ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

COLLEGE OF BUSINESS AND ECONOMICS

ASSESSMENT OF OIL AND GAS PROJECT IMPLEMENTATION CHALLENGES IN ETHIOPIA

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STATEMENT OF DECLARATION

I hereby declare that the study which is being presented in this project work entitled "ASSESSMENT OF OIL AND GAS PROJECT IMPLEMENTATION CHALLENGES IN ETHIOPIA" is original work of my own. It had not been presented for a partial fulfillment for any other educational qualification at this university or any other and in any projects by any means, and all the resources materials used for this project work had been accordingly acknowledged.

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Bezawit Temesgen Date

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DEPARTMENT OF PROJECT MANAGEMENT

This is to certify that this project work, entitled "ASSESSMENT OF OIL AND GAS PROJECT IMPLEMENTATION CHALLENGES IN ETHIOPIA" submitted in partial fulfillment of the requirements for the degree of Masters of Arts in Project Management complies with the regulations of the university and meets the accepted standards with respect to Originality and quality.

Examiner: Dr. Birhanu ______________ Signature: _________________Date: ______________

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ABSTRACT

The Ethiopian Oil and Gas sector is presented as one of the pillars of the Growth and transformation plans proposed by the Government of Ethiopia. Although the activities in industry dates back to the 1940s, there has not been any commercialization of Petroleum or Natural Gas to date. This project work aims to assess the project implementation challenges in the Ethiopian Oil and Gas industry. An exploratory research design is employed for the research. The research work followed a qualitative approach by using questionnaire and interview as data collection tools. A total of sixteen participants, twelve from the oil and gas companies and four from the regulatory were selected to participate in the research. The participants were selected using purposive sampling technique. The result of the study identified more than 85% of the respondents claimed having both time and cost overrun in their project. More than 90% of the respondents described the project management style of their company as a mix of traditional and agile project management. The research showed subsurface complexity, lack of national technical experts, unavailability of advanced technology for seismic, drilling, well logging, mud logging and other similar operations locally, inability to attract investors, unanticipated change on project scope, and unanticipated project cost existence as the major challenges affecting the implementation of the oil and gas projects in Ethiopia. The research points out the solutions for the challenges in oil and gas project implementation are the government should have a more incentivizing policy in place and should create competent workforce that manages oil and gas projects. It is also suggested more work is required to create a better understanding of how the industry works from the federal to the kebele levels of administration.

KEY WORDS: Oil and gas projects, Project management, Challenges of oil and gas project implementation.

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LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENT

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Although the world is experiencing and witnessing major slowdown in many economic sectors, oil and gas industry is showing steady development and expansion (Tanaka, 2014). In the last few decades physical, financial, technological complexity and strength of the oil and gas industries in the world has shown significant boost and expansion. The project management schemes used in these industries is also showing rapid development and changes with the growing demand of executing complex mega projects in the oil and gas arena (Salazar-aramayo & Rodrigues-da-silveira, 2013).

The Government of Ethiopia (GoE) is implementing successive ambitious Growth and Transformation Plans (GTPs) to transform the country into a middle-income country by 2025, and is working hard towards realizing it (Governmnet of Ethiopia, 2015). While doing so, all economic sectors in the coming years are expected to flourish and expand to meet the targets set by the GTPs. One pillar of these plans is enhancing the oil and gas industry and its role in transforming the nation’s economy. The economic infrastructure sector development part of GTP-I and GTP-II, among others, recognizes the role of oil and gas industry could play its role in further boosting and sustaining the rapid growth witnessed during the last decade or so and underlines the need to attract more investment.

There is no doubt that the oil and gas economic sector can play constructive roles towards realizing the growth and transformation plans of the country via harnessing potentials, skills, products, employment and generating income. The ongoing effort to advance and attract both direct and indirect foreign investment in the sector could be supplemented by carrying research on the ongoing and failed projects in the country. This project work presents an in-depth study on oil and gas project management practices elsewhere in the globe and in Ethiopia for benchmarking and formulating recommendations. The document is meant to serve as a starting point for identifying and analyzing project management schemes in the industry and identify the reason why it did not grow as anticipated.

This work paves the way for further study and analysis of oil and gas industry in the country and also gives a chance for companies in the country and potential companies to enter the sector in the future, on how they should set their management to run their project management to maximize their efficiency and prioritize resource allocation.

This project study is based on data analysis acquired from feedbacks, interviews, and questionnaires from experts in the field operating in the country. It is also based on analyzing past reports submitted to **Ministry of Mines and Petroleum (MOMP)** and the author's experience of taking part in the failed and ongoing oil and gas projects in the country.

1.2 Statement of the Problem

The Oil and Gas sector in Ethiopia, currently at a very early stage of development, shows good potential for development in the long-run. Exploration for oil and natural gas is currently taking place in a number of areas in Ethiopia, including in parts of the Ogaden Basin in Southeastern Ethiopia, Afar in Northeastern Ethiopia, Southern Rift Basin, the Gambela Basin, the Mekele Basin, Metema Basin, the Abay Basin in Northwestern and Main Ethiopian Rift Basin regions (Ministry of Mines, Petroleum and Natural Gas, accessed on 17^{th} of April 2019). Ethiopian oil and gas history goes back to the 1950s when the first wells were drilled by a company called Sinclair during their operation in the Ogaden Basin (Purcell, 2014). Furthermore, the first natural gas was discovered by an American company Tenneco in Calub & Hilala in 1973 and 1974 (Purcell, 2014). Looking at the geologic structure of Ethiopia and correlating it to the structures in neighboring countries that have already commercialized hydrocarbon, studies indicated Ethiopia has a promising evidence of hydrocarbon presence. Various companies had signed agreements to operate on the different blocks in the country; nonetheless none of these companies has yet developed oil and gas in a commercial level. Even the natural gas that was discovered in the 1970s is still not generating revenue. Moreover, there is not much research done investigating the Ethiopian Oil and Gas Projects creating a knowledge gap and making it difficult for the stakeholders to identify the challenges that cause the delay in project implementation. In consideration of the economic support to come by the development of the oil and gas sector, it is essential to assess the oil and gas project implementation trend in Ethiopia and pinpoint the challenges faced which will further lead in to identifying solutions to the identified challenges.

1.3 Objective of the Study

The main objective of the study is to identify major challenges faced by upstream oil and gas projects in Ethiopia during project implementation.

Specific Objectives:

- To assess project implementation trend in Ethiopian upstream oil and gas industry.
- To suggest solutions for the successful implementation of upstream Oil and Gas Projects in Ethiopia.

1.4 Research Questions

The study answers the following research questions.

- What are the project management trends practiced in Ethiopian upstream oil and gas industry?
- What are the challenges faced by upstream oil and gas projects in Ethiopia?

1.5 Scope of the Study

The scope of the project is limited to identifying the major challenges faced in Ethiopian oil and gas industry project implementation and the possible solutions to the successful execution of upstream and mid-stream oil and gas projects in Ethiopia. The research investigates currently active projects through primary data collected from the operating companies and the government regulatory body during the time period of April 30th to May 15th, 2019. Due to the confidentiality nature of the reports, only few of the previous oil and gas projects' document review is included on the study. The companies that participate during the primary data collection are: POLY-GCL Petroleum investments limited, Gazprom, Delonex, Africa Oil, Tullow Oil and Southwest Energy.

1.6 Significance of the Study

This project assesses project implementation in Ethiopian oil and gas industry and investigates the challenges faced by the industry players. The study is conducted in oil and gas companies that are currently licensed as well as companies that had in the past worked to explore and develop oil and gas resources in the different parts of the country. This research gives all stakeholders in oil and gas industry a chance to formulate and suggest better solutions for improved performance of oil and gas projects in the country. These stakeholders may include but not limited to, national policy makers, international and local oil and gas companies, sub-contractors, researchers and experts. This study serves as a starting point for future researches in the sector as there are currently almost no publications done investigating oil and gas projects in Ethiopia. It will also serve as a reference for the different stakeholders engaged in the industry.

1.7 Definition of Terms

Project Implementation: Refers to carrying out activities proposed in the application form with the aim to achieve project objectives and deliver results and outputs.

Oil and Gas Projects: Oil and gas projects are projects engaged in the exploration and development of oil and gas resources.

Production Sharing Agreement (PSA): "An agreement between a government and a company in which the government awards to the company the right to extract and develop a natural resource (for example, mineral ore or oil). Under a PSA, the company bears the financial risk of exploring and extracting the resource. If no oil or mineral ore is found, the company receives no compensation for any work it may have done or costs it may have incurred. If the company is successful in extracting the resource, it is entitled to recoup its capital and operational expenditures. Once these costs are recouped, any profit is shared between the government and the company at a pre-agreed percentage." (Thomson Reuters Practical Law, 2019)

Upstream Oil and Gas Projects: Upstream Oil and Gas projects are involved in the exploration and production of Oil and Gas.

1.8 Organization of the Study

This paper comprised five chapters in which the first part illustrates the study backgrounds, statements of the problem, basic research questions, objectives, significance, scope and limitation of the study and the second chapter deals with review of related literature. Chapter three of this project work describes the research design and methodology of the study and the analysis used, results and discussion would be discussed in the fourth chapter, finally the last chapter presents the research conclusion recommendations and future research implications.

CHAPTER TWO

LITERATURE REVIEW

The oil and gas industry is one of the major and biggest single economic sector that drives many other economic sectors including, politics, manufacturing, transportation, R&D, business, commerce, households and agriculture (Pinto & Slevin, 1987). The oil and gas industry encompass all activities including, exploration, development, refining, distribution and marketing oil and gas products in its three major sectors i.e. the upstream, downstream and midstream (Sylvester, Shima, Rani, & Shaikh, 2011). It is one of the very lucrative sectors where big multi-national companies invest heavily. Hence, it is one of the economic sectors with huge risk and exposed to working environment of different cultures, backgrounds, people and environment. This forces all stakeholders in the industry to critically identify and study all risks if it deems to succeed in utilizing its benefits (Thuyet & Ogunlana, 2007). One of the major risk areas is its project management and project implementation practices.

Many pioneer and huge multi-national companies in the sector set and follow different project management and implementation schemes which should be adapted and adopted in developing countries, like Ethiopia, in order to succeed implementing projects and enjoy its benefit (Tanaka, 2014). The success of oil and gas projects can be evaluated based on project completion and project management success meeting the predefined project outcomes and goals. Projects success may depend on project organization, project manager competence, project scope/characteristics, project risk management, project requirements management, institutional factors, top management support, client knowledge and experience, project team competence, contractual aspects and external challenges.

2.1 Project Management Concepts

According to a guide to Project Management Body of Knowledge - PMBOK 5th Edition (PMI, 2013) “Project managementis the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements”. Project management is accomplished through the appropriate application and integration of logically grouped project management processes, which are categorized into five Process Groups. The process groups are: Initiating, Planning, Executing, Monitoring and Controlling, and Closing.

During project initiation, the project outputs, goals and objectives are identified. The project manager is assigned in this stage of the project. Planning refers to assessing the requirements to achieve the objectives of project and subsequently devising the methodology and plans to achieve them (Pinto & Slevin, 1988). It involves defining objectives, developing project management plan, defining scope and creating work breakdown structure, defining activities, sequencing them, evaluating resources and developing plan, cost estimation and budgeting, preparing quality plan, human resource plan, communications plan, risk plans and procurement plans. Execution phase is the stage where the plans are physically executed. Building project team, getting them on to work and carrying out the plans is done at this stage. Directing project execution, quality assurance, developing and managing project team, communication and managing stakeholder's expectations etc. all are part of execution. Monitoring and controlling involves verification of the execution against planned standards which includes project work, change, scope, schedule, costs, quality control, progress reporting, controlling risks, and procurement. The last process which is closing refers to terminating or closing when the project's desired objectives have been achieved. During this phase all the activities of the project are ceased.

Project management comprises of Ten (10) knowledge areas. A knowledge area represents a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization (PMI, 2013). These ten Knowledge Areas are used on most projects most of the time.The Knowledge Areas are: Project Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management and Project Stakeholder Management (PMI, 2013).

2.2 Project Management Knowledge Areas

According to the PMI (2013), there are ten project management knowledge areas that every project addresses and these Knowledge areas are used in most projects most of the time. The knowledge areas are:

1. **Project scope management**: it includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully (PMI, 2013). Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project (PMI, 2013).
2. **Project time management**: it includes the processes required to manage the timely completion of the project (PMI, 2013).
3. **Project cost management**: it refers to the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget (PMI, 2013).
4. **Project quality management**: Project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken (PMI, 2013).
5. **Project human resource management**: It includes the processes that organize, manage, and lead the project team (PMI, 2013).
6. **Project communication management**: Project communications management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information (PMI, 2013).
7. **Project risk management**: According to PMI (2013), project risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project.
8. **Project procurement management**: it includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team (PMI, 2013).

9. **Project stakeholder management**: it includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution (PMI, 2013).
10. **Project integration management**: it includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups (PMI, 2013).

2.3 Overview of Global Oil and Gas Projects

The modern Oil and gas industry dates back to 1859 when the first oil was struck in Pennsylvania by Colonel Edwin Drake (Inkpen & Moffett, 2011). Following further discoveries of oil and gas and the industries development in the following few decades, Ships and trains that had previously run on coal began to switch to oil. Consequently, the industry become developed in the different parts of the world leading to the current state where it is essential to mankind's day to day life being the source of energy, petrochemicals, lubricants and many more daily use products.

The oil and gas industry value chain include three major sectors. These are the upstream, midstream and downstream. The oil and gas upstream operation mainly involves exploration and production activities (Weijermars, 2010). Exploration refers to the activities undertaken to find oil whereas production is the long-term process of drilling and extracting oil and gas (Inkpen & Moffett, 2011). Production sharing agreements (PSA) are commonly used to regulate and manage upstream activities.

The midstream segment of the oil and gas industry comprises the activities of storing, trading, and transporting produced crude oil and natural gas. Crude oil becomes valuable when it is refined in to usable products such as gasoline and diesel. Hence, the oil and gas producers need to sell and transport their products to refineries.

Refining and marketing the final product is the activity that's performed by the downstream segment of oil and gas industry. Motor fuels, jet fuels, petrochemicals and lubricants are some of the products obtained from the refinery (Inkpen & Moffett, 2011).

Oil and gas industry is among the major players of the global economy. According to International energy Agency, the world's energy demand is expected to rise annually by about 1.5 % each year through 2030 (Inkpen & Moffett, 2011). The energy demand in 2030 is predicted to be higher by 60% compared to that of year 2000. Despite the extensive work being done on green energy, most of the world's growing energy needs through the year 2030 is expected to be met by energy from fossil fuels i.e. oil, gas and coal.

What makes the oil and gas industry special is there are only few industries that produce oil to meet the demands of the majority. The oil and gas industry is cyclical and these cycles last for number of years. In the 1990s, crude oil prices fell steadily and in the new millennium, the first few years saw steadily rising prices (Inkpen & Moffett, 2011). The Great Recession that occurred in early 2000s disqualified the industry experts' prediction of $200 per barrel prices. Although the oil industry is highly profitable in some years, its long-term profitability is not much higher than the average profitability across many industries.

2.4 Oil and Gas Project Management Practice

Oil and Gas project management practice follows similar trend to other mega projects. Mega projects are defined as large-scale, complex ventures that typically cost a billion dollars or more, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people (Flyvbjerg, 2017).

Projects in the oil and gas industry are characterized by huge investments, massive interfaces, and complex engineering activities. The size and complexity of these projects require special attention in the project management process (Adedeji and Samuel, 2013). Risks are a big part of oil and gas projects. Furthermore, the oil and gas is one of the few industries governed by multiple rules, regulations and standards.

Project execution in Oil and Gas Projects vary depending on the organization but the basic process is based on a similar ground, the process might vary between organizations, but the actual process are quite similar in nature (Sabri, Abdul Rahim, & Ismail, S.,2017). Researchers have identified five major phases in oil and gas project execution process. These phases are Conceptual phase, Feasibility, Detailed Design, material procurement and construction or start up. Whereas looking at the project execution approach, there are seven project execution stages identified by Alvarado and Wagner (2002). These are Engineering, logistics, fabrication, installation and hook up, transportation, commissioning and start up and lastly operation and maintenance.

One of the major objectives of oil and gas projects is to complete the scope of work within budget and under a specific time frame. Effective project management is the way to avoid time and cost overrun.

2.5 Empirical Review

2.5.1. Overview of Oil and Gas industry in Ethiopia

Ethiopian Oil and Gas industry is still at an early stage. There are only few publications that have documented the progress in the industry. The first oil well in Ethiopia was drilled in the 1940s by Sinclair in the Ogaden Basin (Purcell, 2014). Oil shows were seen in the Galadi well Sinclair drilled. Since 1970s several companies have come to Ethiopia looking for hydrocarbon deposit. The first oil was discovered in 1970s by Tenneco and later in 1980s by Soviet Exploration Enterprise.

In the 1990s Ethiopian government established Calub Gas Share Co. using a loan from World Bank in order to develop the discovered gas. Nonetheless, the Calub Gas Company was liquidated few years later (The World Bank, 2016).

Petronas, a subsidiary of Malaysian national Oil Company had signed a Petroleum Production Sharing Agreement with the Ethiopian government to explore and develop oil and gas in the Ogaden Basin in June 2007 (The World Bank, 2016). After four years of exploration activity in the country, Petronas has terminated its agreement due to management, security and technical issues. Table 2.1 below summarizes companies that are licensed to operate in Ethiopia since 2008.

Table 2.1 Oil and gas companies operating in Ethiopia Since 2008

Company	Country of Origin	Agreement signing Year
POLY-GCL Petroleum Investment Limited	China	2013
Africa Oil Corp	Canada	2013
South West Energy (HK) Ltd	Ethiopia	2008 & 2010
Tullow Oil	Ireland	2010
Gazprombank (GPB)	Russia	2013
New Age	United Kindgdom	2010
Falcon Petroleum	Cyprus	2008
Delonex	United Kingdom	2014

Source: Adopted from The World Bank (2016)

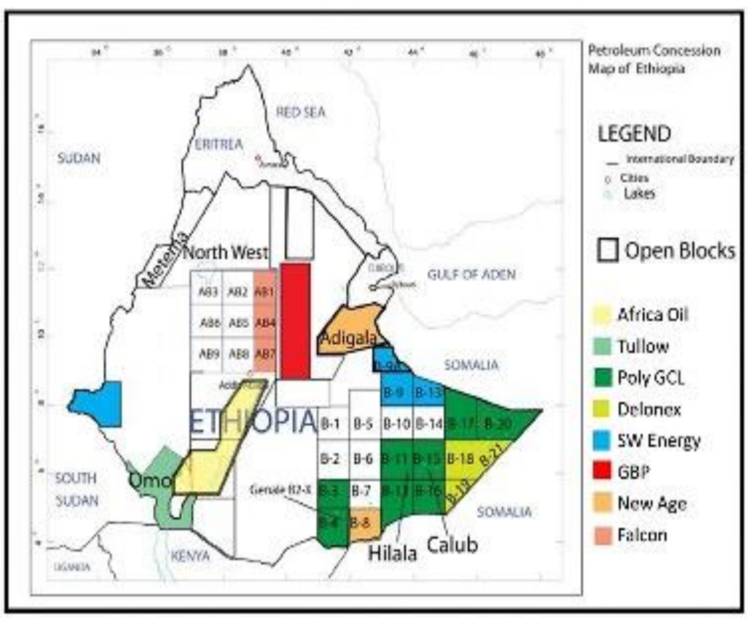

Figure 2.1 Ethiopian Petroleum Concession Map (Source: Ministry of Mines and Petroleum)

2.5.2. Global challenges in implementing oil and gas projects

The global oil and gas projects are challenged by various factors especially during their implementation phase. In this section some experiences from global oil and gas industries are summarized.

Iran

Iran is one of the countries in the world that faced challenges in implementing oil and gas projects (Fazlali et al., 2011). It has the second largest oil and gas reservoir in the world just next to Saudi Arabia. The study carried by (Fazlali et al., 2011) showed that the main challenges in the sector include project cost estimation, lack of contractual knowledge, weakness in project scope definition, challenges in : project procurement, project communication management, human resource management, project time management, engineering, project integration management, project quality management, education system and project risk management.

The main highlighted challenges in Iran, other than the economic sanction in the country, can summarized as inadequate planning, improper planning, failure in documentation, project risk mismanagement and project procurement mismanagement. The authors in, re\commended that project documents validation process should follow standard guiding template, risk mitigation and management solutions should be put in place. Further, it recommended project procurement supply system management should follow" SMART (Strategically, Managed, Aligned, Regenerative, and Transitional)" strategies.

Vietnam

A research conducted on the Vietnamese Oil and Gas construction Projects investigates the major risks in the industry (Thuyet and Ogunlana, 2007). The study concludes bureaucratic government system and long project approval procedures, poor design, incompetence of project team, inadequate tendering practices, and late internal approval processes from the owner were identified as major risks. The research suggested various strategies to mitigate the identified risks. Reforming the government system, effective partnership with foreign collaborators, training project executives, implementing contractor evaluation using multiple criteria decision-making technique, and enhancing authorities of project people were suggested as feasible approaches to ease the risks in the Vietnamese Oil and Gas construction Projects investigates (Thuyet and Ogunlana, 2007).

United Arab Emirates (U.A.E)

U.A.E has one of the largest oil and gas reserves in the world. It accounts for about 20% of global gas and 8% of oil reserves (Salama et al., 2008). However, many oil and gas projects in the country face challenges of being completed on time compared to its potential. This problem is expected to get worse as resources get depleted in the near future. For most of the delays and challenges oil and gas industries face in the country, all stakeholders and mainly the owners, contractors and consultants take the blame. Based on the study carried by (Salama et al., 2008) procurement challenges and lack of skilled man power in the market are the two critical factors challenging the industry . Further, factors like poor contract administration, improper project planning, poorly defined scope, poor contractor experiences are other major factors are to blame for.

Kingdom of Saudi Arabia

The kingdom of Saudi Arabia is world's largest oil and gas reservoir. Saudi is currently home for many brand new and expansion mega oil and gas projects in the world. These projects by nature require specialized and complex designs and constructions with enormous investment and complex technology (Kokal, Al-kaabi, Advanced, & Aramco, 2010). The projects pass through different stages of project phases including initiation, engineering, procurement, construction, planning and close out. Each stages of these complex projects can have a significant impact on the overall project management and success. The work carried in (Alhajri & Alshibani, 2018) claim that the most critical phase of the project which challenges in the kingdom is the construction phase. This stage of the project is responsible for not meeting project time line and are responsible for multimillion-dollar cost variation. Further, they are the main obstacles for not meeting planned project specification and quality.

Construction schedule delay is one of the factors influencing oil and gas projects and responsible for cost increment and disputes. Since oil and gas projects size are huge and requires significant capital investment and longer implementation duration, it is one of the factors determining the success of the overall project. Accordingly, engineering, procurement and construction EPC are the main branches of it. Hence, close monitoring and control should be in place if the project is deemed to succeed both by clients and contractors. A very strict project time and cost management is required in such projects. This problem is common worldwide (Achoui, 2009).

Furthermore, poor project scope definition, poor scheduling and planning, poor cash flow and decision, payment related delay problems, delayed material delivery, political situations, longer bureaucracy in getting work permits, lack of communication between parties in the project, lack of qualified skilled manpower delays in approving, weak project control, poor performance from local subcontractors, poor infrastructures, unforeseen site conditions, weather problems, price fluctuation of materials also contribute significant part role in construction phase related delays . In addition, poor competitors, ineffective and inexperienced contractors are some of the factors inflicting on time completion of oil and gas projects.

The study showed that 38% are contractor's related problems and 52% from the oil and gas project owners. In eastern Saudi Arabia equipment delivery delay, poor site and project management, inappropriate project scheduling and planning, delayed approval of projects and problems related to getting work permission on time are the major factors affecting the oil and gas industry are the major problems. The work recommends for future similar projects, a dedicated permit officer or organ for permission, assured information and decisions should be given transparently on time, ensuring and helping project procurements and delivery on time and ensuring that contractors are efficient and fit to the project according to its complexity and hardship, special project tracking and monitoring schemes should be in place. In addition to the above points, proper risk management, resource mobilization, correct construction techniques and construction planning, and hiring the skilled manpower should be planned and placed in advance.

Further, the kingdom also significantly suffers from shortage of both skilled and unskilled manpower (Achoui, 2009). This is the direct result of lack of coordinated link between the industry need and educational system curriculum in the country. Further, huge dependency on oil and gas, larger dependencies on foreign labor forces and lack of female participation in employment are other contributing factors. Culture, tradition and low population size also plays its part in the demand and supply imbalance in the demand of manpower. Proper education and human capital development in line with the huge oil and gas industries is a must for the kingdom for sustainable development in the future.

Qatar

Overrunning cost and time are the main challenges in managing oil and gas construction projects. Further, resource availability, skilled manpower availability, governmental authority inefficiency, and improper rules and regulations also affect project completion. According to a study carried in (Sweis et al., 2018) poor scheduling and planning, poor progress control and poor project scope definitions are the main challenges in Qatar oil and gas industries. Further, the work concluded that: improper project scheduling and planning, ineffective project process monitoring and control, changes in project designs, changes in scope of projects, and slow responses from responsible agencies are the five top causes.

Azerbaijan

According to Misachi (2018) Azerbaijan is ranked among the top world's exploration and development areas in oil. Oil exportation forms approximately 76% of the country's total exports. Ciarreta & Nasirov (2012) in their research indicated the creation of a stable legal framework in the energy sector and the provision of a predictable legislative and regulatory framework in oil contracts have been the biggest achievements of the Azerbaijani government in its strategy for attracting foreign investment to develop the oil and gas sector.

Nonetheless, the research discloses Azerbaijan still lacks independent regulatory institutions, rehabilitation of petroleum refinery plants, resolution of the legal status of the Caspian Sea, laws and regulations such as oil legislation, pipeline legislation and environmental legislation for the administering of oil and gas operations. These issues remain the main challenges facing Azerbaijan in developing its oil and gas industry in the future (Ciarreta & Nasirov, 2012).

2.5.3. Challenges in implementing oil and gas projects in Africa

Looking at African context in general, researchers have investigated the challenges that lead up to the failure of projects in various industries. A research by (Ika, 2014) has listed some of the factors that determine the success or failure of projects. Conducive environment, raw material supply issues, lack of trained man power, corruption, poor policy planning and implementation are among the challenges faced by several African Countries. Moreover, additional challenges that are reported by oil and gas companies that are hindering growth and development of the industry in Africa are, political interference, uncertainty and delays in passing laws, energy policies and regulations (PCW, 2013). The author summarizes the experience from the Nigerian oil and gas industry.

Nigeria

Nigeria is a country in the world with successful oil and gas exploration in its offshores. Major deep-water oil and gas projects has been embarked and in action in Nigeria. However, most of the projects experienced huge cost overruns and delays. Proper project management to face project delays, cost overruns and resource allocation played a major role in its success.

High level technology, proper and effective project strategy management becomes more effective and the proper skilled manpower are in action. Proper project strategy management encompasses proper strategy formulation, analysis, implementation, control and monitoring. It also includes gathering information about internal and external threats and risk in the sector and studying, analyzing and taking appropriate actions. Setting clear objectives and outcomes, appropriate project identification, attractive incentives packages also assists in meeting project goal accomplishment. Timely and sound corporate strategy decisions also play important role. Investment diversification, attraction, proper and clear business strategy, efficient project progress approvals, innovative financial assistance and alluring the right oil and gas multinational companies in the country is another strong factor responsible for its success.

The study in (Denni-Fiberesima, Rani, 2011) found that studying and deeply knowing environment, clearly identifying possible risks, proper project cost formulation, proper and realistic project delivery schedule, resource administration, proper project type and size, and proper project planning and management are the main factor of success in its offshore oil and gas development. Further other factors like reasonable and appealing project formulation, planning, realistic project length, resource availability, proper project management ability, proper skilled manpower participation, understanding risks and environment.

Rhui et al (2018) undertook a research in order to investigate the performance of oil and gas industry development in Nigeria. The subsurface complexity of the Nigeria Delta system, new technology application, local content, community issues, security issues, and partnership format were identified as potential factors to explain the project performance of the Nigerian Oil and Gas projects. The study concluded the sub surface complexity and new technology challenges are not factors affecting the performance of the industry, rather they are considered as advantages for the development of the sector. Nonetheless the non-technical factors i.e. local content, community issues, security issues, and partnerships play a significant role in project performance in the Nigerian Oil and Gas industry.

2.5.4. Literature from Ethiopian experience

There are some previous works by fellow researchers which were done on the oil and gas projects management and fuel supply chain management in Ethiopia. Supply chain management, which plays a crucial role in the distribution and supply of fuel in the country faces critical problem. Studies showed that supply and logistics in the sector is only in its infant stage and being one of the limiting factors of the sectors successes. Main factors for the above-mentioned fact includes distance of fuel source, lack of utilization of credit, lack of government support, lack of information on market demands, lack of -use of modern information and communication technology. And hence, the country faces frequent oil shortage from time to time. (Firew Abera, 2017), (Atsede Ayele, 2016), (Getachew Sibhat, 2018), (Kassahun Mulat, 2018), (Melaku Mamm0, 2017) and (Yakob Asfaw, 2017).

Further, a study conducted on “assessment on the project management Practice of Ethiopian Petroleum Supply Enterprise (EPSE)” by (Behailu Negera, 2018) showed that, there is a significant absence or lack of consistency in quality assurance, risk and issues management of EPSE projects. The study revealed that significant lag in data logging of previous projects on project lessons and risks on both completed and failed projects were observed. In addition, documented quality assurance review, in all the project processes, and activities were noticed. Regarding decision making, delays were observed and advise on exception plans were not sought from the board by the project manager and team leaders. Hence, the management practices followed in the oil and gas industries in the country are partly to blame for the oil and gas industry not to flourish to the expected extent.

Even though the above-mentioned studies in the country were conducted by fellow researchers mainly on the fuel supply chain management part of imported oil and gas, to the Author's knowledge, investigation of scholarly materials and to the date of this document writing there are not any scientific articles published on Ethiopian upstream oil and gas industry exploration and development phases. This might be due to that fact that the oil and gas industry in the country is in its infant stage and the political sensitivity of the sector. Because of that, the oil and gas industry of the country was not successful in attracting strong multi-national companies which could has significantly boosted the sector's success. Further, lack of skilled man power and experts in the sector is also one major factor to blame for the absence of past related works in the area.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter tried to discuss the research design, sample and sampling technique, sources, tools and procedures of data collection and method of data analysis employed for the study.

3.1 Research Design

The research design employed for the study is exploratory research design. According to Kothari (2004), a study conducted with exploratory research design investigates problem for more precisely or of developing the working hypotheses from an operational point of view.

This design enables the author to investigate the challenges underlying in the implementation of oil and gas projects in Ethiopia. The research approach employed is qualitative throughout. Qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behavior (Kothari, 2004).

3.2 Sample and Sampling Techniques

The sampling technique engaged in this study is Deliberate or Purposive or Non-Probability sampling. This sampling method involves purposive or deliberate selection of particular units of the universe for constituting a sample which represents the universe (Kothari, 2004). According to Saunders (2009), purposeful or judgmental sampling is often used when working with very small samples such as in case study research and when the researcher wishes to select cases that are particularly informative. The advantage of this sampling method is that the participants have knowledge about the topic and they can give reliable information which helps to reach objectives of the study.

The population of the study includes the seven Oil and gas companies that are currently operating in Ethiopia and the regulatory government body. Participants of the study are samples taken from the Six Oil and Gas Operating companies that responded for the request to participate on the study and Ministry of Mines and Petroleum, the regulatory government body for the industry as summarized in Table 3.1 below. A total of 16 participants are selected to answer both the questionnaire and interview questions. The sample size is determined using the judgment of the author based on the experience of the industry and which the author considers as representative of the population.

Table 3.1 Summary of Participants

Company	Country of Origin	Participant Number
POLY-GCL Petroleum Investments Limited	China	4
Gazprombank (GPB)	Russia	2
Delonex	United Kingdom	2
Southwest Energy (HK) Limited	Ethiopia	2
Tullow Oil	Ireland	1
Africa Oil Corp	Canada	1
Ministry of Mines and Petroleum	Ethiopia	4
TOTAL		**16**

Source: Survey Data

3.3 Sources and Instruments of Data Collection

Both primary and secondary sources are used to collect enough information in the study area and for triangulation purpose. Primary data is collected from the above-mentioned samples through questionnaire and interview. Questionnaire was distributed to the sixteen (16) representatives of the oil and gas companies and the regulatory body. Section one of the questionnaire is used to gather basic information of the respondents i.e. position, experience and qualification. Section two of the questionnaire enquires the respondents to rank the technical and non-technical challenges in Oil and Gas Projects in Ethiopia. Moreover, the 16 respondents are interviewed to collect more detailed information on the Ethiopian oil and gas projects, the challenges faced during project implementation and gather feedback on how to further improve oil and gas project performance in Ethiopia. The secondary data is used in addition to the primary data from reports prepared by previously operating companies in order to validate the data from primary source.

In order to collect the intended amount of data questionnaire, interview and document review are used. The questionnaire contains closed and open-ended questions as well as interview to give the respondent chance to explain issues in detail. The questionnaire is prepared based on the research questions and the document review. Prior to preparing the questionnaire, the researcher has an informal discussion with 4 experts, who have more than 15 years of experience in the industry, as a form of pilot study to further refine the list of challenges faced by the projects which were initially gathered from document review and the researchers own experience. The final list of the challenges is included in the questionnaire and the respondents are asked to rate their impacts. Furthermore, reports submitted by previously operating companies are reviewed as a secondary data source.

3.4 Procedure of Data Collection

As per the data collection tools and techniques, questionnaire was prepared having close ended and open-ended questions. The open-ended questions request the respondent's position in the organization, experience and qualification. Whereas the closed ended part enabled respondents to rate the impact level of the challenges faced by the oil and gas project using a scale of 1 to 5. Then it is distributed and collected. The interview is conducted by the author through a face to face meeting.

3.5 Data Analysis

According to Kothari (2004) Data analysis "involves a closely related operations which are performed with the purpose of summarizing the collected data and organizing them in such a manner that they answer the research question." A descriptive data analysis is used to analyze the data from the questionnaire using Microsoft Office Package, Excel. The descriptive data analysis is done by computing Relative Importance Index (RII) and mean values. Data gathered from interview is analyzed qualitatively using narrative analysis method.

3.6 Ethical Issues

Ethical consideration was used when developing the research instrument, collecting data and during data analysis. The respondents were clearly informed of the purpose of the research and their consent was obtained prior to distributing the questionnaire and holding the interview. They were fully aware that they can withdraw from participating in the research without being victimized. All references throughout the paper are dully acknowledged and cited.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This chapter presents the research findings obtained from primary and secondary data source. This section includes the demographic information of respondents, presentation of findings and analysis based on the objectives of the study where a qualitative method has been employed.

5.1 Major Characteristics of the Study Respondent

The study was conducted on the major oil and gas companies in Ethiopia and on the regulatory body of the industry i.e. Ministry of Mines and Petroleum. 12 of the participants were from the oil and gas companies whereas 4 of them were from the regulatory body. All participants from the oil and gas companies are in a managerial position whereas those from the regulatory body were petroleum administration experts. All respondents were classified according to their experiences in the oil and gas projects and arranged in six groups, which are 0 to 5 years, 6 to 10 years, 11 to 15 years, 16 to 20 years 21 to 30 years and more than 30 years as shown in Figure 4.1. A percentage of 62.5% of responses are from respondents having project experience for more than 10 years. On the other hand, a percentage of 12.5% of participants have 5 years' experience or less. This implies that the study considered many experts ranging with vast experience and current young professionals in the oil and gas industry, giving it a wide range of perspective in the sector.

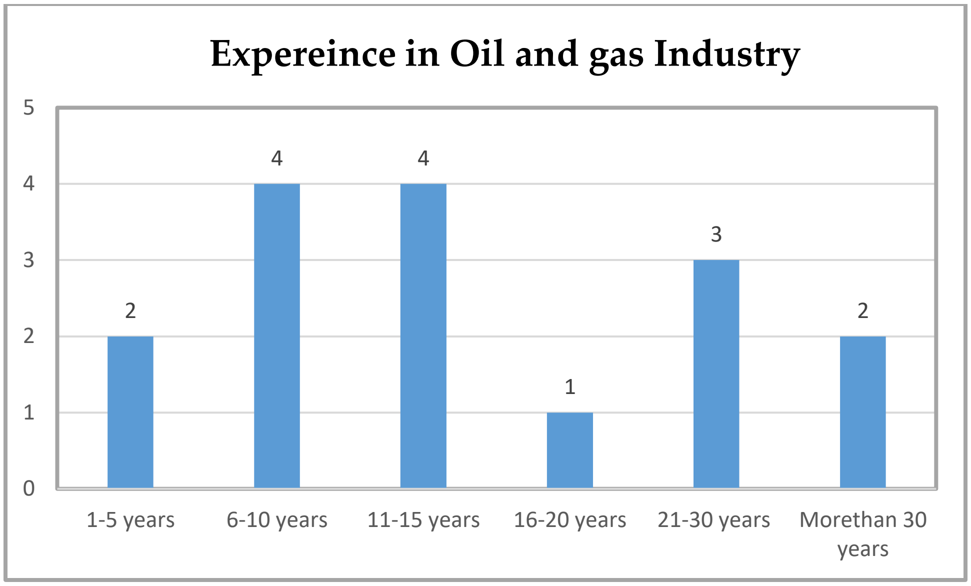

Figure 4.1 Participant Experience in Oil and Gas Project

Most of the participants are second degree holders, some of them are first degree graduate. As shown in Figure 4.2 below 81% of the participants are Master's holders whereas the remaining 19% are Bachelor degree holders implying the fact that they are quite experienced and knowledgeable in the sector.

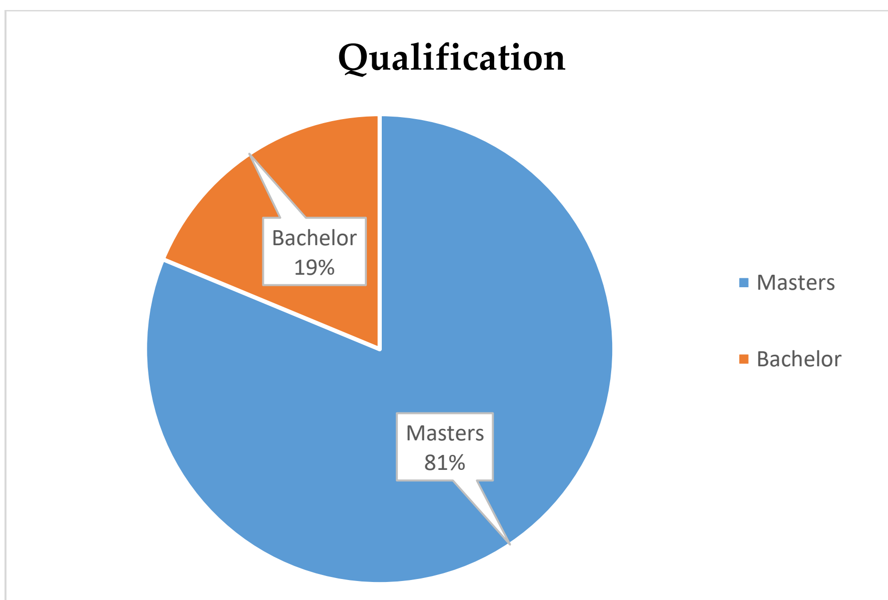

Figure 4.2 Participants' Qualification

5.1 Major Challenges by Oil and Gas Companies

Participants were asked to rate the impact level of various challenges that were affecting the implementation of the oil and gas projects. Participants ranked the 15 challenges that were compiled from literature and informal discussions with 3 experts in the oil and gas industry, in a scale of 1 to 5: 1 being the least impact and 5 being the highest impact. Table 4.1 shows the raw data from the questionnaire showing how many participants gave a specific impact level of the listed challenges.

The Relative Importance Index (RII) and the mean scores are used to analyze the ranking given by the respondents. RII is the mean for a factor which gives it weight in the perceptions of the respondents. It is used by various researches of similar approach that requires a ranking type of analysis (Johnson & LeBreton, 2004; Rasheed & Alshibani, 2018).

RII which is a deterministic method is chosen for the following reasons:

- It is easy to be understood and used by all levels of respondents regardless of their level of education.
- The questionnaire survey involves large number of factors, which makes the application of RII effective.

$$\boldsymbol{RII} = \frac{\sum \boldsymbol{S}}{\boldsymbol{W}(\boldsymbol{N})} \qquad (1)$$

Where,

S = Weight given by respondent (1 to 5)

W = Highest weight (equals to 5)

N = Number of participants

RII varies from 1 to 0, where a higher value means that the factor is more important.

According to Kothari (2004) the mean score is used to summarize the essential features of a series and in enabling data to be compared. It is open to algebraic treatment and is used in further statistical calculations. It is a relatively stable measure of central tendency. Mean score of the responses obtained is computed using the following formula.

$$\boldsymbol{Mean} = \frac{\sum \boldsymbol{S}}{\boldsymbol{N}} \, (2)$$

Table 4.1 Raw Data

No.	Challenges in Oil and Gas Project Implementation	Impact Level					Total Response
		1	2	3	4	5	
1	Subsurface complexity	0	0	3	8	5	16
2	Unavailability of advanced technology for seismic, drilling, well logging, mud logging and other similar operations locally	0	0	4	7	5	16
3	Unanticipated project cost existence	0	0	4	11	1	16
4	Unanticipated change on project Scope	0	1	3	9	3	16
5	Lack of national technical experts	0	1	1	9	5	16
6	Unavailability of Infrastructure in operation area	0	2	6	6	2	16
7	Security Challenges in operating area	0	3	3	5	4	16
8	Bureaucratic government system	0	1	7	5	3	16
9	Community challenges related to Culture, Belief etc	0	2	6	7	1	16
10	Poor tendering and contract management practices	0	2	6	8	0	16
11	Stringent Regulation	0	1	5	6	4	16
12	Inability to attract investors	0	0	4	9	3	16
13	Late internal Approval Process by Operating companies	0	3	13	0	0	16
14	Poor contractor Performance	0	0	6	8	2	16
15	Unavailability of equipment and material locally	0	2	3	8	3	16

The gathered data were analyzed to develop the Relative Importance Index (RII) and Mean score. If RII and Mean is high, that means high importance level of the specific challenge and vice versa (Johnson & LeBreton, 2004; Rasheed & Alshibani, 2018).

Table 4.2 illustrates the RII and Mean values computed. The Relative importance index (RII) and Mean equations illustrated above were used to generate the values in the table. Then the generated values were ranked from highest to lowest to identify the factors in descending order (Highest to Lowest) of their level of impact.

Table 4.2 Relative Importance Index (RII) and Mean Score

No.	Challenges in Oil and Gas Project Implementation	RII	Mean
1	Subsurface complexity	0.825	4.125
2	Lack of national technical experts	0.825	4.125
3	Unavailability of advanced technology for seismic, drilling, well logging, mud logging and other similar operations locally	0.8125	4.063
4	Inability to attract investors	0.7875	3.938
5	Unanticipated change on project Scope	0.775	3.875
6	Unanticipated project cost existence	0.7625	3.813
7	Stringent Regulation	0.7625	3.813
8	Poor contractor Performance	0.75	3.750
9	Unavailability of equipment and material locally	0.75	3.750
10	Bureaucratic government system	0.725	3.667
11	Unavailability of Infrastructure in operation area	0.7	3.625
12	Security Challenges in operating area	0.6875	3.500
13	Community challenges related to Culture, Belief etc	0.6875	3.438
14	Poor tendering and contract management practices	0.675	3.375
15	Late internal Approval Process by Operating companies	0.5625	2.813

Therefore, according Table 4.2, the top challenges in oil and gas project implementation in Ethiopia are subsurface complexity and lack of national technical experts, both with RII of 0.825 and Mean value of 4.125. Then it is followed by Unavailability of advanced technology for seismic, drilling, well logging, mud logging and other similar operations locally, Inability to attract investors, and Unanticipated change on project Scope with RII and mean values of, 08125 & 4.063, 0.7875 & 3.938, and 0.775 & 3.875 respectively. It was also noticed that Late internal Approval Process by Operating companies was the least challenge among the 15 stated above with RII of 0.5625 and mean value of 2.813.

Therefore, the top five potential challenges in the project implementation of oil and gas projects in Ethiopia listed in order from the highest to lowest between the top five are:

1. Subsurface complexity
2. Lack of national technical experts
3. Unavailability of advanced technology for seismic, drilling, well logging, mud logging and other similar operations locally
4. Inability to attract investors
5. Unanticipated change on project Scope

Both subsurface complexity and lack of national technical experts have equal RII and Mean Score which implies that they are identified as the top challenges to the implementation of oil and gas projects in Ethiopia.

5.1 Analysis of Interview

The interviews with the representatives of the Six major Oil and Gas companies and the regulatory body in Ethiopia is used to thoroughly investigate the overall oil and gas project in Ethiopia, associated major challenges in the project implementations and recommendation to the improved performance of oil and gas projects. The following few paragraphs summarize the issues raised during the interview and the feedback obtained.

4..1 Oil and Gas industry of Ethiopia and overall challenges faced

The respondents described the oil and gas projects in Ethiopia to be at a very early stage of development. Except one company, all companies are in the exploration phase. The major challenges to the implementation of oil and gas projects that were raised by the interviewees are:

- ✓ Lack of technical data on the geology of the areas under study
- ✓ The petroleum proclamations and regulations do not align with the existing industry practices
- ✓ Lack of knowledge and experience of petroleum operation activities and regulations by different government agencies
- ✓ Bureaucratic Import-Export procedures resulting in delay in the importing of operation equipment as well as costly and time-consuming mobilization and demobilization process
- ✓ Shortage of qualified manpower in the country more specifically at the regulatory body
- ✓ Lack of infrastructure in study areas

4..2 Project Management Style

More than 90% of the respondents from the Oil and Gas companies described the project management of their companies as a mix of traditional and agile project management. Oil Companies usually subcontract each technical operation to specialist companies with time bound and technical and operational term of reference where the subcontractor is required to submit a data for the various geological and engineering studies which are essentially turnkey operations where a traditional style of project management is needed.

In operations like seismic or drilling, flexibility is needed to adjust the project schedule and scope depending on the progress and findings of the operations that agile project management approach is used to manage the project.

4..3 Project progress in terms of Schedule and Cost management

More than 85% of the respondents reported having both time and cost overrun in their projects. They reported the time and cost management is dependent on the location of the project, the security condition in the area and the availability of necessary infrastructures. The implied as these cost and time over runs are due to the unforeseen circumstances that occur in the industry.

4..4 Specific challenges faced by the oil and gas projects

In addition to the general challenges observed by the oil and gas projects in Ethiopia, the respondents have addressed the specific challenges affecting their project as summarized below.

- Subsurface complexity resulting in delay on project schedule due to the lost time during importation of specialized tools required to study such complex formations
- Logistical issue on mobilizing equipment from nearest port to operational area
- Lack of experienced local companies in the provision of various support services such as civil construction, logistics and others.
- Lack of basic infrastructures, mainly access road and communication
- Import and use permit process is slower for some equipment, due to a lack of knowledge of what equipment to be imported and which government agency to authorize the permit.
- Community related challenges due to the various customs and beliefs that need to be addressed with special care and consideration
- Companies are prohibited from having offshore accounts rather are required to bring in all their investment in country which is creating lack of confidence on operating companies.

4..5 Government Support to Alleviate the Challenges Faced by Oil and Gas Companies

The companies licensed to operate in oil and gas projects have appreciated the support from some government bodies more specifically the regulatory body. However, the support is still very low and requires lots of effort in order to curb the challenges the companies face in their project implementation. Other government entities, however are not yet very knowledgeable about the oil and gas projects prohibiting them from fully supporting the project activities.

Both the companies and regulatory body responded as there are regulation and proclamation in place to govern the oil and gas projects. Nonetheless, in order to attract more new investments and encourage those already licensed to operate, these regulation and directive still require further update and modification by taking in to consideration the global industry practice and existing situations in the country. While, this research is undertaken, the government is in the process of reviewing the previous proclamation and drafting a new Petroleum policy.

5.1 Summary of Analysis of Secondary Data Source

Reports that have been submitted by companies that have previously operated in Ethiopia are reviewed to triangulate with the primary data source. After reviewing the reports, the general conclusion reached is almost all companies claimed that the major challenge they encountered during their operation is subsurface complexity of their operation area. The reports claim that after drilling exploratory wells the results they obtained is not satisfactory enough to proceed to the next phase of operation. This is due to the high investment the industry requires and when there is complex formation, the cost overrun increases. This supports the result obtained from the primary data.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The purpose of this study was to identify the challenges faced by the Oil and Gas Projects in Ethiopia during project implementation.

The research approach employed was a qualitative research approach. Interview and questionnaire were used to collect data from selected key informants. Judgmental or Non-probability sampling was used to select the respondents. 16 key informants, who were selected based on their expertise and direct involvement in project implementation, have participated in the interview and to respond to the questionnaire.

The research has identified the Ethiopian oil and gas industry is still at its early stage requiring various support from the government. A combination of both agile and traditional project management approaches are used to manage these projects.

The top challenges identified by the experts affecting oil and gas project implementation are: subsurface complexity, lack of national technical experts, unavailability of advanced technology for seismic, drilling, well logging, mud logging and other similar operations locally, inability to attract investors, unanticipated change on project Scope, and unanticipated project cost existence.

Furthermore, the detailed interviews have revealed in some project areas community related issues that are related to customs and religious practices are presented to be more challenging to the project implementation.

Other newly emerging challenge hindering the implementation of oil and gas projects is, the new requirement requiring oil and gas companies to bring in their investment and deposit in local bank rather than the old practice that allows to keep their investment in an offshore account. This is creating low confidence and prohibiting the companies from making intensive investment decision.

5.1.1 Synthesis with Project Management Knowledge areas

Project Scope Management

In relation to project scope management, the oil and gas projects in Ethiopia face challenges in following the initial project scope defined. The result of the study shows unforeseen change in the project scope are observed during the project implementation phase of the project.

Project Cost Management

Estimating cost is the process among the project cost management knowledge area that needs to be worked on in order to alleviate the cost overrun experienced by the different oil and gas projects in Ethiopia.

Project Stakeholder Management

The right application of project stakeholder management knowledge area is the solution to the community related challenges the oil and gas industry in Ethiopia is facing. Managing stakeholder engagement is the right approach to mitigate the challenge.

Project Human Resource Management

Lack of trained manpower and experts is one of the challenges identified by the participants of the study. This challenge can be curbed by applying one of the processes of project human resource management which is developing project teams. This helps to have trained experts for the project.

5.2 Recommendation

The research has identified various challenges that were summarized in the previous sections. Based on the interviews with the key informants the following recommendations are given to resolve the challenges identified:

- More incentive should be in place to encourage investors;
- Support and commitment from competent authorities with a high efficiency in decision-making process;

- The government should create sufficient national capacity and proficiency to manage oil and gas projects
- All rounded reform through customs, banks and institute clear and transparent proclamations and directives;
- Clear communication and understanding of how oil and gas operations are managed from Federal – Region – Zone - Woreda and Kebele levels with their roles and responsibilities so that the time lost during communication will be minimized
- The concerned government agency should Increase the supervision of exploration company activities so that the government can understand the challenges faced by the companies.

The interview has revealed the time and cost overrun during project implementation is due to the unforeseen occurrences in the industry. It is recommended for the companies to undertake detailed study to identify potential challenges and prepare contingency plans to avoid any upcoming surprises.

5.3 Further Implication for Future Study

The oil and gas sector in Ethiopia is an under-studied sector with only few academic work done on it specifically in relation to its project management aspect. Due to the time limitation and inability to reach out to more informants, this research only covered an overview of the challenges faced by the projects from the company and regulatory point of view. And it is believed it can be a cornerstone for studies in the sector. Future researches should investigate the issue from the contractors' and other stakeholders' perspective in order to have a complete understanding of the challenges. Moreover, more informants should be involved in the research to increase the credibility of the conclusion reached.

5.4 Limitation of the Study

This research work intends to investigate the challenges in the project implementation of oil and gas project. Due to the availability of limited time and resource, the research did not cover all the concepts related to the research topic. Moreover, despite the author's declaration on the confidentiality of the data they provide, the participants of the research might have had some reservation in discussing all challenges they’re facing in fear of implicating their jobs and considering the political sensitivity of the industry.

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APPENDIX

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

PROJECT MANAGEMENT DEPARTMENT

Dear Sir/Madam

First of all I would like to pass my sincere appreciation for giving me your time to have answer this questionnaire. Its main purpose is to collect data for the research I am conducting entitled “Assessment of Oil and Gas Project Implementation Challenges in Ethiopia” at Addis Ababa University, College of Business and Economics, school of commerce under supervision and advice of Dr. Abdurazek Mohamed. There are several factors that can make this research fruitful. But for the most your cooperation, honesty and genuine responses are the basic ones. Therefore, I kindly request your cooperation and sincere response to the interview session. All information you will provide is considered as confidential and data will be used exclusively for the needs of the research only.

Thank you in advance for your cooperation!

Sincerely,

Bezawit Temesgen

Section 1- General Information of the respondent

1. Position:
2. Qualification:
3. Experience in the industry:

Section 2: Ranking of Challenges in Oil and Gas Projects in Ethiopia

Rate the following technical and non-technical challenges faced during oil and gas project implementation in Ethiopia based on their level of impact (5-Highest Effect, 4-High Effect, 3-Medium Effect, 2- Low Effect and 1- Least Effect)

No.	**Challenges in Oil and Gas Project Implementation**	**Impact Level**				
		1	**2**	**3**	**4**	**5**
1	Subsurface complexity					
2	Unavailability of advanced technology for seismic, drilling, well logging, mud logging and other similar operations locally					
3	Unanticipated project cost existence					
4	Unanticipated change on project Scope					
5	Lack of national technical experts					
6	Unavailability of Infrastructure in operation area					
7	Security Challenges in operating area					
8	Bureaucratic government system					
9	Community challenges related to Culture, Belief etc					
10	Inadequate tendering and contract management practices					
11	Stringent Regulation					
12	Inability to attract investors					
13	Late internal Approval Process					
14	Poor contractor Performance					
15	Unavailability of equipment and material locally					
16	If Others Please Specify and Rank					

Interview Questions for Oil and Gas Operating Companies

1. How do you describe the overall oil and gas industry of Ethiopia?

2. What are the major challenges that are observed in the Ethiopian oil and gas industry?

3. Kindly explain your company's project management style? (Some common examples of project management styles are Traditional, Agile, and Extreme Project Management.

4. How do you rate your company's projects progress compared to your initial project

5. What are the specific challenges with the implementation/execution of projects in your company's operation area?

6. Kindly describe if there is any support from concerned government body to alleviate the challenges oil and gas companies face in their operation?

7. Do you think the government has the right regulation in place that supports and encourages oil and gas projects? Please explain.

8. What do you suggest is the solution to improve the performance of oil and gas projects in Ethiopia?

Definition

1. **Traditional project management**: used on projects where activities are completed in a sequence and there are rarely any changes.
2. **Agile Project Management**: used to manage projects whose goals are clearly specified but whose solutions are not known at the outset of the project.
3. **Extreme Project Management:** models consist of a sequence of repeated phases with each phase based on a very limited understanding of the goal and solution.

Interview Questions for Regulatory Body

1. How do you describe the overall oil and gas industry of Ethiopia?

2. What are the major challenges that are observed in the Ethiopian oil and gas industry?

3. Kindly describe the support from your office to alleviate the challenges oil and gas companies face in their operation?

4. Do you think the government has the right regulation in place that supports and encourages oil and gas projects? Please explain.

5. What do you suggest is the solution to improve the performance of oil and gas projects in Ethiopia?