and their followership. In the Nigerian setting, the public libraries and the National Library is most suited to provide leadership in this regard through their outreach activities which ideally should be adequately funded and executed. Some aspects of this finding is supported by Kamba (2009) who stated, in his work on rural community development, that information is both a basic resource and an asset that African communities may use to improve their conditions of living and accelerate their rural development process.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings

The summary of findings derived from the study on environmental information management, conflict handling behaviour and conflict outcome is hereby presented.

Findings showed a prevalence of gas flaring as the major environmental information concern in the Niger Delta communities surveyed in Rivers and Delta states and traditional community rulers were the major stakeholders generating the environmental information available to the community members. Community leaders in the Niger Delta communities of states very highly preferred audio/aural formats such as town criers, and public address systems for generating environmental information while books and magazines were least preferred.

Environmental information was mostly captured by community leaders in text formats such as handwritten notes. Results revealed that community leaders designate a member of their community to take charge of organising environmental information available in the community. Environmental information is best organised among community leaders surveyed with the information formats available to them such as audio, print, text, graphics and video while results also showed a significant number not using any specific method of environmental information organisation. The traditional paper-based storage methods of keeping environmental information on shelves and files were found to be most utilised by the Niger Delta community leaders surveyed. These leaders also kept documents in any format on environmental information in other places other than where the originals were kept as backups in case of document loss.

Text formats ranked highest in terms of environmental information retrieval by community leaders when environmental information was needed for consultation. Community leaders best disseminated environmental information to a very high

extent, using town criers and the least utilised environmental information channels were emails and internet tools. These leaders also very highly utilised town criers for the channeling of environmental information within their communities while they least utilise emails and internet tools.

The findings on environmental information disposition revealed that community leaders in Rivers and Delta states disposed environmental information by keeping them away for use whenever it is required. The dominant conflict handling behaviour style exhibited by community leaders was the Accommodating/harmonising style.

The peaceful conflict outcome, depicting stability and functional peace within the communities, predominated among community leaders' perceptions when measured against their environmental information management and their conflict handling behaviour styles. There was a significant relationship between environmental information management practices and conflict outcome of the Niger Delta community leaders in Nigeria. There was also a significant relationship between environmental information management practices and the conflict- handling behaviour of the Niger Delta community leaders in Nigeria

There was a significant relationship between the conflict handling behaviour as a mediating variable and conflict outcome of the Niger Delta community leaders in Rivers and Delta Nigeria. There was also a significant effect of environmental information management practices on conflict outcome of the Niger Delta community leaders in Rivers and Delta Nigeria. Conflict handling behaviour is a mediating variable on conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria. Conflict handling behaviour significantly mediated the relationship between environmental information management practices and conflict outcome of the Niger Delta community leaders in Rivers and Delta states Nigeria.

5.2 Implications of the findings

The study holds implications for sustainable peace among all stakeholders in the Niger Delta communities surveyed. There is the urgent need for concerned change agencies such as public libraries whose ideal mandate includes information outreaches to remote rural settings and community-based information centres to continuously provide access to adequate, timely and relevant environmental information as well as information on community leadership which ultimately creates awareness among

community leaders on the need for proper documentation of the environmental information generated in their communities towards improving the conflict outcome among them. Properly informed communities are empowered communities, hence, there is need for proper documentation of community-based environmental information which ideally forms the baseline of available environmental information necessary for meaningful deliberations with the companies creating the environmental pollution experienced by community members.

There is the need for the Niger Delta community leaders to be enlightened on the benefits of properly managing the environmental information generated within their community spaces. The best change agents equipped with the expertise to do this effectively and efficiently are libraries, especially those that are publicly owned.

5.3 Conclusion

Librarians by nature of what they do, providing information and working with knowledge, form a significant part of the change agents needed to bring about peaceful conflict outcomes in our communities, especially communities in the Niger Delta that have over decades suffered environmentally as a result of oil exploitation. There is therefore an urgent need for environmental information to be properly managed and harnessed within the Niger Delta communities and librarians should play a significant role in this process. The Niger Delta Community leaders, men, women and youths require information about how best to lead their people in ways that can help to manage peace and deescalate violence within their communities. Finally, Environmental information management (EIM) coupled with suitable conflict handling behaviour could encourage peaceful conflict outcomes in the Niger Delta communities affected by oil induced environmental degradation especially Rivers and Delta states investigated in this study.

5.4 Recommendations

The research findings reveal a prevalence of gas flaring information among the Niger Delta communities therefore concerted efforts by appropriate government and non-governmental agencies for which librarians are significant key players should be geared towards the provision of adequate environmental information on gas flaring particularly and other information about environmental issues (generally resulting from oil exploration) so that community members will be well informed.

Traditional rulers and village heads were found to be the major community stakeholders generating environmental information available to the community members; therefore it is recommended in this study that any meaningful intervention relating to the environmental challenge confronting the community members by the appropriate agencies must include them as they are the major information gate keepers within the communities they govern.

The research findings reveal audio/aural formats such as town criers, and public address system are the most preferred information channels used for creating environmental information by community leaders, future interventions by appropriate agencies of government should use these familiar information channels and gradually introduce other more modern means of generating environmental information within the communities that will be efficient and more effective in the long run.

Results revealed that community leaders mostly captured environmental information in text formats such as handwritten notes and minutes of meetings held, therefore, concerned stakeholders for peace could encourage them to use the richer formats of information such as videos and graphics more since these provide more cues.

Results revealed that majority of the community leaders designate a member of their community to be in charge of organising environmental information available in the community. This practice should be strengthened by librarians and appropriate agencies working in the communities. Results indicated that environmental information is best-organised among community leaders surveyed with the information formats available to them such as audio, print, text, graphics and video while some community leaders do not follow any specific arrangement. Those who already use a pattern of arrangement should be further encouraged to do more by appropriate agencies, such as public libraries, teaching them how to improve on the method they already practise. Community leader with no specific practice of environmental information organisation should be taught from the scratch on the need and value of environmental information organisation methods.

Findings revealed that the best methods of environmental information storage in the Niger Delta communities surveyed are keeping these materials on shelves and files. The study recommends that the practice of storing environmental information electronically should be given high consideration in the communities by appropriate agencies willing to provide this kind of assistance. Any intervention in this regard

should provide the communication infrastructure required to accomplish it. This will help community leaders speed up their decision-making process in leadership.

Text formats ranked highest in terms of environmental information retrieval by community members when environmental information is needed for consultation. In addition, proper documentation measures for text formats as well as other formats such as videos and audios should be encouraged by appropriate government agencies.

Community leaders best disseminate environmental information to a very high extent using town criers while least-utilised environmental information channels are emails and internet tools. However, faster methods of environmental information dissemination such as the use of computer, e-mails and internet tools should be encouraged by appropriate government agencies.

Community leaders in the Niger Delta communities very highly utilised town criers as channels of environmental information within their communities while they least utilised e-mails and internet tools and motion pictures. Therefore the use of richer formats presently least utilised within the Niger Delta communities should be encouraged by concerned government agencies and non-governmental organisations as well as community-based organisations working to ensure peaceful outcomes in the communities. Community leaders dispose documents in any format on environmental information in other places other than where the originals are kept as backups in case of document loss. Therefore, methods can be taught to the community leaders already practising this method of disposition, while those not disposing correctly can be put right by appropriate government agencies.

Community leaders in the Niger Delta communities surveyed place high value and consider as very important environmental information sent down by government agencies and oil companies. The bottom-top approach should supersede the top-bottom approach to communication of community leaders with the concerned government agencies and oil companies doing business in the Niger Delta. The bottom-top approach ensures that the voice and actual needs of the community are truly tabled and adequate attention is given to avoid white elephant projects with no relevance to the needs of community members. Community library spaces could be provided and utilised as venues where community leaders and other community members can meet to share resourceful information on the environment and its challenges experienced within their communities.

The study revealed that community leaders organise the environmental information they get by keeping it away for use where it is necessary. Therefore, the public library professionals in the Niger Delta whose working mandate ideally should include rural library outreaches could complement the efforts of these Niger Delta community leaders by showing them how the task of organising environmental information could be better done.

Findings showed that community leaders exhibited a fair overall conflict handling behaviour in their communities and the dominant conflict handling behaviour style exhibited by most community leaders is the Accommodating/harmonising style. Concerted efforts should, therefore, be made by concerned change agents such as public libraries and other government agencies relating to good governance in Nigeria to provide information resources through their activities on conflict handling behaviour of leaders, especially community leaders which can help them respond well to future environmental conflicts within their spheres of leadership.

Findings showed that the peaceful conflict outcome, depicting stability and functional peace within the communities, predominated among community leaders perceptions when measured against environmental information management and the conflict handling behaviour styles of community leaders. Community leaders in the Niger Delta, therefore, can benefit from any training and information targeted at promoting the principles of peaceful outcomes which depict stability and functional peace within their communities.

Research findings showed a significant relationship between the variables studied: environmental information management, conflict handling behaviour and conflict outcome, therefore vital information has been provided to concerned government agencies such as public libraries on the urgent need to assist the communities in the Niger Delta with workable environmental information management and conflict handling behaviour frameworks that will, over time, translate into improved and sustainable peaceful outcomes.

Results also showed that conflict handling behaviour significantly mediated the relationship between environmental information management practices and conflict outcome among community leaders in the Niger Delta communities, therefore any meaningful and impactful community intervention by government agencies such as public libraries on the issue of environmental conflict must include or involve the community leaders who are the cultural and information gatekeepers at every stage.

5.5 Contributions of the study to knowledge

The concepts of environmental information management, conflict handling behaviour and conflict outcome are essential information-driven process in the pursuit of sustainable peace in the Niger Delta communities studied. The following contributions to knowledge are hereby stated:

The conceptual model developed for this study provided a good insight into how environmental information management could be used to improve conflict outcome through the adoption of better conflict handling behaviour among the Niger Delta community leaders of Rivers and Delta states.

Environmental information management is a critical factor for improved conflict outcome among the Niger Delta community leaders of Rivers and Deltastates. Conflict handling behaviour is an essential mediating ingredient to enhance conflict outcome in the Niger Delta communities of Rivers and Delta states.

Sustainable peace could be guaranteed through the suitable use of conflict-handling behaviour and environmental information management. Rural librarianship has a critical role to play in ensuring peaceful outcomes in the environmentally-challenged communities of the Niger Delta area.

This study provided new and in-depth understanding of how the environmental information management practices investigated through the principles of the information lifecycle management, from its creation to its disposition, affected the conflict handling behaviour of community leaders and their ability to resolve or improve environmental conflict outcome caused by oil exploration in the Niger Delta communities.

The study has also uncovered the conflict handling behaviour styles harnessed by these community leaders within the oil-bearing communities of Rivers and Delta states in relation to environmental conflict outcome caused by oil exploration. This was done with a view to provide practical information that will hopefully enhance their future leadership strategies.

Environmental information management practices (EIMP) coupled with suitable conflict handling behaviour stimulated peaceful conflict outcome in the environmentally challenged communities in the Niger Delta areas, especially investigated in this study. Findings derived from this study have also added to the body

of literature on environmental conflict management, conflict handling behaviour and conflict outcome in the Niger Delta communities of Rivers and Delta states.

5.6 Suggestions for further study

This study explored conflict handling behaviour as a mediating variable and how it relates to environmental information management practices and conflict handling behaviour on conflict outcome among community leaders in two Niger Delta states. These same variables can also be applied to other environmentally-challenged communities in Nigeria.

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APPENDIX 1

QUESTIONNAIRE ON ENVIRONMENTAL INFORMATION MANAGEMENT, CONFLICT HANDLING BEHAVIOUR AND CONFLICT OUTCOME (QOEIMPCHBACOS)

Questionnaire for Community leaders

Dear Respondent,

I am a graduate student at the University of Ibadan. This questionnaire is aimed at gathering information, on the topic mentioned above, for research purposes only. Your cooperation in completing it objectively would be highly appreciated. There are no risk in your participation in this study. Confidentiality of the information obtained from you is guaranteed. Participation in the study is voluntary. Thank you for taking the time to assist me in my educational endeavours.

Evelyn Nkechi Emeahara

Department of Library, Archival, and Information Studies, Faculty of Education, University of Ibadan, Ibadan.

Section A: Demographic Information (please tick (√) or fill in the gaps as appropriate)

1. State-----
2. Local Government Area (L.G.A.):-----
3. Name of community:-----
4. Position held in the Community: -----
5. Gender: (1) Male [] (2) Female []
6. Age: (1) Below 25[] (2) 26-29[] (3) 30-34[] (4) 35-39[] (5) 40-44[] (6) 45-49[] (7)50-54[] (8)55+ []
7. Marital Status: (1) Single[] (2) Married[] (3) Divorced[] (4) Separated [] (5) Widowed []
8. Educational qualification/Level of Education: (1)First sch. leaving certificate[] (2) GCE/WAEC (O LEVELS) [] (3) NCE/OND [] (4) HND/BSC/BED [] (5) MSC/M.A [] (6) PHD [] please specify others not listed here if applicable [] -----

Section B: Environmental Information Creation Scale (Please tick (√) as appropriate)

(NOTE: **Environmental Information** refers to news, messages, ideas, facts and processed data obtained from published and unpublished sources that are capable of increasing or improving the knowledge state of the users or recipients on issues relating to environmental problems.)

9.What type of environmental information formats do you use as a community leader to create environmental information (EI)?

Items	Never used to create EI	rarely used to create EI	Moderately used to create EI	Highly used to create EI	Very Highly used to create EI
Audio /Aural (e.g. Radio, Public Address System, Town criers etc.)					
Print (i.e. Letters flyers, bulletins Books, magazines etc.)					
Video (VCDs, DVDs etc.)					
Text (e.g. SMS, memos, word processed files etc.					
Graphics (pictures, etc.)					

Section C: Environmental Information Capture Scale (Please tick (√) as appropriate)

11. Kindly rate how environmental information is captured in your community?

Items	Undecided 0	Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4
AUDIO FORMATS:					
Environmental information I get is captured in audio tapes.					
Anytime I get new information about the environment, I capture it in any audio digital format such as mp3s, and mp4.					
PRINT FORMATS:					
I publish environmental information in books and reports.					
I record environmental information in forms/notes/tables.					
I note information I get about the environment in minute books of meetings held.					
GRAPHIC FORMATS:					
I keep snap shots/photos about damage to the environment.					
Environmental information in our community is documented in maps.					
VIDEO FORMATS:					
I document environmental information in videos. (CVDs).					
I document environmental information in DVDs.					
TEXT FORMATS:					
I gather environmental information in hand written notes.					
Environmental Information I have is recorded on my phone's inbox or archive.					
Environmental information I use is captured in a database.					

Section D: Environmental Information Organisation Scales (Please tick (√) as appropriate)

12. How are these records organised?

Items	Never organised 1	rarely organised 2	organised 3	Highly organised 4	Very Highly organised 5
By format (e.g. audio, print, video, text, or graphic).					
Along timelines (.e.g. week by week, month by month or year by year.					
By type of environmental information(e.g. oil spillage, gas flaring etc.					
By mixed format (e.g. CDs and print together).					
Listed or indexed (e.g. arranged in a particular order such as Alphabetically (a,b,c,) Or numerically (1,2,3).					
No specific arrangement.					
<i>Please write and rate others not listed here:</i>					

Section E: Environmental Information Storage Scales (Please tick (√) as many as applicable)

16. In what kind of storage facilities are your documents on environmental information kept?

Items	never stored 1	occasionally stored 2	stored 3	highly stored 4
Shelves.				
Cartons.				
Loose papers in folders.				
Ring binders.				
Bound volumes.				
Computer systems.				
Stored online.				
File cabinets.				
<i>Please write and rate others not listed here:</i>				

Section F: Environmental Information Retrieval Scale (Please tick (√) as many as applicable

17. When the environmental information you have collected needs to be consulted in any format how easy is it to recall them?

Items	Never easy retrieve 1	sometimes easy retrieve 2	easy retrieve 3	Very easy to retrieve 4
AUDIO/AURAL FORMATS				
Town criers.				
Talking drums.				
Voice Calls (e.g. GSM).				
Audio Tape cassette.				
Radio Broadcast.				
Public Address System (PAS).				
<i>Please write and rate others not listed here:</i>				
PRINT FORMATS				
Books.				
Periodicals (e.g. Bulletins and magazines).				
Reports.				
Government documents.				
Flyers.				
Letters.				
<i>Please write and rate others not listed here:</i>				
VIDEO FORMATS				
Videos { DVD/VCD }.				
<i>Please write and rate others not listed here:</i>				
TEXT FORMATS				
Manuscripts (Hand written notes).				
SMS (Text messages).				
Minutes of meetings.				
<i>Please write and rate others not listed here:</i>				
GRAPHIC FORMATS				
Photographs/pictures.				
Maps.				
Diagrams.				
Charts.				
<i>Please write and rate others not listed here:</i>				

**Section G: Environmental Information Dissemination Scales
(Please tick (√) as appropriate)**

18. Where environmental information need to be spread to concerned members of the community what channels do you employ and to what extent? (Please tick (✓) as many as applicable:

Environmental Information Channels	Never 1	Little Extent 2	High extent 3	Very high extent 4
Radio.				
Public Address system.				
Television.				
Local and national newspapers.				
Letters.				
Magazines.				
Newsletters.				
Posters and leaflets/Hand bills.				
E-mails/Internet tools.				
Motion pictures/slides.				
SMS (Text messages).				
Environmental enlightenment campaigns.				
Personal contacts.				
Religious associations.				
Market associations.				
Local meetings and associations.				
Town criers.				
Traditional rulers.				
Voice calls (e.g. GSM).				
<i>Please write and rate others not listed here:</i>				

Section H: Environmental information USE

19. What is your perception on environmental information use through the information channels in your community?

Environmental Information Channels	Never utilised 1	utilised 2	Highly utilised 3	Very highly utilised 4
Radio.				
Public Address system.				
Television.				
Local and national newspapers.				
Letters.				
Magazines.				
Newsletters.				
Posters and leaflets/Hand bills.				
E-mails/Internet tools.				
Motion pictures/slides.				
SMS (Text messages)				
Environmental enlightenment campaigns.				
Personal contacts.				
Religious associations.				
Market associations.				
Local meetings and associations.				
Town criers.				
Traditional rulers.				
Voice calls (e.g. GSM).				
<i>Please write and rate others not listed here:</i>				

Section I: Environmental Information Disposition Scale (Please tick (✓) as appropriate)

20. When records on environmental information are no longer in active use or have become “stale/old” how do you treat them?

Item	Never used disposition method 1	Occasionally used disposition method 2	Moderately used disposition method 3	Highly used disposition method 4
They are burned.				
They are shredded.				
They are kept away but not destroyed				
They are organised, kept away and can be used where necessary.				
Pulverised, that is crushed into powder.				
Given as gifts to food vendors.				
They are forgotten or discarded or neglected.				
<i>Please write and rate others not listed here:</i>				

21. Section J: Conflict handling behaviour Scale (Please tick (✓) as appropriate)

In this section, statements here are meant to find out your conflict handling styles

RARELY or **HARDLY** here means: Hardly happens, that is, hardly ever typical of the way I think and/or act in a conflict.

USUALLY or **Often** here means: Frequently happens or occurs, that is, very typical of the way I think and/or act in a conflict.

Tends not to be typical of the way I think or act in conflict (1)

Not typical of the way I think or act in conflict (2)

Definitely not typical of the way I think or act in conflict (3)

Tends to be typical of the way I think or act in conflict (4)

Typical of the way I think and or act in conflict (5)

Definitely typical of the way I think or act in conflict (6)

Key to conflict handling behaviour styles:

1=Cooperation 2=Accommodating 3=Directing 4=Compromising 5=Avoiding

S/ N	ITEMS	RARELY			USUALLY		
		1	2	3	4	5	6
	Calm settings When I first discover that differences exist and feelings are not yet high...						
1	I take steps to make sure all views are out in the open equally, both mine and others. I make it clear to others that their needs matter as much to me as my own.						
2	I devote as much energy to understanding my opponent's situation as to explaining my own. I give priority to harmony and set aside my personal preferences as necessary to achieve it.						
3	It matters more to me to keep things relaxed between us than it does to have the last word. I am more concerned with communicating the truth or getting the job done than with pleasing others.						
4	I am more concerned with goals or responsibilities I know are important than with how others feel about things I make my needs known, but I tone down and try to strike a bargain somewhere in the middle						
5	No one can have everything they want. I offer to give up some things in exchange for others give a little here and get a little there. I try to avoid the topic or person causing difficulty. Silence or distance prevents argument.						
	I decide the differences aren't worth worrying about; I change the topic or withdraw from discussion about it.						
	If differences persist and feelings escalate/rise, what do you do then?						
1	I put considerable effort into making sure our communication is good. I state clearly what I want and make sure the other person feels heard as well.						
2	I focus on mutual understanding; I go to great lengths to make sure that I really understand why others are upset and that they understand why I am upset. I set aside my own preferences and go along with the other person so as not to damage our relationship.						
3	I see how much the other cares about the matter and give in. I adapt so there is harmony. I put forth greater effort to state the truth or get the job done, and I put less effort into pleasing others.						
4	I focus more on my goals and less on how others feel about things. I try to be reasonable by reducing my demands, but I make sure I get at least some of what I want.						
5	I urge moderation and compromise. Everyone should accept a little less than what they really want so we can get on with things. I back off and let things rest as they are, even if it means that none of us gets what we really want.						
	I move away from the topic or the person causing difficulties and look for ways to keep a safe distance without actually giving in.						

Section k: Conflict outcome Scale A: Statements here are meant to find out whether you agree or disagree with the conflict results or outcomes and conflict situations in relation to environmental Information management issues as well as your relationship with community members.

Key to conflict outcome scale measured against environmental information management practices:

- 1= Information creation; 2= Information capture; 3= Information organisation;
- 4= Information storage; 5= Information Retrieval; 6= Information dissemination;
- 7= Information Use; 8= Information disposition

Kindly rate the following conflict outcome:

SD=Strongly Disagree (1), D=Disagree (2), A=Agree (3), SA=Strongly Agree (4)

S/N	Items	SD 1	D 2	A 3	SA 4
	As a community leader:				
1	When I hear new information about oil spillage, fire outbreaks etc. in the community and the oil company responsible take prompt steps in addressing it, this can lead to a peaceful outcome.				
	When I hear new information about oil spillage, fire outbreaks etc. in the community and the oil company responsible does not take steps in addressing it, this may not lead to conflict.				
	When I hear new information about oil spillage, fire outbreaks etc. in the community and the oil company responsible does not take steps in addressing it, this can lead to conflict outcome.				
2	When information about oil spillage, fire outbreaks etc. is properly captured within the community it can lead to peaceful outcomes.				
	When information about oil spillage, fire outbreaks etc. is not properly captured within the community it may not lead to peaceful outcomes.				
	When information about oil spillage, fire outbreaks etc. is not properly captured within the community it can lead to conflict outcomes.				
3	Recorded information about oil spillage, fire outbreaks etc. if well handled in terms of its arrangement can lead to peaceful outcomes in the community.				
	Recorded information about oil spillage, fire outbreaks etc. if not well handled in terms of its arrangement may not lead to conflict in the community.				
	Recorded information about oil spillage, fire outbreaks etc. if not well handled in terms of its arrangement could lead to conflict in the community.				
4	Where proper storage is provided to keep environmental information formats such as books, reports, videos, letters, and pictures, conflict within the community can be minimised.				
	Where proper storage is not provided to keep environmental information formats such as books, reports, videos, letters, and pictures, conflict within the community may not be minimised.				
	Where proper storage is not provided to keep environmental information formats such as books, reports, videos, letters, and pictures, conflict within the community can escalate.				
5	My ability to quickly find and recall information about oil spillage, fire outbreaks etc. facilitates peaceful outcomes in the community.				
	My inability to quickly find and recall information about oil spillage, fire outbreaks etc. may not lead to conflict in the community.				
	My inability to quickly find and recall information about oil spillage, fire outbreaks etc. can lead to conflict in the community.				
6	My ability to spread information by all means about steps to take in case of oil spills etc. can lead to peaceful outcomes in the community.				
	My inability to spread information by all means about steps to take in case of oil spills etc. may not lead to peaceful outcomes in the community.				
	My inability to spread information by all means about steps to take in case of oil spills etc. can lead to conflict outcomes in the community.				
7	The use of information about oil spillage and fire outbreaks through information channels have brought about peaceful outcomes in my community.				
	The non-use of information about oil spillage and fire outbreaks through information channels may or may not lead to peaceful outcomes in my community.				
	The non- use of information about oil spillage and fire outbreaks has brought about conflict outcomes in my community.				
8	When am done with any information about oil spillage and fire outbreaks etc. In Oral, print, or electronic formats, I discard or throw it away in order to keep peace within the community and so as not to remember it again.				
	My throwing away information about oil spillage and fire outbreaks etc. In oral, print, or electronic formats may not lead to conflict within the community.				

	My throwing away information about oil spillage and fire outbreaks etc. In oral, print, or electronic formats can lead to conflict within the community.				
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Section K: Conflict outcome Scale B: Statements here are meant to find out whether you agree or disagree with the conflict outcome and conflict situations in relation to your conflict handling behaviour (relationship) with community members.

Key to conflict outcome scale measured against conflict handling behavior styles:
1= cooperating; 2=accommodating; 3=Directing; 4=Compromising; 5= Avoiding

Kindly rate the following conflict outcome:

SD=Strongly Disagree (1), D=Disagree (2), A=Agree (3), SA=Strongly Agree (5)

S/N	Items	SD 1	D 2	A 3	SA 4
	As a community leader:				
1	When I highly focus on my own ideas and my relationship with members of my community on environmental issues such as fire outbreaks and oil spillage etc. it leads to peaceful outcomes.				
	When I highly focus on my own ideas and my relationship with members of my community on environmental issues such as fire outbreaks and oil spillage etc. it may lead to peaceful outcomes.				
	When I highly focus on my own ideas and my relationship with members of my community on environmental issues such as fire outbreaks and oil spillage etc. it leads to conflict outcomes.				
2	I believe that a low focus on my own ideas and a high focus on my relationship with community members on environmental issues will lead to peaceful outcomes in my community.				
	I believe that a low focus on my own ideas and a high focus on my relationship with community members on environmental issues may not lead to peaceful outcomes in my community.				
	I believe that a low focus on my own ideas and a high focus on my relationship with community members on environmental issues will lead to conflict outcomes in my community.				
3	When I give my own ideas a high focus and place a low focus on my relationship with community members on environmental issues it may or may not lead to peaceful outcomes.				
	When I give my own ideas a high focus and place a low focus on my relationship with community members on environmental issues it may not lead to peaceful outcomes.				
	When I give my own ideas a high focus and place a low focus on my relationship with community members on environmental issues it leads to conflict outcomes.				
4	When I give my own ideas as well as my relationship with community members a medium focus on environmental issues it leads to peaceful outcomes within the community because I meet them half way.				
	When I give my own ideas as well as my relationship with community members a medium focus on environmental issues it may not lead to peaceful outcomes within the community because I meet them half way.				
	When I give my own ideas as well as my relationship with community members a medium focus on environmental issues it leads to conflict outcomes within the community because I meet them half way.				
5	I achieve peaceful outcomes in the community when my focus on my own ideas and my relationship with community members on environmental issues such as fire outbreaks or oil spillages are low.				
	I may not achieve peaceful outcomes in the community when my focus on my own ideas and my relationship with community members on environmental issues such as fire outbreaks or oil spillages are low.				
	I achieve conflict outcomes in the community when my focus on my own ideas and my relationship with community members on environmental issues such as fire outbreaks or oil spillages are low.				

APPENDIX 2
INTERVIEW GUIDE FOR SELECTED COMMUNITY LEADERS IN RIVERS AND DELTA STATES

Greetings:

1. Briefly tell me about yourself sir/ma... in terms of:

- a) State
 - b) Name of community
 - c) Position held in the community
 - d) Gender
 - e) Age
 - f) Marital status
 - g) Educational qualification/level of education:
2. How long have you been a community Leader?
 3. Do you live among the community members?
 4. What are the Environmental challenges experienced in the community?
 5. How is environmental Information created in the community?
 6. How is environmental information captured in the community?
 7. How is environmental information organised/arranged in the community?
 8. How is environmental information stored and kept in the communities
 9. How is environmental information recalled/retrieved in the community
 10. How is environmental Information disseminated in the community
 11. How is environmental information used in the community?
 12. How is environmental information disposed in the community?
 13. Which Conflict handling behaviour style (1.cooperating, 2. accommodating, 3.directing, 4.compromising and 5.avoiding) best describe what you practice as a community leader?
 14. What kind of conflict outcome do you expect to experience in the future of your community?

APPENDIX 3

Natural Gas Flared as Percentage of Gross Production (1991)	
Country	Percentage of Gas Flared
U.S.A.	0.6
Holland	0.0
Britain	4.3
Ex-USSR	1.5
Mexico	5.0
OPEC COUNTRIES	
Nigeria	76.0
Libya	21.0
Saudi Arabia	20.0
Iran	19.0
Algeria	4.0
OPEC TOTAL	18.0
WORLD TOTAL	4.0

Source: Friends of the Earth, Nigeria, 2001

APPENDIX 4
Alternative definitions of data, information and knowledge

Author	Data	Information	Knowledge
Thierauf and Hoctor (2006)		Structured data useful for analysis and decision making	Obtained from experts based on experience
Desouza (2005)	Transduced outputs of sensors	Fusion of data; creation of the network incorporating both data and the relationships among data	Placement of information in its larger context (a necessary condition for understanding)
Wig (2004)		Data organised to characterise a particular situation, condition, context, challenge, or opportunity	Facts, perspectives and concepts, mental reference models, truths and beliefs, judgments and expectations, methodologies, and know-how.
Awad and Ghaziri (2004)	Static, unorganised and unprocessed facts. Set of discrete facts about events.	Facts based on reformatted or processed data. Aggregation of data that make decision making easier and has purpose and relevance	Higher level of abstraction that resides in people's minds. Includes perception, skills, training, common sense, and experiences.
Gallup et al (2002)		Data in context.	Integrated information in context.
Dixon (2000)	Unsorted bits of facts.	Data that has been sorted, analysed and displayed.	Meaningful links people make in their minds between information and its application in a specific setting.
Bourdeau and Couillard (1999)		Result of analysing and interpreting data that carries meaning.	Professional expertise appropriate for the domain. Things that are to be true and drive people to action.
Alavi and Leidner (1999)			Justified personal belief that increases an individual's capacity to take effective actions.
Applehans et al. (1999)	Measurements	A statement of fact about measurements.	Ability to turn information and data into effective action.
Davenport and Prusak (1998)	A discrete, objective fact about events.	Data that make a difference.	A fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information.
Liebowitz and Wilcow (1997)	Representation of a fact, number, word, image, picture or sound.	Data that has been assigned meaning.	The whole set of insights, experience, and procedures that are considered correct and true and that, therefore guide the thoughts, behaviour, and communication of people.
Vance (1997)			Information that has been authenticated and thought to be true.
Stacey (1996)		Data with special relevance and purpose.	
Nonaka and Takeuchi (1995)		Data put in context. Information is about meaning.	Justified true belief. Knowledge is tied to action.
Argyris (1993)			Capacity for effective action.
King (1993)		Data that make a difference	
Goldman (1991)			Justified true belief.
Ackoff (1993)	Symbols	Data that are processed to be useful	Ability to answer "How" questions.
Aune (1970)			Information in context.

Source: Adopted from Faucher, J. - B. P. L., Everett, A. M. and Lawson, R. (2008).

APPENDIX 5

