Ethiopia Oil and Gas Sector Development: Support for Review and Update of Policy and Regulatory Framework

Final Report

Reference # 1170668

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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>Alternative Dispute Resolution</td>
</tr>
<tr>
<td>AIPN</td>
<td>Association of International Petroleum Negotiators</td>
</tr>
<tr>
<td>API</td>
<td>American Petroleum Institute</td>
</tr>
<tr>
<td>ASI</td>
<td>Adam Smith International</td>
</tr>
<tr>
<td>BoP</td>
<td>Blow out preventer</td>
</tr>
<tr>
<td>CoM</td>
<td>Council of Ministers</td>
</tr>
<tr>
<td>EITI</td>
<td>Extractive Industries Transparency Initiative</td>
</tr>
<tr>
<td>EPNGDE</td>
<td>Ethiopia Petroleum and Natural Gas Development Enterprise</td>
</tr>
<tr>
<td>ECDD</td>
<td>Environment and Community Development Directorate</td>
</tr>
<tr>
<td>FDRE</td>
<td>Federal Democratic Republic of Ethiopia</td>
</tr>
<tr>
<td>Geo³</td>
<td>Geological, Geophysical and Geochemical</td>
</tr>
<tr>
<td>GoE</td>
<td>Government of Ethiopia</td>
</tr>
<tr>
<td>GMP</td>
<td>Gas Master Plan</td>
</tr>
<tr>
<td>GTP</td>
<td>Growth and Transformation Plan</td>
</tr>
<tr>
<td>ICSID</td>
<td>International Centre on the Settlement of Investment Disputes</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>IOC</td>
<td>International Oil Company</td>
</tr>
<tr>
<td>LNG</td>
<td>Liquefied Natural Gas</td>
</tr>
<tr>
<td>LPG</td>
<td>Liquefied Petroleum Gas</td>
</tr>
<tr>
<td>MoFEC</td>
<td>Ministry of Finance and Economic Cooperation</td>
</tr>
<tr>
<td>MoMPNG</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>NOC</td>
<td>National Oil Company</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>PIA</td>
<td>Petroleum Institute of East Africa</td>
</tr>
<tr>
<td>PLAD</td>
<td>Petroleum Licencing and Administration Directorate</td>
</tr>
<tr>
<td>POP</td>
<td>Petroleum Operations Proclamation</td>
</tr>
<tr>
<td>POTP</td>
<td>Petroleum Operations Tax Proclamation</td>
</tr>
<tr>
<td>PPSA</td>
<td>Petroleum Production Sharing Agreement</td>
</tr>
<tr>
<td>PSC</td>
<td>Production Sharing Contract</td>
</tr>
<tr>
<td>ToR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>VAT</td>
<td>Value Added Tax</td>
</tr>
</tbody>
</table>
Executive Summary

Ethiopia’s oil and natural gas sector is at a cross-road. Despite earlier set-backs, in the last several years the Ministry of Mines, Petroleum and Natural Gas (MoMPNG) has been successful in attracting international oil companies to execute Petroleum Production Sharing Agreements (PPSAs) with firm exploration obligations. Although exploration will mean revenue from signature bonuses, investment in drilling and a better understanding of the country’s geology, it is not the final objective. The challenge for the oil and natural gas sector is to adopt policies and implement a regulatory framework that is conducive to commercial production in a manner that optimises the benefit to Ethiopia’s economy and environment.

Little attention has been given to the oil and natural gas sector in terms of national economic planning and performance. Under the Government of Ethiopia’s (GoE) Growth and Transformation Plans, oil and natural gas is aggregated with industrial and metallic minerals, where the focus is on expanding the production to generate foreign exchange and import substitution for domestic industries. Until recently, the oversight of the oil and natural gas sector was split between ministries. The Ministry of Mines was responsible for upstream issues, including the allocation of exploration and production areas. The Ministry of Water Resources, Irrigation and Energy was responsible for downstream activities related to the use of domestic and imported fuels. The consolidation of upstream and downstream activities under the MoMPNG provides the opportunity to adopt and implement a comprehensive strategy for the sector under a sector master plan. Such a master plan is particularly timely given the imminent proposal for development of the Calub and Hilala gas fields.

A Minerals Policy for the mining sector is in the process of being finalized, and a similar initiative should be undertaken for the oil and natural gas sector. A number of developments make the adoption of a sectoral policy for oil and natural gas timely: (1) MoMPNG’s plans to review the Petroleum Operations Proclamation which governs the location and development of the resource; (2) the scheme for taxation of minerals and petroleum is under review; (3) various proposals have been made for the development of existing natural gas discoveries that are mutually exclusive; (4) exploration activity is on the increase with additional discoveries soon to be announced; and (5) the GoE recently established the Ethiopia Petroleum and Natural Gas Development Enterprise (EPNGDE) to represent its commercial interests in the sector.

Ethiopia’s regulatory framework for the oil and gas sector follows the typical legal hierarchy for petroleum operations and is composed of constitutional, legislative, regulatory and contractual instruments. The 1995 Constitution establishes a framework for the cooperative administration of the oil and gas sector between federal and state governments, with the federal government having primacy. Under the Constitution, Ethiopia’s natural resources are to be used for the benefit of the people. At the national level, the Petroleum Operations Proclamation No.295/1986 is the principal law, whose main purpose is to enable the exploration and production of oil and gas resources through agreements signed with private sector contractors. Neither the GoE nor the MoMPNG have any enforcement powers under the Proclamation. The PPSA combines commercial and regulatory provisions and is the only statutory instrument that implements the Proclamation.

This Report has two objectives. Firstly, to provide a comprehensive review of the current policy of the Government of Ethiopia (GoE) towards the oil and natural gas sector. An integral part of this objective is to assess whether the current regulatory framework is adequate for implementing these policies. Secondly, to evaluate the regulatory framework in terms of good international practice. Both objectives entail the identification of possible gaps in either policy or regulation.

The consensus coming from the Initiation Workshop was that the interests of the oil and natural gas sector would be best served if changes were proposed to the existing policy and regulatory framework rather than proposing entirely new approaches. Subsequently, various issues were identified where there was a gap in policy or regulation. Each gap is discussed in terms of: (1) current status; (2) best practice for closing the gap; (3) relevant considerations; and (4) options for implementation. Comprehensive summaries of these options are included at the end of the Policy (Part B) and Regulatory Framework (Part C) sections.
These options were discussed with representatives from MoMPNG and EPNGDE at an Options Workshop. The purpose of the workshop was to rank the options in terms of their priority for implementation according to one of three levels: Level 1 - next 12 months; Level 2 - next 24 months; or Level 3 - more than 24 months. The feedback from participants at the Options Workshop was used to prepare the Conclusions and Recommendations (Part E) in this report. The principal conclusions and recommendations are divided between Policy and Regulatory Framework.

Ethiopia does not have a clearly articulated policy for the oil and natural gas sector. In order to govern the development of oil and natural gas, it is necessary to establish a clear policy for the gas sector that includes a master plan that integrates upstream development and downstream utilization, with a particular focus on the domestic use or export of natural gas.

Current legislation pre-dates the 1995 constitution and does not fully reflect the relation between Federal and State governments regarding the management and taxation of petroleum resources. The MoMPNG does not have an effective regulatory framework for managing successive stages of petroleum development starting with the award of PPSAs, approval of development plans, monitoring of operations and decommissioning of facilities. The current proclamations and regulations need to be revised to better reflect the relationship between Federal and State governments under the 1995 Constitution and to add enforcement powers that are not contractually based.

It necessary to strengthen the capacity to govern the oil and natural gas sector through: (1) restructuring the Petroleum Licensing and Administration Directorate (PLAD); (2) adopting new regulations and directives regarding the construction and use of pipelines and other infrastructure; (3) adding staff and improving compensation of personnel; and (4) providing specialized training and the application of analytical tools in evaluating and auditing petroleum operations carried out by Contractors.

A systematic process for implementing these measures is contained in the Implementation Plan (Part F) which categorizes each activity, the responsibilities within MoMPNG for leading and supporting each task, milestones, deliverables and the necessary resources. In terms of policy, higher level activities such as sectoral policy and the sectoral master plan are the responsibility of the State Minister, whereas those activities that are specific to PPSA and Geo-Data are administered by PLAD with support from other directorates. These activities should be completed within 12 to 24 months, with priority given to the Oil and Natural Gas Sector Policy and Master Plan.

Some activities regarding the regulatory framework involve action being taken by the Council of Ministers and the Parliament. Priority is to be given to the secondary legislation in the form of regulations issued by the Council of Ministers or Ministerial Directives to resolve the gaps in the regulatory framework such as pipelines and production facilities, and protection of the environment (flaring, produced water and decommissioning). Revision of primary legislation will require additional time due to the parliamentary process in Ethiopia.
A. Introduction

Background

Ethiopia is a large and diverse country, with a total population of 91.7 million (2012)\(^1\), having a federal, democratic government system, established in the early 1990s, with nine autonomous states (‘regions’) and two chartered cities\(^2\). The country follows a ‘developmental state’ model, with a strong role for the Government of Ethiopia (‘GoE’) in many aspects of the economy.

Ethiopia has averaged a 10.7% economic growth rate over the last ten years, more than double the annual average of countries in Sub-Saharan Africa, which was around 5.2%. However, despite this period of high growth, the country’s per capita income of USD 635 is substantially lower than the regional average of US$1,257 and among the ten lowest worldwide\(^3\). GoE is currently implementing its Growth and Transformation Plan (GTP; 2010/11-2014/15), which is a national five-year plan created by the Ethiopian Government to improve the country’s economy. It sets a long-term goal of becoming a middle-income country by 2023, with growth rates of at least 11.2% per annum during the plan period.

The Oil and Gas sector in Ethiopia, currently at a very early stage of development, shows good potential for development on 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 Southern Ethiopia, Afar in Northeastern Ethiopia, 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. Oil and natural gas discoveries in neighboring countries as well as the Calub and Hilala Natural Gas discoveries in the Ogaden region have created great interest in the above-mentioned regions under exploration, and the government has now established a national Petroleum and Natural Gas Development Enterprise, to further develop the sector and the government’s stake in it.

The Oil and Natural gas sector is governed by the Ministry of Mines, and the unit dedicated to manage the sector faces capacity constraints. The sector will benefit from strategies and policies to implement the broader vision for the sector. It is also currently governed by proclamations and regulations that will benefit from a revision to align them to global good practices.\(^4\)

Development of the oil and gas sector in Ethiopia has the potential to transform the country’s economy. To this end, the Government of Ethiopia has requested technical assistance and capacity building support from the World Bank as part of a wider package of support provided by the Bank (in coordination with other development partners) to develop the Extractive Industries (Oil, gas and mining) sector of Ethiopia. The main objective of the work to be undertaken, is to provide guidance and build capacity in GoE as it undertakes the wider update of its policy, legal, and regulatory framework of the oil and gas sector.

Adam Smith International (ASI) was contracted to review the policy and regulatory framework for the oil and gas sector and provide recommendations. This Final Report on Policy and Regulatory Options has been prepared at the conclusion of the analytical stage of the Project, and was preceded by the Initiation Report submitted in July 2015.

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1 Source: United Nations (2012). According to the Ethiopian Central Statistical Agency, the population is 82.6 million.
2 The Regions are Afar, Amhara, Benishangul-Gumuz, Gambella, Harari, Oromia, Somali, SNNPR (Southern Nations, Nationalities and Peoples), and Tigray. The chartered cities are Addis Ababa and Dire Dawa.
ASI would like to express its gratitude to personnel at the Ministry of Mines, Petroleum and Natural Gas, particularly Dr. Ketsele Tadesse and the staff in the Petroleum Licensing and Administration Directorate for their cooperation during the field missions and workshops as well as responding to our follow-up inquiries. The report was developed through a consultative process, with approximately 70 people from the public sector, private sector and development partners being interviewed in one-to-one meetings or participating in the stakeholder workshops. The full list of stakeholders consulted is attached in Annex 2 of this report.

1. Ethiopia’s Economy, Environment and Petroleum Regime

In terms of national economic planning and performance, the Government of Ethiopia (GoE) tended to aggregate petroleum with industrial and metallic minerals, particularly in terms of emphasizing the export of natural gas. The Growth and Transformation Plan (GTP) lists the following indicators for measuring performance of the oil and natural gas sector:

- Increased coverage of geo-science data in Ogaden Basin
- Increased investment in petroleum
- Number of investors licensed on petroleum exploration
- Revenue generated from petroleum exploration

After lagging plan targets for previous years, the oil and gas sector reported substantial increases in investment and exploration revenues for 2013-2014. These factors are acceptable indicators of success where the objective is limited to petroleum exploration. They are only partially relevant to a larger picture where the goal is the monetization of the nation’s petroleum resources. The sector has yet to generate revenue from production, although the Minister is reported as forecasting that natural gas exports would exceed $1 billion annually from 2018.

Unlike many other African countries, Ethiopia is not dependent upon the development of natural gas for the generation of electricity. However, the production of domestic petroleum resources can be significant for Ethiopia’s economy either by being used domestically, or as an export. Used domestically, natural gas and gas liquids can substitute for imported fuels and be utilized as a feedstock for fertilizer and petrochemicals. As an export, like other minerals, it could be a source of foreign exchange. Ethiopia spends $2.5 billion annually on imported petroleum products, which is 20 percent of the country’s foreign exchange. Development options can be mutually exclusive and decisions should be based on optimizing the benefit to the country.

Environmentally, the availability of domestically produced Liquefied Petroleum Gas (LPG) and gas liquids offers benefits by substituting for the use of wood as a fuel. This can help reduce deforestation in Ethiopia where approximately 90 percent of 24 million cubic meters of the nation’s annual wood production is used for fuel and charcoal making.

A country’s petroleum regime represents a combination of geology and the fiscal system for developing petroleum resources. A significant portion of Ethiopia is underlain by five distinct sedimentary basins: Ogaden; Abay (Blue Nile); Mekele; Gambela and the Ethiopian Rift System. Natural gas and condensate discoveries have been made in the Calub and Adigrat sandstone reservoirs at Calub and Hilala fields of the central Ogaden basin. The Abay basin has a similar geotectonic origin and the stratigraphic units are similar in age and lithology to the Ogaden basin. The prospectivity of the Gambela basin is similar to those in South Sudan where oil has been discovered. Detailed evaluations of the prospectivity the Mekele and Rift basins are yet to be made.

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6 The Reporter “Gov’t plans to garner US$ 3 billion from mining sector” October 03, 2015, Vol. XIX No. 995.
Ethiopia's fiscal system is based on a taxable, production sharing approach. The terms for production sharing (cost recovery and production splits) are determined by negotiation, as is the rate of royalty. Eligibility of expenditures for cost-recovery is determined in the Accounting Procedure annexed to the PPSA. The Petroleum Operations Income Tax Proclamation currently imposes a rate of 30 percent on taxable income. Deductions are allowed for petroleum operations costs, including interest payments on non-exploration loans. A more detailed discussion of Ethiopia's fiscal system is presented in Part B, Section 2.3 and Part C, Section 3.5.

2. Development History

The Calub Field is Ethiopia's oldest identified natural gas reservoir. A brief review of the history for its development reveals a succession of attempts to achieve commercial production. In 1994, the World Bank extended a loan of US$ 74.31 million to GoE for the Calub Gas Development Project with the purpose of “diversifying the supply of household fuels, improving energy efficiency and reducing the consumption of traditional fuels” as the immediate goal of the energy sector. The full scope of the project's objectives were to: (1) improve the present unbalanced structure of energy supply in Ethiopia by increasing the availability of modern fuels; (2) support economic growth by expanding petroleum supply from indigenous resources; (3) contribute to the mitigation of peri-urban deforestation by inducing the replacement of wood fuels with liquefied petroleum gas and kerosene in urban households; (4) develop the country's technical capacity to commercialize its fossil fuel resources; and (5) contribute to poverty alleviation through direct measures, induced economic activity and through the development of Ethiopia's remote south-eastern region. In late 1999, the Calub Gas Share Co. was formed to develop the gas and condensate production from the field in the Ogaden basin of south eastern Ethiopia. The company planned a second phase that would have involved the large-scale exploitation of Calub gas for power generation, ammonia-urea fertilizer, transportation, residential, commercial, industrial, and other uses. After having expended US$ 13.62 million, the World Bank suspended the loan in 2001 following an evaluation that found:

- The performance of the Bank in assessing the quality at entry was not satisfactory.
- The project design was complex and considerably beyond the ability of GoE to implement.
- Supervision ratings were too optimistic, giving the wrong signals on the viability of the project.
- GoE did not live up to its commitments.

Later attempts to jointly develop the gas fields with the company and other parties were not successful. The GoE has since liquidated the share company. Despite this set back, the GoE has continued to support the viability of developing the Calub field. In 2006, MoMPNG conducted a tender for international oil companies (IOCs) interested in developing the fields. A subsidiary of the national oil company of Malaysia, Petronas, was selected and in June 2007 signed a Petroleum Production Sharing Agreement (PPSA). The company planned to build a gas treatment plant and construct a

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9 Sinclair Oil Company drilled the first exploration well in 1940. In the 70s & 80s, both Tenneco and the Soviet Exploration Enterprise discovered natural gas in the southeastern part of the country known as the Somali kill. J. Markatis, Ethiopia: The Last Two Frontiers, pp.291

10 Memorandum and Recommendation of the President of the International Development Association to the Executive Directors on a Proposed Credit in the Amount Equivalent to US$ 74.31 to the Government of Ethiopia for the Calub Gas Development Project (Feb. 18, 1994) pp. 18.


12 http://africanbusinessmagazine.com/uncategorised/ethiopia-a-lot-of-hot-air-over-gas/
gas pipeline to the port of Djibouti. The total investment was estimated at $1.9 billion. Four years later, Petronas decided to relinquish all its concessions in Ethiopia.13

Following Petronas' withdrawal, MoMPNG conducted a tender in March 2011 to select a company that would assume the same contract areas. In July 2011, Hong Kong-based PetroTrans was awarded the Calub and Hilala natural gas fields and eight other exploration blocks. After a year, MoMPNG cancelled the PPSAs with PetroTrans, on the basis that the company had failed to commence work on the project according to schedule. PetroTrans responded by filing an arbitration before the International Chamber of Commerce (ICC) on 28th December 2012. MoMPNG is vigorously contesting the claim.

3. Current Activity

The Calub and Hilala fields are now included in PPSA contract areas awarded in November 2013 to another Hong Kong-listed company, POLY-GCL.14 In September 2014, the company signed a Memorandum of Understanding with the Djibouti Ministry of Natural Resources. In early 2015, the governments of Ethiopia and Djibouti signed a framework agreement for the cross-border gas pipeline, which designated POLY-GCL to be the operator of the system.15 There have been some reports that gas delivery is to commence in 2018. However, discussions with POLY-GCL's Country Manager indicated that this date was only relevant to the submission of a development plan for the contract area, and that the cross-border pipeline and LNG export terminal should only be taken as one of the options for development.16 Other options include field processing for gas-to-liquids to create petrochemicals or transportation fuels as proposed by Dubai-based INTREPIDGTL.17

In other areas of Ethiopia, exploration for oil and natural gas is taking place in parts of the Ogaden Basin in Southern Ethiopia, Afar in North-Eastern Ethiopia, Southern Rift Basin, and Main Ethiopian Rift Basin regions. Currently, eight companies hold PPSAs as follows:

Table 1: Companies holding PPSAs

<table>
<thead>
<tr>
<th>Company</th>
<th>No. of Blocks</th>
<th>Petroleum Operations</th>
<th>Date of PPSA Award</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLY-GCL</td>
<td>2</td>
<td>Development</td>
<td>2013</td>
<td>Development Plan</td>
</tr>
<tr>
<td>Africa Oil Corp.</td>
<td>6</td>
<td>Exploration</td>
<td>2013</td>
<td>Geo</td>
</tr>
<tr>
<td>South West Energy</td>
<td>4</td>
<td>Exploration</td>
<td>2008, 2012</td>
<td>Drilling Program</td>
</tr>
<tr>
<td>Tullow</td>
<td>1</td>
<td>Exploration</td>
<td>2010</td>
<td>Drilled 2 Wells</td>
</tr>
<tr>
<td>Gazprombank (GPB)</td>
<td>1 (large)</td>
<td>Exploration</td>
<td>2013</td>
<td>Geo</td>
</tr>
<tr>
<td>New Age</td>
<td>2</td>
<td>Exploration/Development</td>
<td>2010</td>
<td>Gas Discovery</td>
</tr>
<tr>
<td>Falcon Petroleum</td>
<td>3</td>
<td>Exploration</td>
<td>2008</td>
<td>Drilling Program</td>
</tr>
<tr>
<td>Delonex</td>
<td>3</td>
<td>Exploration</td>
<td>2014</td>
<td>Establishing Office</td>
</tr>
</tbody>
</table>

13 Petronas stated that this decision was the result of a management decision.
14 POLY-GCL Petroleum Group Holdings Limited was incorporated in November 2012 and is a subsidiary of GCL-Poly Energy Holdings Limited a leading polysilicon and wafer supplier as well as energy investor and power plant operator.
16 Interview with Mr. Lai Yeo Siong, Country Manager POLY-GCL Petroleum Investments Ltd.
17 Interview with Mr. Gary King, CEO INTREPIDGTL Ltd.
The Council of Ministers recently established a new company called Ethiopia Petroleum and Natural Gas Development Enterprise (EPNGDE) with the responsibility for representing the GoE’s equity participation in petroleum development. The EPNGDE comes under the Public Enterprises Proclamation No. 25/192 and functions under the supervision of its own board of directors and the Council of Ministers. The participating interests held by the GoE under the PPSAs are to be transferred to the EPNGDE.

4. Objectives of this Report

This Report has two objectives. Firstly, to provide a comprehensive review of the current policy of the GoE towards the oil and natural gas sector. An integral part of this objective is to assess whether the current regulatory framework is adequate for implementing these policies. Secondly, to evaluate the regulatory framework in terms of good international practice. Both objectives entail the identification of possible gaps in either policy or regulation.

The ToR for this Project specifically directs that attention is given to the following topics:

- State’s role and interests in oil and gas projects
- Competitive positioning of the oil and gas sector to attract investments
- Compensation for property in areas where exploration for oil and gas is being undertaken;
- Revenue sharing between GoE, contractor and local communities during production and sale of oil and gas;
- Corporate social responsibility and value addition to local communities;
- Incorporation of environmental conservation and protection aspects, and incorporating modalities for abandonment and decommissioning of oil and gas operations;
- Guidelines and enforcement of local content and employment of Ethiopian citizens;
- Enhancement of transparency (including taking into account GoE’s subscription to EITI) and simplicity of contract negotiations
- The inclusion of standard health, safety, and environmental (HSE) clauses in legislation and/or associated regulations (including regarding potential gas flaring, oil and gas pipelines, air/soil/water pollution, etc.).

The guidance to be provided should reflect the current status as well as anticipated development of Ethiopia’s oil and natural gas sector.

The following proposals for the approach and content of this report were suggested during the initiation workshop:

- Comment on the existing policy and legislation rather than propose completely new ideas.
- Provide options for policy and legislation to address the gaps.
- Fiscal options should be included in the report.
- Include policy options and measures for development of geoscience data.

These suggestions are reflected in the discussion contained in Parts B and C of this report. In addition, this report presents a Capacity Building Plan to strengthen the systems, procedures and knowledge management of MoMPNG. Following consultations with MoMPNG, the report will also provide an Implementation Plan as a road map for the steps to be taken for achieving goals and closing gaps in policy and regulation.

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18 Council of Ministers Regulation No. 264/201 (26 June 2012).
B. Policy Options

1. Petroleum Policy in Ethiopia

The Constitution of the Federal Democratic Republic of Ethiopia vests the ownership for all natural resources exclusively in the State and the peoples of Ethiopia.\(^\text{19}\) Ethiopia’s national energy policy simply states that the goal is to “. . .promote and strengthen the development and exploration for natural gas and oil.”\(^\text{20}\) The Ministry of Mines, Petroleum and Natural Gas (MoMPNG) is responsible for the governance of the petroleum sector, including the development and implementation of policies in respect of upstream exploration and development. Most recently, the regulation of the downstream petroleum sector and biofuels was transferred from the Ministry of Water Resources, Irrigation and Energy to MoMPNG.\(^\text{21}\) The Ministry of Trade retains regulation of the entry of petroleum marketing firms in the downstream sector.\(^\text{22}\)

In order to effectively govern the sector, petroleum policy must clearly provide an overarching vision and high level objectives. Implementation of this policy is through well-designed sub-policies across a range of areas that differ according to the cultural and political characteristics of the resource owner, legal system, and stage of development. It may include:

- Determining the broad role and goals of the State in governing the sector.
- Decision to commence exploration and development of petroleum resources. This step involves a series of decisions to: (1) undertake development either through a national oil company (NOC), or international oil company (IOC), or a combination of the two; (2) allocation of petroleum rights; types of contracts to be used; (3) expedite exploration by offering incentives; (4) proceed with development once a discovery is determined to be commercial; and (5) minimize or avoid adverse effect of petroleum development on environment and communities.
- Fiscal regime that maximizes benefits from petroleum development and sharing these benefits equitably with sub-national governments, especially in the locations where the resources are developed;
- Revenue management providing assurance through effective assessment, collection, and audit processes that the expected revenues from petroleum development are collected; and
- Administration of petroleum operations through implementation of best practices resulting in optimal depletion of reservoirs, environmental protection, proper abandonment of wells and facilities and site restoration.

In order to ensure coherence of petroleum policy, it is important that a government has clearly enunciated its policy objectives for the sector.

Currently, petroleum policy is implemented through a regulatory framework, which may consist of laws, regulations and contracts. There are a number of laws for the sector including the Petroleum Proclamation\(^\text{23}\), Tax Proclamation\(^\text{24}\) and Environmental Impact Assessment Proclamation.\(^\text{25}\) We were informed that the Petroleum Proclamation, which was promulgated in 1986, is planned to be reviewed in the near future. MoMPNG has also published a Model Petroleum Production Sharing Agreement (MPPSA). MoMPNG has

\(^{19}\) Art. 40(3)
\(^{20}\) Energy Policy of the Transitional Government of Ethiopia Section 4.2.
\(^{21}\) This reshuffle was announced when the new Cabinet was sworn in on October 15, 2015.
\(^{22}\) A company must construct a 500,000 litre depot and have a minimum of six filling stations before it can be licensed to operate as an oil retailer in Ethiopia.
\(^{23}\) No. 295/1986
\(^{24}\) No. 296/1986
\(^{25}\) No. 299/0003
successfully awarded 15 Petroleum Production Sharing Agreements (PPSA) to 8 companies. The blocks which currently include PPSA Contract Areas, as well as those that are open are shown on the map in Annex 3.

2. Gap Analysis

This section of the report identifies the significant gaps in the policy area for the petroleum sector and discusses the options for addressing them. MoMPNG does not have a clearly stated petroleum policy. In this part of the report, the following policy areas are reviewed:

- Policy for Petroleum Sector,
- Allocation of Petroleum Rights,
- Efficacy of Fiscal Regime,
- Legislative System,
- Natural Gas Development,
- Management of Geological, Geophysical and Geochemical (Geo3) Data and Core Samples Storage Facility,
- Strengthening Sector Governance; and
- Midstream and Downstream Development

As most policies are implemented through a regulatory framework, we examined the policy content of this framework. The Regulatory Framework is discussed in Part C. The following is a review of the significant policies and options to address the gaps.

2.1 Policy for Petroleum Sector

Although MoMPNG is in the process of finalizing the Mineral Policy for the Mining Sector, it has not undertaken a similar activity for the oil and natural gas sector. The draft policy document presents strong arguments for the Ministry to have an overall policy for the Mining Sector. It states:

*Although legislation is usually based on policy principles, these principles, when only contained in the provisions of the legislation and not considered holistically within the context of a policy framework, tend to become standalone provisions that are applied literally. It is recognized that the drafting of legislation, without reference to coherent policy framework, often causes provisions to be implemented in isolation, which results in unintended consequences. … The lack of mineral policy in Ethiopia has so far influenced the development of the Sector in various ways which include:*

- The lack of clear and precise direction that leads to sustainable and reliable mineral sector development.
- Prevalence of non-objective plans, programs and projects.
- The lack of well-developed and viable mineral industry that can play a significant role to the national economy.
- The absence of systematic approach to basic challenges facing the Sector.
- The above arguments equally apply for the Ministry to have a petroleum policy.

A sectoral policy is timely because of a number of important developments in the sector including:

(1) MoMPNG’s plans to review the Petroleum Proclamation; (2) the Governments of Ethiopia and Djibouti have signed a framework agreement for export of natural gas; (3) exploration activity is on the increase; and (4) transfer of downstream petroleum responsibilities from the Ministry of Water Reserves, Irrigation and Electricity...
to MoMPNG. The Petroleum Policy will help to provide direction to these activities and facilitate systematic development of the sector.

A report by Chatham House\textsuperscript{26} identified the first seven objectives in Box 1 as key objectives for the petroleum sector in emerging producing countries.

**Box 1: Objectives for Petroleum Sector**

1. Attract the most qualified investors
2. Maximize economic returns to the State
3. Earn and retain public trust and manage public expectations
4. Increase local content and benefits to the broader economy
5. Ensure NOC participation in the development of the resources
6. Gradually build capacity and enable actors to perform their roles
7. Increase accountability
8. Increase exploration and development in prospective areas
9. Acquire modern technology
10. Ensure effective management of resources
11. Ensure proper treatment of communities affected by petroleum development
12. Protect the environment
13. Institute transparent processes
14. Encourage competition
15. Other

The benefits of establishing clear objectives for policy development may be seen, for example, if the objective is to attract the most qualified investors. The strategy to achieve this objective would require active promotion of the sector internationally to attract qualified investors, supported by professionally-prepared promotion materials including up-to-date regulatory framework and presentation material showing the geological potential. This objective would further require training of staff for promotion.

A sound petroleum policy should include the Ministry’s vision and high-level objectives for the sector. The objectives relate to why and how the sector should be developed, the role of the State in developing the sector, as well as the comparative advantages of the country in terms of its petroleum regime. For example, the policy objectives may include ensuring a reliable supply of energy at affordable prices, encouraging a gradual shift from traditional energy source use to modern energy source, and ensuring the development and utilization of energy is benign to the environment.\textsuperscript{27} An effective approach to developing a Petroleum Policy would be to involve the political leadership, senior managers of MoMPNG and stakeholders in the development of the policy.

The Minister, in our meeting, did recognize the need and urgency of having the policy for the petroleum sector. Once MoMPNG has developed a policy for the sector, it should review sub-policies, such as allocation of petroleum rights, and fiscal policies to ensure consistency with the sector policy. The various sub-policies are discussed in the following sections of the report.

### 2.2 Allocation of Petroleum Rights

\textsuperscript{26} Guidelines for Good Governance in Emerging Oil and Gas Producers. The Royal Institute of International Affairs (2013)

\textsuperscript{27} The National Energy Policy of Ethiopia; Ministry of Water Resources, Irrigation and Electricity; http://www.mowr.gov.et/EEA/LEGAL/The%20national%
The Petroleum Proclamation provides the Minister with powers to:

*Either by competitive bidding or, subject to the directives of the Council of Ministers, by direct regulations enter into:*

(a) an exclusive Petroleum Agreement which authorizes the Contractor to carry out Petroleum Operations in a particular area …

We were informed by PLAD that most of the PPSAs are awarded through negotiations. As shown in the Table 2, an extensive number of terms of the MPPSA\(^2^9\) are settled by negotiation with Contractors.

**Table 2: PPSA Terms Subject to Negotiation**

<table>
<thead>
<tr>
<th>Section</th>
<th>Terms</th>
</tr>
</thead>
</table>
| **Section 3.6.2** | Training of Ethiopian Grant Personnel  
|               | • Contribution during exploration  
|               | • Contribution during development |
| **Section 3.6.5** | Community Development Program  
|               | • Contribution during exploration  
|               | • Contribution during development |
| **Section 5.1.4** | Minimum Exploration Obligation for Work Obligations  
|               | • During exploration period  
|               | • During first extension exploration period  
|               | • During second extension exploration period |
| **Section 7.1.2** | Cost Recovery Limit (%) |
| **Section 7.1.2(a)** | Production Sharing (Oil) (Production Sensitive) |
| **Section 7.1.2(b)** | Production Sharing (Gas) (Production Sensitive) |
| **Section 11.1.1** | Annual Rentals |
| **Section 11.2.1** | Royalty (Oil) (Production Sensitive) |
| **Section 11.2.1** | Royalty (Gas) Production Sensitive) |
| **Section 11.3** | Production Bonus |
| **Section 11.4** | Signature Bonus |

Is the allocation system, particularly that it has a large number of fiscal terms, suitable for Ethiopia – an undeveloped geological province? We are informed that there is limited geological information available for the sector, few exploration wells are being drilled with three confirmed natural gas discoveries, and PLAD has limited capacity to evaluate fiscal options. In the absence of an enunciated allocation policy, it appears that the allocation system is focused on maximizing the rent capture instead of encouraging exploration.

The large number of fiscal terms being negotiated gives the perception of a system more suited for an established geological province. The system is also complex, hence would require higher technical skills to evaluate and administer.

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\(^{28}\) Supra note 12, S. 7(4)(a)

The method of allocation of rights by PLAD has been called an “open door” system. The following describes such an approach:

In open-door system, the criteria for award are often not pre-defined and known to market participants; the government retains considerable discretionary power and flexibility in awarding exploration and production rights. Open-door systems are likely less competitive than licensing rounds and are generally considered less transparent and more vulnerable to corruption. Such systems can, however, be made more transparent through the definition of clear award criteria, the publication of negotiation results, and the use of external oversight bodies.

Without the aid of a sophisticated financial model or adequately trained staff to develop and use the model, PLAD faces a very challenging job in assessing the potential outcomes as it negotiates an array of fiscal and operational terms. We are informed that as PPSAs are negotiated, the parties are required to keep the terms confidential.

The Minister, in our meeting, confirmed that future PPSAs would be published.

**Options**

There are a number of options available to PLAD to make the allocation system more effective, including to:

- Develop a policy for the allocation system.
- Reduce the number of fiscal terms to be negotiated.
- Involve economists/financial analysts from the Ministry of Finance to be members of the negotiation team.
- Develop capacity to use financial models.
- Utilize, where suitable, allocation system by auction. This would require developing a regulation providing rules for auction, developing a promotion package, revising the regulatory framework, and training of staff and promoting at venues generally used for this purpose, such as London, Houston and Calgary. Allocation by auction is generally considered more efficient than direct negotiations.

2.3 **Efficacy of Fiscal Regime**

Section 2.2 proposed reducing the number of factors being negotiated in a PPSA as a means of enhancing the effectiveness of the allocation system for the oil and natural gas sector. This strategy is also recognized as a positive approach to enhancing the effectiveness of the fiscal system. In this section, each of the financial terms is analysed to determine if they can be standardized in a PPSA. The analysis shows that most terms may be standardized and only one or two terms may need to be negotiated. Standardisation of fiscal terms will promote ease of contract administration and transparency. The same options are also applicable if PLAD decides to award the PPSA through auction.

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31 Ibid.
32 Ibid
33 Supra note 18 at 23
2.3.1 Fiscal Terms

The MPPSA contains many clauses that have financial implications. However, most clauses refer to obligations that the contractor would perform in the normal course of business. The fiscal terms in the MPPSA include several blanks that will vary with each agreement. However, the form of the fiscal terms is specified in the model. Important fiscal terms include:

- Signature bonus\(^{34}\)
- Annual rentals\(^{35}\)
- Royalty rates\(^{36}\)
- Production bonuses\(^{37}\)
- Cost recovery limit\(^{38}\)
- Production sharing rates\(^{39}\)
- We limit our analysis to the terms that relate to payments that the contractor makes to the government.

2.3.1.1 Signature Bonus

The signature bonus can serve three purposes. First, it can reimburse the government for the cost of considering the contract. Second, it can ensure that the government is dealing with a substantial company, and provide some incentive to proceed diligently with work. Third, it can be a means of collecting economic rent.

In practice, a signature bonus is one of several rent collection mechanisms used by governments, but rarely as the principal mechanism. A cash bonus, as a significant rent collection mechanism, is used where there is a high probability of successful exploration or extensive Geo information is available. However, in countries with a less stable investment environment or less known Geo\(^3\), investors are likely to discount the bonuses to reflect the perceived risk.\(^{40}\)

We are informed that PLAD negotiated this term in the range of $100,000 - $2 Million. Without the ability to review the terms of the PPSAs, it was not possible to determine whether these payments were regarded as being eligible for cost-recovery. If the signature bonus is included in cost-recovery it would mean that such payments would have minimal impact on the contractor if a commercial discovery were made. The bonus is a deductible expense for income tax.

**Options**

- As Ethiopia is at the initial stages of Sector development, MoMPNG may consider foregoing bonus and instead focus on work commitment.
- If bonus is taken, the bonus amount may be specified in the Model Petroleum Production Sharing Agreement.
- The specified amount should be small relative to the prospectivity of the contract area.
- Signature bonuses, like production bonuses, would be excluded from cost-recovery under the PPSA’s Accounting Procedure.

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\(^{34}\) Article 11.4  
\(^{35}\) Article 11.1  
\(^{36}\) Article 11.2  
\(^{37}\) Article 11.3  
\(^{38}\) Article 7.1  
\(^{39}\) Article 7.2  
\(^{40}\) Supra note 18 at 18
2.3.1.2 Annual Rentals

The MPPSA provides for different rates for annual rent depending upon whether they are paid during either the exploration or development and production phase. The rents in the contract are for subsurface rights. The Contractor also pays surface owners for access rights during exploration, development, and production. Typically, surface rentals are generally set low enough so that they are not significant compared to other financial payments.

We are informed that PLAD negotiated rents in the range of $4/km$\(^2\) to $20/km$\(^2\) for the exploration phase and up to $200/km^2$ for the development phase. It appears that the payment of surface rental is eligible for cost-recovery as being “necessary and proper conduct of the Petroleum Operations”\(^{41}\)

Options

- The amounts should be specified in the regulations and would not be subject to negotiation.
- In case not included in the regulations, it may be included in the MPPSA and would not be subject to negotiation.

2.3.1.3 Royalty Rates

*Ad valorem* royalty is a share of the wellhead value of production. It is one of two main types of payments envisioned in the MPPSA. Royalty applies to all production, without regard to any measure of profit.

In general, the royalty is the major source of government revenue from developments that are marginally successful. The royalty rate specified is generally much lower than the rate specified as the government share of profit oil. The higher rate specified as the share of profit oil is a major source of government revenue from developments that are profitable.

Governments, as owners of resources, find royalty attractive. Royalty is easy to administer, is predictable and provides an early revenue stream upon commencement of production. This provides positive optics for a government. However, as the royalty is not profit related, it may deter marginal projects from proceeding. The regressive nature of royalty can lead to a premature abandonment of a field.

Article 11.2 in the MPPSA provides for a sliding scale royalty where rate is linked to the rate of production. The model provides separate rates depending on whether oil or natural gas is produced. Production thresholds are specified in the model. The first oil tier applies up to production of 20,000 barrels per day. The highest oil tier applies above production rate of 100,000 barrels per day.

The production thresholds apply at the level of a development area. A development area can be of any size. Hence, they could apply to a single well or to a field with 100 wells. Normally, a contractor would develop a discovery in stages, so that each stage would be a different development area. A fixed royalty discourages the development of marginal fields, and always reduces the economic life of a field.

In practice, it is unlikely that any field in Ethiopia, of any size, will ever produce at rates that would apply to higher thresholds. Higher royalty rates for higher production are theoretical because the thresholds are set too high for any realistic discovery. The logic of higher royalty rates for higher rates of production is that this is correlated to greater profit. However, the model contract includes a share of profit oil based on a direct measure of profit. Therefore, there is no need to use a variable rate that is a proxy for profitability if the contract already includes a direct measure of profitability.

\(^{41}\) Model PPSA, Accounting Procedure Sec. 4.17.3.
The contract becomes much easier to understand and implement if the clause referring to royalty is simplified. There is no need to use a complex royalty clause because it will collect additional income from the most profitable developments by taking additional amounts as a share of profit oil. It would be easy to specify a single royalty rate that is non-negotiable.

We are informed that PLAD negotiated royalty in the range of 4% to 12%. Royalty payments are not eligible for cost-recovery, but are deductible expenses for tax purposes.

**Options**

- The sliding-scale royalty clause in the MPPSA may be replaced with a simplified clause that specifies a single royalty rate.
- To simplify the fiscal regime, a single royalty rate provision may be non-negotiable and be provided in the regulations.
- The single royalty rate should be established after a fiscal analysis.
- Although increasing in complexity, a royalty rate above a minimum may be a biddable term, if petroleum rights are auctioned.

### 2.3.1.4 Production Bonuses

The MPPSA fiscal terms include production bonuses that are one-time payments that become due when specific production thresholds are reached. The MPPSA sets thresholds on the basis of average daily rates of production. The amount of bonus and the threshold is subject to negotiation.

Bonuses generally are not significant payments compared to royalty and profit share. The bonuses have a more political purpose. They mark a milestone event that presents MoMPNG with the opportunity to announce the receipt of funds from the oil and natural gas sector.

Linking the bonuses to events based on rate-of-production may be a problem if the rate-of-production threshold is set so high that it is never reached. Political announcements are also more understandable for milestone events such as: (1) cumulative production exceeding 1 million barrels; or (2) the project achieving pay-out.

There is a need for MoMPNG to clarify its policy objectives respecting the government take. It would be more effective to design a fiscal regime where the government take can be achieved from fewer terms instead of the current many.

We are informed that PLAD negotiated production bonuses in the range of $1 Million - $4 Million. Production bonuses are not eligible for cost-recovery, but are deductible for income tax purposes.

**Options**

- MoMPNG may consider dropping this bonus from its fiscal regime.
- The actual amount of production bonuses may be included in the contract.
- The amount of each bonus should be small compared to the scope of most developments, but large enough to justify triggering a public announcement.
- Bonus may be triggered by announce-able milestones - not necessarily achieving a certain rate of production.

### 2.3.1.5 Cost Recovery Limit

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42 Ibid. Sec. 4.11.2.
43 Ibid.
The effect of a cost-recovery limit is to impose an additional royalty that applies before pay-out on the percentage of production allocated to profit oil. Table 3 shows how the cost-recovery limit increases the effective royalty rate that applies before pay-out.\(^{44}\)

**Table 3: Effective Royalty Rate before Pay-out using Cost Recovery Limit**

<table>
<thead>
<tr>
<th>Base Royalty Rate</th>
<th>Cost Recovery Limit</th>
<th>Production Sharing Rate on Profit Oil</th>
<th>Effective Addition Royalty Imposed by Cost Recovery Limit</th>
<th>Effective Royalty Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>60%</td>
<td>25%</td>
<td>25%(\times)40% = 10%</td>
<td>15%</td>
</tr>
<tr>
<td>5%</td>
<td>70%</td>
<td>25%</td>
<td>25%(\times)30% = 7.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td>5%</td>
<td>80%</td>
<td>25%</td>
<td>25%(\times)20% = 5%</td>
<td>10%</td>
</tr>
<tr>
<td>5%</td>
<td>90%</td>
<td>25%</td>
<td>25%(\times)10% = 2.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>5%</td>
<td>60%</td>
<td>40%</td>
<td>40%(\times)40% = 16%</td>
<td>21%</td>
</tr>
<tr>
<td>10%</td>
<td>50%</td>
<td>50%</td>
<td>50%(\times)50% = 25%</td>
<td>35%</td>
</tr>
</tbody>
</table>

The first four rows of Table 3 show how increasing the cost recovery limit decreases the effective royalty rate that applies before pay-out. If the base royalty rate is 5% and the production-sharing rate on profit oil is fixed at 25%, then the effective royalty rate decreases from 15% to 7.5% as the cost recovery limit increases from 60% to 90%. The last two rows of Table 3 show how the effect of the cost recovery limit depends on the production-sharing rate on profit oil. A low cost recovery limit combined with a high production-sharing rate can significantly increase the effective royalty rate that applies before pay-out.

We are informed that PLAD negotiated cost recovery limit in the range of 60% - 70%.

**Options**

- If politically acceptable, this factor may be dropped from the fiscal regime.
- The additional royalty imposed by the cost recovery limit should be small.\(^{45}\)
- For example: additional royalty of 5% can be achieved either with cost recovery limit of 60% and bottom production sharing rate of 12.5% or by a cost recovery limit of 80% and bottom production share rate of 25%.
- The cost recovery limit may be specified in the MPPSA.

### 2.3.1.6 Production-Sharing Rate

The MPPSA provides for production-sharing rates that vary according to the rate of production. The first tier production-sharing rate applies up to a production rate of 20,000 barrels of oil per day. This first tier threshold...

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\(^{44}\) The fourth column in the table is calculated as (bottom tier in production sharing rate) multiplied by (100% minus the cost recovery limit). For the first row, the bottom tier in the production sharing formula is 25%. The cost recovery limit is 60%, so the percentage of production that is cost oil is 100%-60% = 40%. The production sharing rate of 25% applied to this 40% of the oil has the effect of adding another 10% to royalty.

\(^{45}\) The additional royalty can be made small either by increasing the cost recovery limit or by reducing the lowest profit share rate. For example, additional royalty of 5% can be achieved either with cost recovery limit of 60% and bottom production sharing rate of 12.5\% (40% * 12.5\% = 5\%) or by a cost recovery limit of 80% and bottom production share rate of 25\% (20% * 25\% = 5\%)
is not likely to be exceeded in practice. Hence, in effect only the rate in the first tier is likely to apply the level of production that is allocated as the government’s share.

The logic of escalating rates based on rate of production is that projects with a higher rate of production are more profitable. However, the production-sharing rates based on production thresholds are not accurate measures of profitability because they do not reflect operating costs, commodity prices and the impact of other fiscal measures such as royalties and taxes.

Table 4 provides an example of calculation of profit sharing that is linked to a pay-out ratio. Further assumptions used are: (1) effective royalty with a fixed base royalty rate of 5%; (2) a cost recovery limit of 60%; and (3) a share of profit oil that is 25% multiplied by the pay-out ratio.

<table>
<thead>
<tr>
<th>Cumulative Cost</th>
<th>Cumulative Revenue</th>
<th>Payout Ratio 47</th>
<th>Base Royalty %48</th>
<th>Production Share Rate 49</th>
<th>Production Share Expressed as Royalty %50</th>
<th>Effective Royalty Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000,000</td>
<td>0</td>
<td>0</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>$12,000,000</td>
<td>$5,000,000</td>
<td>.4167</td>
<td>5%</td>
<td>10.42%</td>
<td>4.17%</td>
<td>9.17%</td>
</tr>
<tr>
<td>$14,000,000</td>
<td>$10,000,000</td>
<td>.7143</td>
<td>5%</td>
<td>17.86%</td>
<td>7.14%</td>
<td>12.14%</td>
</tr>
<tr>
<td>$16,000,000</td>
<td>$15,000,000</td>
<td>.9375</td>
<td>5%</td>
<td>23.44%</td>
<td>9.38%</td>
<td>14.38%</td>
</tr>
<tr>
<td>$18,000,000</td>
<td>$20,000,000</td>
<td>1.1111</td>
<td>5%</td>
<td>27.78%</td>
<td>11.11%+5.56%</td>
<td>21.67%</td>
</tr>
<tr>
<td>$20,000,000</td>
<td>$25,000,000</td>
<td>1.25</td>
<td>5%</td>
<td>31.25%</td>
<td>12.5%+6.25%</td>
<td>23.75%</td>
</tr>
<tr>
<td>$30,000,000</td>
<td>$50,000,000</td>
<td>1.667</td>
<td>5%</td>
<td>41.67%</td>
<td>16.67%+8.34%</td>
<td>30.00%</td>
</tr>
<tr>
<td>$50,000,000</td>
<td>$100,000,000</td>
<td>2</td>
<td>5%</td>
<td>50%</td>
<td>20%+10%</td>
<td>35%</td>
</tr>
<tr>
<td>$100,000,000</td>
<td>$225,000,000</td>
<td>2.25</td>
<td>5%</td>
<td>56.25%</td>
<td>22.5%+6.25%</td>
<td>38.75%</td>
</tr>
</tbody>
</table>

In addition to the pay-out ratio, there are other profit-based fiscal systems such as the R-Factor and Investment Multiple whose calculations are contained in Annex 1.

- This example illustrates how the effective royalty rate can be made directly sensitive to profit. In practice, analysis would be required to determine the appropriate formula for Ethiopia.

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46 In the oil and natural gas sector, “Pay-out” occurs when the costs of drilling, producing and operating have been recouped (cost recovery) from the sale of products on a well. The application of a pay-out ratio under production-sharing should not be confused with a pay-out ratio that measures the proportion of earnings paid out as dividends to shareholders, typically expressed as a percentage.

47 The payout ratio is (cumulative revenue)/ (cumulative cost). In the second row, 5/12 = .4167. In the 8th row, 100/50=2. In this simple example, we do not describe what is included in “cost”. The principle of using a payout ratio is the same for any definition of “cost”. Cost could be defined as “allowed cost” or as “economic cost”.

48 Base royalty of 5% is used for the example. The actual value for royalty might be subject to negotiation.

49 The production share rate here is calculated by multiplying the pay-out ratio and by the fixed rate of 25% that applies when the pay-out ratio is 1. In the second row, 10.42% = .4167*25%. In the 8th row, 50% = 2*25%. In practice, analysis would be necessary to determine the appropriate formula for defining the production share rate as a function of the pay-out ratio.

50 This column is the production share rate applied to the portion of oil that is profit oil. Before pay-out, the cost recovery limit of 60% implies that the portion of oil that is profit oil is 40%. In the second row, 4.17% = 10.42%*40%. In the eighth row, the portion of oil that is profit oil is higher than 40% because all carried forward costs have been recovered. In this row, operating cost is 40% of revenue, so profit oil is 100%-40%=60%. The profit oil percentage of 50% applied to the 60% of oil that is profit oil is equivalent to 50%*60% = 30% royalty. In the table, this 30% is shown as 20% + 10%. The first percentage being the amount that applies to the 40% that is always profit oil because of the cost recovery limit. The second percentage is the amount that applies to the additional 20% of oil assigned to profit oil because current revenue exceeds current operation cost by an additional 10%.
There are no “tiers” in this formula. The production-sharing rate is dependent on the pay-out ratio calculated at the start of the month or any other period specified in the contract.

Several observations are possible on these results:

- The production-sharing rate starts at 0% but climbs to 25% when the pay-out ratio equals one.
- At twice the pay-out, the production-sharing rate is 50%.
- Suggest that the production-sharing rate be capped at 75%, which is achieved at a pay-out ratio of three.
- Below a pay-out of ratio of 1, the production sharing rate applies to the oil that is assigned to profit oil because of the cost recovery limit.
- Above a pay-out ratio on 1, the share of oil that is profit oil increases because there is no carry-over costs. Hence, the production-sharing rate applies to a larger portion of the oil.

We were informed that PLAD has negotiated profit oil limit in the range of 25% - 85% of oil with tranches of 5,000 barrels. Similar information was not provided for natural gas. The better practice would be to simplify the administration of the PPSA by specifying a production-sharing rate directly linked to profitability.

The Tax Proclamation requires consolidation of revenue and costs at the corporate level; it does not require ring fencing.\(^5\)

**Options**

- The production-sensitive production-sharing table may be replaced with a formula that determines the production-sharing rate based upon the pay-out ratio, or other measure of profitability.
- The principle should be defined in the regulation, and the formula may be provided in the MPPSA.
- The tiers should be negotiable or biddable.

### 2.4 Legislative System

The oil and natural gas sector is characterised by uncertainty and risk. The presence of these factors requires a robust legal system. Part C – Regulatory Framework and Options of this report examines this topic in detail; here we briefly review the options for policy changes towards the legislative system.

There are three types of legislative systems:

**The Fixed Content System:** In this system, the laws and regulations provide detailed rules. A very small number of terms are left for negotiations. For example, in Alberta, Canada and many U.S. states, there is no term left for negotiation. Public tender is used and the bonus bid is the only criteria for award of the contract. The advantage of this system is that it gives the assurance of equal treatment of all contractors. It also requires less qualified and trained staff for allocation of petroleum rights, and it is also easy to administer. Its disadvantage lies in its lack of flexibility. It is generally used in a mature petroleum province.

**The Agreement System:** In this system, the law is general and all essential terms are provided in a contract. A country may use a model contract. It is flexible but requires highly qualified and trained staff for allocation of petroleum rights and administration of contracts. It is generally used in frontier areas.

**The Flexible System:** This system is a hybrid of the two systems. In this system, the law and regulations provide rules in reasonable detail, however, few terms are left to be negotiated in a contract. There is no need to have a bulky contract. This system also requires staff with less qualifications and training than are required for the Agreement System.

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\(^5\) No.: 296/986, S.4(3)
A review of the Petroleum Proclamation and the MPPSA shows that Ethiopia’s legislative system closely resembles an Agreement System; however, its state of development would support a flexible system. As well, in view of the difficulty in retaining the staff, providing appropriate training and increasing the number of contracts, it would be more effective to move to a hybrid system that incorporates some of the features of a Fixed-Content System. This will require revision of the Petroleum Proclamation and the MPPSA, and development of the Regulations providing technical rules.

2.5 Natural Gas Development

The Calub and Hilala fields have natural gas reserves of 4.0 TCF and 13.6 million barrels of natural gas liquids. These fields were discovered in 1973 and 1974 respectively. Currently, the PPSAs covering these fields are awarded to POLY-GCL Petroleum. African Oil, another contractor, assigned some of its blocks to other companies when exploration showed the presence of natural gas. GoE has announced that there are natural gas reserves in other places.

In February 2015, a framework agreement was signed between the Governments of Ethiopia and Djibouti to construct a cross-border pipeline from Ogaden basin to the Gulf of Aden. The governments also signed a Heads of Agreement with POLY-GCL Petroleum for the operation of the pipeline. The company will also build gas processing and LNG facilities in Djibouti. Unlike oil, in order for gas discoveries to proceed to development they require markets and facilities to process and transport it to markets.

Best practice is to prepare a Gas Master Plan (GMP) as a strategic document that addresses the various possible uses and markets for natural gas, such as export of LNG, petrochemicals and compressed natural gas for automobiles. It is important that the GMP is in-place while POLY-GCL is exploring options for its natural gas reserves. The GMP should include a systematic process for screening the economic benefit of a PPSA Contractor’s development plan based on costs, commodity prices and net-back to the GoE, as the resource owner. It should also determine the location and capacity of various facilities such as pipelines and processing facilities in order to avoid expensive piecemeal development of natural gas.

Options

- Prepare a Master Plan for the petroleum sector that includes upstream and downstream, with an emphasis on natural gas.
- Adopt technical regulations for the construction, operation and user access to natural gas pipelines and processing facilities.

2.6 Management of Geological, Geophysical and Geochemical (Geo³) & Core Samples Storage Facility

Many oil and natural gas producing countries have a purpose-built facility as a repository for core samples from wells and other geophysical data. For example, Alberta, Canada, has a state-of-the-art facility. MoMPNG has built a state-of-the-art facility for storage of Geo³ data and core samples. Currently, geophysical information is stored for safekeeping with a company in Texas, USA. Once the facility in Addis is operational, this information will be transferred to the facility. We understand the facility is furnished to store the core samples but core samples have not been transferred to the facility; hardware and software have been purchased but not yet installed due to lack of funds to hire and train the staff.

We understand that funds designated for operationalizing the facility, including for hiring and training of staff, have been diverted to other MoMPNG budget priorities. Furthermore, to effectively manage the facility, the staff, yet to be hired, will require training.

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Options

- The importance of completion of this facility for the development of the sector cannot be overstated. While the MoMPNG regards this as a key activity, there should be a definite schedule for completion.
- An effective approach to train the staff would be to attach them to such a facility and have a twinning arrangement with a country with such a facility, such as Alberta, Canada.

2.7 Strengthening Sector Governance

The Petroleum Operations Proclamation provides that MoMPNG is to be responsible for overseeing “Petroleum Operations”. This includes all upstream activities, transportation to the export point or entry into a system of domestic consumption. The definition excludes refining. In a recent development, the GoE has changed the name of the Ministry from the Ministry of Mines to the Ministry of Mines, Petroleum and Natural Gas. This may provide the much-needed visibility for the importance of the oil and natural gas sectors. In addition, a State Minister for Petroleum has recently been appointed to coordinate the activities of the PLAD, Biofuels and Petroleum Products. It is not clear whether MoMPNG’s mandate is to include the refining, transportation and marketing of finished petroleum products. Clarifying the scope of MoMPNG’s oversight is particularly important given recent proposals for the construction of a natural gas pipeline, crude oil and product pipelines, and possibly a refinery.

PLAD has the primary role within the MoMPNG for administration of the upstream oil and natural gas sector. Good governance is the effective, accountable and transparent management of petroleum resources. PLAD has successfully negotiated 15 PPSAs; most of them are at various stages of exploration while one PPSA is at the development stage. However, it is not clear if PLAD will also be responsible for the midstream sector. The main challenges facing PLAD include effective regulation of operations, financial management including assessment of costs, and interpretation and administration of the PPSAs. Table 5 shows the requirements for good governance and assessment of the state of these requirements.

Table 5: Sector Governance Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adequate</td>
</tr>
<tr>
<td>Petroleum Policy</td>
<td>Requires development</td>
</tr>
<tr>
<td>Regulatory Framework</td>
<td>Requires updating</td>
</tr>
</tbody>
</table>

53 Supra Note 13, S.2(9)
54 This reorganization was announced on October 9, 2015.
<table>
<thead>
<tr>
<th>Requirements</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adequate</td>
</tr>
<tr>
<td>• Number of Qualified Staff</td>
<td>Engineering/Geologists/Geophysicists</td>
</tr>
<tr>
<td>• Training of Staff</td>
<td>Needed</td>
</tr>
<tr>
<td>• Transparent Processes</td>
<td>Need assessment</td>
</tr>
<tr>
<td>• Effective Systems</td>
<td>Need assessment</td>
</tr>
<tr>
<td>• Organization Structure</td>
<td>Needs restructuring</td>
</tr>
<tr>
<td>• Human Resource Policies</td>
<td>Need changes</td>
</tr>
<tr>
<td>including remuneration</td>
<td></td>
</tr>
</tbody>
</table>

The feedback from industry is positive respecting the co-operation and assistance provided by the Director and staff of PLAD. However, there is consensus among industry executives that PLAD personnel lack expertise in all aspects of upstream oil and gas development. Specific areas where institutional strengthening is needed include negotiation of contracts, assessment of costs, and regulation of operations. Comments from PLAD’s professional staff were consistent with that provided by industry.

The organization structure of PLAD is not effective. There is high turnover and most of the staff need training. The Negotiation Group consisted of five professional staff. Four of the group members have left the Directorate, thus the Director cannot possibly give the requisite attention to the Staff and provide training. There is agreement among all senior officials of MoMPNG that high turnover of staff for the PLAD is a result of the poor remuneration policy of the Government. The turnover will go from bad to worse as the pace of activity in industry picks up.

There is urgent need to strengthen the capacity of PLAD to effectively govern the oil and natural gas sector. The need is particularly urgent in training of staff. At present, industry, as required by the PPSA, has sent few staff from PLAD for graduate degrees to U.K. While the graduate education is beneficial and is also helpful in retaining these staff for the duration of their contracts of employment, it does not address the need for administrative and field/operations training.

**Options**

The following options may be considered for strengthening governance at PLAD:

- Clarify the mandate of MoMPNG respecting petroleum sector activities.
- Organization review of the MoMPNG to address the changes in its mandate and upcoming midstream activities.
- Comprehensive review of PLAD, including organization structure, processes and systems.
- Review of Human Resource policies including remuneration policies and job classifications.
- Training needs of the PLAD staff may be included in the Canadian government’s assistance program.
- Development of a comprehensive staff training program including individual staff needs assessment that is funded from the funds received under the PPSAs.

### 2.8 Midstream and Downstream Development
To date, the main focus of MoMPNG respecting the petroleum sector has been on negotiation of PPSAs. The recent transfer of responsibilities for the downstream section, in combination with the imminent plans to monetize discoveries of natural gas, creates a situation where MoMPNG needs to address the policies respecting the natural gas midstream and downstream development. These include:

- What should be the rules respecting ownership of transmission and distribution facilities, and marketing of natural gas to domestic market? Should contract holders (producers) be allowed to own the facilities? If so, what accounting rules should be implemented to ensure costs are kept separate for each sub-sector? What will be eligible costs for cost-recovery purposes?
- Will GoE have an ownership interest in a midstream or downstream facility? If so, what will be the rules for economic regulations?
- Should there be rules to ensure a contract holder uses existing facilities prior to seeking approval for building additional capacity? Should common carrier and common processor rules be implemented?
- What technical standards should be implemented for midstream and downstream facilities for construction, testing and operations? What should be the standards for safety and environmental protection?
- What should be the policies respecting right-of-way for pipelines and surface area for facilities?

Early clarification of policies in the above areas will particularly facilitate development of the natural gas sub-sector.

**Options**

- Policies respecting midstream and downstream natural gas sector need to be developed.
- Some of the policies in the above areas need to be incorporated in the Proclamation, regulations and contracts.
### Table 6: Summary of Gap Analysis for Petroleum Policy

<table>
<thead>
<tr>
<th>Topic</th>
<th>Current Status</th>
<th>Best Practices</th>
<th>Considerations</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Petroleum Policy</strong></td>
<td>MOMPNG does not have a comprehensive Petroleum Policy with clearly stated objectives</td>
<td>Comprehensive and coherent Petroleum Policy with clearly stated objectives, e.g. Chatham House Report</td>
<td>Foundation for effective regulatory framework that attracts international petroleum companies for investments in Ethiopia's petroleum sector</td>
<td>1) MOMPNG should develop a comprehensive Petroleum Policy with clearly stated objectives for the upstream and downstream sectors</td>
</tr>
</tbody>
</table>
| **Allocation of Petroleum Rights** | Based on negotiations  
Everything is negotiable and PPSA is kept confidential | Use of auction system, and use negotiation in limited circumstances  
Use limited number of factors for bid or negotiation  
Publish PPSA | Effective allocation system that provides best terms and that strengthens confidence of Ethiopians in the system. | 1) Acquire financial model  
2) Train PLAD staff to use the model  
3) Use auction system  
4) Reduce number of terms being negotiated  
5) Involve Ministry of Finance staff as part of negotiation team  
6) Publish PPSAs |
| **Efficacy of Fiscal Regime** | PPSA does not have any standard financial terms in PPSA | Standardize most financial terms in a PSA and negotiate only 1 or 2 terms | Effective and efficient fiscal regime | 1) Standardize many of terms currently negotiated:  
a) Signature bonus  
b) Annual rentals  
c) Production bonus  
d) Cost recovery limit  
e) Profit sharing rates  
f) Royalty rates  
2) Negotiate or use as bid variable:  
a) Royalty rate or  
b) Profit sharing rate |
<p>| <strong>Legislative System</strong>    | Agreement system                                                              | System that is consistent with the stage of development of sector: flexible system | Effective system that allows ease of administration | 1) Flexible System |
| <strong>Natural Gas Development</strong> | Piecemeal development                                                          | Develop a Gas Master Plan                                 | Encourage investments in gas exploration and development in Ethiopia, and help open up Ethiopia's petroleum sector | 1) Develop a Gas Master Plan |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Current Status</th>
<th>Best Practices</th>
<th>Considerations</th>
<th>Options</th>
</tr>
</thead>
</table>
| Management of Geo³ Data and Core Sample Storage Facility | Completion of the facility is a key activity. | Well-functioning facility | Attract international petroleum companies to Ethiopia | 1) Schedule completion of the facility as a Level 1 priority  
2) Hire and train staff for operation of the facility |
| Strengthening Sector Governance | PLAD is unable to provide effective governance of the sector | Regulator with effective organization, trained staff and transparent processes is essential for governance of the sector | Ethiopians are not adversely affected by petroleum exploration and development  
No barriers to entry for qualified international petroleum companies | 1) Comprehensive review of PLAD: organization structure, processes and systems  
2) Review of human resources policies including job classifications  
3) Training of PLAD staff as part of the Canadian Government’s capacity building program  
4) Development of Comprehensive Training Program for PLAD’s staff  
5) Adopt schedule of fees for services provided by PLAD |
| Midstream and Downstream Sub-Sectors | Petroleum Proclamation does not fully deal with the sub-sectors | Fully define the sub-sectors in Petroleum Proclamation | Effective development of natural gas sector requires clear definition of the sub-sectors and rules governing them | 1) Policies respecting midstream and downstream to be developed  
2) Appropriate changes in the Petroleum Proclamation and the MPPSA to be made |
C. Regulatory Options

1. Regulatory Framework

The regulatory framework for the oil and gas sector is best discussed in terms of a legal hierarchy, which is composed of constitutional, legislative, regulatory and contractual instruments. In most countries the legal framework includes:

- **National Constitution** – Articles that address state ownership of petroleum resources, compensation for the expropriation of private property, authority for execution and ratification of contracts.

- **International Treaties and Conventions** – Intergovernmental commitments in respect of foreign investment, transit, trade, pollution, taxation and regulation of cross-border trade. In the case of a potential conflict with domestic legislation, the provisions of a treaty or convention will take precedence.

- **Petroleum Law** – Statute controlling the procedures for allocation and administration licenses and production sharing contracts, approval of work programs and development plans, participation of the national oil company, selection of service contractors, surface access rights, pipeline right-of-way, prevention of resource waste and enforcement measures for non-compliance. Most petroleum laws focus upon upstream petroleum operations and do not address issues regarding transportation and trading.

- **Gas Law** – Statute controlling the marketing and transportation of natural gas, primarily within the domestic market with provisions regarding regulation of prices for sales and transportation tariffs and third party access to pipeline systems. Typically, these issues are administered by an independent regulatory body.

- **Petroleum Regulations** – Rules implementing the Petroleum Law regarding the conduct of petroleum operations, technical standards, work place safety, preventing pollution, reporting and inspections. These regulations will be administered either by a regulatory body (ministry, department, agency or authority) or the national oil company.

- **Model Contracts** – Terms and conditions for production sharing, state participation, scope of petroleum operations, minimum work obligations, relinquishment of exploration areas, determination of a commercial discovery, domestic market obligation, local content obligations, cost recovery and accounting procedures. The terms of the contract are both commercial and regulatory and may be open to negotiation.

- **Environmental Law** – Statute and regulations controlling issuance of discharge permits, oil spill reporting and decommissioning of surface facilities. In many countries, development plans cannot be approved until an environmental impact assessment has been prepared that includes the opportunity for public consultation.

- **Petroleum Tax Code** – Statute concerning the rate of assessment, eligible deductions, tax indemnities or holidays, withholding obligations for service contractors, retention of records, procedures for filing returns and issuance of receipts for payment by foreign corporations. The State may provide an indemnity for domestic taxes in the Model Contract.

- **Income Tax Code** – Statute setting tax rates on domestic and non-resident companies as well as excise and business turnover taxes, withholding obligations, audits and penalties. Special provisions for the taxation of the petroleum industry incorporated in the general corporate tax law.

- **Foreign Investment Law** - Statute restricting foreign ownership of key industries or land as well as procedures for making application to the government for approvals. In some countries, official approval must be obtained either before or after the actual contract is executed.

- **Competition Law** – Statute and rulings concerning approval of mergers and acquisitions, anti-competitive conduct and prohibition of contracts or arrangements that restrict market competition and sanctions. Most competition laws focus on downstream transportation and trading.
• **Dangerous Goods Law** – Statute and technical standards concerning the bulk storage, handling and conveyance of dangerous goods that have flammable or explosive properties. These laws focus on siting, design and prevention of explosions and fires.

• **Labour Law** – Statute, regulations, industry awards governing compensation, work rules, visas and entry permits for expatriate personnel, workman compensation insurance and occupational health and safety, particularly for the petroleum industry.

• **Customs Law** – Statute and regulations governing the import and re-export of exploration equipment and export of petroleum production. These exemptions may be incorporated in the Petroleum Law and coordination between the two statutes is important.

• **Arbitration Act** – Statute and rules concerning arbitration procedure or other alternative dispute resolution procedures as a means for the settlement of disputes. The role of local courts in either staying arbitral proceedings or enforcing awards is particularly important.

• **Decrees or Executive Orders** – Orders issued by the head-of-state or Cabinet in Council, possibly under martial law. A key consideration is whether these orders can supersede or supplement statutes and regulations, and if recognised when a new government is formed.

• **Delegations of Authority** – Directives by the head-of-state or minister responsible for petroleum resources that confers responsibility for negotiation, administration and regulation on departmental officials. Contracts and licenses should be awarded in a process that is transparent to the public.

• **Codes of Practice** – Advisory documents issued by the ministry or department responsible for the administration of the Petroleum Act as guidelines for acceptable practice in conducting petroleum operations or access to facilities. Codes should be based on best industry practice for that country.

• **Contract Law** – Statutes and/or judicial precedents concerning the formation, execution and enforcement of contracts, particularly regarding the sales of goods. The law of some countries will recognise the use of a Deed of Covenant or Deed Poll as an alternative form of binding agreement.

Legal systems of emerging nations may not contain a complete set of laws and regulations described in the above framework. In situations where there are gaps, the option is to regulate-by-contract by including regulations and conditions in a petroleum agreement or license. Typically, the standard of compliance is to be determined by general reference to the norms of industry practice that is described as “good international oil and gas industry practice”. Without a more specific reference to an industry standard this approach raises questions about experience and interpretation, often resulting in disputes. The best approach in these circumstances is to either: (1) incorporate a specific standard by reference; or (2) issue an administrative notice or directive to all Contractors that adopts the external standard. For example, in terms of environmental protection and social responsibility, the International Association of Oil and Gas Producers has published several compilations of best practice recommendations. Of course, it is important that externally adopted standards are country-specific and therefore not relevant to Ethiopian conditions. This should not be an issue with technical standards related to measurements and equipment specifications.

The essential features of a national petroleum law, implementing regulations, and petroleum agreements have been addressed by the World Bank’s Legal Department. The main consideration in the development of a legal framework is the scope given to primary legislation, e.g. statutes, secondary legislation, e.g. rules and regulations and contractual instruments. To considerable extent, this determination is influenced by the country’s Constitution and legal traditions, albeit common or civil law. For example, the Ethiopian Constitution specifically address sustainable development and the right to a clean and healthy environment.

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As a general rule, the preference is for a brief, but broad petroleum law, with the authority for a Minister or regulatory body to adopt more specific and detailed regulations. The point being to make it easier to amend regulations, rather than the primary legislation, as circumstances change. Contracts should operate as granting instruments that allocate exclusive right to conduct petroleum operations within a designated area, as well as setting the fiscal terms under which the resource owner will be compensated should a commercial discovery result.

2. Ethiopia’s Legal Framework

The regulatory framework for Ethiopia’s oil and natural gas sector is hierarchical starting with: (1) the Constitution; (2) Proclamations passed by the House of Representatives; (3) Regulations adopted by the Council of Ministers; (4) Regulations and Directives issued by line Ministers; and (5) bilateral agreements between the GoE and private parties. There are also Proclamations issued by the Military Council prior to the 1995 Constitution, which if not found to be unconstitutional, are regarded as being valid. The following discussion examines each of these instruments in terms of their influence on the sector.

2.1 Constitution of the Federal Democratic Republic of Ethiopia

The Constitution of the Federal Democratic Republic of Ethiopia came into effect in August 1995. Constitutionally, Ethiopia is a federation of a national government with regional nine states and two municipal councils. The 1995 Constitution establishes a framework for the cooperative administration of the oil and gas sector, with the national government having primacy. Natural resources are to be used for the benefit of the people. The GoE ensures that private investors will have the right to use land under the terms of “payment arrangements established by law”

According to Article 40, Paragraph 3, the ownership of land and “all natural resources” is vested in the nation. Authority to legislate on the use of natural resources is vested in the House of People’s Representatives. The national government is authorized to delegate specific powers and functions to the States, including the utilization and conservation of natural resources. State governments are further authorized to administer lands and other natural resources within the scope of Federal law. Development projects should not damage or destroy the environment.

Under the federal arrangement, the national government is to share revenue with the States. Beyond revenue sharing, States have the right to levy and collect taxes on income, royalties and land rentals derived from mining operations. Such taxes are to be consistent with the Article 98, sub-Article 3, which recognizes that Federal and State Governments have concurrent jurisdiction over the income tax and royalties from “all petroleum and gas operations, and royalties”.

2.2 Petroleum Proclamations

58 States are: Afar, Amhara, Benshangul/Gumuz, the Gambela Peoples, the Harari People Oromia, Tigray, Somali Peoples, and Southern Nations. Addis Ababa and Dire Dawa are the two municipalities.
60 Ibid. Art. 40, Sub-Article 6.
61 Ibid. Art.55. Sub-Article 2. a.
63 Ibid. Art. 52, Para 2. d.
64 Ibid. Art.92, Sub-Article 2.
65 Ibid. Art. 95.
66 Ibid. Art. 97, Sub-Article 8.
At the national level, the principle set legislation governing the oil and gas sector are the Petroleum Operations Proclamation No.295/1986 (POP). Other significant laws include the 1986 Petroleum Operations Tax Proclamation No. 296/1986 (POTP), as amended by the Petroleum Operations Tax Proclamation No. 226/2000, and the Environmental Protection Organs Establishment Proclamation No. 295/2002. The POP appropriates ownership of petroleum to the State.67 The main purpose of the POP is to enable the GoE to explore and produce its oil and gas resources through agreements signed with private sector contractor, who assume the risk and cost of carrying out petroleum operations.68 The agreements can either be for exclusive rights to an area under a Petroleum Production Sharing Agreement (PPSA), or a non-exclusive agreement for geologic or geophysical surveys.69 A PPSA can have a term of up to 25 years, while the Joint Study Agreement (JSA) for conducting seismic survey, surface geological mapping, sampling, gravity & magnetic surveys has a maximum duration of two years.70

The MoMPNG is responsible for regulating the oil and gas sector. In addition to the authority to represent the GoE in dealings with PSA Contractors, the Minister has specific powers to:

- Issue regulations;
- Ensure the technical capability and financial capacity of Contractors to fulfil their PSA obligations;
- Prepare model agreements;
- Conduct competitive bidding rounds or enter into direct negotiations
- Conduct inspections of Contractors operations and records
- Grant permits for non-petroleum mineral exploration and production in PSA areas;
- Collect royalties and conduct audits; and
- Issue directives related to the form, content and qualifications to conduct petroleum operations.71

The Minister is able to employ various regulatory instruments including regulations, directives and production sharing agreements. To date, the MoMPNG has only utilized regulation-by-contract by incorporating regulatory obligations within the terms of the PPSAs. Where an issue is not addressed in the PPSA, the generalised standard requires that petroleum operations are to be conducted:

“... in accordance with generally accepted international petroleum industry standards and practices and in a manner which is compatible with the conservation of petroleum and other resources and the protection of human life, property and the environment.”72

None of the operative language in the above is defined in other regulatory instruments. Furthermore, the statutory language has been abbreviated in the MPPSA to read as “generally accepted international petroleum industry practice”.

Active PPSAs are overseen by the Petroleum Licensing & Administration Directorate (PLAD). PLAD also promotes applications from exploration companies and is the repository of the geological and geophysical data resulting from petroleum operations.73 Other PLAD functions include:

- Revising and updating the MPPSA;
- Conducting PPSA negotiations with prospective Contractors;

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67 Art. 4 Petroleum Operations Proclamation 295/1986, however, the reference to “territorial seas” is no longer relevant.
68 Ibid. Art.5
69 Ibid. Art 7. 4).
70 Petroleum Exploration in Ethiopia: Information and Opportunities, Ministry of Mines (undated) pp 15.
71 Ibid. Art. 7.
73 Petroleum Exploration in Ethiopia: Information and Opportunities, Ministry of Mines (undated).
• Monitoring and inspecting Petroleum Operations;\textsuperscript{74}
• Evaluating seismic survey and well data;
• Reviewing declarations of discovery submitted by Contractors; and
• Annually auditing the eligibility of expenditures for cost-recovery

The environmental impacts related to petroleum exploration and production are administered by the Environment and Community Development Directorate (ECDD).

The POP pre-dates the adoption of the Constitution and has not been declared unconstitutional. However, its status under the current federal system is uncertain in respect of the functions of state governments in the administration and taxation of oil and natural gas resources, as well as, arrangements for private investors to execute payment arrangements for land use. This situation could be an impediment for investment in the sector.

Other governments in similar situations, have either passed legislation that recognizes legislation adopted by previous governments, or allows contract holders to have their PPSA’s recognized under the new petroleum law. For example, in Somalia, contracts entered into with previous Somali governments were able to be renewed on their original terms and conditions under the new petroleum law.\textsuperscript{75}

2.3 Regulations Adopted by the Council of Ministers

In 2012, the Council of Ministers established a national oil company, called the Ethiopia Petroleum and Natural Gas Development Enterprise (EPNGDE) as a vehicle for commercial participation in development of the sector.\textsuperscript{76} As a state-owned company, EPNGDE is governed by the Public Enterprise Proclamation No. 25/1992. The EPNGDE is to engage in:

• Petroleum and natural gas development;
• Investment in companies that engage in petroleum and natural gas development;
• Represent the GoE in its economic participation in private companies engaged in petroleum and natural gas development; and
• Any other activities related to the above objectives.\textsuperscript{77}

The rights and obligations of the GoE in on-going oil and gas projects were transferred to the EPNGDE.\textsuperscript{78}

There are several ambiguities in Regulation regarding EPNGDE’s role. Typically an NOC will be involved at all stages of the petroleum value chain from exploration to production. The Regulation equates the terms “petroleum and natural gas development” with “petroleum operations” in Article 2, sub-article 9 of the POP.\textsuperscript{79} However, under the MPPSA, the government’s participation only becomes effective after the adoption of the Contractor’s development plan. This could mean that the ENPGDE will not receive information regarding reversion, well logs and market assessments during the exploration and appraisal stages.

\textsuperscript{74} Under Sec. 4.1 of the 2011 Model PSA the inspector must have a written authorization from the Minister.
\textsuperscript{75} Art. 7 Petroleum Law of Somalia, 2008.
\textsuperscript{76} Council of Minister’s Regulation No.264/2012 (26 June 2012).
\textsuperscript{77} Ibid. Sec. 6.
\textsuperscript{78} Ibid.Sec.10.
\textsuperscript{79} This reference does not appear in the POP. Rather, the definition is found in Art. 1.2.23 “Petroleum Operations” means the operations authorized under this Agreement, related to the exploration, development, extraction, production, field separation treatment (but excluding refining), storage, transportation of Petroleum up to the Point of Delivery, and marketing of Petroleum, excluding refining of Crude Oil, but including the processing of Natural Gas.
In addition, from the English translation, it is not clear whether the EPNGDE is intended to be the successor to the right of the GoE to participate in development operations under Article 6 of the PPSAs, or is merely to act in a representative capacity, while key commercial issues such as the commitment to sell the GoE’s share of natural gas production would be referred to the Council of Ministers. Furthermore, while Section 6.1.3 (b) of the MPPSA allows the GoE or its designee to enter into a joint venture with a Contractor, the Regulation does not expressly authorise the EPNGDE to enter into joint operating agreements with PPSA Contractors.

Beyond these above interpretive issues, it is not clear how the EPNGDE is able to add value through its involvement in petroleum and natural gas development. Value addition strategies for NOC’s range from capturing value beyond upstream participation to emphasising local content. Discussions with senior managers of the EPNGNE indicate that the former approach is the objective including pipeline and gas processing ventures. However, this level of activity will require access to financing that is beyond the ‘carried’ interests created under the PPSA.

Managerial capacity is also a concern. Apparently, the GoE intends to expand the role of the EPNGDE to include state participation in the development of biofuels and minerals. The addition of these responsibilities will place an additional burden on the limited staffing of the group. It is expected that much of this discussion has been superseded by the recent announcement that the scope of activities for EPNGDE has been expanded to include participation of the GoE in mining and biofuel as well as petroleum.

2.4 Petroleum Production Sharing Agreement

The PPSA is the only statutory instrument that implements the POP. It is characteristic of such arrangements between Host Countries and foreign petroleum companies where commercial and regulatory terms are combined. The Contractor assumes the technical and financial responsibility of conducting petroleum operations in compliance with the terms and conditions of the petroleum agreement. The agreement is divided into two stages: (1) an Exploration Period, where the objective is to locate and appraise a commercially viable discovery; and (2) a Development and a Production Period, where the field is developed and its production is marketed. Given a successful discovery, it is possible for the periods to run concurrently.

If the Contractor is commercially successful, it is possible to extend the duration of the agreement and recover the cost of petroleum operations from production. Cost-recovery is limited to a percentage of average daily production, ranging from 60 – 80 percent, with the remaining balance split with the host country as ‘profit’, which is increased according to daily production thresholds as shown in Table 7 for crude oil and natural gas.

Table 7: Sample Production Sharing Splits

<table>
<thead>
<tr>
<th>Average daily production of Crude Oil from the Contract Area</th>
<th>Government’s Share %</th>
<th>Contractors Share %</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 20,000 Barrels/day</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>Next 20,000 Barrels/day</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td>Next 30,000 Barrels/day</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>Next 30,000 Barrels/day</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>Any Volume over the First 100,000 Barrels/day</td>
<td>80</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average daily Production of Natural Gas from the Contract Area</th>
<th>Government’s Share %</th>
<th>Contractors Share %</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 50 million cu ft./day</td>
<td>25</td>
<td>75</td>
</tr>
</tbody>
</table>

The cost-recovery and profit sharing factors are not stated in the MPPSA, and are determined by negotiation. A more detailed discussion of the fiscal terms of is presented in the following Section 3.5.

As a regulatory instrument, the PPSA gives the Minister, or his representative, the authority to inspect the Contractor's operations and records. The Minister can also inspect the meters used for determining the volume of production. Annual audits of the Contractors records and accounts are conducted to verify costs and production thresholds. In terms of regulation, the Minister's approval is required for the following:

- Development plans
- Appraisal work programmes and budgets
- Methods and equipment for measuring petroleum
- Employment and training programmes for Ethiopian nationals
- The type and amount of the Contractor's insurance
- Flaring
- Unitisation and joint development of common reservoirs

Additionally, the Minister has discretionary authority to make the following elections that are more of a commercial nature including whether to: (1) take in-kind or market the government's share of oil and gas production; (2) participate in Development Operations; or (3) develop discoveries of non-associated natural gas relinquished by the Contractor.

As mentioned in Section 2.2, termination of the PPSA is the only enforcement measure where the Contractor fails to perform its obligations. Termination for cause is possible in the following circumstances where the Contractor:

- Fails to make any payment required under this Agreement;
- Fails to comply with any other material obligation that it has, assumed under this Agreement;
- Fails to maintain that same degree of financial ability, technical competence and professional skill necessary to carry out Petroleum Operations
- Becomes insolvent, makes a composition with creditors, or goes into liquidation other than for reconstruction or amalgamation; or
- Interrupts petroleum operations for more than one hundred eighty (180) days
- Fails to submit a report within one year to justify its decision not to develop a discovery of natural gas under Section 13.1.6.

In all cases, the Contractor is given notice and the opportunity to cure the breach before termination becomes effective. As demonstrated in the current dispute with PetroTrans, the Contractor is able to dispute the Minister’s action and submit what is otherwise a regulatory action to commercial arbitration.

### 3. Gap Analysis

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81 2011 Model PPSA Sec. 4.1.
82 Ibid. Sec.12.2.2.
83 Ibid. Section 14.4.2-3.
The analytical phase of this project identified gaps between the current regulatory framework for the oil and natural gas sector with best international practice. The ToR also listed several topics for discussion. Each gap is described in terms of: (1) current status; (2) best practice for closing the gap; (3) relevant considerations; and (4) options for implementation. The information in this discussion is summarised in Table 12 at the end of this section. A comprehensive summary of all the options discussed in this section is contained Table 12.

3.1 Constitution Consistency

Ethiopia’s oil and natural gas sector is currently being administered under legislation originally adopted in the mid-1980s in the form of the:

- Petroleum Operations Proclamation (Proclamation to Regulate Petroleum Operations 295/1986; and the

Several concepts which are reflected in 1995 Constitution are not incorporated in the 1986 legislation including:

- Exclusive ownership of natural resources by the peoples of Ethiopia as well as the State – Article 40, sub-Article 3.
- State is to undertake all measures necessary to increase opportunities for citizens to find gainful employment – Article 41 sub-Article 7.
- Nationals have the right to participate in national development and, in particular, to be consulted with respect to policies and projects affecting their community – Article 43, sub-Article 2.
- Persons who have been displaced or whose livelihoods have been adversely affected as a result of State programmes have the right to commensurate monetary or alternative means of compensation, including relocation with adequate State assistance – Article 44, sub-Article 2.
- The power of States to administer land and other natural resources in accordance with Federal laws – Article 52 sub-Article 2 d.
- The authority of the Cabinet of Ministers to enact regulations- Article 77 sub-Article 13.
- Duty of the Federal Government to develop natural resources for the benefit of the people – Article 89 sub-Article 5.
- People have the right to full consultation and to the expression of views in the planning and implementations of environmental policies and projects that affect them directly – Article 92 sub-Article 3.
- Power of State Governments to jointly levy and collect taxes on incomes derived from large-scale mining and all petroleum and gas operations, and royalties on such Article 97 sub-Article 8 and Article 98 sub-Article 3.

This raises the question of whether it is necessary to either adopt new legislation or amend the existing Proclamations in order to create a consistent regulatory framework. Although both the Constitution and the POP are based on the assertion of State ownership of petroleum resources, the Constitution recognises that the State is to act as a trustee of these resources for the benefit of the people of Ethiopia. This is a different approach than treating oil and natural gas resources as another asset of the national government. The joint management and taxation of petroleum by the national government and States is another feature of the Constitution that is not covered in the 1986 laws, and reflects the fundamental relationship between the different levels of government within a federal system. The 1995 Constitution states that the House of People’s Representatives is responsible for legislating on the use of the nation’s natural resources.

84 Art.89, Sub-Article5
The best practice where a new national constitution is adopted under a federal system of government is to repeal and re-enact the major legislation governing the management of petroleum resources. For example, when the reforms to Mexican Federal Constitution relating to the management of petroleum resources were adopted, new Hydrocarbons Law and Regulations, and the Hydrocarbons Revenue Law were adopted. Iraq has engaged in a similar process since the adoption of its new constitution in 2005.

The overall goal should be to establish a regulatory framework that offers stability for investment. There are several potential options for resolving this gap.

**Options**

- The Council of Ministers could table new legislation in the House to address the management and taxation of oil and natural gas. Considering the overwhelming majority on the government benches this could be well-timed.

- Another option is to adopt a series of amendments to the current POP that would deal with specific issues such as delegation of authority to States, with recognition of contracts that had been entered into. This approach is similar to the amendment of the POTP in 2000, and demonstrates that the 1986 POP is part of the current regulatory framework.

### 3.2 Federal - State Relations

The nature of Ethiopia's federal system of government raises considerations about the relationship between Federal and State governments. As discussed previously, revenue sharing is specifically addressed in the 1995 Constitution. This situation in terms of oil and natural gas is further complicated by the ability of regional state governments to collect income tax and royalties from “all petroleum and gas operations”. If the States were to exercise this authority, it could result in Contractors seeking adjustments in the fiscal provisions of their PPSA due to the reduction of their economic benefits from the promulgation of new laws or regulations.

Internationally, there are various approaches to revenue sharing between various levels of government and communities that are directly impacted by petroleum development. In terms of best practice, the mechanism should have the following attributes:

- Specifically identify the resource and the formula for revenue transfer;
- Clarify the roles of various governments in managing the resource;
- Include safeguards against corruption and inefficient resource management;
- Provide expert advice to stakeholders; and
- Strengthen the capacity of institutions to administer revenues.

The bottom line is that any revenue sharing arrangement should be clear and specific.

While the Federal government’s authority over natural resources in paramount, it can determine to delegate some of its authority to the States. In the case of the oil and natural gas sector, this could include management of surface issues such as the location of roads, set-backs for wells and other facilities, and pipeline corridors.

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87 Constitution of the Federal Democratic Republic of Ethiopia, Art.95
88 Ibid. Art. 98, sub-Art. 3
89 2011 Model PPSA, Sec. 16.1.3
92 Constitution of the Federal Democratic Republic of Ethiopia, Art.52 d.
The principle being to involve the States in a partnership in managing the sector. This arrangement would need to be reflected in a revision of, amendments to the POP.

The issue is not confined to Federal-State relations. Communities of people where the production facilities are located are likely to be impacted by petroleum development. In terms of local communities the MPPSA contains the following provision:

The Contractor shall prepare a community development programme to be carried out in the Contract Area for the duration of the Exploration Period. The programme shall be mutually agreed by both parties and the Contractor shall contribute -------- (-----) United States dollars per year and -------- (-----) United States dollars during the Development and Production Period.93

The PPSA also provides for eviction of land occupants where the land is required for the Contractor’s petroleum operations.94 People that are displaced are to either receive compensation for immoveable property or resettlement at the Minister’s option. If the people are to be relocated, the Contractor becomes responsible for the costs, rather than compensatory payments.95

Revenue sharing does not appear to be on the MoMPNG’s policy agenda. However, this view could change, particularly if the development of projects located in the Somali kilil go ahead. Since revenue sharing is only part of clarifying the relationship between the national government and States over the management of petroleum resources, the MoMPNG is best-positioned to take the lead in developing the procedures for the joint management and taxation of the oil and natural gas sector. Arrangements for sharing revenue from the production of petroleum resources is a feature of many federal systems. For example, the government of neighbouring Somalia is currently preparing a revenue sharing bill to implement Article 44 of the Provisional Constitution that provides for the “allocation of natural resources” to be determined by negotiation between the Federal government and member States. The MoMPNG could examine the approach taken in other petroleum producing countries such as Indonesia, Iraq, Nigeria and the United States have laws that established mechanisms for sharing petroleum revenue between different levels of government.

**Options**

- Impacts on communities and individual occupants must be resolved through consultation and negotiation. In Ethiopia, this subject is addressed in the MPPSA as a Contractor-lead process, conducted under Ministerial oversight.
- Given the flexibility of this process, it would be helpful to all participants if the Minister were to issue a directive on the standards to be followed such as those in the Community Development Tool Kit for extractive industries.96

### 3.3 Government of Ethiopia's Role and Interest in Oil and Gas Projects

State participation has been defined as “the commercial involvement of a State or its designated representative (which may be the national state oil company or any other state-owned enterprise used for the purpose) in the exploration and exploitation of petroleum resources”.97 Commercial participation of governments in the oil and natural gas sector dates back to the 1920’s and was expanded in the 1970’s as part of nationalisation of petroleum and mineral resources. As shown in Table 8 there are various mechanisms for state participation.

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93 2011 Model PPSA, Sec.3.6.5.
94 Ibid. Sec.3.7.7.
95 Ibid. Sec.3.7.8.
The GoE is able to participate in petroleum projects in several ways. The primary means is through the production sharing mechanism of the PPAs, where its share increases with higher rates of production. In addition, the MPPSA is structured to allow the GoE to elect to participate in the development phase of the agreement by acquiring an “interest either directly or through a specialized government entity”.98

Initially, the following provision in the MPPSA states:

. . . the Government shall, within thirty (30) days after the end of the Calendar Quarter in which it elected to participate, reimburse the Contractor, without interest, for the Government pro-rata share of expenditure incurred by the Contractor in conducting Petroleum Operations in the Development Area concerned from the date of adoption of the development plan under Section 5.4.5 to the date of payment.

This provision gives the impression that the form of participation is a Full Working Interest. If so, the transfer of interest could obligate the GoE, or its nominee, to make a substantial front-end payment, which may have to come from public funds. However, Section 6.1.3 (f) provides for a financing arrangement for a Carried Interest where the Contractor advances the Government’s share of expenditures at an interest rate of LIBOR + 2.5 percent.99 The repayment of the loan is to be made quarterly with the amount of the payment to be 50 percent of the difference between the gross receipts of the Government’s share and the cost attributable to that share. This arrangement could prove to be burdensome until the costs of drilling and equipping a well have achieved pay-out.

It also limits the state participation to the development phase. It would strengthen the EPNGDE’s capacity if it had a non-funding, informational involvement in the Contractor’s preparation of exploration and appraisal work programmes and budgets even though they are eventually submitted to the Minister. The EPNGDE should also be designated to represent the Minister on the gas development advisory committee.100

Funding equity often proves to be the major obstacle for state participation, particularly in emerging nations, like Ethiopia, where there are competing priorities for the use of public funds. The MPPSA does allow the GoE to opt for a financing mechanism where it makes quarterly payments equal to the “. . . difference between the gross receipts attributable to the Government’s Participating Interest in the Development Area and the costs

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98 2011 Model PPSA, Sec.6.1.2.
99 LIBOR stands for London Interbank Offered Rate. It’s the rate of interest at which banks offer to lend money to one another in the wholesale money markets in London. It is a standard financial index used in U.S. capital markets and can be found in The Wall Street Journal and is currently 1.06 percent.
100 2011 Model PPSA, Sec. 13.1.3.
and expenses, including royalty but excluding income taxes . . “. This arrangement could prove to be burdensome during the ‘ramp up’ stage of a natural gas project where it could take several months to reach full commercial production. In these situations the inability of the EPNGDE to meet its payment obligation could either require transfers from the GoE or delay back project development.

The best practice would be to follow what is done in other countries, such as Trinidad and Tobago, whose petroleum agreements allow the State to elect to participate under a carried interest with the repayment of the cost of participation tied to production. ¹⁰¹

**Option**

Implementation of this option would simply require that the MPPSA to be revised so that rather than using the previously discussed repayment method stipulated in Section 6.1.3 (f), revenue from on-going production is used to fund its participating as follows:

> the Government shall, within thirty (30) days after the end of the Calendar Quarter in which it elected to participate, reimburse the Contractor, without interest, out of the Government's share of production for the pro-rata share of expenditure incurred by the Contractor in conducting Petroleum Operations in the Development Area concerned from the date of adoption of the development plan to the date of payment; (emphasis added)

The EPNGDE was established to undertake projects directly or invest in companies involved in projects in the petroleum sector that are of importance to the Government of Ethiopia. Based on the English translation of the regulation, it appears that the GoE has transferred its participation rights under the PPSAs to the EPNGDE. ¹⁰² More recently, the Cabinet determined to combine the government's direct participation in petroleum, mining and biofuels in a single entity. ¹⁰³ A growing body of best practice has emerged regarding governmental participation in petroleum the upstream petroleum industry, where the focus is on enhanced governance including: clarity of roles and responsibilities, transparency, accountability and the active scrutiny and support of domestic and international stakeholder. ¹⁰⁴

**Cross-Border Projects**

The GoE also has a major role to play in the facilitation of cross-border projects, such as the proposed natural gas pipeline to Djibouti. The proposal of Poly GCL to transport gas production to Djibouti for processing and sale deserves particular attention in terms of how to structure the project for the benefit of Ethiopia. The company has indicated that it will sign a Joint Operating Agreement for the pipeline with each country and that the company “will cooperate in building a natural gas pipeline from the Ogaden Basin in Ethiopia to Djibouti, where the natural gas will be processed in a marine terminal and transported” internationally. ¹⁰⁵ Poly GCL’s cross-border proposal warrants particular attention in terms of how to structure the project for the benefit of Ethiopia.

**Options**

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¹⁰² Ethiopian Petroleum and Natural Gas Development Enterprise Establishment Council of Minister’s Regulation No.264/2012, Sec.10.

¹⁰³ Ethiopian Mining, Petroleum and Biofuels Corporation. A copy of the Council of Ministers Regulation establishing the new entity was not available as the date of this report.


• A variety of issues including pipeline operatorship, regulation of access and charges, construction and environmental standards, resale of liquids extracted in Djibouti, and taxation of the project company should be addressed in an inter-governmental agreement.

• Both the South African Regional Gas Project (Mozambique to South Africa) and the West African Gas Pipeline Project (Nigeria to Togo, Benin and Ghana) are a good examples of the issues to be addressed for such cross-border projects including equity structure, financing, tariffs, third-party access, gas sales, and taxation.\textsuperscript{106}

3.4 Petroleum Operations Proclamation

Consistency with the 1995 Constitution is not the only regulatory gap in the POP. Additional gaps involve its structure and implementation. In terms of structure, the POP does it contain enforcement provisions for enforcement. In addition, there are no provisions for regulating pipeline systems and other facilities. In terms of implementation, the lack of regulations or directives means that the MPPSA is the only regulatory instrument.

The statute lacks enforcement provisions that would give the Minister the authority to impose fines or penalties for non-compliance, or to seek a judicial order in aid of enforcement of a directive. This is a major gap in the regulatory framework. The POP does state that petroleum agreements are to contain “sanctions for failure by the contractor to fulfill obligations” under a PPSA.\textsuperscript{107} However, rather than include measures such as financial penalties or temporary suspension of contract, termination of the PPSA is the only recourse available to the Minister.\textsuperscript{108} The result is that any violation of the statute must be solely addressed in terms of a breach of contract.\textsuperscript{109} The drawback for the GoE is that a Contractor can choose to dispute a regulatory issue and refer it to arbitration, where the decision of arbitrators is final and binding.\textsuperscript{110}

Under Section 3.1.1 (c) of the MPPSA the Minister can grant authority for the Contractor to construct pipelines. Presumably, other facilities such as gas processing plants, and oil storage tanks would be address in the Development Plan submitted under Section 5.4 and 13.1.3 if it is natural gas. Unlike most petroleum laws, in Ethiopia, the Minister has no statutory authority to regulate either the conditions of pipeline access or the tariffs for transportation. This can be of particular importance in terms of reducing recoverable costs by installing sufficient capacity to meet the needs of other Contractors and potential markets at initial construction, rather than duplicating expenditures for individual systems. This has particular significance for the proposed cross-border natural gas pipeline to Djibouti. The installation of additional capacity will reduce development costs and can be an incentive for the development of adjacent Contract Areas in Ethiopia.

The Minister has broad authority to issue both regulations and directives as measures for implementing the proclamation. It is surprising to find that neither has been used in nearly forty years. It is possible that the so-called stabilization provisions in the legislation as well as the MPPSA has been a deterrent.\textsuperscript{111} Section 16.1.3 in the MPPSA states:

\textit{In the event that after the Effective Date of this Agreement the economic benefits to be derived by a Party from the Petroleum Operations under this Agreement are substantially affected by the promulgation of new laws and regulations or of any amendments to the applicable laws and regulations of Ethiopia and if the affected Party so requests, the Parties shall agree to make the necessary adjustments to the relevant provisions of this Agreement, in order to ensure that the affected Party is...}

\textsuperscript{106}The World Bank, “Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Developments” Trends and Policy Option No. 4.

\textsuperscript{107}Petroleum Operations Proclamation 296/1986, Art. 9, 13).

\textsuperscript{108}2011 Model PSA, Art. 2.5.2.

\textsuperscript{109}Section 2.5.2 b) in the 2011 Model PSA allows the Minister to terminate where the Contractor has failed to comply with a material obligation of the agreement.

\textsuperscript{110}2011 Model PPSA, Sec. 16.2.3.

\textsuperscript{111}Art. 9. 10) Petroleum Operations Proclamation No. 295/1986,
restored to the same economic condition it would have been in if such change in the applicable laws had not taken place.

The purpose of the stability clause is to protect the Contractor’s economic position from increases in taxes and other confiscatory fiscal measures that are enacted after the Production Sharing Contract (PSC) has been signed.\textsuperscript{112} This provision is not intended to be used to prevent governments from exercising their sovereign authority to regulate the oil and natural gas sector. There is an additional ambiguity regarding the application of Ethiopian law in Section 16.1 which states:

\textit{This Agreement shall be governed by, interpreted and construed in accordance with the laws of Ethiopia and, in the absence of explicit and implicit provisions in such laws by standard customs and usage in the international petroleum industry and such accepted principles of international law.}

This provision attempts to fill gaps in Ethiopian law, by importing industry “customs and usage”, whether or not recognized as good practice. The option is to either limit the provision to Ethiopia, or include a specific reference to the laws of another country. For example, several African countries apply the law of England and Wales where there is a gap in their regulatory framework. The following approach is suggested by the Association of International Petroleum Negotiators:

\textbf{Alternative #1}

The substantive laws of ____________ , exclusive of any conflicts of laws principles that could require the application of any other law, shall govern this Agreement for all purposes.

\textbf{Alternative #2}

The laws of ____________ , to the extent consistent with international law, shall govern this Agreement for all purposes. To the extent the laws of ____________ are not consistent with international law, then international law shall prevail.

Adhering to good practice is critical to both the promotion of investment and the protection of the public interest. International experience has shown that it is good practice to have enabling legislation that is short, but thorough. The Petroleum Act is then implemented by regulations, and one or more variants of a model contract.\textsuperscript{113} The following principles should be address in the enabling legislation:

- State ownership of the oil and natural gas resources;
- authority to allocate rights for the development of natural resources;
- clear roles for regulatory bodies, private companies, civil society and local communities;
- identification of the authorities and procedures by which the government allocates mineral or petroleum rights along with the rights and obligations of both the license holder and the government;
- clear, transparent, competitive, and non-discretionary procedures for issuing exploration and production rights, including the technical and financial qualifications needed to hold a petroleum right;
- permissible contract types;
- assurance to a prospective license holder or contract signatory of security of tenure including issues related to development rights, assignment rights, and retention rights;
- obligations of the petroleum right holder to explore, invest, and produce the mineral or petroleum or else relinquish the right so that it can be made available or assigned to another party ready to take on those obligations;

• reporting requirements of the license or right holder;
• conditions for voluntary relinquishment, transfer or termination for cause of the license or right;
• health, safety, and environmental (HSE) requirements related to the license or contract;
• procedures for management of possible land-use conflicts between different claimants or users;
• dispute resolution procedures;
• establishment and implementation of an effective communications strategy;
• mandate and role of NOCs and minority state equity in oil and gas companies;
• grant of the right to construct and own infrastructure specific to petroleum or mining operations (for example, pipelines or rail routes); and
• principles of the fiscal regime.\textsuperscript{114}

The POP satisfies the above criteria in many respects. The distinguishing feature in Ethiopia is that implementation is entirely by contract, rather than other regulatory instruments that would work in combination with the MPPSA. Typically, regulations in the oil and natural gas sector fall into two major categories: resource management; and health, safety and environmental (HSE).

Management of oil and natural gas resources primarily involves the application of technical and operational standards. Technical standards include such issues as conduct and reporting of seismic surveys, drilling, testing and completing wells and measurement of production. Compliance with technical standards is by reference to internationally recognised bodies such as the Society of Petroleum Engineers or International Standards Organisation.

Operational standards are meant to supplement the provisions of production sharing agreements by requiring consent or approval by the Minister at each of the following junctures (1) seismic survey; (2) exploration work program implementation; (3) drilling; (4) discovery; (5) appraisal; (6) development plan and any revisions; (6) reservoir management and unitisation; and (7) decommissioning plans. Most often these consents take the form of a permit or license. For example, Sri Lanka uses production sharing for its fiscal regime, but requires the Contractor to obtain a Development License before commencing production. Under the Ethiopian scheme, these issues are addressed in the terms and conditions of the MPPSA. As mentioned earlier, disputes over the Minister’s decisions are subject to commercial arbitration, which means the ultimate discretion rests with a panel of arbiters rather than the GoE. Other rules will deal with fees and payments such as royalty, surface rental, fines and volume audits.

\textbf{Options}

• Changes in Ethiopia’s approach to the regulation of the oil and natural gas sector would require the Minister to either promulgate regulations or issue specific directives. Arguably, such action would trigger the stability clause in the PPSA and result in the need to negotiate an adjustment in the fiscal terms. Of course, the Minister could take the position that the regulations and directives were only for the purpose of clarification and does not constitute a change in the regulatory framework.

• Alternatively, complementary regulations, particularly the requirement for permits to conduct petroleum operations could be issued on the basis that they were to only apply prospectively to PPSAs executed after the regulations became effective. There are well-developed international good practice standards for HSE that emerging countries can incorporate by reference in their regulations.\textsuperscript{115}


\textsuperscript{115} Sources for best practice standards include IPIECA, Society of Petroleum Engineers, American Petroleum Institute, American Gas Association, International Standards Organization, and the Extractive Industries Source Book
3.5 Ethiopia’s Fiscal System

Fiscal systems for the oil and natural gas sector have the following characteristics: (1) a progressive share of revenue from production as profitability increases; (2) early participation in revenue that is not dependent upon recovery of cost; (3) limited exposure to financial risk; (4) development of the oil and natural gas sector from employment and transfer of know how; (5) international competitiveness; and (7) an administrative simplicity and transparency. The main options are either a tax-royalty system that is used in licenses and leases; production sharing; or a combination of the two, which is referred to as a ‘taxable PSC’. Over time, PSC fiscal systems have become more sophisticated with production splits that include prices as well as daily production levels, or formulas that adjust with Contractor’s rate of return.

The MoMPNG has included many of these features in the MPPSA. In particular, the fiscal terms for oil and natural gas include:

- Negotiable royalty on gross value of production free of cost, ranging from 5-10 percent according to daily production rates.
- Negotiable production sharing percentages, but progressive in favour of the government, ranging from 25 – 80 percent for oil and 25 – 65 percent for natural gas as production thresholds increase.
- Negotiable cost-recovery percentage, subject to maximum percentage of daily with a range of 50 – 70 percent.
- Bonus payments for signature and production thresholds
- Annual land rentals: $4 per sq. km during exploration, $8-$20 per sq. km during extension, and $200 per sq. km for a development area.
- Income Tax: 30 percent from petroleum operations
- All pre-production cost and production capital expenditures are depreciated over five years
- Income tax is excluded from cost-recovery.
- There is no tax on dividends/remittances abroad

Petroleum companies evaluate compare fiscal terms as well as geology in deciding where to pursue investment. Typically, host countries give attention to the competitiveness of their fiscal regimes in relation to other countries. A major part of this process is selecting comparable states with similar geological potential, cost and operating environments, track record, institutional capacity and perceived and actual political risk to act as benchmarks. These elements can be equally as important as the fiscal regime in recruiting investment in the oil and gas sector.

As a general proposition, PLAD seeks to achieve a 70-75% government take under a PPSA. However, MoMPNG has not developed a financial model to calculate the discounted cash-flow internal rate for return for oil and natural gas development that would verify this assumption using the fiscal terms in the PPSAs in correlation with data on operating costs, production rates and market prices. Comparative analysis of Ethiopia’s fiscal system from PEPS, a subscriber-based ranking service, revealed the following results:

Table 9: PEPS Ranking for Ethiopia’s Fiscal System

<table>
<thead>
<tr>
<th>Category</th>
<th>Government Take</th>
<th>Ranking of 162</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Fields</td>
<td>57.52%</td>
<td>53</td>
</tr>
<tr>
<td>Fields with Upside</td>
<td>53.40%</td>
<td>45</td>
</tr>
<tr>
<td>Marginal Fields</td>
<td>71.99%</td>
<td>69</td>
</tr>
</tbody>
</table>

116 Interview with Dr. Ketsela Tadesse, Director Petroleum Licensing & Administration Directorate.
PEPS ranked the Ethiopian fiscal system in the second quartile for government-take. In terms of return to Contractors, Ethiopia ranked 40th of 162 fiscal systems in PEPS. Working from this information, it appears that Ethiopia’s fiscal system is generally competitive when looking at fields with higher levels of production and profitability, but substantially less so for marginal fields that are less profitable due to higher levels of cost, lower rates of production, or low market prices. It is possible to improve Ethiopia’s international ranking by the adoption of a fiscal system that is based either on a price-production matrix, such as Indonesia, or an r-factor such as China or the fiscal system recently proposed for Mexico.

Although Ethiopia has long been recognized for its prospectivity, however, the lack of established production means that other indicators necessarily comes into consideration in recruiting investment in the oil and natural gas sector. Exploration companies evaluate the following risk categories: (1) contract risk; (2) physical risk; and (3) financial risk from nationalisation or expropriation. These indicators reflect the fact that petroleum companies are increasingly forced to explore in high-risk locations. Each exploration opportunity is evaluated on the basis of whether the specific contract terms and the probability of a major discovery justify commitment or resources relative to the costs to be incurred in commercialization. This is done with the realization that the time from signing a contract to the start of commercial production can span a decade. This means that subsequent years of production will provide the necessary return on investment. Consequently, risk assessment must cover a longer period than the time horizon for other business activities such as manufacturing. The following is brief description of how Ethiopia was ranked in 2014 by several surveys that are routinely used by foreign oil companies:

<table>
<thead>
<tr>
<th>Survey</th>
<th>Measures</th>
<th>Ethiopia’s Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Petroleum Survey</td>
<td>Opinions of oil industry executives on barriers to investment</td>
<td>Tier 3 Proved Reserves 1.64 bboe – 50 of 69. Policy Perception Index 103 of 156</td>
</tr>
<tr>
<td>Transparency International</td>
<td>Perception of public corruption</td>
<td>110 of 175</td>
</tr>
<tr>
<td>World Bank Ease of Doing Business</td>
<td>Regulatory environment for starting and operating local firm.</td>
<td>132 of 189</td>
</tr>
<tr>
<td>Euromoney Country Risk</td>
<td>Investment risk</td>
<td>Tier 5 (highest risk)</td>
</tr>
</tbody>
</table>

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118 Business Environment Risk Intelligence,  
In terms of best practice, there are several options for the GoE to pursue externally and internally. Within the Council of Ministers, attention must be given to elevating Ethiopia’s profile as an inviting location for foreign direct investment. MoFEC has shown that it is adept at attracting foreign capital as shown by the success in 2014 of the GoE’s $1 billion 10-year debut Eurobond, which was priced at 6.625% over 10 years, and resulted $2.6 billion in orders. The reduction of income tax on PPSA Contractors and their subcontractors in 2000 was a positive signal to the industry.\textsubscript{125} In the current era of long-lead times and low commodity prices, consideration should be given to a full tax-indemnity to PPSA Contractors. The MoMPNG is in a prime position to improve industry perception about the receptivity to investment in the oil and natural gas sector. The recent mission to the PRC is a good effort that should be repeated with ‘road shows’ in Houston, Calgary and London. The main element of these presentations would be the prospectivity of the country’s geology and the revisions to the regulatory framework and fiscal system for the oil and natural gas sector.

**Options**

Various options are available to developing the financial model:

- Internally, the PLAD should develop its own capability to evaluate the economic performance of the PPSAs. For example the IMF has developed the Fiscal Analysis of Resource Industries (FARI) model as a tool for advising their client governments and improving the transparency of fiscal regimes which could be of assistance.\textsubscript{126}

- Alternatively, the PLAD could work with the Ethiopian Economic Policy Research Institute (EEPRI or ‘Eldis’) to develop its own analytical model.\textsubscript{127} Fields with marginal economics, whether due to low reserves or prices, require innovative solutions to remove the barriers to development, and this can only be done with proper analytical tools.

- It is also fundamental that the results of this modelling are compared with other countries in terms of competitiveness. This will involve selecting other countries that Ethiopia can use as benchmarks. In this regard, regional comparisons with should be made with Kenya, Uganda, South Sudan and Somalia. Benchmarks outside of the region could include Ghana, Cambodia, Sri Lanka and Yemen.

- In terms of ease of administration, the accounting procedures in the MPPSA should be harmonized with the Petroleum Operation Tax Proclamation. Main concerns are the potential for double-counting where the Contractor is able to recover costs as well as claiming a deduction on income tax. Also, the treatment of interest both for internal lending within company groups and bank-arranged loans should be consistent.

Additionally, the Model PPSA should be revised to clarify that the GoE holds title to the facilities and equipment for which cost-recovery has been claimed. For example the petroleum agreement in Ghana states:

(a) *all physical assets other than those to which Article 19.3 (rental) or 19.4 (re-exported) apply, which are purchased, installed, constructed or used by Contractor in Petroleum Operations as from the time that:*

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\textsuperscript{123} Marsh’s Political Risk Map, www.marsh.com/Portals/32/Documents/Marsh\%20Bericht_Political\%20Risk\%20Map

\textsuperscript{124} Environmental Performance Index, Country Profile: Ethiopia. http://epi.yale.edu/epi/country-profile/ethiopia


\textsuperscript{126} IMF maintains an office in Addis Ababa that can be contacted for the purpose.

\textsuperscript{127} Eldis is co-ordinated from the Institute of Development Studies (IDS) in Brighton, United Kingdom. http://www.eldis.org.
(i) the full cost thereof has been recovered in accordance with the provisions of the Accounting Guide; or

(ii) this Agreement is terminated and Contractor has not disposed of such assets prior to such termination, whichever occurs first.

Options

There are three options:

- At the time the asset is determined to be eligible for cost-recovery;
- When cost-recovery is complete; or
- A progressive transfer that is proportional to cost-recovery.

As a final matter, MoFE and MoMPNG should consider whether the potential capital gain on the assignment or transfers of interest in PPSAs should have a financial consequence either as a tax on capital gain or payment of a bonus. This issue arises because a number of PPSAs are in the nature of 'junior explorers', meaning they are thinly capitalized and lack a proven track record as operators. In such situations, if the company makes a discovery it will look to either assign its rights to a stronger partner, or engage in a 'farm-out' where the operatorship is transferred to a third-party in exchange for a non-cost bearing overriding royalty.

Option

- In either situation, the GoE should be in a position to realize a benefit from the increase in the value of the Contract Area. A supplemental or so-called 'windfall profits' tax could be included in the tax code. At current market conditions, this measure is not an immediate priority.

3.6 Environmental Protection, Health and Safety

Within the MoMPNG, environmental management is overseen by the Environment and Community Development Directorate (ECDD), including activities related to the exploration and production of oil and natural gas have the potential to adversely impact the environment. These impacts include clearing drill sites, construction of pipelines and production facilities, management of solid and hazardous wastes, venting and flaring excess natural gas, and the disposal of produced water. Major upset situations such as well blowouts and oil spills can cause substantial harm to environmental values and local communities. Well blowouts are rare but can destroy rigs and injure workers. Typically, blow-outs occur during drilling but can also happen during workover operations on production wells and may take days to months to cap and control.

Wastes associated with drilling fluids include oil derivatives, such as polycyclic aromatic hydrocarbons, spilled chemicals, suspended and dissolved solids, phenols, cadmium, chromium, copper, lead, mercury, nickel, and drilling mud additives. Water that coexists with oil and gas in the formation and is produced during well testing and production can become an issue during these stages. The volume of produced water typically increases with the age of the production well and becomes a greater waste management concern over the long-term. Once operations have ceased, wells have to be properly plugged prevent possible contamination of groundwater. Surface facilities and pipelines must be decommissioned and the surface restored.

Potential impacts to worker and public health and safety during the drilling/development phase are similar to other construction projects that involve use of large equipment and the transportation of overweight and oversized materials. The risks of serious accidents or injuries associated with oil and gas production apply primarily to well site workers. The potential for occupational accidents are highest during peak drilling periods and decline in proportion to reduction in drilling and development activities. A final safety issue concerns security from attack by separatists in the Ogaden.
Ethiopia’s ranking in the international Environmental Performance Index (EPI) was discussed in Section 3.5. The country ranks highly in terms of biodiversity, air quality and agriculture.\textsuperscript{128} This means that these values should be safeguarded during petroleum operations. The environmental impacts of petroleum operations are assessed and managed under the framework of the Environmental Protection Organs Establishment Proclamation No. 295/2002. As a “competent agency” the law requires the MoMPNG to establish an environmental unit with the responsibility for coordinating its activities with requirements for environmental protection with the National Environmental Protection Authority.\textsuperscript{129} In this regard, MoMPNG’s structure includes the ECDD which is responsible for overseeing the preparation of impact assessments, community consultation, environmental management during petroleum operations, and the abandonment of wells.\textsuperscript{130}

The Petroleum Operations Proclamation requires that any petroleum agreement contain “requirements relating to environmental protection”.\textsuperscript{131} Under the MPPSA the Contractor has a general obligation to “conduct Petroleum Operations in a safe and proper manner in accordance with generally accepted international petroleum industry practice and shall not cause damage to the general environment”.\textsuperscript{132} Unlike other provisions in the MPPSA where enforcement is a matter of contract termination, the Minister can order a Contractor to discontinue Petroleum Operations until it has taken remedial measures to eliminate potential harms to persons, property or the natural environment.\textsuperscript{133} However, this action is not authorized by the POP, and could be disputed under arbitration. The Accounting Procedures for the MPPSA allow the Contractor to recover the costs of environmental protection including compliance with regulatory requirements and abandonment of wells and facilities.\textsuperscript{134}

Other specific provisions in the MPPSA to protect the environment are summarised in Table 11.

\begin{table}[h]
\centering
\caption{Environmental Obligations in MPPSA}
\begin{tabular}{|l|l|l|}
\hline
Operation & Measure & Section \\
\hline
Conduct of Operations & Prevent pollution, safeguard environment, reclaim site & Section 3.7.3 \\
\hline
Environmental Management Program (EMP) & Self-monitoring, communication to employees and communities & Section 3.7.4 \\
\hline
Abandonment of dry hole & Plug and mark well location to prevent aquifer contamination & Section 3.3.3 \\
\hline
Emergencies and blow-outs & Immediate action to control and prevent harm & Section 3.7.9 \\
\hline
Reclamation & Clean-up and rehabilitation of environmental damage at Contractor’s expense. & Section 3.7.5 \\
\hline
Reporting & Annual report on EMP & Section 3.7.10 \\
\hline
\end{tabular}
\end{table}

\textsuperscript{128} Environmental Performance Index, Country Profile: Ethiopia. http://epi.yale.edu/epi/country-profile/ethiopia. \\
\textsuperscript{129} Environmental Protection Organs Establishment Proclamation No. 295/2002, Art. 14. \\
\textsuperscript{130} Interview with Ms. Enatfenta Melaku, Director, Environment and Community Development Directorate. \\
\textsuperscript{131} Petroleum Operations Proclamation No. 296/1986, Art. 9, 11). \\
\textsuperscript{132} Model PPSA, Sec.3.7.1 \\
\textsuperscript{133} Ibid. Sec. 3.7.10. \\
\textsuperscript{134} Ibid. Appendix I Accounting Procedures Sec.4.13 & 4.14.
There are several noticeable gaps in what otherwise is a generally comprehensive approach to environmental management. There are no requirements that: (1) a blow-out preventer is used in drilling wells; (2) establishment of a sinking fund for covering the costs of decommissioning facilities; (3) insurance to cover environmental liabilities; (4) limits on flaring; (5) management of produced water; and (6) a site safety plan.

**Blow-out Preventer**

Neither the POP nor the MPPSA require the Contractor to ensure that a tested blow-out preventer is used when drilling. It is essential that the regulatory framework contain a specific requirement for use and testing of blow-out preventer (BOP) while drilling. A BOP is a large, specialized mechanical device used to seal, monitor pressures and seal wells in the event of an uncontrolled flow, referred to as a ‘kick’ that can lead to a potentially catastrophic event.

**Option**

- Best practice is to require the Contractor to submit a daily report that the BOP is installed and has been tested.

**Sinking Fund for Decommissioning Facilities**

It would appear to be implicit in the MPPSA that decommissioning is to be addressed in the Contractor’s Environmental Management Plan, particularly since the costs are recoverable from production. This gap is one of the classical drawbacks with production sharing because the decommissioning means that production has ceased, as has the revenue from the sale of oil and natural gas.

**Options**

There are various options for ensuring that funds are available for decommissioning costs including:

- Imposing the liability on any party with beneficial entitlement to production;
- Giving the government the right to claw-back the costs of decommissioning from the Contractor;
- Establishing decommissioning security arrangements in the form of a bond or fund that is jointly controlled by the MoMPNG and the Contractor.
- From the standpoint of the government and civil society, the best practice is to establish an escrow fund for this purpose.

**Insurance Cover for Environmental Liabilities**

As discussed, Section 3.7.5 of the MPPSA embraces the concept of ‘polluter pays’ by making the Contractor financially responsible for the cost of environmental remediation. Similarly, the provisions on Joint Liability in Section 3.5.2 include cover for pollution. However, this language is not sufficiently detailed in terms of the amount of cover, policy endorsements and waiver of subrogation.

**Options**

- The terms of the MPPSA should be revised as to the policy limits and deductibles;
- Alternatively, the Minister should issue a directive as to the details of coverage.

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**Limits on Flaring**

Gas flaring happens for reasons of market failure, or where the regulatory, and operating environment is not effective to curb the practice. Furthermore, production often takes place in remote areas where long distances to consumer markets requires substantial new infrastructure in the form of new gas pipelines or power networks. Flaring wastes an otherwise valuable energy resource, and contributes to global climate change. Under the “Zero Routine Flaring by 2030” initiative launched in 2014, The World Bank is working with governments, oil companies, and other development institutions to put this gas to productive use. The MPPSA treats flaring as a technical or economic matter.

**Options**

- Although no associate natural gas is being produced in Ethiopia, the Government should subscribe to the Global Gas Flaring Reduction Initiative being promoted by the World Bank.
- Flaring should be among of the aspects covered in the Contractor’s environmental assessment and environmental management plan for the development phase.

**Disposal of Produced water**

The management and disposal of produced water is critical in terms of potential contamination of surface and underground water sources, with practices ranging from injection, surface discharge and impoundments.

**Option**

- The International Association of Oil & Gas Producers has prepared a list of best practices that should be followed when the Contractor prepares its Environmental Management Plan.

**Site Safety Plan**

Under the POP, the particulars of employee safety and working conditions are to be addressed in the PPSA. However, the MPPSA only mentions this topic in the most general form. While this is issue is best addressed in terms of instilling a culture of safety in Contractors and their subcontractors, MoMPNG can adopt standards to ensure that adequate systems based on best practice are in-place.

**Options**

- The MPPSA should be revised to require the preparation of a Well Site and Community Safety Management Plan, similar to that prepared for Environmental Management.
- As a final measure, Contractors should be screened for this environmental and safety records before being award a Contract Area. This would complement the community development plan, discussed previously, as another aspect of corporate social responsibility.

### 3.7 Local Content

Most petroleum laws require that agreements with foreign oil companies contain measures regarding the employment of nationals and preference for the use local goods and services in petroleum operations. Typically, until the petroleum industry achieves a stable level of activity, goods and services tend to be sourced from regional supply bases, such as Mombasa, Kenya.

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140 2011 Model PPSA, Sec. 13.2.1.
142 Petroleum Operation Proclamation 296/186, Art. 9.2).
143 2011 Model PPSA, Sec.3.7.1.
It is important that regulatory instruments have a clear definition of ‘local content’. Some countries consider ‘local’ companies to be those that are domestically registered, rather than looking behind the certificate of incorporation at the extent to which know-how is transferred and the level of management and control by its nationals. Ideally, preference should be given to companies that are involved in actual oilfield services that have significant local ownership, management and employment of nationals.

Local content requirements are often insufficiently disseminated, monitored or enforced. Provisions in agreements that condition compliance with local preference “so long as their quality, price and time of delivery are comparable and commercially competitive with available materials, equipment, machinery supplies” are often ignored in application. As a practical matter, it may be too difficult or impossible to compare factors such as the reliability or performance quality of a local supplier of goods and services in relation to competing foreign suppliers.

The POP does contain a local preference provision. However, it uses the comparability approach, which is difficult to implement. This language is repeated in Section 3.6.3 of the MPPSA. In addition, Minister is to monitor compliance on the basis of reports by the Contractor that gives the details on the “employment of Ethiopian nationals and the utilization of Ethiopian materials, products and services”. However, it is not clear what action is to be taken by the MoMPNG after the report is submitted.

The best practice to counter this vagueness, is for the Host Country to adopt contract conditions or regulations with more exacting provisions that specify criteria, including certification of origin, generic quality standards and domestic quotas. They may also involve a monitoring system through the ministry, NOC or a specialized government procurement office. For example Nigeria has enacted specific local content legislation that incorporates all of these features. Recently, a similar measure in Ghana was adopted by regulation. Trinidad & Tobago has added the following provisions to Article 39 of its Model Petroleum Agreement:

39.3 Sub-contracts need to be sized, when it is economically feasible and practical, in order to match the capability (time, finance and manpower) of Local Enterprises. The Contractor will manage the risk associated with their participation.

39.4 Contractor shall provide to the Minister together with the annual Work Programme and budgets a list of all projects to be undertaken as well as all goods and services that are required for the conduct of Petroleum Operations. The Minister and Contractor shall agree on a list of those projects and goods and services which shall be published in at least two local newspapers and on the Ministry’s website.

39.5 All tenders are to be advertised, evaluated and awarded in Trinidad and Tobago. Contractor shall apply to the Minister for prior approval where the circumstances warrant that any part of the tender process be conducted outside of Trinidad and Tobago.

39.6 Local Enterprises will be given equal treatments and high weighting will be given to local value added in the tender evaluation criteria.

Options

- The options for strengthening a local content obligation would be to either enact legislation or for the Minister to issue a regulation as done in other African nations.
- Alternatively, the MPPSA could be revised to reflect best practice in other countries.

3.8 Dispute Management
Agreements between host countries and foreign oil companies are viewed as a specialised form of investment agreement. For example, practice before the International Centre on the Settlement of Investment Disputes (ICSID) has resulted in the acceptance of disputes involving petroleum agreements on the basis "the commitment of capital or other resources, the expectation of gain or profit, or the assumption of risk". In disputes arising from the interpretation of such agreements, Contactors have traditionally shown a preference for an Alternative Dispute Resolution Process (ADR) that includes negotiation, mediation, expert referral and binding arbitration. Although ADR is preferable to litigation in terms of time, expense and confidentiality, it is fundamentally intended to resolve commercial disputes. Agreement-based ADR has been criticized as being unsuitable for resolving issues of importance to a host government such as environmental protection, corporate social responsibility which are more regulatory in character.

Dispute management is more a question bargaining position, than best practice. For example, Brazil refuses to include investor-state dispute provisions that involve international arbitration in their petroleum agreements, and continues to attract investment from foreign oil companies. Countries at the beginning of petroleum production or where the reserves are unknown such as in Ethiopia may have less bargaining power on the rules and forum for resolving disputes. In any ADR process, it is helpful to differentiate disputes that are of a technical nature from those that are arise from conflicting interpretation of the agreement. The resolution technical issues is best dealt with by expert referral. Additionally, the determination of the expert or the arbitration award should be final and binding on the parties in order to bring the matter to closure. Where the agreement contains a combination of commercial and regulatory provisions, ministerial decisions that concern resource conservation, environmental management and work place safety could be excluded from the dispute resolution clause. Such matters would be addressed by Ethiopian local courts.

The POP recognizes two forms of dispute resolution: (1) negotiation; and (2) arbitration. Procedural details are to be contained in the petroleum agreement. Article 16 of the MPPSA, applies the procedural rules of the UN Commission on International Trade Law (UNCITRAL) with the forum to be determined by negotiation. This reference is somewhat vague since so-called ‘UNCITRAL’ rules include the following conventions:

- Rules on Transparency in Treaty-based Investor-State Arbitration (the “Rules on Transparency”), which come into effect on 1 April 2014
- There are three different versions of the UNCITRAL Arbitration Rules: (i) the 1976 version; (ii) the 2010 revised version; and (iii) the 2013 version which incorporates the UNCITRAL Rules on Transparency for Treaty-based Investor-State Arbitration; and UNCITRAL Consolidation Rules, 1980.

Noticably, none of the UNCITRAL procedures include expert referral. This means that even technical disputes must undergo arbitration. As discussed previously, the substantive law to be applied is a combination of Ethiopian and international law, as well as the custom and usage in the international petroleum industry. This allows international practice to be applied to disputes such a compliance with Local Content obligations. Considering that Ethiopia is a signatory to the ICSID convention, it is unusual that the MPPSA does not apply the ICSID as the body for dispute resolution.

The late Professor Thomas Walde commented on the “conflict laden” nature of the international petroleum industry.

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PetroTrans illustrates this point. Considering the time and expense involved the claims and counterclaims by the parties, it is understandable that MoMPNG would consider other options. The main gap is the limited options in the POP and MPPSA for dispute management.

**Options**

- The best approach would be to amend the POP to recognize other form of ADR, particularly expert referral. In addition, the MPPSA would be revised to include expert determination for technical issues.
- Disputes regarding compliance with regulations, directives and ministerial orders involving environmental, safety and community assistance being excluded from the ADR procedure and left to judicial review by Ethiopian courts.
- The PPSA’s should designate that the ICSID as providing both the venue and rules for dispute resolution.

### 3.9 Enhancement of Transparency

The Extractive Industries Transparency Initiative (EITI) is a global initiative to encourage governments to better manage natural resource revenue, and seeks to improve openness and accountable management of revenues derived from the production and processing of natural resources. A candidate country has three years to achieve compliance with the EITI standard. Ethiopia's EITI candidacy was approved in March 2014.\(^{154}\)

The MoMPNG has prepared a work plan and schedule for admission with the following objectives:

- Establish support and commitment to implement EITI;
- Form a national steering committee develop and publish terms of reference and work plan;
- Institutionalize Eth-EITI;
- Preparation in implementation and monitoring of Eth-EITI
- Audit/Reconcile and report on revenue flows between Ethiopian Government and Extractive Industries;
- Communicate, build knowledge and engage citizens in Eth-EITI program.
- Within the MoMPNG, the process is overseen by the Extractive Industry Transparency Initiative Implementation Secretariat. Ethiopia will submit its first formal report to EITI by March 2016.

According to Annex A of the Eth-EITI Work Plan, the first two have been achieved, the third is on-going and the remainder are pending.\(^{155}\)

Most of the emphasis in the public statement issued by the MoMPNG at the time Ethiopia announced it EITI candidacy was placed on mining activities. Acceptance of Ethiopia's candidacy was a source of criticism, due to provisions in the Charities and Societies Proclamation regulating the registration of civil society groups receiving more than 10 percent of their funding from foreign sources.\(^{156}\)

The receipt of revenue from petroleum operations conducted under the MPPSA is easy to track in terms of EITI compliance. The agreement contains specific accounting procedures, and the MoMPNG annually audit of each PPSA. There should be little reason why the amount of revenue that is reported to have been paid to the GoE should not match the amounts reported under the accounting procedures for the PPSA.

The only potential gap is the PLAD’s interpretation of the information that is considered to be confidential. The POP does not contain a specific provision on the use and disclosure of information related to PPSAs. The

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\(^{155}\) [www.eiti.org/files/ANNEX_Ethiopia_application](http://www.eiti.org/files/ANNEX_Ethiopia_application).

\(^{156}\) C. Biron, “In Accepting Ethiopia, Transparency Group ‘Sacrifices Credibility’”. Inter Press Service. 21 March 2014.
MPPSA broadly regards information and data supplied by the Contractor as being subject to the confidentiality provisions in Section 17. In preparing this report, the PLAD declined to disclose the contents of the various PPSAs on the basis that they were “information” that had been furnished to the MoMPNG in confidence. Fortunately, for the purpose of EITI compliance the MPPSA allows the disclosure of confidential information for the purpose of preparing reports that are required by law.\textsuperscript{157}

\textbf{Option}

- The EITI Secretariat should consult with the PLAD to avoid an unduly restrictive interpretation on the disclosure and use of information that could jeopardise the GoE’s intention to reach compliant status under the EITI.

\textsuperscript{157} Model PPSA, Sec. 17.1.2.
Table 12: Summary of Gap Analysis for Regulatory Framework

<table>
<thead>
<tr>
<th>Topic</th>
<th>Current</th>
<th>Best Practice</th>
<th>Considerations</th>
<th>Options</th>
</tr>
</thead>
</table>
| 1995 Constitution          | Status of 1986 Proclamations and PPSAs is ambiguous                     | Reform petroleum law to be consistent with Constitution                       | Stability of Investment Federal/State relations                                      | 1) New legislation  
2) Amendment to 1986 Acts                                                                 |
| Relations with States      | Joint regulation under 1995 Constitution                                | Negotiated agreement on procedures and formulas                               | Constitutional provisions for joint management and taxation                       | 1) MoMPNG consults with stakeholders on joint management.  
2) Minister issues directives on procedures for community assistance                     |
| Project Participation      | Production sharing Equity participation by EPNGDE. Participation limited to development phase. | Separate regulatory from commercial functions. Good governance and transparency. Carried interest Partial privatisation | Availability of funding. Higher salaries that civil service.                       | 1) Revise Model PPSA for financing of carried interest to be funded from production  
2) Informational participation in exploration and evaluation  
3) Allow EPNGDE participation prior to adoption of Development Plan  
4) Agreements for cross-border projects.                                                |
2) Amend gaps in 1986 law on enforcement.  
3) Minister adopts regulations and issues directives  
4) Regulations and directives are only prospective.  
5) Revise Model PPSA to include additional sanctions.                                       |
2) PLAD in-house model  
3) Benchmarking in region and globally.  
4) Harmonize tax code with PPSA Accounting Procedure  
5) Tax or bonus imposed on transfers and farm-outs.                                         |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Current</th>
<th>Best Practice</th>
<th>Considerations</th>
<th>Options</th>
</tr>
</thead>
</table>
| Environmental Safety| Particulars to be included in PPSA. Minister can issue orders to Contractors. | Clear reference to recognized standards.                                      | Mandatory testing and use of BOP.                                                                                                                          | 1) Regulations or Directive on BOP.  
2) Escrow fund for decommissioning  
3) Revise Model PPSA to include policy limits  
4) Include gas flaring in environmental assessment & management  
5) Include well site and community safety plan in Model PPSA                                                                                      |
|                     |                                                                         |                                                                                | Security for funding decommissioning.                                                                                                                      |                                                                                                                                                                                                           |
|                     |                                                                         |                                                                                | Environmental insurance                                                                                                                                                                                      |                                                                                                                                                                                                           |
|                     |                                                                         |                                                                                | Reduction of gas flaring                                                                                                                                                                                     |                                                                                                                                                                                                           |
|                     |                                                                         |                                                                                | Employee and community safety                                                                                                                                                                                   |                                                                                                                                                                                                           |
2) Regulation  
3) Revise Model PPSA.                                                                                                                                                                                   |
| Dispute Resolution  | Negotiation or arbitration details set in PPSA.                        | Expert referral for technical issues Exclude regulatory issues                  | Limited scope in POP Attractiveness for investment.                                                                                                                                                           | 1) Amend POP  
2) Revise Model PPSA                                                                                                                                                                                    |
| Transparency        | Ethiopia is EITI candidate. Report due in 2016. PPSAs restrict disclosure of confidential information. | PPSA Accounting Procedures should meet EITI Standard. | Geologic data from active PPSAs should be confidential. Commercial and financial information should be disclosed.                                                                                           | 1) MoMPNG Legal Directorate should clarify the situation.                                                                                                                                                 |
D. Capacity Building Plan

Capacity building is a three-step process. The first step is to determine the core competencies required to govern the oil and natural gas sector. Step two involves the organizational structure of the institution that is responsible for overseeing the sector. The final step is to determine the skill set for each position in the institution. This includes formal qualifications as well as specialised training and on-the-job experience.

1. Core Competencies

The Minister has the primary responsibility for the oil and natural gas sector as follows:

- Evaluation and award of tenders for PPSA;
- Direct negotiation of PPSA;
- Interpretation and retention of seismic data;
- Evaluation of appraisal and development plans;
- Audit of cost recovery claims and profit splits;
- Monitoring and inspection of petroleum operations; and
- Monitoring and inspection of health, safety and environmental compliance

Specific functions and procedures for compliance are contained in the PPSA, which are overseen by PLAD. The responsibilities of PLAD as a regulator of upstream and midstream petroleum operations would include:

- Promotion of Ethiopia’s petroleum sector internationally to attract the most qualified petroleum companies;
- Allocation of petroleum rights through tender and negotiation of contracts;
- Evaluation and approval of development plans;
- Assessment of costs for eligibility, revenues, profit splits, and audit of costs and revenues;
- Regulation of field operations including monitoring and inspection of petroleum operations;
- Administration of contractor compliance with local content and community development programmes;
- Monitoring and inspection of health, safety and environmental compliance;
- Management of Geo³ data and core sample facility; and
- Continuing effectiveness of the regulatory framework

The tasks involved cover regulatory, commercial and technical activities which require a broad spectrum of staff capabilities. As shown in Annex 4, this includes:

- Geologists
- Geophysicists
- Petroleum engineers
- Mechanical engineers
- Chemical engineers
- Economists
- Accountants
Support on specialised areas such as legal, environmental and human resources are provided by other Directorates within MoMPNG.

2. Organisational Structures

MoMPNG is structured around the following core process: (1) Artisanal Mining; (2) Mineral Licensing and Administration; (3) Petroleum Licensing and Administration; and the (4) Research and Development Centre. Each of these functions is administered through a directorate and supported by the following offices:

- Human Resource Development & Management Process
- Information Communication Technology Centre
- Procurement, Finance & Asset Administration
- Planning, Monitoring & Evaluation
- Change Management
- Legal Affairs
- Ethics Office
- HIV/AIDS Prevention Support & Care Unit
- Audit Process
- Extractive Industry Transparency Initiative Implementation Secretariat
- Gender Directorate

The full organisation structure of MoMPNG, prior to transfer of responsibility for downstream petroleum and biofuels is shown in Figure 1.

Figure 1: MoMPNG Organizational Structure
The organization structure for PLAD is relatively flat. The Director has a particularly wide range of management responsibilities. All staff, approximately twenty-seven, report directly to the Director. We are informed that there are only three job classifications: Junior Expert, Senior Expert and Director. There are no levels within each classification and commensurate pay scales. PLAD takes a ‘portfolio’ approach where individual personnel are assigned to a specific contract area. This allows team members to gain specific knowledge about the geologic conditions and operational activities being conducted by the Contractor. Annex 4 is a listing of the staff, their qualifications and years of employment with the Directorate. Figure 2 provides PLAD’s staffing numbers based on positions.

Figure 2: PLAD Organization

PLAD was originally organized into two groups: (1) Negotiation; and (2) Administration. In addition, retention of geological data and mapping were conducted by the Geological Survey of Ethiopia. Currently, PLAD performs both commercial and technical tasks as well as managing geological samples and data. Only the mapping function is retained by the Geological Survey.

3. Skill Sets and Training

An effective capacity building plan is based on a needs assessment as a systematic exploration of the existing individual or organizational behaviour and the level of performance that is desired based on the following points of enquiry:

- What changes in behaviour and performance are expected?
- Will we get them?
- What are the expected economic costs and benefits of any projected solutions?
- What learning will be accomplished?

A needs assessment typically includes interviews of both staff and stakeholders, along with conducting surveys and observations. Following the needs assessment, a comprehensive training plan is developed for the organization. Training is tailored to the role of each staff member in performing their job effectively.
3.1 Skill-Sets

In order for PLAD personnel to carry out their functional responsibilities, they need to develop knowledge and skills across a wide range of areas including:

- Developing promotional materials
- Conducting tenders
- Effective fiscal regimes including eligibility of costs for recovery;
- Administration of a regulatory framework, including monitoring compliance;
- Production accounting;
- Assessment of costs, and audit of costs and revenues;
- Facilities management;
- Well completion, servicing and abandonment;
- Blowout prevention;
- Emergency response plans;
- Drilling waste management;
- Production reporting standards;
- Interpretation and administration of contracts; and
- Management of Geo3 data and core sample facility.

The skill-set need for the above includes:

- Financial analysis, and financial model-building and its use;
- Assessment, desk audit and field audit of costs and revenues; computer-assisted assessment and audit techniques;
- On-site inspections and reporting;
- Reservoir modelling; and
- Seismic interpretation.

3.2 Training Strategy

The above section presented a lengthy list of areas of knowledge and skills needed by PLAD. The knowledge base and skill-sets identified are complex, therefore it would require a multifaceted training strategy consisting of the following approaches:

- Courses and workshops: Professional staff should be funded to attend training programs provided by recognised organisations such as the Society of Petroleum Engineers, Association of International Petroleum Negotiators, and the Council of Petroleum Accountants Societies.

- Mentorship: This would involve placing experienced professionals in PLAD to mentor PLAD staff on actual assignments. This will allow the staff to apply the knowledge and skills learned through courses and workshops, under the guidance of mentors.

- Secondments: This would involve attaching PLAD’s staff for brief periods to similar organizations in countries with organizations dealing with similar responsibilities. It could also involve assignments with the EPNGDE.
It is important to develop a comprehensive implementation plan with the involvement of the staff.

### 3.3 Systems and Software

PLAD should strengthen its capacity in two areas through the use of computer-based systems: (1) economic analysis; and (2) 3-D seismic interpretation.

IMF’s Fiscal Analysis of Resource Industries (FARI) model or a similar model developed in cooperation with the Ethiopian Economic Policy Research Institute was discussed in Section 3.5. These models are based on MS Office Excel spreadsheets and can be used during negotiations and updated as production and cost information is reported.

A small cluster for interpreting 3-D seismic data on a desktop machine can be purchased for around $10,000, using the untapped potential of the GPU (Graphics Processing Unit).

### 3.4 Other Ministries and States

Given its role as the GoE’s commercial arm, the EPNGDE should be included in capacity building for the sector. It is particularly important that the group is able to evaluate development plans prepared by PPSA Contractors from the standpoint of the alternatives that obtain the maximum economic benefit to the nation.

Additional training on specific topics regarding petroleum operations and petroleum accounting should be provided to the Ethiopian Customs and Revenue Authority, the Ministry of Finance and Economic Cooperation, and the relevant resource management authorities from State governments.

### 4. Options and Recommendations for Implementation

MoMPNG is urgently in need of assistance at several levels to strengthen its capacity to administer the oil and gas sector. At the highest level, the organizational structure must be evaluated in terms of institutional responsibility. Given that MoMPNG is to administer both the upstream and downstream sectors of oil and natural gas, a detailed review should be conducted on how to best structure the ministry to manage this expanded responsibility. Several alternatives were discussed in the Options Workshop:

- Establish a Petroleum Directorate within the MoMPNG that includes both sectors.
- Establish a Petroleum Commission as an autonomous institution, reporting to the Minister.

The Petroleum Commission would be responsible for regulating the oil gas sector in terms of technical compliance. Policy and allocation functions e.g. tendering and negotiating PPSAs, would be retained in the Ministry. As an autonomous institution, the compensation of personnel will not be subject to the restrictions on compensation imposed under the civil service system. This would require the Council of Ministers to adopt a regulation similar to that establishing the Ethiopian Geological Survey\(^{158}\) and the Agricultural Transformation Agency.\(^{159}\)

At the level of training and the transfer of know-how, the following areas were given priority:

- Preparation of financial models for each PPSA as well as a more generic version for use in future contract negotiations.
- Preparation of either a master plan or screening study for the petroleum sector on project development alternatives.

---


• Licensing and regulation of pipeline systems.

It may be necessary to draw upon outside resources for capacity building. The following alternatives were suggested in the Options Workshop:

• Expand the training currently being provided to the Mineral Licensing and Administration Directorate to include PLAD.

• Investigate whether technical assistance can also be provided through the World Bank and other development oriented programs, such as the Norwegian Petroleum Directorate.\(^{160}\)

Part F – Implementation Plan contains a discussion of the measures, responsibilities, schedule and resources for implementing the Capacity Building Plan.

E. Conclusions and Recommendations

Ethiopia’s oil and natural gas sector is at a cross-road. Despite various set-backs, over the last several years MoMPNG has been successful in attracting international oil companies to execute PPSAs with firm exploration obligations. Although exploration will mean revenue from signature bonuses, investment in drilling and a better understanding of the country’s geology, it is not the final objective.

The challenge for the oil and natural gas sector is to adopt policies and implement a regulatory framework that is conducive to commercial production in a manner that optimises the benefit to Ethiopia’s economy and environment. This must be done under circumstances where the experience of MoMPNG and the Contractors regarding regulation is largely confined to exploration rather than development and production.

1. Policy

Ethiopia does not have a clearly articulated policy for the oil and natural gas sector. In part, this is due to whether oil and natural gas should be regarded as part of the country’s extractive mineral base, or as an energy source. Indications of this dichotomy can be seen in the differing approaches taken in the Growth and Transformation Plans versus the National Energy Policy. Considering the imminent proposal for development of the Calub and Hilala fields, the GoE must determine whether its petroleum resources are best utilized domestically or exported to earn foreign exchange.

Once this fundamental decision is made, the MoMPNG can move forward with the development of a comprehensive policy for the upstream and downstream petroleum sectors as it has done for minerals. The elements for inclusion in the policy were addressed in Part B and are summarized in Table 6. The main area for policy-making includes, preparing a gas master plan, completing the geo-data storage facility in conjunction with enhanced access, restructuring the PLAD and revising the fiscal system.

Although it is not an immediate priority for MoMPNG, attention should be given to revising the fiscal system to move away from production sharing splits to profit sharing. The relatively high cost of drilling and other petroleum operations in Ethiopia at a time when commodity prices are falling underscores the reason for this change. The administration of the fiscal system has become unnecessarily complex and lacks transparency. This is largely due to the bespoke negotiation of each PPSA and the multiple means for capturing revenue through bonus, royalty, production sharing and income tax. Simplification and standardization will ease administration and enhance transparency.

Preparing a master plan across the petroleum sector in advance of approving individual project development plans is critical. Given the additional cost of developing natural gas in comparison to crude oil, there will be pressure on the net-back price that the GoE receives for its share of production. Therefore, the GoE needs to have prepared an evaluation of which alternatives offer the greatest return on the commitment of the resource before a project is proposed.

MoMPNG should adopt a schedule for completing the Geo Data and Core Samples Storage Facility as a permanent repository. However, the completion of the facility should be coupled with a revision in public access to the information held in the repository, otherwise it is simply a costly edifice. Limiting the period in which data is held under confidentiality will improve access and invite IOCs to consider exploration in Ethiopia.

MoMPNG does not have an effective structure for managing PPSAs, starting with their award whether by tender or direct negotiation. Other critical challenges facing PLAD include effective regulation of operations, financial management including assessment of recoverable costs, and interpretation of the PPSAs. Strengthening the ministry’s capacity must be addressed at several levels, starting with the restructuring as either a Petroleum Directorate within the ministry, or as an autonomous Petroleum Commission reporting to the Minister. A comprehensive needs assessment must be conducted that looks at the skill-set for each position and develops a staff training programme that will achieve individual competency.
2. Regulatory Framework

Under Ethiopia’s legal system, an array of legal instruments is available to implement policy. The individual gaps in the regulatory framework for the oil and natural gas sector are summarized in Table 12. Without a doubt the greatest gap in the regulatory framework is between the Petroleum Operations Proclamation adopted a decade before the 1995 Constitution. Ethiopia’s Constitution expressly recognizes Federal and State concurrent jurisdiction over “all petroleum and gas operations, and royalties”. This relationship must be reflected either in a new petroleum law, or a revision of the current Proclamation. The Petroleum Operations Proclamation is not only restricted to upstream activities, it has other deficiencies that are in need of correction, including the lack of enforcement provisions that are independent of the PPSA, licensing and regulation of pipeline systems, and the over-reliance on the PPSA as a substitute for regulations and directives.

The regulatory framework is based on ‘regulation-by-contract’ according to the terms of the PPSA, which are open to negotiation. There are noticeable deficiencies in attempting to combine commercial and regulatory features in the agreement. The fiscal system is unnecessarily complex and based on outmoded production thresholds. The only means for resolving regulatory, technical and interpretative disputes is by international arbitration. Under cost-recovery, it is not clear when title to facilities passes to the GoE. Other deficiencies include arrangements for managing the sale of the GoE’s share of production, and regulation of facilities and infrastructure that is located beyond the boundaries of the development area. Finally, the PPSAs do not address major environmental issues regarding the installation of a blow-out preventer, flaring, discharge of produced water and decommissioning. Some of these gaps could be addressed in a revised Model Petroleum Profit Sharing Agreement for future agreements. In the case of existing PPSAs, alternative regulatory initiatives should be taken, either in the form of Directives issued by the Minister, or further regulation through the Council of Ministers. The areas of greatest urgency are measures for environmental protection, and the licensing and operation of pipelines and other facilities.

The process of administering the oil and natural gas sector lacks transparency in terms of the disclosure of the PPSAs as well as the data and information transmitted to PLAD by the Contractors. PLAD appears to have gone beyond the provisions in the Model PPSA to include conditions that restrict disclosure of the terms of the agreement along with other technical data and information. This approach is fundamentally in conflict with the commitment of GoE to implement the Extractive Industries Transparency Initiative. During the Options Workshop, H.E. Tolesa Shagi, Minister of Mines, Petroleum and Natural Gas, stated that in the future, all PPSAs would be published on the ministry’s website. It is also important that the autonomy of PLAD and ECDD be maintained, while also ensuring that there is no overlap in their functions.
F. Implementation Plan

An implementation plan is a management tool designed to set out, in detail, the critical steps in developing and starting a project. It is a guide or map that helps administrators be proactive, rather than reactive, in developing their program and identifying any impediments to its implementation. It allows personnel working on the program, regardless of their level of involvement, to fully understand the goal of the program and how it is to be accomplished. By detailing all critical steps before starting the project, stakeholders can anticipate factors they otherwise would not consider until encountered and identify potential problems and challenges on the front end. In short, planning becomes proactive instead of reactive.

The activities listed below are based on the interaction between the experts and stakeholders during the Options Workshop. Only those activities that were regarded as Level 1 or 2 are listed. Ultimately, MoMPNG must adopt the plan and take action on it, hence the open cells for the start and end dates in each of the three tables. All activities will require donor support, primarily in terms of consultant services, with the exception of the Geo-Data Facility where financial support is also necessary.

1. Implementation of Policy Recommendations

The following activities are drawn from the Recommendations discussed in Part E – Conclusions and Recommendations. They were initially identified as policy options and ranked during the Options Workshop as priorities for implementation.

<table>
<thead>
<tr>
<th>Table 13: Implementation of Policy Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
</tr>
<tr>
<td>Oil &amp; Natural Gas Policy</td>
</tr>
<tr>
<td>Revise Model Petroleum Production Agreement</td>
</tr>
<tr>
<td>Gas Master Plan</td>
</tr>
<tr>
<td>Geo Data Facility and Access</td>
</tr>
</tbody>
</table>

Higher level activities such as sectoral policy and the GMP are the responsibility of the State Minister, whereas those activities that are specific to PPSA and Geo-Data are administered by PLAD with support from other directorates. These activities should be completed within 12 to 24 months, with priority given to the Oil and Natural Gas Sector Policy and Gas Master Plan.
2. Implementation of Regulatory Framework Recommendations

The following activities are drawn from the Recommendations discussed in Part E – Recommendations and Conclusions. They were initially identified as Regulatory Options and ranked during the Options Workshop as priorities for implementation.

Table 14: Implementation of Regulatory Framework Recommendations

<table>
<thead>
<tr>
<th>Activity</th>
<th>Lead Support</th>
<th>Start Date</th>
<th>Milestone</th>
<th>End Date</th>
<th>Deliverable</th>
<th>Resources Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Petroleum Proclamation</strong></td>
<td>State Minister PLAD Legal Directorate ECDD</td>
<td>Draft Final</td>
<td>Petroleum Proclamation</td>
<td>Donor support</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Revise Model PPSA</strong></td>
<td>PLAD Legal Directorate ECDD</td>
<td>Draft Final</td>
<td>Model PPSA</td>
<td>Donor support</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ministerial Directives</strong></td>
<td>PLAD Legal Directorate ECDD</td>
<td>Stakeholder Consultation Draft Final</td>
<td>Directives on environment pipeline and facilities licensing</td>
<td>Donor support</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Council of Ministers Regulations</strong></td>
<td>State Minister Legal Directorate PLAD</td>
<td>Draft Final</td>
<td>Technical regulations</td>
<td>Donor support</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Activities involving the Council of Ministers and the Parliament are the responsibility of the State Minister, while activities regarding the revision of the Model PPSA and ministerial directives regarding petroleum operations are to be managed by PLAD. These activities should be completed within the next 12 – 24 months, with priority given to the secondary legislation in the form of Regulations issued by the Council of Ministers or Ministerial Directives on gaps in the regulatory framework such as pipelines and production facilities, and protection of the environment (flaring, produced water, and decommissioning). Revision of primary legislation will require additional time due to the parliamentary process in Ethiopia.
3. Implementation of Capacity Building

The following activities are drawn from the discussion in Part D – Capacity Building Plan. They were initially identified as Capacity Building Options and ranked during the Options Workshop as priorities for implementation.

Table 15: Implementation of Capacity Building

<table>
<thead>
<tr>
<th>Activity</th>
<th>Lead</th>
<th>Support</th>
<th>Start Date</th>
<th>Milestone</th>
<th>End Date</th>
<th>Deliverable</th>
<th>Resources Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restructuring as Petroleum Directorate or Petroleum Commission</td>
<td>State Minister</td>
<td>PLAD HR Directorate, Legal Directorate</td>
<td>Review of pros and cons, Selection of options</td>
<td>New structure for administration of sector</td>
<td></td>
<td></td>
<td>Donor support</td>
</tr>
<tr>
<td>Needs Assessment</td>
<td>HR Directorate</td>
<td>PLAD</td>
<td>Draft Final</td>
<td>Report and recommendations</td>
<td></td>
<td></td>
<td>Donor support</td>
</tr>
<tr>
<td>Simulation Modelling</td>
<td>PLAD</td>
<td></td>
<td>Preliminary Final</td>
<td>Spreadsheet model</td>
<td></td>
<td></td>
<td>Donor support</td>
</tr>
<tr>
<td>Project Screening</td>
<td>State Minister</td>
<td>PLAD Environmental Directorate</td>
<td>Project ranking</td>
<td></td>
<td></td>
<td></td>
<td>Donor support</td>
</tr>
<tr>
<td>Pipeline Licensing</td>
<td>PLAD</td>
<td>Legal Environmental Directorate</td>
<td>Stakeholder Consultation Draft Final</td>
<td>Directive</td>
<td></td>
<td></td>
<td>Donor support</td>
</tr>
</tbody>
</table>

Capacity building should start with a needs assessment, particularly if MoMPNG is to assume responsibility for administering the midstream and downstream sectors. Modelling and screening are closely related as they involve the use of financial models that could be developed and trialled simultaneously in a matter of a few months. Capacity building on pipeline licensing could proceed in parallel with the development of the regulatory framework.

The decision whether to establish a Petroleum Commission would be taken by the Council of Ministers and needs to be preceded by a ministerial-led evaluation, with the assistance of external consultants.
4. Possible Impediments

This section outlines the possible impediments to implementation for revision of the existing policy, legal and regulatory framework for the oil and natural gas sector and proposes some options to address them.

Table 16: Possible Impediments and Options for their Resolution

<table>
<thead>
<tr>
<th>Impediment</th>
<th>Options to address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High turnover of competent staff resulting in lack of qualified staff</td>
<td>Revise human resources policy</td>
</tr>
<tr>
<td></td>
<td>Establish Petroleum Commission as autonomous institution under Minister</td>
</tr>
<tr>
<td>2. Limited training opportunities as no training institutions are providing courses in petroleum</td>
<td>Donor assistance for establishing training institute.</td>
</tr>
<tr>
<td></td>
<td>Hiring of foreign trained skilled staff for limited periods of time in order to provide on the job training to the government staff.</td>
</tr>
<tr>
<td>3. No process for competitive tendering</td>
<td>Annual or biannual tendering rounds with ability to accept direct applications. This will include participation in industry exhibitions and ‘road shows’ for direct contact with international oil companies.</td>
</tr>
<tr>
<td>4. Lack of preparedness to attract investment e.g. geological data is limited</td>
<td>Preparation of data packages that can be purchased by IOC. Arrangements for speculative surveys with seismic contractors.</td>
</tr>
<tr>
<td>5. Inadequate staff in the Ministry e.g. only one person in the Negotiation Group therefore need to draw from other departments; Contracts Administration Group has junior staff with limited experience.</td>
<td>Conduct Needs Assessment</td>
</tr>
<tr>
<td></td>
<td>Restructure PLAD as Petroleum Directorate or Petroleum Commission</td>
</tr>
<tr>
<td>6. Access to infrastructure to reduce development costs</td>
<td>Gas Master Plan with regulations on access to capacity in processing plants and pipelines using either UK or Norwegian models</td>
</tr>
<tr>
<td>7. Technical and financial capacity of operating companies</td>
<td>Prequalification of IOC’s in terms of technical ability and financial strength prior to awarding PSC</td>
</tr>
</tbody>
</table>
G. Annexes

Annex 1: Profit-based Production Sharing Options

‘R’ Factor

\[ TS = PR \times (INA) - R \times (P-O) \times Q \]

Where:

- \( TS \) = Annual amount of the Service Fee in US$
- \( PR \) = The annualized prime rate
- \( INA \) = The sum of Development and Production Investments by the Petroleum Company, less reimbursements
- \( R \) = The factor in decimal fractions, that guarantee a profit for the Petroleum Company, calculated as follows:
  \[ R = R1(Q1) + R2(Q2) + R3(Q3) + R4(Q4) + R5(Q5) + R6(Q6) \]
  \[ Q1 + Q2 + Q3 + Q4 + Q5 + Q6 \]

Where:

- \( Q1 \) = Annual average production of up to 10,000 Production Units of Crude Oil per day.
- \( Q2 \) = Increment of annual average production between 10,000 and 30,000 Production Units per day.
- \( Q3 \) = Increment of annual average production between 30,000 and 50,000 Production Units per day.
- \( Q4 \) = Increment of annual average production between 50,000 and 70,000 Production Units per day.
- \( Q5 \) = Increment of annual average production between 70,000 and 100,000 Production Units per day.
- \( Q6 \) = Any increment of annual average production in excess of 100,000 Production Units per day.

The R1 through R6 factor shall be the following:

- \( R1 = 0.39 \)
- \( R2 = 0.35 \)
- \( R3 = 0.25 \)
- \( R4 = 0.15 \)
- \( R5 = 0.10 \)
- \( R6 = 0.05 \)

\( P \) = Average International Market Price for the current Fiscal Year, applicable to the Crude Oil from the Contract Area.
\( C \) = Production Costs (not including the Service Fee) plus Transportation Costs, In US$ per Production Unit
\( Q \) = Officially audited annual production of Crude Oil for the Contract Area.
In any Year, a Party's share of Profit Petroleum, is calculated on the basis of the Petroleum Company’s Cash Flow Index at the end of the preceding Year that is less than or equal to the following:

<table>
<thead>
<tr>
<th>Cash Flow Index</th>
<th>State Share</th>
<th>Petroleum Company Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.10</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>1.25</td>
<td>5</td>
<td>95</td>
</tr>
<tr>
<td>1.50</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>1.75</td>
<td>15</td>
<td>85</td>
</tr>
<tr>
<td>2.00</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>2.25</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>2.50</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td>2.75</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td>3.00</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>3.25</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>3.50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

After the Petroleum Company has completed Site Restoration in accordance with the provisions of Article 19, the conditions of the Development License and the applicable laws, any balance remaining in a Site Restoration fund shall be shared between State and Petroleum Company as per the Cash Flow Index at for the Year when production ceased.

The State shall have the option to take its entitlement to Profit Petroleum either in cash or in kind in any Year. Such option shall be exercised by written notification to the Petroleum Company no later than 30th June in each Year preceding the Year in which the entitlement will be taken.

If the State has notified the Petroleum Company of its intention to take its share in kind, the Parties shall negotiate the conditions of a lifting agreement.

At the end of any Year the value of the Cash Flow Index shall be calculated in the manner provided for, and on the basis of the net cash flows specified in Appendix D. However, the amount of Profit Petroleum to be shared between the Corporation and the Petroleum Company shall be determined on a cumulative basis for each Quarter. If the State has elected to take its Profit Petroleum in kind, Profit Petroleum shall be shared between the State and the Petroleum Company on the basis of provisional estimated figures Costs, production, prices, and receipts, income. Any other income or allowances will be shared and on the basis of the value of the Cash Flow Index achieved at the end of the preceding Year. All such provisional estimates shall be approved by the Management Committee. When it is necessary to convert monetary units into production equivalent units or vice versa, the price or prices determined according to Article 19 for Crude Oil and Condensate and Article 21 for Natural Gas shall be used. Within sixty Days before the end of each Year, a final calculation of Profit Petroleum based on actual Costs, quantities, prices and income for the Year shall be completed. Adjustments to the volume of Profit Petroleum to be shared shall be agreed upon between the State and the Petroleum Company within thirty Days and final adjustments shall be made within thirty Days after that Date.

In any Year that more that the Petroleum Company is composed of more than one Participating Interest, the percentage of the total Profit Petroleum shall be divided among them in proportion to their respective Participating Interest.
CALCULATION OF THE CASH FLOW INDEX

1. In accordance with the provisions of Article 13, the respective share of Profit Petroleum for the State and the Petroleum Company, including any Participating Interests, in any Year shall be determined by the Cash Flow Index as calculated at the end of the preceding Year. These measures of profitability shall be calculated on the basis of the appropriate net operating cash flows as specified in this Appendix D.

2. The "Net Operating Cash Flow" of the Petroleum Company or a Party that holds a Participating Interest in any particular Year is the aggregate value for the Year of the following:

(a) Cost Petroleum taken by entitlement under Article 12;
plus

(b) Profit Petroleum taken by entitlement under Article 13;
plus

(c) all incidental income (of the type specified in section 3.4 of the Accounting Procedure) arising from Petroleum Operations that was received by the Petroleum Company;

(d) the Production Costs incurred on or in the Development Licenses within the Exploration Block;
less

(e) the payments made for the Petroleum Resources Royalty.

3. The "Investment Contribution" made by the Petroleum Company or a Party that holds a Participating Interest in any particular Year is the aggregate value for the Year of:

(a) the portion of the Petroleum Company's Exploration Costs that were incurred on or in the Development License Area under Article 12;
plus

(b) the Petroleum Company's Development Costs incurred on or in the Development License Area.

4. For the purposes of the calculation of the Cash Flow Index, costs or expenditures that are not allowable as provided in the Accounting Procedure shall be excluded and disregarded.

5. The Cash Flow Index earned by the Petroleum Company as at the end of any Year shall be calculated by dividing the aggregate value of the addition of each of the annual Net Operating Cash Incomes (accumulated, without interest, up to and including that Year starting from the Year in which Production Costs were first incurred or Production first arose) by the aggregate value of the addition of each of the annual Investment Contributions (accumulated, without interest, up to and including that Year starting from the Year in which Exploration and Development Costs were first incurred).
Annex 2: Persons Met by the Mission

A. Government of Ethiopia

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE Tolesa Shagi</td>
<td>Minister</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Dr. Wakgari Furi</td>
<td>State Minister, Petroleum</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Dr. Alemu Sime</td>
<td>State Minister, Minerals</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Dr. Ketsela Tadesse</td>
<td>Director, Petroleum Licensing and Administration Directorate</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Almaz Belayneh</td>
<td>Advisor</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Tsehay Mulugeta</td>
<td>Director of Legal Affairs</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Enatfenta Melaku</td>
<td>Director, Environment and Community Development Directorate</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Geremew Negassa</td>
<td>Director, Planning, Monitoring and Evaluation Directorate</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Abrham Yiheyis</td>
<td>Director, Human Resource Development and Management Directorate</td>
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<tr>
<td>Sofia Mohammed</td>
<td>Gender Director</td>
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<tr>
<td>Merga Kenea</td>
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<td>Ministry of Mines, Petroleum and Natural Gas</td>
</tr>
<tr>
<td>Bacha Faji</td>
<td>Director</td>
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<tr>
<td>Workneh Gebru Tesfa</td>
<td>Senior Geophysicist</td>
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</tr>
<tr>
<td>Wondafrash Mariam</td>
<td>Senior Researcher</td>
<td>Ministry of Mines, Petroleum and Natural Gas</td>
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<tr>
<td>Meaza Tamrat</td>
<td>Ethics Officer</td>
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<tr>
<td>Melese Abebe</td>
<td>License and Administration Team Leader</td>
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<tr>
<td>Meaza Assefa</td>
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<tr>
<td>Mulu Gudeta</td>
<td>Expert</td>
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<tr>
<td>Kasech Boled</td>
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<tr>
<td>Dilnesaw Wossen</td>
<td>Senior Planning</td>
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<td>Alemnesh Tarekegn</td>
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<td>Mulumebet Fetene</td>
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<tr>
<td>Kibebew Fantu</td>
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<td>Gera Techane</td>
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<td>Messefet Fufa</td>
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<td>Tefera Alemu</td>
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<td>Absera Tesfaye</td>
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<tr>
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<tr>
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<tr>
<td><strong>Ethiopia Petroleum and Natural Gas Development Enterprise</strong></td>
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<tr>
<td>29. Asfaw Dingamo</td>
<td>CEO</td>
<td>Ethiopia Petroleum and Natural Gas Development Enterprise</td>
</tr>
<tr>
<td>30. Andargie Bekela</td>
<td>Legal Affairs Director</td>
<td>Ethiopia Petroleum and Natural Gas Development Enterprise</td>
</tr>
<tr>
<td>31. Abayneh Tilahun</td>
<td>Technical Director</td>
<td>Ethiopia Petroleum and Natural Gas Development Enterprise</td>
</tr>
<tr>
<td>32. Assefa Aklilu</td>
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<tr>
<td>33. Eshetu Chala</td>
<td>Senior Economist</td>
<td>Ethiopia Petroleum and Natural Gas Development Enterprise</td>
</tr>
<tr>
<td>34. Dereje Derbew</td>
<td>Senior Petroleum Engineer</td>
<td>Ethiopia Petroleum and Natural Gas Development Enterprise</td>
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<tr>
<td>35. Gelebo Dergogo</td>
<td></td>
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<tr>
<td><strong>Geological Survey of Ethiopia</strong></td>
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<td></td>
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<tr>
<td>36. Befekadu Oluma</td>
<td>Director</td>
<td>Geological Survey of Ethiopia</td>
</tr>
<tr>
<td>37. Assefa Zerihun</td>
<td>Director</td>
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<tr>
<td>38. Frehiot Woldemariam</td>
<td>Director Human Resources</td>
<td>Geological Survey of Ethiopia</td>
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<tr>
<td><strong>Ethiopian Revenue &amp; Customs Authority</strong></td>
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<tr>
<td>40. Tenaye Haile</td>
<td>Senior Prosecutor</td>
<td>Ethiopian Revenue &amp; Customs Authority</td>
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<tr>
<td>41. Mesfin Shimels</td>
<td>Senior Officer</td>
<td>Ethiopian Revenue &amp; Customs Authority</td>
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<tr>
<td>42. Wegayehu</td>
<td>Customs Procedure Team Co-ordinator</td>
<td>Ethiopian Revenue &amp; Customs Authority</td>
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<tr>
<td><strong>Other Government and State Organizations</strong></td>
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<tr>
<td>43. Roman Kassahum</td>
<td>Director, Monitoring and Evaluation</td>
<td>Ministry of Environment</td>
</tr>
<tr>
<td>44. Abdurzak Tayib</td>
<td>Deputy Agency Head</td>
<td>Environment, Forests, Mining and Energy Agency (ESRS)</td>
</tr>
<tr>
<td>45. Indalkacho Mangasha</td>
<td>Geologist</td>
<td>Oromia Water Minerals Energy Bureau</td>
</tr>
<tr>
<td>46. Fisseta Meresa</td>
<td>Core-Process Owner</td>
<td>Tigray Regional State</td>
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<tr>
<td>47. Ali Sebeledi</td>
<td>Head Manager</td>
<td>AFAR</td>
</tr>
<tr>
<td>48. Eyasu Mamo</td>
<td>Core-Process Owner</td>
<td>SNNPR M&amp;E Agency</td>
</tr>
<tr>
<td>49. Adebabay Abay</td>
<td>Director</td>
<td>EPE</td>
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### B. Private Sector

<table>
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<tr>
<th>Name</th>
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<tr>
<td>50. Petros Abebe</td>
<td>GM</td>
<td>Tullow Oil</td>
</tr>
<tr>
<td>51. Dawit Ergetu</td>
<td>Finance and Administration Manager</td>
<td>Tullow Oil</td>
</tr>
<tr>
<td>52. Mark Dingley</td>
<td>VP</td>
<td>Africa Oil</td>
</tr>
<tr>
<td>53. Wondwossen Zeleke</td>
<td>General Manager</td>
<td>Africa Oil</td>
</tr>
<tr>
<td>54. William Rennie</td>
<td>Chief Geophysicist</td>
<td>Africa Oil</td>
</tr>
<tr>
<td>55. Sati Mirghani</td>
<td>Finance and Administrative Manager</td>
<td>Africa Oil</td>
</tr>
<tr>
<td>56. Hiwot Tiruneh</td>
<td></td>
<td>New Age Ethiopia Ltd</td>
</tr>
<tr>
<td>57. Vadim Gauptman</td>
<td>General Manager</td>
<td>GPB</td>
</tr>
<tr>
<td>58. Lai Yeo Siong</td>
<td>Country Manager</td>
<td>POLY-GCL Petroleum</td>
</tr>
<tr>
<td>59. Radwan Hadi</td>
<td>Director</td>
<td>Falcon</td>
</tr>
<tr>
<td>60. Abdalla Khalil</td>
<td>Manager</td>
<td>Falcon</td>
</tr>
<tr>
<td>61. Li Jianjun</td>
<td>COO</td>
<td>Southwest Energy</td>
</tr>
<tr>
<td>62. Shani Senbetta</td>
<td>Ex Vice President Government Affairs (telephone interview)</td>
<td>South West Energy</td>
</tr>
<tr>
<td>63. Gary King</td>
<td>CEO</td>
<td>INTREPIDGTL</td>
</tr>
<tr>
<td>64. Cathal Daly</td>
<td>Director Exploration</td>
<td>Delonex Energy</td>
</tr>
<tr>
<td>65. Sisay Zerihun</td>
<td>Head of Stakeholder and Corporate Relations</td>
<td>Delonex Energy</td>
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### C. Development Partners

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>66. Adamou Labara</td>
<td>Country Representative</td>
<td>IFC</td>
</tr>
<tr>
<td>67. Yared Fekada</td>
<td>Advisor</td>
<td>Canada Cooperation Office</td>
</tr>
<tr>
<td>68. Jerusalem Berhanu</td>
<td>Advisor</td>
<td>Canada Cooperation Office</td>
</tr>
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Annex 3: Map of Blocks under PPSA
### Annex 4: Listing of PLAD Staff

<table>
<thead>
<tr>
<th>Name of Employee</th>
<th>Sex</th>
<th>Position Description</th>
<th>Type</th>
<th>Level</th>
<th>Date of Employment in MOM (Ethiopian Calendar)</th>
<th>Date of Employment in MOM (Gregorian Calendar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Ketebel Tadesse Eshetgebrasu</td>
<td>Male</td>
<td>Director</td>
<td>Geological Sciences</td>
<td>PhD</td>
<td>11/01/1986</td>
<td>Jul-94</td>
</tr>
<tr>
<td>Moaza Tadesse Mentieya</td>
<td>Female</td>
<td>Executive Secretary</td>
<td>Secretarial and Office Management</td>
<td>Diploma in Technical and Vocational training</td>
<td>02/01/2002</td>
<td>Oct-09</td>
</tr>
<tr>
<td>Laba Hulamnesh Staneles</td>
<td>Female</td>
<td>Secretary II</td>
<td>Secretarial Science</td>
<td>College Diploma</td>
<td>20/02/2005</td>
<td>Oct-12</td>
</tr>
<tr>
<td>Kebebeho Barna Kire</td>
<td>Male</td>
<td>Senior Monitoring Geologist II</td>
<td>Geology</td>
<td>M.S.C.</td>
<td>21/02/1990</td>
<td>Oct-97</td>
</tr>
<tr>
<td>Kasaich Boled Weliybih</td>
<td>Female</td>
<td>Senior Monitoring Geologist II</td>
<td>Geology</td>
<td>M.S.C.</td>
<td>18/10/1993</td>
<td>Jun-01</td>
</tr>
<tr>
<td>Alemseha Tadesse Teda</td>
<td>Female</td>
<td>Senior Monitoring Accountant II</td>
<td>Accounting</td>
<td>B.A.</td>
<td>08/01/1993</td>
<td>Apr-01</td>
</tr>
<tr>
<td>Zenebe Tadesse Teda</td>
<td>Male</td>
<td>Junior Monitoring Geologist II</td>
<td>Applied geology</td>
<td>B.S.C.</td>
<td>09/03/2003</td>
<td>May-11</td>
</tr>
<tr>
<td>Tekeste Alemu Zegegawi</td>
<td>Male</td>
<td>Senior Monitoring Geophysicist II</td>
<td>Physics</td>
<td>B.S.C.</td>
<td>29/10/1993</td>
<td>Apr-01</td>
</tr>
<tr>
<td>Tadesse Lule Negeste</td>
<td>Male</td>
<td>Senior Monitoring Geophysicist II</td>
<td>Environmental science</td>
<td>M.S.C.</td>
<td>10/06/2000</td>
<td>Jun-01</td>
</tr>
<tr>
<td>Wedua Geben Teuff</td>
<td>Male</td>
<td>Senior Monitoring Geophysicist II</td>
<td>Geology</td>
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<td>14/03/1994</td>
<td>Nov-01</td>
</tr>
<tr>
<td>Abdulelum分支 Hassen</td>
<td>Male</td>
<td>Senior Monitoring Geophysicist II</td>
<td>Oil and Gas Management</td>
<td>M.S.C.</td>
<td>09/05/2003</td>
<td>May-11</td>
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<tr>
<td>Tadesse Negussa Bekele</td>
<td>Male</td>
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<td>B.S.C.</td>
<td>26/08/2003</td>
<td>Apr-11</td>
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<tr>
<td>Fantu Kechu Desale</td>
<td>Male</td>
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<td>B.S.C.</td>
<td>02/06/2005</td>
<td>Oct-12</td>
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<tr>
<td>Aby Tadesse Teketcheddik</td>
<td>Male</td>
<td>Senior Monitoring Engineer I</td>
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<td>B.S.C.</td>
<td>12/09/2006</td>
<td>Aug-14</td>
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<tr>
<td>Barent Halka Gidey</td>
<td>Male</td>
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<td>24/08/2006</td>
<td>Apr-14</td>
</tr>
<tr>
<td>Berko Gega Addis</td>
<td>Male</td>
<td>Junior Monitoring Engineer</td>
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<td>21/1/2005</td>
<td>Sep-12</td>
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<tr>
<td>Tekulewoldu Tawedrahaymari Abrah</td>
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<tr>
<td>Yifere Negussa Asemei</td>
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<tr>
<td>Mehri Endaie Mehari</td>
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<td>31/01/2005</td>
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<tr>
<td>Mengistu Hailamnesh Ababashel</td>
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<td>24/08/2006</td>
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<td>Tilghy Gebreabebwok Wedkoladas</td>
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<tr>
<td>Abula Teddy Gebremariam</td>
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<td>21/01/2005</td>
<td>Sep-12</td>
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<tr>
<td>Mahamet Bereket Yigejuro</td>
<td>Male</td>
<td>Senior License Geophysicist II</td>
<td>Petroleum Engineer</td>
<td>M.S.C.</td>
<td>11/01/1986</td>
<td>Jul-94</td>
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<tr>
<td>Shiferaw Gedu Tadesse</td>
<td>Male</td>
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<td>B.S.C.</td>
<td>21/01/2005</td>
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<tr>
<td>Mehari Kebde Ketema</td>
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<td>Sep-12</td>
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<tr>
<td>Muns Guietsa Ten</td>
<td>Female</td>
<td>Assistant Economist II</td>
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<td>Melkamu Gedelet Tadesse</td>
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