Journal of International Business, Innovation and Strategic Management

Volume 5, Issue 3, 2021, ISSN (Online): 2617-1805

Journal of International Business, Innovation and Strategic Management

2021: 5 (3): 181- 196

ISSN: 2617-1805

RELATIONSHIP BETWEEN PARTICIPATORY DECISION-MAKING AND ENVIRONMENTAL SUSTAINABILITY IN OIL AND GAS PROJECTS

***Richard K. Too, C., [1]Prof. Harriet Kidombo, [2]Prof Christopher Gakuu**

[*, 1 & 2] School of Open and Distance Learning, Department of Open Learning, University of Nairobi, Kenya

***Corresponding Author Email: rt7750@gmail.com**

To Cite this Article:

Too, R.K.C, Kidombo, H. & Gakuu, C. (2021). Relationship between Participatory Decision-Making and Environmental Sustainability in Oil and Gas Projects. *Journal of International Business, Innovation and Strategic Management*, 5 (3), 181- 196

ABSTRACT

The rapid exploitation of petroleum oil and natural gas poses a significant environmental and ecological danger to the immediate environment owing to oil spills, effluent discharge and gas flaring. Furthermore, petroleum upstream activities present legal, political, economic, financial, technical and environmental problems. Participatory monitoring and evaluation have often been sidelined and in Africa where the oil drilling activities are booming, decisions are often made without any exhaustible effort to include inputs or views of those whose livelihoods stand to be negatively impacted by the oil and gas activities. The study sought to examine how participatory decision-making influences environmental sustainability. The study adopted the pragmatic paradigm which supports the mixed methods which was of interest to the researcher. The unit of analysis for this study were the stakeholders in the oil and gas upstream project in Turkana County, Kenya. The target population comprised of 549 participants distributed as follows:134 Tullow oil management employees, 226 Turkana community village households, 20 Turkana County government leaders, 14 Management staff at the Ministry of Energy and 65 Environmental NGOs. The study used stratified simple random sampling. From the

linear correlation analysis, the findings reveal a strong positive relationship between participatory decision making and environmental sustainability of the oil and gas upstream project in Kenya. (Correlation coefficient 0.652**). The model's goodness of fit measure suggested participatory decision making explain 53.1% of the total variation in environmental sustainability in the case oil and gas upstream project in Turkana County, Kenya. The study thus concluded that participatory decision makingg is a significant factor in ensuring environmental sustainability in the oil and gas upstream project in Turkana County, Kenya.

Key Words: *Participatory Decision Making, Environmental Sustainability, Oil and Gas, Upstream Projects, Participatory Monitoring and Evaluation, Rapid Exploitation*

BACKGROUND OF THE STUDY

The concept of sustainability denotes management that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Bank, 2010b). According to Aras and Crowther (2012), there are four elements of sustainability which need to be acknowledged and investigated. They include; community influence, which assesses the effect a community makes upon the project in terms of the social contract and stakeholder influence; environmental impact, which is the influence of the project on its geophysics environment; organizational culture, which is the relationship between the project's internal stakeholders; and finances, an adequate return for the level of risk undertaken in pursuit of sustainable development and financial sustainability. United Nations (UN) designates three pillars of sustainability: economic, social, and environmental (United Nations, 2002). This study will focus only on environmental sustainability. Oil and gas upstream are associated with many environmental and socio-economic impacts (Baptiste and Nordenstam, 2009). Oil production is regarded a polluting industry and with its relatively large environmental footprint it also produces large amounts of waste that is deposited to the sea, land and water. Oil companies are largely responsible for causing environmental degradation through oil spillage and gas flaring. From the time when the industrial uprising and the discovery of oil on the earth's surface began, the oil industry has been the main purveyor of energy worldwide. The world economy is highly dependent on oil (Pegg & Zabbey, 2013). It has been established that a robust, prolific, and efficient petroleum industry is essential to pecuniary and social success.

According to Energy Information Administration (2007), the energy produced from fossil fuels will continue to be the main source of energy and is still projected to meet about 84% of energy demand by 2030. The oil and gas industry are customarily divided into three major sectors: upstream (or exploration and production- E&P), midstream and downstream. The upstream sector comprises searching for probable underground or underwater crude oil and natural gas fields, drilling exploratory wells, and afterwards boring and operationalizing the wells that recover and bring the crude oil or raw natural gas to the surface. The midstream consist of the distribution system such as tankers and pipline that carry crude oil to various refineries and storage tanks (Schweitzer et al, 2011; Riba et al, 2011; Brigs et al, 2012) while downstream operations comprise refining/processing, transportation, marketing and distribution of petroleum products (Briggs & Tolliver, 2012).

Participatory Decision-Making

Decision making is defined as choosing between alternatives (Moorhead and Griffin, 2004). It can be regarded as an outcome of mental processes (cognitive processes: memory, thinking, evaluation) leading to the selection of a course of action among several alternatives. Decision making involves mapping the likely consequences of decisions, working out

the importance of individual factors, and choosing the best course of action to take. In the decision-making process, the decision maker's actions are guided by a goal. Each of the several alternative courses of action is linked to various outcomes. Information is available on the alternatives, on the value of each outcome relative to the goal. The decision maker chooses an alternative on the basis of his/her evaluation of the information (Moorhead & GrifCin, 2004). Decision making can also be defined as "the process of identifying and selecting a course of action to solve a particular problem" Store and Freeman (1984). It can also be defined as a thought process of selecting a logical choice from the available options in decision making process.

Participatory decision-making is a creative process that gives ownership of decisions to the whole group, thus favoring individual input in the management of the organization (Cotton, Vollrath, Froggatt, Lengnick-Hall, & Jemings, 2008). Participatory decision-making involves management treating the ideas of all stakeholders with respect and consideration in decision making process. There are two basic rationales for participatory decision-making (Black & Gregersen, 2007; Dachler & Wilpert, 2008). The first is that people have the right to participate in decisions that affect their lives. It is assumed in this rationale that the individuals have the potential to participate intelligently. The second rationale is that participatory decision-making is an instrumental way to achieve higher productivity, efficiency, profits and other valued organizational results. Therefore, participatory decision-making implies to when organizations directly delegate to non-management a significant amount of decision-making authority.

Participatory decision-making can range from formal to informally structured systems (Wagner & Gooding, 2008). A formally structured system has explicit rules and procedures concerning who participates, what decisions employees participate in, and how the participation occurs. An informal participatory decision-making system has informal rules as to what can be discussed and who is allowed to participate (Black & Gregerson, 2007). Formal structures tend to be more common than informal structures. Dachler and Wilpert, (2008) and other scholars have also identified that there are two types of forms that are identified in participatory decision-making. Direct forms allow the participants to be involved immediately in the decision-making process and they are allowed to present their information, preferences, and opinions to the other members involved in the decision. When there is a restricted set of individuals that are elected, rotated, or appointed as representatives, it is known as an indirect form of participatory decision-making (Black & Gregersen, 2007). The study thus asserts that although individuals are allowed to present their information, preferences, and opinions, they have to present them to representatives who interact to make the decisions.

STATEMENT OF THE PROBLEM

The Petroleum industry has been criticized by researchers, non-governmental organizations (NGOs) and environmentalists for its high environmental impact, health and safety issues and environmental damages which is mainly attributed to lack of effective sustainability management and processes to decrease the negative effects of it (Krupnick & Gordon, 2015). They believe that sustainability approaches and systems are essential for better-performed petroleum operations, less carbon dioxide, methane, nitrous oxide emissions and more social, economic and environmental benefits. According to Fuchs (2017), advancement in engineering and technology, have improved petroleum operations' effectiveness in relation to production and sales, but environmental sustainability has been neglected for quite some time. Participatory monitoring and evaluation have often been sidelined more so in Africa where the oil drilling activities are booming, decisions are often made without any exhaustible effort to include inputs or views of those whose livelihoods stand to be negatively impacted by the oil and gas activities. Such development has resulted in most cases conflicts and

political instability especially in developing countries. It has been noted that the people in the community where oil and natural gas is discovered have very little if at all any, information about oil and natural gas as well as the oil and natural gas exploration activities and how these activities can affect their community and their environment (Barasa & Jelagat, 2013).

Upstream activities of oil and gas in Turkana County is likely to induce ecological, social and cultural changes. The extent of these changes, whether positive or negative, is pivotal to the local groups, particularly indigenous people who may have their traditional lifestyle affected. Whereas there are clear commercial benefits associated with the oil and gas exploration, there are many problems associated with oil as well. Oil and gas industry, despite being the mainstay of global economic progress, is known for damaging the environment, destroying habitats and adversely affecting the livelihood of communities living near operation sites (Baptiste and Nordenstam, 2016). The rapid exploitation of petroleum oil and natural gas poses a significant environmental and ecological danger to the immediate environment owing to oil spills, effluent discharge and gas flaring. Furthermore, petroleum upstream activities present legal, political, economic, financial, technical and environmental problems (Otti & Okafor, 2012). Oil spillage has been a global menace since the discovery, exploration and exploitation of crude oil, which was part of the industrial revolution (Kadafa, 2012). For instance, A comparative study was conducted on sustainable exploration of oil and gas in the United Kingdom and Nigeria which had two case study areas which included a total of 13 focus group, 86 questionnaires and 7 interviews (Inomiesa, 2015). Analysis of this data showed that the oil and gas exploration activities in Nigeria are different from that in the UK.

Morakinyo and Odigha, (2009) assert that the oil companies in the Niger Delta went wrong by giving little appreciation to environment and people relationship, management of environmental impacts and they did not also place importance on engaging with local social fabric and building capacity. The different aspects of participatory monitoring and evaluation that have been researched include Njuki, Kaata, Chitike and Sanginga (2006) who looked at participatory monitoring and evaluation on stakeholder's engagement assessment of projects impacts and for institutional and community learning and change in Uganda. Oyuga (2012) looked at the determinants of adoption of participatory monitoring and evaluation in management of public secondary schools in Kisumu East District, Kenya; Kimweli (2013) examined the role of monitoring and evaluation practices to the success of donor funded food security intervention projects; Mburu (2018) on participatory monitoring and evaluation, capacity building of stakeholders and performance of fish farming projects and Mwangi (2018) evaluation on effective external stakeholders engagement in a case study of upstream oil and gas sector in Kenya. Conversely, from the reviewed previous studies, little if any has been done on the interdependence between participatory planning for monitoring and evaluation activities, participatory decision making, participatory learning and action and environmental sustainability. Moreover, none of the studies concentrated on the oil and gas. There is therefore a knowledge gap that exists on participatory decision making and environmental sustainability of oil and gas upstream project upon which this study is based.

LITERATURE REVIEW

It is suggested that both "participant satisfaction and decision quality is a function of the knowledge individuals involved in the decision bring to a particular issue (Miller & Monge, 2006). Locke and Schwieger (2009) identified five distinct processes in participatory decision making " identifying problems or issues, generating alternative solutions to the problem, selecting a specific solution, planning the implementation of the selected solution, and evaluating the results of

the implementation". Participatory decision-making process is complex and involves many uncertainties, actors and vulnerable groups. In democratic states public participation in the decision-making along with the project proponents and government entities is well established process. Internationally, public participation became the well acknowledged tool for environmental decision-making after the United Nations (UN) 1992 Rio Conference on Environment and Development. Principle 10 of the Rio Declaration stated: "environmental issues are best handled with the participation of all concerned citizens at the relevant level" (UN, 1992). Later (in 1995) the UN/ECE Guidelines on Access to Environmental Information and Public Participation in Environmental Decision-making (Sofia Guidelines) was one step forward the international community made towards the better environmental governance (Stec & Casey-Lefkowitz 2000). The Guidelines identified public participation as one of the seven important elements of the long-term environmental program for Europe. The most important landmark is the convention on access to information, public participation in decision-making and access to justice in environmental matter, well-known as the Aarhus Convention, adopted at the fourth ministerial conference environment for Europe in Aarhus, Denmark in 1998.

Initially 39 countries of European community signed the Convention in 1998 and it came into force in 2001. The Convention was based on three 'pillars': access to information, public participation and access to justice. Public participation in decision-making pillar is largely based on the first and third pillars, specifically the information pillar guarantees the informed participation, while the access to justice assures that public participation occurs in reality and not on a paper (Stec &Casey-Lefkowitz, 2000). Aarhus Convention set the minimum requirements of public participation with purpose to empower civil society and individuals in order to get powerful actors in the process of democratization itself (Stec, 2005). The study finds public participation pillar with three different domains, participation in decisions on specific activities, participation in adopting policies and programs with regard to the environment and participate in preparation of the specific regulation or any legally binding normative mechanisms.The need for fuller and more inclusive democratic participation is embedded in the Sustainable Development Goals (SDGs). Goal 16 specifically calls for "responsive, inclusive, and participatory and representative decision-making at all levels" (United Nations General Assembly 2015). For many policy-makers and environmental advocates, public participation is an intrinsic good, regardless of outcome (Rosenbaum 1978; Thomas 1990). Allowing impacted communities and other stakeholders to take part in decision-making is a basic component of democracy.

The National Environmental Policy Act (NEPA) of the USA in 1969 made the public participation in the environmental decision-making institutionalized at the country level through adopting Environmental Impact Assessment EIA system. Soon the debates to involve the public in environmental matters have widespread all over the world, here of course the international forums such as United Nations, World Bank, IFC played key role. In parallel, the controversies over the environmental and social issues and economic growth, have given CEU eTD Collection further incentives to public participation (O'Faircheallaigh, 2010). The citizens, non-governmental organizations (NGOs) and advocacy organizations emphasized number of gaps in the existing practice of the citizen`s involvement and demanded the urgent changes. There are three distinct strands woven into the discourse on participation that has developed in relation to environmental decision-making since the 1970s: 'the citizenship', 'the community-centered', and 'the stakeholder' participatory orientations. Each approach deploys a variety of arguments to make its case for enhanced public involvement in environmental decision-making, but each also has a primary focus. The citizenship strand emphasizes opportunities for each individual citizen to contribute to public life and to have a say in decisions which effect their future.

Citizens should have access to environmental information, be able to participate in debate, and to take part in making and implementing environmental policy. Communities should be able to manage their own affairs; to contribute to environmental decision processes in the larger political units of which they are a part; and to be involved in determining outcomes on issues which impact them directly. Finally, the stakeholder stand emphasizes the common interests of groups bound together through social interaction, and the participation of all social partners in determining the best way forward. Stakeholders should work together to develop solutions to environmental problems in which they are enmeshed. The intellectual roots of these three participatory strands can be traced back a long way, and each tap into well-established traditions of argument about the meaning of democratic government (Saward, 1998, Weale, 1999). The community-centered strand emphasizes local communities, their distinctive character and modes of being, and their entitlement to participate in decisions that affect their development. The scholars advocating the idea of citizens' inclusion in the decision-making, most frequently refer to the instrumental, substantive and normative rationales (Wesselink et al, 2011). Effective public participation makes government decisions legitimate. There are the cases when the decisions do not consider the opinion of each participant individually (Fiorino 1996), though the public opinion shall affect the decisions.

Petts (2003) emphasize that for the project developers it is important to achieve the legitimacy of the decisions through the public participation in order to avoid protests and opposition to the decisions that may delay or halt their implementation. Substantive rationale supports the idea that citizens have invaluable contribution due to their unique, non-scientific knowledge about the local resources, issues and problems, experts may lack. It provides the 'breadth and depth' of the information and ensures the better quality of the decisions (Wesselink et al, 2011). The objectives of normative rationale are associated with the democratic principles. Scholars argue that since the decisions related to the natural resources virtually have an effect on everybody`s life, every individual shall be given the chance to influence the decision (Glucker et al, 2013). Moreover, it suggests that the process of the public`s participation in the decisions that have direct impact on them, can make them better citizens in future since "we learn to participate by participating and that feeling of efficacy are more likely to be developed in a participatory environment" (Fiorino 1996). The Instrumental rationale aims to identify and resolve the conflicts before the final decision about the projects are made.

Public participation enables citizens to learn about the environmental problems and leads to change their behaviour (Coenen 2008). One more important objective of the public participation is its contribution to the social learning (Fiorino, 1996); with this regard authors argue that public participation in the environmental decision-making enables "deliberation among the stakeholders that results with the social learning"(Glucker et al 2013; Garmendia et al 2010). An important aspect of public participation in environmental and resource management decision making is the ability to tap into traditional knowledge while also answering the call for social responsibility through the incorporation of local values. Local and traditional knowledge has value in widening the scope of perspectives that are incorporated into planning and management (Mitchell, 2002). As pointed out in Webler *et al.* (1995), the incorporation of local knowledge provides greater competence in decision making and technical assessments of higher quality. In a society faced with increasing scientific complexity and uncertainty (Bocking, 2004). In addition to decreasing consensus as to how resources ought to be managed, wider public participation provides stability by spreading out the risk involved in environmental decision making.

Local or "lay" knowledge plays an especially important role in implementing international commitments, like the 2030 Agenda on Sustainable Development (Fox & Stoett 2016). While the Sustainable Development Goals are global in scope, the actual policy development and implementation occurs at the national, regional and local level. Policy-makers must translate the global targets to reflect real-world conditions (Fenton and Gustafsson 2017). Top-down translation, without widespread public input, can lead to policies that disregard local priorities and specific development contexts. Multiple studies have demonstrated that whether or not the public accepts a decision hinge on whether or not the public sees the decision-making process as fair (Bulkeley & Mol 2003; Lind & Tyler 1988; Newig 2007; Murphy 2004; Tyler 1990). Engaging the public in decision-making can help overcome deficits in democracy, such as distrust of political leaders, declining faith in public agencies, and low voter turnout (Dalton 2008; Newig 2007; Nye et al. 1997; Welp et al. 2009). In much the same way, public participation also addresses the distrust that results from the predominance of experts in environmental decision-making. The broad call to expand public participation has led to a rapid proliferation of public meetings, advisory committees and other government initiatives specifically designed to facilitate citizen engagement in the decision-making process (Coenen 2009; Fung 2006; Richardson & Razzaque 2006; Smith 2009).

However, public input is not limited to formal participation mechanisms. Civil society and social movements exert pressure from outside the political process; this mobilization uses a range of tactics such as community forums, neighborhood coalitions and petitions to influence policy development. In fact, nearly all contentious decisions today are shaped by both structured public participation and mobilization. Since the 1990s, there has been a rapid expansion in formal, state-based frameworks to facilitate public participation in decision-making. One approach, broadly referred to as "participatory democracy", solicits opinions and concerns from relevant stakeholders throughout the decision-making process (Escobar 2017). Environmental impact assessments, strategic environmental assessments, and public inquiry mechanisms which are all commonly used invited spaces within conventional environmental decision-making exemplify this approach (Maloff, Bilan and Thurston 2010). In short, they recast administrative decision-making as a collective exercise involving the public. This study thus seeks to establish the correlation between participatory decision making and environmental sustainability of the oil and gas upstream project in Turkana County, Kenya.

RESEARCH METHODOLOGY

The study adopted a pragmatic research paradigm as the main philosophical underpinning. This paradigm assumes that knowledge arises from actions, situation and consequence rather than antecedent conditions (Creswell, 2012). This study adopted a mixed method to connect both quantitative and qualitative methods in the study (Creswell, 2012). Since the study used a mixed method, it was used in a sequential manner, where the researcher sought to elaborate on or expand the findings of one method with another method. To establish the relationship between the study variables, correlation and regression analysis were adopted.

RESEARCH FINDINGS AND DISCUSSION

The study sought to establish the respondents' opinion on various statements on participatory decision making in the oil and gas upstream project in Kenya. The findings are illustrated in the table below as shown in Table 1.

Table 1: Participatory Decision Making

Statements	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Prioritizing decisions on environmental sustainability is key to the success of Oil and Gas Upstream Project	3.00	5.00	4.0161	.80186
Priority-oriented decision-making process increases the chance of completing project	3.00	5.00	4.0645	.80949
Prioritizing decisions aids in mapping the best course of action in environmental sustainability	3.00	5.00	4.0215	.82499
Prioritizing decisions favors the best alternatives in decision making	3.00	5.00	3.9839	.82184
Prioritizing decision is an important tool in for effective participatory decision making	3.00	5.00	4.0215	.83152
Consensus decision making is a creative and dynamic way of reaching agreement by the oil and gas stakeholders	3.00	5.00	4.0484	.82056
consensus setting objectives is committed to finding solutions that everyone actively supports	3.00	5.00	3.9301	.79216
Consensus is an effective tool to effective participatory decision making	3.00	5.00	3.9624	.82113
In reaching a consensus, all opinions, ideas and concerns are taken into account	3.00	5.00	3.9624	.82769
Consensus aims to weave together participants best ideas and most important concerns in environmental sustainability	3.00	5.00	4.0161	.81523
The method of data collection is an important aspect in getting the right information for decision making	3.00	5.00	4.0806	.79113
Accurate and updated data aids in making proper decisions by stakeholders	3.00	5.00	3.9946	.82198
Cognitive processes lead to selection of a course of action among alternatives	3.00	5.00	3.9892	.80532
With proper data collection methods, information is available for participatory decision making	3.00	5.00	4.0323	.83765
decision-making is an instrumental way to achieve higher productivity, efficiency in environmental sustainability	3.00	5.00	3.8763	.79917
Taking into account the opinion of all stakeholders enhances project sustainability	3.00	5.00	4.0108	.77800
Participatory decision-making is a creative process that gives ownership of decisions to all concerned parties	3.00	5.00	3.9032	.78588

Statements	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Indiscriminative decision-making involves management treating the ideas of all stakeholders with respect	3.00	5.00	3.8925	.82478
Indiscriminative decision-making advocates for although individuals being allowed to present their information, preferences, and opinions.	3.00	5.00	3.9355	.82928
Indiscriminative decision making is an effective tool to participatory decision making	3.00	5.00	4.0108	.81200
Brainstorming generates a large number of potential solutions to environmental sustenance in the oil and gas upstream projects	3.00	5.00	4.0376	.79436
Brainstorming solutions results in participants satisfaction on the decision quality	3.00	5.00	4.0000	.83180
Brainstorming results in developing quality decisions on environmental sustainability in the oil and gas sector	3.00	5.00	3.9409	.81985
Brain storming is a well acknowledged tool for participatory decision making	3.00	5.00	3.9892	.82521
Brainstorming solutions and ideas allows for more inclusive democratic participation in environmental sustainability in the oil and gas sector	3.00	5.00	4.0269	.84106
Valid N (listwise)				

Based on the responses from the respondents, it was clear that most respondents saw that there was a relationship between participation decision making and environmental sustainability. It was established from the analysis that most respondents strongly agreed (M=4.016, S. D= 0.802) on the statement; Prioritizing decisions on environmental sustainability is key to the success of Oil and Gas Upstream Project. It was also established that a significant number of the respondents strongly agreed (M=4.0645, S. D= 0.809) that Priority-oriented decision-making process increases the chance of completing project. Also noted from the analysis of the findings was that a significant number of the respondents agreed (M=4.0215, S. D=0.82499) that Prioritizing decisions aids in mapping the best course of action in environmental sustainability. Also noted from the findings was that majority concurred that Prioritizing decisions favors the best alternatives in decision making. This was noted true by the mean calculated of 3.9839. The standard deviation calculated of 0.8218 indicated uniformity in the responses from the respondents. A significant number of the respondents agreed (M=4.093, S.D=0.502) that Prioritizing decision is an important tool in for effective participatory decision making.

It was also established from the analysis that most respondents strongly agreed (M=4.0484, S.D= 0.8206) on the statement; Consensus decision making is a creative and dynamic way of reaching agreement by the oil and gas stakeholders. It was also established that a significant number of the respondents strongly agreed (M=3.9624, S.D= 0.82113) that consensus setting objectives is committed to finding solutions that everyone actively supports. Also noted from the analysis of the findings was that a significant number of the respondents agreed (M=3.9624, S.D=0.82769) that In reaching a consensus, all opinions, ideas and concerns are taken into account.

Also noted from the findings was that majority concurred that The method of data collection is an important aspect in getting the right information for decision making. This was noted true by the mean calculated of 4.0806. The standard deviation calculated of 0.79113 indicated uniformity in the responses from the respondents. A significant number of the respondents agreed (M=3.9892, S.D=0.80532) that Accurate and updated data aids in making proper decisions by stakeholders. It was also established from the analysis that most respondents strongly agreed (M=3.9892, S.D= 0.80532) on the statement; Cognitive processes lead to selection of a course of action among alternatives. It was also established that a significant number of the respondents strongly agreed (M=4.0323, S.D= 0.83765) that with proper data collection methods, information is available for participatory decision making. Also noted from the analysis of the findings was that a significant number of the respondents agreed (M=3.8763, S.D=0.79917) that decision-making is an instrumental way to achieve higher productivity, efficiency in environmental sustainability. Also noted from the findings was that majority concurred that Taking into account the opinion of all stakeholders enhances project sustainability. This was noted true by the mean calculated of 4.0108. The standard deviation calculated of 0.77800 indicated uniformity in the responses from the respondents. A significant number of the respondents agreed (M=3.98925, S.D=0.82478) that Participatory decision-making is a creative process that gives ownership of decisions to all concerned parties.

It was also established from the analysis that most respondents strongly agreed (M=3.8925, S.D= 0.82478) on the statement; Indiscriminative decision-making involves management treating the ideas of all stakeholders with respect. It was also established that a significant number of the respondents strongly agreed (M=3.9355, S.D= 0.82928) that Indiscriminative decision making advocates for although individuals being allowed to present their information, preferences, and opinions.. Also noted from the analysis of the findings was that a significant number of the respondents agreed (M=3.9624, S.D=0.82769) that Brainstorming generates a large number of potential solutions to environmental sustenance in the oil and gas upstream projects Also noted from the findings was that majority concurred that Brainstorming solutions results in participants satisfaction on the decision quality. This was noted true by the mean calculated of 4.0000. The standard deviation calculated of 0.83180 indicated uniformity in the responses from the respondents. A significant number of the respondents agreed (M=3.9409, S.D=0.81985) that Brainstorming results in developing quality decisions on environmental sustainability in the oil and gas sector.

Also noted from the analysis of the findings was that a significant number of the respondents agreed (M=4.0000, S.D=0.83180) that Brainstorming generates a large number of potential solutions to environmental sustenance in the oil and gas upstream projects Also noted from the findings was that majority concurred that Brain storming is a well acknowledged tool for participatory decision making. This was noted true by the mean calculated of 3.9892. The standard deviation calculated of 0.81985 indicated uniformity in the responses from the respondents. A significant number of the respondents agreed (M=4.0269, S.D=0.84106) that Brainstorming solutions and ideas allows for more inclusive democratic participation in environmental sustainability in the oil and gas sector. From the findings, it was clear that participatory decision making have a significant influence on environmental sustainability in the case oil and gas upstream project in Turkana County, Kenya.

The interview schedules revealed that majority of the key informants were not involved

"Leaders in Lokichar neglect the communities in decisions relating to Tullow oil"

One of the key informants conceded that,

"There are merits to ensuring community participation and that the County Government should work to ensure Tullow oil implements proper participatory monitoring and evaluation"

The study findings are in line with Wesselink et al, (2011) who found out that effective public participation makes government decisions legitimate. There are the cases when the decisions do not consider the opinion of each participant individually (Fiorino 1996), though the public opinion shall affect the decisions. Petts (2003) emphasized that for the project developers it is important to achieve the legitimacy of the decisions through the public participation in order to avoid protests and opposition to the decisions that may delay or halt their implementation. The findings were also in line with Dachler and Wilpert, (2008) who identified that Direct participation allow the participants to be involved immediately in the decision-making process and they are allowed to present their information, preferences, and opinions to the other members involved in the decision. Public participation in sustainability and environmental protection is critically important. This is reflected in the 2030 Agenda for Sustainable Development (Fox & Stoett 2016).

The study is also in collaboration with Slocum and Thomas-Slayter (2015) who found out that participatory decision making can improve the quality of decision-making by providing decision-makers with additional, unique information on local conditions. Local or "lay" knowledge plays an especially important role in implementing international commitments, like the 2030 Agenda on Sustainable Development (Fox & Stoett 2016). While the 17 Sustainable Development Goals are global in scope, the actual policy development and implementation occurs at the national, regional and local level. Policy-makers must translate the global targets to reflect real-world conditions (Fenton and Gustafsson 2017). Top-down translation, without widespread public input, can lead to policies that disregard local priorities and specific development contexts.

Bivariate Correlation Analysis

The study used bivariate correlation analysis to establish the association between participatory decision making and environmental sustainability. Two-tailed Pearson correlation (R) was used to establish the same at 95% confidence level. The results are presented in Table 2.

Table 2 Bivariate Correlation Analysis

		Participatory Decision Making	Environmental Sustainability
Participatory Decision Making	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	186	
Environmental Sustainability	Pearson Correlation	.729**	1
	Sig. (2-tailed)	.000	
	N	186	186
**. Correlation is significant at the 0.01 level (2-tailed).			

The study reveals that participatory decision making has a positive and significant association with environmental sustainability at a significant level of 0.01 (r = 0.729). The results imply that there is a strong positive and significant relationship between participatory decision making and environmental sustainability meaning that participatory decision making has a strong positive association to environmental sustainability in the case oil and gas upstream project in Turkana County, Kenya.

Regression Analysis

The study sought to ascertain the relationship between participatory decision making and environmental sustainability through a univariate regression model as shown:

$$Y= \beta_0 + \beta_1 X_1 + \acute{\varepsilon}$$

Where;

α = *Constant*

Y = *Environmental sustainability*

X_1 = *Participatory Decision Making*

ε = *Stochastic disturbance error term*

Regression Model ANOVA

The model fitness was established through ANOVA as shown in Table 3.

Table 3: Regression Model ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.938	1	11.938	208.267	.000
	Residual	10.547	184	.057		
	Total	22.484	185			
Dependent Variable: Environmental Sustainability						
Predictors: (Constant), Participatory Decision Making						

As indicated in Table 3, the F statistics was used to determine the model fitness. The study found out that the model was significant $F_{(1, 185)} = 208.267$, $P = 0.000$. The F-significance value of less 0.001 established depicted that the regression model was significant (confidence level) ($P < 0.05$).

Regression Model Summary

The study sought to determine the model's coefficient of determination statistics. The results are presented in Table 4.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729[a]	.531	.528	.23941
a. Predictors: (Constant), Participatory Decision Making				

The coefficient of determination as measured by the R-square (R^2) (0.531) shows that all the participatory decision making explain 53.1% of the total variation in environmental sustainability in the case oil and gas upstream project in Turkana County, Kenya. This implies that the stochastic disturbance error term (ε) covers 46.9%.

Regression Model Coefficients

The study sought to determine the multiple regression variable coefficients. The findings are presented in Table 5.

Table 5: Regression Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.669	.221		3.029	.003
	Participatory Decision Making	.877	.061	.729	14.431	.000
a. Dependent Variable: Environmental Sustainability						

Regression Equation

Environmental sustainability = 0.669 + 0.877 * Participatory Decision Making

The study established that when participatory decision making is held at zero, the Environmental sustainability would be 0.669. The study also established that holding other factors constant, a unit increase in decision making would lead to a 0.877 unit increase in Environmental sustainability. From the coefficients, it was established that participatory decision making was significant in enabling environmental sustainability in the case oil and gas upstream project in Turkana County, Kenya.

CONCLUSION

The study also concluded from the findings that sstakeholders should work together to develop solutions to environmental problems in which they are enmeshed. From the findings, it was established that participatory decision making also affects environmental sustainability of the oil and gas upstream project in Kenya. Environmental decision-making therefore poses severe challenges to citizenship-based approaches to participation. Deliberation, knowledge integration and group learning is essential for the sustainability of the oil and gas upstream projects. The study also concludes that participatory planning of monitoring and evaluation activities have a significant influence on the factors influencing environmental sustainability in the case oil and gas upstream project in Turkana County, Kenya. Involvement of all stakeholders in decision making at the planning stage is crucial to effective sustainability. Participatory planning in Monitoring and Evaluation (PME) offers governments and development organizations a host of opportunities for improving the performance of projects. Participatory planning of monitoring and evaluation is crucial so as to ensures that the needs and concerns of all involved is taken to consideration.

RECOMMENDATIONS

The study recommended that the oil sector ensure Stakeholders work together to develop solutions to environmental problems in which they are enmeshed. These deliberations, knowledge integration and group learning is essential for the sustainability of the oil and gas upstream projects. It is further recommended that there ought to be aactive participation of key stakeholders in project planning as it significantly contributes to effective utilization of grass root level inputs in the oil and gas industry.

ACKNOWLEDGEMENT

First and foremost, I wish to thank God for giving me good health, strength and resources to pursue the course. My sincere gratitude's goes to my supervisors Prof Harriet Kidombo and Prof Christopher Gakuu for their inspirational instructions, guidance, patience, professional advice, and support for without them this work would not have been successful. Secondly, I would like to acknowledge my lecturers in the school of open and distant learning in project planning and management for their support and encouragement when undertaking this doctorate. Third, I wish to acknowledge the University of Nairobi and the School of Open and Distance Learning for the opportunity to undertake this study. I would like to also acknowledge my colleagues Collins Mukanya, Viola Amwai and David Alela, for their contribution and support in this journey. Lastly, am grateful for the consistent motivation, advice and collective intensive learning experiences from my fellow students and finally the endless and continued support from my family members.

CONFLICT OF INTEREST

The authors indicated no Conflict of Interest.

BIBLIOGRAPHY

Ammar Irhoma (2017) *Development of a Sustainability Management System for Petroleum Companies.* PhD thesis. Nottingham Trent University

Amoasah. G (2010) The potential impacts of oil and gas exploration and production on the coastal zone of Ghana.

Anifowose, B., Lawler, D.M., Van Der Horst, D. and Chapman, L., 2016. A systematic quality assessment of Environmental Impact Statements in the oil and gas industry. *Science of The Total Environment, 572*, pp.570-585

Anyadiegwu, C. (2012) "Overview of Environmental Impact Assessment of Oil & Gas projects in Nigeria"*: An International Journal of Science & Technology*

Aras, T. Crowther K. (2010). *Considering sustainability factors in the development Project life- cycle:* A framework for increasing successful adoption of improved Stoves

Argyris, C., & Schön, D. A. (1989). Participatory Action Research and Action Science Compared: A commentary. *American Behavioral Scientist*, 1989:32, 612-623.

Armonia, Ricardo C. and Dindo M. Campilan. 1997. *Participatory monitoring and evaluation. The Asian experience. & The Asian Experience. Supplementary Report*. Los Banos, Laguna, Philippines: UPWARD. Reprinted with permission from the authors. Press.

Arnstein, S. (1969): *A ladder of citizen participation. Journal of the American Institute of Planners*, 35 (4), 216-224.

Asuquo, E. F., & Etowa, J. (2016). Participatory action research (PAR): A strategy to achieve transformational change in nursing research and policy development in Low and Middle Income Countries (LMICs). *The International Journal of Health, Wellness, and Society*, *6*(1), 11-21.

Ayuso, S.; Rodríguez, M.A.; Castro, R.G.; Ariño, M.A (2011). Does stakeholder engagement promote sustainable innovation orientation? *Ind. Manag. Data. Syst*., *111*, 1399–1417.

Bal,M., Bryde,D., Fearon, D. & Ochieng E.(2013).Stakeholder Engagement: Achieving Sustainability in the Construction Sector. *Sustainability* 2013, *6*, 695-710.

Balakrishnan, V., and Claiborne, L. (2017). Participatory action research in culturally complex societies: Opportunities and challenges. *Educational Action Research*, *25*(2), 185-202.

Ballard, H. L. and Belsky J. M. 2010. Participatory action research and environmental learn ing: Implications for resilient forests and communities. Environmental Education Research 16(5–6):611–627.

Baptiste, A.K, and Nordenstam, B.J. (2016). Impact of oil and gas drilling in Trinidad: factors influencing environmental attitudes and behaviours within three rural wetland communities. Environmental Conservation. Pp 1-8. In Press.

Baptiste, C. and Nordenstam E. (2009). Oil Spill, Produced Water, Drilling Mud and Drill Cuttings Discharge Modeling, Ghana. Final Report submitted to EPA, Ghana.

Barasa, F., and Jelagat, T. (2013). Community Participation in Project Planning, Management and Implementation: Building the Foundation for Sustainable Development. International *Journal of Current Research* Vol. 5, Issue, 02, pp.398-401.

Barron, A. and Barron, M. (2013). *Project Management.* Connexions, Rice University

Bartlett, A.A., 2012. The meaning of sustainability. *Teach. Clgh. Sci. Soc. Educ. Newslett, 31*, pp.1-14.

Bebbington, B. J. and Frame, B. (2011) 'Moving from Sustainable Development Reporting to Evaluation: Sustainability Assessment Model. *Chartered Accounting Journal of New Zealand*, VOL. 82 (7): 11-13.

Bedrich Moldan, 2012, How to understand and measure environmental sustainability: Indicators and targets: *journal of Ecological Indicators* Volume 17, June 2012, Pages 4-13

Bell, E., and Morse, (2005). Integrating methods for developing sustainability indicators to facilitate learning and action. Ecology and Society, 10(1),

Berhanu Gebremedhin 2010, 'Results-based Monitoring and Evaluation for Organizations Working in Agricultural Development; a Guide for Practitioners; ILRI

Berkes, F. 2009. Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management* 90, no. 5: 1692–702.

Bjorn, P. & Boulus, N. (2011) 'Dissenting in reflective conversations: critical components of doing action research', *Action Research*, 9(3), pp. 282-302

Black, J.S. & Gregersen, H.B. (2007). Participative decision-making: An integration of multiple dimensions. Human Relations, 50, 859-878

Bocking, S. 2004. *Nature's Experts: Science, Politics and the Environment.* Rutgers University Press, New Brunswick.

Boelsma, F. (2013) What makes an offshore oil & gas project 'sustainable'? *In search of sustainability risk indicators for offshore oil & gas development projects.* Executive Program Thesis. Erasmus University

Bookman, H., & Morgen, P., (Eds.). (2008). *Handbook of action research: Participative inquiry and practice,* 2nd ed.. London: Sage Publications

Bossel H.; 1999; Indicators for Sustainable Development: Theory, Method, Application, Report to the Balaton Group, IISD, Winnipeg, Canada. [An integrative approach to develop and use sustainability indicators at different levels of decision].

Briggs, C. A., Tolliver, D., and Szmerekovsky J. (2012) 'Managing and Mitigating the Upstream Petroleum Industry Supply Chain Risks: Leveraging Analytic Hierarchy Process', *International Journal of Business and Economics Perspectives*, VOL. 7 (1): 1-20

Brock, K., & Pettit, J., (Eds.). (2006). *Springs of participation: Creating and evolving methods for participatory development*. London: ITDG Publications.