Sector Study
Presented by
BearingPoint

Options for Developing a Long Term Sustainable Iraqi Oil Industry

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Executive Summary

Options for Developing a Long Term Sustainable Iraqi Oil Industry

A basic premise underlying this report is that all issues of state ownership, distribution of revenues, resource development and participation in OPEC should be decided by the Iraqi people. Within this context, the purpose of this report is to provide a discussion of the options available to Iraq to put its oil industry on a modern, workable and sustainable footing. This discussion focuses on three time periods: the short-term "Rehabilitation" phase that is already in process and the medium-term "Transition" and the longer-term "Transformation" phases that lie ahead.

This report identifies some of the key management, policy and governance options that will need to be considered in the development of a long-term sustainable Iraqi oil industry. The timings, interconnections and interdependencies among and between these various options are explored, and their resulting effects - in terms of the kind of future oil industry that the various options would help to create - are highlighted through the use of scenario analysis.

The options discussed in this report cover the most important strategic and timing issues that lie ahead for the Iraqi energy sector. They were developed with reference to Iraq's institutional history in the oil industry, and by examining lessons learned from other state-owned oil companies in the region and throughout the world.

An initial assessment of several national oil companies (NOCs) in Section 1 provides a comparative analysis of a range of corporate, financial, and legal/regulatory issues critical to the formulation of a sound policy framework for the oil sector in Iraq. The lessons learned from this assessment are then used in Sections 2 and 4 to highlight options that reflect best practices in management and corporate governance for a potential Iraqi Oil and Gas Entity (OGE). The potential ramifications of these options are then discussed in detail. Section 3 examines various alternatives for the involvement (if desired) of external parties in Iraq's upstream sector. Section 3 then goes on to describe how each of these alternatives would allocate upstream risks and rewards to the government and other parties.

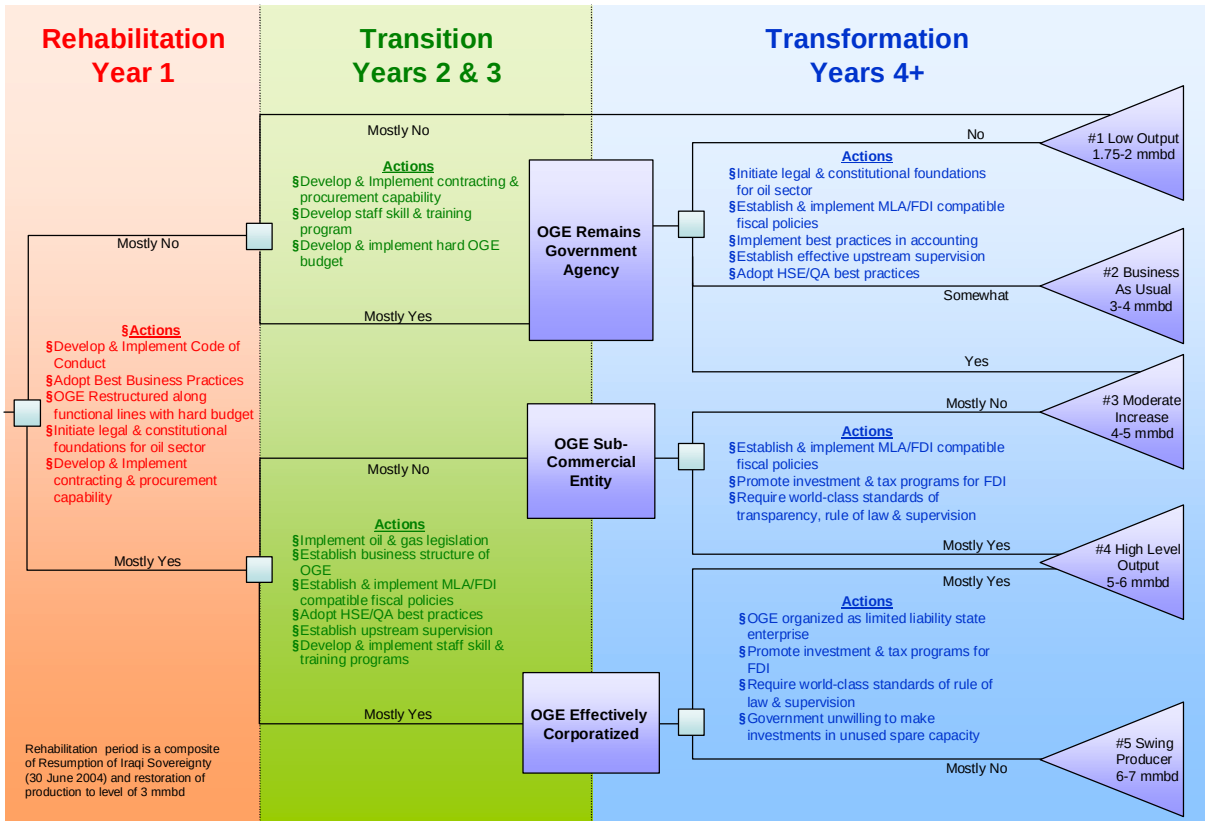
Key Findings

This study examines the restructuring needs of Iraq's oil sector against five different production scenarios over the next five to six years. These output scenarios range from a production decline in 2008 in the 500-750mbd range, up to enhanced production in the 6+ mmbd range. The study analyses best practices for NOC management, as well as overall oil sector governance and legal/regulatory developments, as these matters relate to each of the five scenarios.

Figure 0.1, below, is a multi-dimensional timeline / scenario analysis that illustrates graphically the causal and temporal relationships between investment, governance and organizational actions taken by the Government of Iraq / OGE and corresponding levels of production. This chart is intended to communicate the report's main conclusion, that achieving high levels of production will necessitate a sequential series of management and governance actions within specified

timeframes. While no initial set of actions is irreversible, certain governance and production outcomes can become impossible to effect in the period covered by this study without appropriate initial steps being taken in a timely manner.

Figure 0.1: Iraqi Oil Regime Timeline and Scenario Analysis



Rehabilitation Activities

In the coming months the Government of Iraq will need to make a large number of critical decisions on the future of the oil industry, the role of oil revenues in funding other national reconstruction efforts, and defining the role of the OGE itself.

While constitutional and legal steps are vital to medium term improvements in output and investment, there are a number of immediate actions in the Rehabilitation phase that can help set the stage for significant reforms. These include:

- § Develop and implement a Code of Conduct
- § Improve business processes in contracting, procurement and personnel
- § Restructure the OGE along functional lines with hard operating and capital budgets, thereby providing better quality information to OGE and Government decision makers
- § Initiate development of legal and constitutional foundations for oil sector

Governance and Restructuring:

Even without major reforms in the overall constitutional and legal environments, moving quickly on managerial and operational policies can create the possibility of a more rapid transformation later. Business practice improvement, especially in procurement / contracting, staff skills and budgeting can set the groundwork for significant efficiencies once the volume of business grows. Although a full legal restructuring of the sector would be necessary to achieve both the transparency and legitimacy required by investors and lenders (should such involvement be desired), a small but steady improvement in reserves and output is possible through internal measures, resulting in production in the 3-4 mmbd range.

Financial and Legal:

Given the likely investment needs of Iraq's oil sector (see Appendix 16) - $4-5 billion just to restore oil production and up to more than $15 billion to raise output to the 5 mmbd range - the question of how to raise such sums has to be addressed. If a role is envisaged for outside investors and lenders then that, in turn, will necessarily influence the restructuring policies and implementation measures required.

It is also noteworthy that management and legal environments can improve or worsen over time. Put another way, there are always decisions available to both the OGE and government that can get the oil sector back on track if initial reforms do not take hold. Similarly, a good start does not guarantee success, though it is difficult to imagine the conditions under which production could decline once essential reforms have been implemented.

Transition Activities

As Rehabilitation continues into Transition, the Government of Iraq will face key questions concerning the restructuring of the oil sector. These queries go straight to the substance of the scenario analysis and include the following:

i. Who finances restructuring and expansion?

ii. How will contracting and legal issues be addressed?

iii. How fast can production ramp up?

iv. Who will undertake these activities?

For the answer to each of these questions, the scenario analysis can be traced back to the series of management and legal options that result in a given outcome.

Financial Restructuring and Expansion:

If a decision is made that outside lending or investment is expected to provide significant funding for sector expansion, then certain actions will need to precede the inflow of new funds:

- § Establishment of fiscal policies compatible with IMF / World Bank guidelines that address the needs of Foreign Direct Investors.
- § Creation of appropriate development and production contracting mechanisms for the Transition phase, and
- § Creation of appropriate exploration and development contracting mechanisms for the Transformation phase.

External Relations and Contracting:

As noted above the two main options for financing are reliance on external investors / lenders or self-generated cash flow. A decision to rely largely on self-financing (discussed in Section 4) is a feasible, if difficult option. This option, however, would tend to limit future production levels to at-or-just-above pre-war levels. Achieving higher levels of output through self-financing, though possible, will require a number of tough and potentially controversial decisions, including the need for rapid corporatization[1] of the OGE, possible under investment in other areas of the country's economy, and potential limitations on oil sector transparency. It is important to remember that the options chosen, and when they are chosen, will have implications for the development of the overall economy and society, for the speed and level of capacity expansion that can be achieved, and for the exposure of investment budgets to fluctuations in oil prices[2].

Contracting terms remain the most commonly used means of allocating risks and rewards from exploration. A survey of countries that have chosen to self-finance shows that closing upstream activities to foreign participation has generally led to both production and fiscal difficulties; if not often in the immediate term, then more frequently in the longer run.

Should external financing be sought, it is worth remembering that there is substantial competition for capital from the International Oil Company (IOC) sector. Countries that do not offer risk-adjusted rates of return equal to or above other nations will be unlikely to achieve significant levels of investment, regardless of the richness of their geology (e.g.: Iran, July 2003 round; Venezuela, post 2001 tenders; Saudi gas initiative; Pertamina, 1990s).

Sections 1 and 3 of the report highlight certain lessons learned from the experience of other NOCs in tackling these same difficult questions. In the area of contracting and external relations, the Lessons Learned part of Section 3 highlights several important points:

[1] Corporatization provides a state-owned oil company with an independent management structure. A corporatized NOC will use well-proven measures of profitability and performance to manage its business, including rate of return analysis and expansion of gas and oil reserves. Such an enterprise promotes a corporate culture that fosters notions of return on investment, comparative evaluation of investment opportunities, and rewards to entrepreneurial risk as key indicia of performance. Perhaps most importantly, a corporatized NOC can be benchmarked against other state and private oil enterprises.

[2] It should be noted that if GOI investments in unused capacity are made as an element of developing "swing" producer capabilities (6-7 mmbd), then the proportion of investment by IOCs will be limited below comparable ratios that might occur in other high output scenarios.

- Upstream contractual arrangements vary widely according to the history, domestic political circumstances, and goals of the host country.

- Inadequate regard for the risks borne by IOC contractors has led to less-than-successful investment programs and an inability to tender fully offered exploration acreage in a timely manner.

- Countries with less attractive geology and governance, such as Azerbaijan, have been able to partially overcome their risk profile and attract billions of dollars of investment by offering a contractual balance of commercial interests within the risk contract, one that is enforceable under UK and Azeri law with the option of international arbitration.

Pace of Production Increase and Institutional Development:

To achieve desired production levels, enabling policies and programs will need to be put into place. In particular:

- Swift rises in production will require timely corporatization of the OGE, thereby necessitating a rapid program of constitutional and legal reform in the sector
- Rapid increases in output will make heavy demands on the staff and business processes at the OGE. Reforms and adoption of best practices must precede these rises in overall activity levels.

It is also worth noting the importance of a balanced approach to effective institutional development: relying on one set of institutions or another to implement the government's policies on production and financing of the oil sector will lead to rigidities, and will tend to promote institutional and political momentum in a particular direction:

- Heavy reliance on service contractors will create a staff in the OGE that is organized around contracting out many services, especially in light of the age structure of the staff. Such a degree of reliance is difficult to change rapidly.
- Heavy reliance on OGE staff for essential technical services will be possible only in the context of slower production increases and substantial use of contract staff at the OGE.
- Significant use of IOCs as risk contractors creates the potential for sector supervision and separation of power problems that can in turn require new legal and regulatory measures.

Transformation Activities

Decisions that are taken during the Rehabilitation and Transition phases will set Iraq's upstream oil sector toward one of the five scenarios identified in Figure 0.1. Whilst none of these decisions is irreversible in itself, changing direction and trying to make up for delays will become increasingly difficult as time goes by.

As was noted above, the four key questions regarding structure and process in Iraq's oil sector will all probably be addressed in one way or another during the Transition phase, namely:

i. Who finances restructuring and expansion?

ii. How will contracting and legal issues be addressed?

iii. How fast can production ramp up?

iv. Who will undertake these activities?

By the time the Transition phase ends, around the end of 2006, the combination of options that have already been selected will establish the feasible limits of what can be accomplished during the Transformation phase. An aggressive program of legal and management reform is necessary to achieve one of the higher output scenarios (Scenarios 3, 4, 5), and the momentum established by the early efforts should permit substantial gains in production, even if a full set of Transformation phase reforms is not adopted. On the other hand, difficulties in achieving the management and legal prerequisites for a high tempo of investment and production activity (Scenarios 1 and 2) will limit the potential of the Transformation stage to achieving - at best - a small increase over pre-war levels of output.

Related Areas of Study

This report is targeted towards, and only contains analysis of, the upstream oil sector. Additional areas of study that may also prove beneficial include:

- Examining the development of a significant national gas sector as a part of the country's future energy diversification, especially given the expected heavy demands for capital in the upstream oil segment.
- Exploring issues surrounding the downstream petroleum and chemical sectors, including competition, investment and pricing. Upgrading and expanding refineries may present a significant investment drain and policy regarding ownership and financing in the segment should be assessed in that light. The transportation and marketing of gas, oil and refined products raise other important issues, since these business segments are generally considered to be further removed from national/constitutional matters than is the upstream oil business.

A suggested approach to addressing some of these additional items of interest is contained in Appendix 17.

Section 1¾ The International State Oil Sector – Lessons Learned

Introduction

The organization and operation of national oil companies vary according to the history, domestic political circumstances, and economic policy of the country where they are located. To frame the Options for Developing a Long Term Sustainable Iraqi Energy Industry, an assessment was carried out of seven National Oil Companies (NOCs), their key statistical data, strategic aims, policies and practices. In particular, the analysis focused on government, organizational/ structural policy and operational policy. From this assessment, "lessons learned" have been derived and elaborated, providing a window into the advantages and disadvantages of some of the strategies selected by various NOCs with different cultural settings and national goals.

The following NOCs were selected for assessment:

Kuwait Petroleum Corporation (KPC);

National Iranian Oil Company (NIOC);

Petroleos de Venezuela S.A. (PdVSA);

Petroliam Nasional Berhad (Petronas, Malaysia);

Saudi Aramco;

Pertamina (Indonesia); and

SOCAR (Azerbaijan).

This assessment covers indicative criteria, and is presented –for ease of reference—as a series of tabular summaries. Additional information on each NOC is provided in a dedicated Appendix numbered 1-7. They contain a detailed narrative description of the individual NOC, with observations about their operations and the environments in which they operate.

A number of key lessons emerge from the comparative analysis that have bearing on best practices for a Sustainable Iraqi Energy Industry. For example, in studying the inter-governmental relationship and "separation of powers," it is clear that many NOCs have assumed a greater role than that of just a commercial entity responsible for exploiting hydrocarbon resources. In fact, many governments have been able to use the NOC as a tool to achieve wider socio-economic policy objectives. However, more and more countries are coming to realize that these non-core obligations have imposed costs upon the NOC and may have diluted the incentive to maximize profits, hindering the entity's ability to raise external capital, to compete at international standards, and to maintain or expand the country's oil production capacity, which should be its main function. The absence of explicit pressure to earn a return on the investment made by an NOC may result in the inefficient or wasteful allocation of scarce resources.

Other key lessons that emerge are the critical benefits that can derive from appropriate oversight of the petroleum sector. Ministerial (or Legislative) policy involvement in the depletion planning policy for the sector has served to eliminate uncertainty by providing direction for the goals of the industry ensuring that decisions are made from the point of view of the optimal, long-term interests of the nation. Clearly, depletion plans that involve maintaining minimum levels of spare, utilized, production capacity will impose economic costs to the NOC. Industry practice is to maintain some NOC involvement in this area of depletion policy formation as necessary since policy options must derive from experienced technical opinion. Ministerial or parliamentary committee approval of an NOC's business plans has been used to ensure alignment between the NOC and the government.

The survey indicates that the central role of the NOC within an economy has been a mixed blessing in terms of access to finance. Some NOCs have been able to secure very competitively priced finance while others have been adversely affected by the nation's economic performance. Improving the financial transparency of the NOC can enhance access to capital. Publication of audited accounts provides for such transparency and allows the NOCs performance to be monitored. The demonstration of transparency in a major state company can enhance the overall business climate in the country. Lack of transparency and separation of accounts can distort the government's overall budget position with major macroeconomic impacts.

The use of International Accounting Standards and publication of accounts increases transparency and can provide the NOC with greater credibility in the international financial community. It also can provide the framework for closer alignment should the NOC chose to form strategic alliances with joint venture partners. An NOC's stated commitment to good governance and environmental standards can set a good example for the domestic business community as a whole and enhance confidence to investors and foreign partners.

Upstream contractual arrangements vary according to the history, domestic political circumstances, and goals of the country. Case studies show a wide array of possible examples. They range from Saudi Arabia where the state has traditionally enjoyed adequate national funds to invest in oil capacity maintenance and expansion and has not relied on IOC involvement to SOCAR which relies heavily on IOC investment under PSA contracts terms designed to compensate IOC partners for the high geologic risk, its distance from markets and lack of well-developed political institutions and governance.

A survey of options tried by the seven NOCs demonstrates that governments must be cognizant of the consequences of certain choices for development of the overall economy and society, for the speed and level of capacity expansion that can be achieved, and for the exposure of investment budgets to changes in oil prices.

Should the country decide to pursue international participation in its oil sector, some forms of foreign involvement have proven more successful than others in attracting high levels of capital and boosting reserves and production rapidly. Inadequate regard for the risks borne by IOC contractors has led to less-than-successful investment programs or avoidable delays in meeting production targets.

General Corporate Information

	Aramco	KNPC	SOCAR	PdVSA	Petronas	Pertamina	NIOC	INOC*
Date of Formation	1933	1960	1992	1976	1974	1971	1950	1964
Statistical data (reserves and assoc. prod)								
Crude Oil Reserves(Mm bbl)	262,790	96,500	7,000 - 13,000	77,800	3,000	4,722	99,080	111,800
Gas Reserves (tcf)	225	52	30	148	75	93	812	95
Output(kb/d)	8,256	2,000	310	2,900	694	1,002	3,750	2,500
Refining Capacity(kb/d)	1,750	899	441	1,183	516	1,057	1,474	602
Crude Oil Exports(kb/d)	5,285	1,700	178	1,572	295	610	2,600	1,500
Refined product exports (kb/d)	994	572		570	148	152	290	0
Gas Production(tcf/y) (gross)	1.90	0.34	0.20	1.10	1.90	2.44	2.17	0.10
Internationalization								
Int'l assets	Refining	Overseas retail (Q8) and refining	None	14%	21%	Limited to foreign sales offices	Refining	None
Int'l revenue				94%	61%			
Diversity of asset base (in millions of dollars)								
Oil	$ 2,627,900	$ 965,000	$ 100,000	$ 778,000	$ 30,000	$ 47,220	$ 990,800	$ 1,118,000
Gas	$ 112,350	$ 26,100	$ 15,000	$ 74,000	$ 37,500	$ 46,250	$ 406,000	$ 47,500
Downstream	$ 8,750	$ 4,495	$ 2,205	$ 5,916	$ 2,580	$ 5,285	$ 7,370	$ 3,010
Numbers of direct employees	54,000	12,839	75,000	46,920	23,450	27,606	114,602	70,000

Sources:

World Investment Report 2002
Company Website/Annual report
OPEC 2002 Annual Statistical Bulletin
US Embassy Baku
Energy Information Administration, US Dept. of Energy
Petroleum Intelligence Weekly
Middle East Economic Survey
Arab Oil & Gas Directory

Asset base/unit value

Oil	$	10.00	per bbl
Gas	$	0.50	per kcf
Downstream	$	5,000.00	per daily bbl of capacity

*figures for November, 2003

Summary of NOCs

This Section contains a short summary of the seven national oil companies (NOCs) included in this assessment.

1.1 Kuwait Petroleum Corporation (KPC)

Kuwait Petroleum Corporation (KPC) is the state-owned holding company responsible for all hydrocarbon activities. It is a typical, vertically integrated, state-owned hydrocarbon company with overall control over a number of subsidiary companies operating in different segments of the oil and gas sector. The Supreme Petroleum Council has ultimate responsibility for the oil and gas sector, while the Ministry of Energy oversees all components of the energy sector and proposes policy recommendations. Although the Ministry manages the government's ownership of KPC, its responsibilities have been separated from those of KPC. A number of Government Ministers sit on the Board of KPC, creating close ties between the company and the government and giving the latter a high degree of control over the country's oil and gas resources.

The Kuwaiti Constitution stipulates that hydrocarbon reserves must remain in Kuwaiti ownership. Foreign companies have only recently been allowed to bid for the operation of local oil fields, under an Operating Services Agreement, providing a fixed rate of return on investment (the rate is stipulated in the contract), payable in cash.

There is no oil and gas regulator in Kuwait and all elements of the sector, apart from a number of petrol stations, are under the direct control of KPC.

Honest, integrity and transparency are among KPC's stated key values. However, there is no publicly available information on the company's policy towards good governance.

1.2 National Iranian Oil Company (NIOC)

The National Iranian Oil Company (NIOC) is Iran's key state-owned company, generating about eighty percent of the country's export revenue. NIOC is a vertically integrated national oil company with a large number of operating subsidiaries.

The Ministry of Petroleum closely controls NIOC and the country's President chairs its General Assembly. In Iran, there is no separation of powers between the NOC's oil and gas company role and that of manager/regulator of the country's hydrocarbon resources. NIOC assumes both roles. There is also no independent regulator of any segment of the oil and gas industry.

The NIOC board is formed of qualified executive directors appointed by the Minister of Petroleum and promoted from within the NIOC organization and/or from the petroleum industry.

NIOC does not have a clearly stated hydrocarbon depletion policy but there is a focus on the development of the country's hydrocarbon resources, especially natural gas. The buy-back regime provides the contractual framework for foreign participation in hydrocarbon upstream activities. Recently, there has been an attempt to adjust the existing law to attract international oil companies to bid for exploration and development contracts in high-risk areas.

The government closely controls the funding of NIOC's activities. The NIOC budget is prepared by NIOC's Board of Directors and submitted for approval by the NIOC General Assembly. It is then submitted to the Management and Planning Organization (MPO), which verifies the budget's compliance with the relevant five-year development plan before the Treasury releases funds.

NIOC does not provide information on its policy towards good governance and the adoption of ethical business policies. The Energy Committee Of *Majlis* (parliament) and the Ministry of Petroleum investigate any allegations of fraud/corruption in the petroleum sector.

1.3 Petroleos de Venezuela S.A. (PdVSA)

Petroleos de Venezuela, S.A. (PdVSA) is the national oil and gas company of the Bolivarian Republic of Venezuela. While Venezuelan law requires that the State retain exclusive ownership of PdVSA, it does not require the State to conduct all oil and gas activities exclusively through PdVSA. The President of the Republic appoints PdVSA's president and other board members. The company is structured along functional lines and operates as a commercially oriented entity.

The Ministry of Energy and Mines has primary responsibility for regulating activity in the sector, represents the state in all petroleum matters, sets policy, oversees PdVSA's business plans and issues licences and permits. A Ministry agency, ENAGAS, is the natural gas Regulator. A number of other Ministries (including the Ministries of Labour and Transport) also regulate some of the activities of sector participants.

Annual revenues are accounted for and audited by the Central Bank. The Ministry of Energy and Mines approves PdVSA's budget, while internal PdVSA departments monitor and audit all expenditures. The company publishes consolidated financial statements and makes submissions to the US Securities and Exchange Commission.

Since the early 1990s, to help fund its ambitious petroleum expansion plans, the Venezuelan government has opened the petroleum sector to foreign investors. Foreign operators currently produce around 1 million barrels per day through a combination of joint venture licenses and risk service contracts; foreign investors have title to the hydrocarbons produced under a licence, while title remains with PdVSA under the risk service contract. The trend towards increasing foreign participation and partnership with PdVSA is expected to continue with further openings in all segments of the hydrocarbon value chain.

PdVSA has adopted a rigorous code of ethical conduct and has imposed numerous internal and external controls to ensure adherence to this code. The process for contract awards is transparent and is subject to government scrutiny.

1.4 Petroliam Nasional Berhad (Petronas)

Petroliam Nasional Berhad (Petronas) is the national oil company of Malaysia. Petronas has evolved in less than thirty years from a regulator and guardian of the state's oil and gas interests to an integrated energy company with significant overseas interests. Petronas has business in upstream oil and gas, liquefied natural gas production and exportation, petrochemicals, specialty chemicals, fertilizers, refining, retail operations, shipping, manufacturing, engineering, research and development, and real estate.

Petronas is directly controlled by the Prime Minister's Office and its Board of Directors reports to the Prime Minister. It is responsible for issuing licences to foreign companies wishing to invest in the sector and they must enter into a production sharing agreement (PSA) or joint venture agreement with Petronas. PSAs have been used since the formation of Petronas in 1974. The Ministry of Domestic Trade and Consumer Affairs regulates the downstream petroleum sector, while gas regulation comes under the remit of the Energy Commission. With Petronas

acting as a tool of government policy, there is no distinct separation of powers and the company operates without any real external oversight.

Petronas publishes annual audited financial accounts for the parent company although the financial and operational details of its subsidiaries are not reported. In 2002-03, the company reported profits of USD 7 billion from USD 21 billion of revenues and an asset base of USD 47 billion. It is a known and respected joint venture partner with many oil companies and host governments in the region and around the world. Business activities are funded from a combination of cash flow and debt, as well as the issuance of notes. It has adopted a policy of maintaining a debt to total assets ratio of about thirty percent.

Government legislation provides the framework for corporate governance and the company is committed to acting in an ethical manner and it has adopted a transparent procurement process.

1.5 Saudi Aramco

Saudi Aramco is a typical state-owned vertically integrated oil company, maintaining close relationships with its owner, the Government of Saudi Arabia. It reports to the government through the Supreme Council for Petroleum and Mineral Affairs (SCPM), which is chaired by King Fahd. In turn, the SCPM provides policy direction for the company and monitors its activities. The Ministry of Petroleum and Mineral Resources is responsible for executing oil policy and for monitoring activity in the sector. Saudi Aramco has grown in line with and has been a key component of the Kingdom's economic development. As such, it has been used as a tool to implement elements of the government's wider policies and, as a result, there has been little definition of the separation of power between the Ministry and the company.

Saudi Aramco has a monopoly on hydrocarbon exploration, development and production in the Kingdom. Currently, the Supreme Petroleum Council supervises oil and natural gas, however there are plans to restructure the sector and allow foreign investment into upstream and downstream natural gas that may require the establishment of a more formal regulatory framework. Indeed the newly created Saudi Arabian Regulatory Authority (SERA) may soon take over the regulation of downstream gas from the Ministry of Water and Electricity.

Saudi Aramco's funding principles and practices are unclear, although the SCPM is responsible for approving the company's budget and its audited accounts. Saudi Aramco has tapped international capital markets, but it is only now coming under financial pressure to involve foreign companies, in particular in upstream gas. Negotiations for the involvement of foreign oil companies in the upstream gas sector have only recently been completed and the precise future relationship between the players in the sector have yet to be defined. Foreign investment is not allowed in upstream oil.

Saudi Aramco is committed to "a high standard of ethics and fairness" and has well defined procurement policies.

1.6 SOCAR (Azerbaijan)

The State Oil Company of Azerbaijan (SOCAR) is currently undergoing a period of transformation. It is a wholly state-owned vertically integrated oil company emerging from a period in which its activities were directed by the state into an era in which it is being transformed into a commercially oriented entity. At the same time, it is expected that its relationships with other sector participants will be regulated and defined with greater precision.

In particular, SOCAR's relationship with the Ministry of Fuel and Energy is evolving and the latter is expected to take the regulator's role for upstream oil and gas. Downstream regulation of gas is legislatively the responsibility of the new Regulatory Authority. It is unclear at present the degree to which the responsibilities previously held by SOCAR have been transferred to the Ministry.

As part of the process of restructuring the sector, the government is aiming to introduce greater transparency into the process of accounting for oil revenues. Oil revenues will be transferred to the State Oil Fund, SOFAZ. The Fund's expenditures form part of the government's budget and are subject to a set of well-defined rules in order to minimize the potential for political interference.

Azerbaijan has been successful in attracting foreign investment into its hydrocarbon sector as reflected in the country having attracted investment of over USD 50 billion by some thirty-three oil companies in twenty-one negotiated PSAs. SOCAR has participated in each PSA, but there does not appear to have been a conflict between its role as a consortium member and its role as representative of the State.

As part of the process of restructuring the sector, the government is aiming to introduce a greater degree of transparency and accountability. At present, SOCAR operates according to local business standards which are not transparent. As well as more explicitly defining the destination and use of oil revenues, the government has launched a programme to ensure that all state companies adopt international accounting standards.

1.7 Pertamina

P.T. Pertamina (Persero) is a limited liability state-owned enterprise in Indonesia. The company, which produces about 100,000 b/d, (8% of the country's 1.4 million b/d oil output) has been extensively restructured and reconstituted in the past three years. The company is under the control of the Ministry of State Enterprises, rather than the Ministry of Energy and the company's Board of Directors reflects its status as an ordinary state enterprise, as it is composed entirely of government ministers or their Directors General.

Pertamina was formerly a special state enterprise that not only produced all of the country's oil and gas (through production sharing contracts, as well as own production), but also represented the Government of Indonesia's ownership interest in oil and gas. In 2001 a new Oil and Gas Law was enacted that separated the governmental and regulatory duties of Pertamina from its ordinary business operations. Oil and gas sector governance, policy and contracting are now handled by the Ministry of State Enterprises, the Ministry of Mines and Energy and a newly constituted supervisory agency, BP Migas, which was established in 2002 to represent the government's ownership interest in oil and gas in situ.

Pertamina must now produce oil and gas under the same contractual terms and conditions as any other company, foreign or domestic. However, the company still operates all of the country's 1 million b/d of refining capacity. Less than 15% of this refining capacity is owned by Pertamina, with the rest under title to the Ministry of Finance. The legal status of the majority of the country's refining capacity is not yet settled, though Pertamina is likely to end up with a substantial fraction. Once the legal status of country's refining assets has been settled, then the market liberalization envisioned in the Oil and Gas Law will be reflected in new entrants downstream.

The new oil sector structure stipulates that Pertamina will operate under normal market discipline and to that end, fuel prices have generally reached market levels in the country. Only in the liquefied natural gas arena (LNG) does Pertamina still represent the government. Long term contracts with the government's implicit sovereign guarantee were signed by Pertamina over the past 20 years and some of these agreements still have 15 or more years to run.

Summary of Assessment

This Section summarises in a tabular form the results of the assessment of each of the seven NOCs. We have created a table for each of the criteria identified.

Each Table has the following structure:

- The seven NOCs have been arranged horizontally along the top row of the table;
- The second row contains a short description of the characteristics of each NOCs, for the specific criterion;
- The third row contains a summary of the key strategic issues and common themes which apply to all NOCs;

The fourth row contains "lessons learned" from the experience of the NOCs, highlighting advantages and disadvantages of each regime.

1.8 Inter-Governmental Relationships and "Separation of Powers"

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ The Supreme Petroleum Council has responsibility for the oil and gas sector. § The Ministry of Energy is responsible for overseeing all components of the energy sector and for proposing policy. It manages the government's ownership of KPC. § KPC's responsibilities have been separated from those of the Ministry. § The constitution prohibits granting natural resource rights to foreign entities.	§ The Supreme Energy Council supervises domestic energy sector policy. § NIOC's General Assembly is chaired by the President of Iran, while the Minister of Petroleum chairs the Board of NIOC. § There is no separation of powers between NIOC as an oil company and as the custodian of the nation's hydrocarbon resources. § The constitution prohibits granting natural resource rights to foreign entities.	§ The Ministry of Energy and Mines represents the state in all petroleum matters, sets policy, oversees PdVSA's business plans and issues licences and permits. § The government owns PdVSA, and regulates and supervises its activities. § PdVSA operates as a commercial entity, but is its also responsible for coordinating, monitoring and controlling petroleum operations in Venezuela. It approves investor plans.	§ Petronas is directly controlled by the Prime Minister's Office and its Board of Directors reports to the Prime Minister. § Petronas is responsible for issuing licences to foreign companies to invest in the sector and they must enter into a PSA or joint venture agreement. Petronas is also responsible for approving investors' plans. § There is no distinct separation of powers, with Petronas.	§ Saudi Aramco reports to the government through the Supreme Council for Petroleum and Mineral Affairs (SCPM), which is chaired by the King. The SCPM provides policy direction for Saudi Aramco and monitors its activities. § The Ministry of Petroleum and Mineral Resources is responsible for executing oil policy and it also monitors activity in the sector. § Saudi Aramco has a monopoly on exploration, development and production in the Kingdom.	§ Pertamina, is responsible for just under 10% of total crude production. The company has recently been restructured and its legal status changed to a limited liability state-owned . § Pertamina has surrendered its role as the implementing entity for PSCs to a new upstream agency, BP Migas. This new agency is responsible for monitoring implementation and compliance with existing PSCs and advises the government on future terms and exploration blocks.	§ *SOCAR is being restructured, as a result of which the current division of responsibilities is likely to change.* § The Ministry of Fuel and Energy oversees the activities of SOCAR and other companies in the sector, There does not appear to be a published set of objectives and it is unclear where responsibilities lie between SOCAR and the Ministry. § SOCAR both represents the government and acts as a commercial enterprise.
In the past there has been little separation of power between Ministries and NOCs. This is slowly changing, and, in many instances, the implications of these changes have yet to be seen. The importance of the oil sector within these economies and the stage of their development at the time that oil was first discovered has meant that the NOCs have inevitably assumed (and have been given) a greater role than that of just a commercial entity responsible for exploiting hydrocarbon resources.						
LESSONS LEARNED § Constitutional requirements that hydrocarbon reserves must remain in national ownership have meant that governments have been able to maintain full control over the country's natural resources. However, this may have discouraged participation in the sector by IOCs as they have no rights over the oil produced. § A single NOC responsible for all aspects of the sector has facilitated the implementation of government oil policy § Governments have been able to use the NOC as a tool to achieve wider socio-economic policy objectives, such as economic diversification and raising educational levels of the national population. However, these non-core obligations have imposed costs upon the NOC and may have diluted the incentive to maximise profits. § A single holding state-owned company responsible for the sector can facilitate planning and implementation of petroleum policy, enables control of country's main source of export revenue, allows development of integrated hydrocarbon infrastructure and enhance a government's relationship with OPEC. § Lack of separation of powers may discourage IOCs, by dealing with the NOC both as a regulator and as an oil company. This can also impose an additional level of oversight upon the IOC. § Ministry responsibility for oil policy can ensure protection of the state's interests. Ministerial approval of an NOC's business plans can ensure alignment between the NOC and the government.						

1.9 Regulatory Principles and Practices

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ There is no oil and gas regulator in Kuwait and all elements of the sector, apart from a number of petrol stations, are under the direct control of KPC.	§ The Ministry of Petroleum retains full control of all hydrocarbon activities, with key policy decisions approved by the Majlis.	§ The Ministry of Energy and Mines has primary responsibility for regulating activity in the sector. § A Ministry agency, ENAGAS, is the natural gas Regulator. § A number of other Ministries (including the Ministries of Labour and Transport) can also regulate elements of the activities of sector participants.	§ There is no regulatory oversight of Petronas' activities in the upstream petroleum sector, apart from its requirement to report to the Prime Minister. § The Ministries of Domestic Trade and of Energy oversee the downstream petroleum sector. § Gas regulation comes under the remit of the Energy Commission.	§ There is no oil and gas regulator in Saudi Arabia. § Current plans to restructure the sector and allow foreign investment into upstream gas may require the establishment of a more formal regulatory framework.	§ Pertamina is subject to the same legal and regulatory regime as any other production sharing contractor in the country.	§ SOCAR is currently self-regulating. However, the government is committed to restructuring the sector and regulatory oversight is expected to be transferred to the Ministry of Fuel and Energy.

The application of internationally accepted regulatory principles (as understood within an free market economic structure) has been very uneven across the NOCs.
In those countries where there has been less need for foreign investment, the lack of a separation of powers, or a precise definition of where responsibility lies, is not considered to have been a significant problem.

LESSONS LEARNED

- § It is very difficult to tell whether the lack of separation of powers has had an adverse effect on efficiency or has led to sub-optimal investment decisions. However, it is difficult to provide the incentive to efficiency.
- § The absence of a clear regulatory framework may result in a propensity to subjective decision-making, without any oversight. This is a potential risk to a project's rate of return and it could therefore discourage investment.
- § Potential conflicts on interest can emerge from a close relationship between the Ministry and the NOC, in particular if the Minister is also the Chairman of the NOC.
- § The dispersion of regulatory responsibility between a number of Ministries creates the potential for delays in the approval process. Control of the sector by a single NOC can result in rapid decision making by sector experts.
- § The absence of separate regulatory oversight of an NOC raises the risk that the achievement long-term strategic objectives will be sacrificed in favour of short-term goals, to the possible disadvantage of the nation as a whole.

1.10 Organizational Structure

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ KPC acts as an umbrella organisation, controlling all of the state's interests in the sector.	§ NIOC acts as a holding company controlling a large number of operating subsidiaries. § Policy is set by NIOC and implemented by the operating subsidiaries.	§ PdVSA remains wholly state-owned and has a functional organisation structure. § Operational functions (such as E&P) are carried out by a combination of PdVSA and its subsidiaries. § Corporate functions remain the responsibility of PdVSA.	§ Petronas has a functional organisation structure.	§ Saudi Aramco is divided into a number of key functional business areas, all of which are represented at corporate management level.	§ Pertamina's upstream organization is functional and currently consists of an Exploration and Production Directorate with regional branches.	§ SOCAR is currently organised along functional lines. § However, as part of the government's commitment to restructuring the sector, SOCAR is expected to be converted to a holding company, with independent subsidiaries. § This is aimed at improving financial transparency and discipline.
The NOCs tend to be organised along functional lines. They tend to be structured as holding companies, with the centre responsible for corporate wide activities, and with a large number of operational subsidiary companies that are responsible for activities within specific sub-sectors.						
LESSONS LEARNED § The incentive to efficiency may be absent in a fully vertically integrated NOC and, without the separation of accounts, it is difficult to determine the profitability of the various operating parts of the organisation. It is therefore difficult to determine if such a structure has resulted in sub-optimal performance and inefficiencies. § A functional organisation structure may imply the need to deal with numerous departments, result in a lengthy and laborious decision-making process and discourage external investment in the sector. § A functional structure enables an NOC to maximise use of limited technical capacity. § A fully vertically integrated NOC may result in enhanced co-ordination of activities within the sector and closer alignment of objectives of government and the NOC. § Some governments have used NOCs as a tool to achieve wider policy objectives. Although this may be beneficial to the nation as a whole (in that the overall costs of achieving the policy objective can be minimised), additional costs and non-core responsibilities are imposed upon the NOC. However, this may cause decisions on the utilisation of the company's resources to be made for political as opposed to economic reasons						

1.11 Governance and Business Policies

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ No publicly available information was found on KPC's policy towards good governance. § However, "honest, integrity and transparency" are among as the company's stated key values.	§ No publicly available information was found on NIOC's policy towards good governance. § The Majlis and Ministry of Energy are responsible for investigating allegations of fraud or corruption in the sector.	§ PdVSA has instituted a code of ethical conduct for all corporate activities. § The process for contract awards is transparent and can be subject to wider government scrutiny.	§ Government legislation provides the framework for corporate governance. § Petronas is committed to acting in an ethical manner.	§ Saudi Aramco is committed to "a high standard of ethics and fairness".	§ The company's mission statement makes significant concessions to the desire for transparency. § There is some effort to recruit an executive staff with more of a grounding in private business matters. The outcome of this effort is not yet clear.	§ SOCAR is reported to operate according to local business practises. § We have been unable to locate any public statement of practice of good governance or ethical business policies. § However, international standards are being introduced by the involvement of foreign companies in joint ventures in the sector.
All the NOCs seem to recognise the importance of good business practice, in particular from the point of view of providing comfort to investors. However, the performance of the NOCs in publicly stating their commitment to good governance has been very variable. The implementation of good governance has also varied considerably among the NOCs.						
LESSONS LEARNED § Transparency in the process of awarding contracts helps to ensure ethical conduct in all third party dealings. This can be reinforced by external audit. § The requirement for a parliament to approve licenses can provide greater transparency to the approval process and more stability to contracts. However, it is potentially a source of delays and may be subject to political influence. § The direct negotiation of contracts can provide for considerable flexibility and speed in decision-making. However, the absence of competition may not result in achievement of the best value for money from the point of view of the state and it may create high entrance barriers to new players. § An NOC's stated commitment to good governance can set a good example for the domestic business community as a whole. It can also provides confidence to investors and foreign partners. § The absence of a stated policy and willingness to enforce that policy can increase the risk that less ethical and less efficient companies win contracts.						

1.12 Senior Management

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ The Minister of Energy is the Chairman of the Board of KPC. § Other Board members are from senior government or oil sector positions. § Senior management is promoted from within the company.	§ The Minister of Petroleum is the Chairman of the Board. § Board members are all executive directors and are appointed by Minister. § Senior management is promoted from within the NIOC group or other oil industry companies.	§ The CEO of PdVSA is President of the Board. Half the Board is appointed from within PdVSA; other members represent key economic sectors. § Senior management is appointed from within the company.	§ The President of the Board reports to the Prime Minister's Office. § The government appoints the Board of Petronas, but the method of its appointment may make it open to political interference. § Senior management is appointed from within the company.	§ There is a very close relationship between the Minister of Petroleum and Mineral Resources and Saudi Aramco. § Members of the Board are appointed by Royal Decree and are long-term employees of the company. § Senior management is appointed from within the company.	§ Senior management is appointed by the President Director and approved by the Board of Commissioners.	§ The President of SOCAR is appointed by Presidential Decree, as are all members of the Board. The Minister of Fuel and Energy is also a member of the Board. § Members of the Board are not necessarily from within SOCAR nor do they necessarily have oil industry experience. § Senior management is appointed from within the company.

The Boards of NOCs are generally dominated by oil industry personnel, although they do include non-oil industry members (usually senior government members, representing key economic sectors).

Senior Management is generally appointed by the Government from within the national oil company.

LESSONS LEARNED

§ High levels of expertise are established at the top of the NOC;
§ Management has detailed knowledge of and expertise in the sector;
§ The nation's resources are under the control of very experienced hands;
§ The company may be slow to react to changing market conditions;
§ Innovation may be stifled;
§ Non oil sector members of an NOC's Board may improve scrutiny of the NOC's activities.
§ There is the danger of political influence over decision-making;
§ Investors receive considerable comfort from dealing with a very experienced operator in the sector;
§ May be difficult for IOCs to establish relations with the NOC.

1.13 External Relations and upstream contracts

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ Operating Services (OSA) are only contractual arrangements presently available to foreign entities. § National Assembly opposed to opening up of upstream to foreign entities. § Government keen to reform foreign participation law and on-going discussions with National Assembly to open-up.	§ Buy-back regime is the currently accepted contractual arrangement for foreign participation in upstream activities. § Recent adjustment of law to attract foreign participation in high-risk areas. § First time bidders allowed to have automatic access to development after exploration phase	§ Two contractual arrangements: Upstream licences and Risk Service Contracts. § For licenses, foreign investors have title to hydrocarbons produced. In risk service contracts PdVSA has title to hydrocarbons produced.	§ Production sharing agreements (PSA) have been used since formation of Petronas in 1974.	§ Upstream oil and gas segment mostly not open to foreign participation. § Joint $2 billion Exploration and Production project with Shell and Total.	§ Pertamina, stripped of its governmental and regulatory functions, has little cash with which to invest in upstream operations. § As such, the company hopes to engage in joint venture activity and joint operational agreements, using its extensive block holdings as an enticement. § At the present time the PSC is the dominant contract form.	§ Foreign participation actively present in Azerbaijan's upstream sector. § Production Sharing Agreement (PSA) is the adopted contractual arrangement. § In recent years, SOCAR's share in PSAs has increased.
Upstream contractual arrangements vary from one country to another from very restrictive (Kuwait and Saudi Arabia) to active foreign participation (Venezuela, Malaysia and Azerbaijan). Where foreign participation is limited or restricted, governments and NOC senior managements are keen to open up because of lack of capital and/or foreign technology, but political opposition (parliament or and/others) remains an obstacle difficult to tackle.						
LESSONS LEARNED § Lack of opening up of upstream sector to foreign participation is expected to have a significant impact on country's hydrocarbon output, finances and access to latest technologies. It should be noted that some of the NOCs are in a much better financial position to acquire latest technology and management expertise than others. § Foreign participation in upstream activities has resulted in a rapid expansion of the country's oil and gas output, significantly limited the government's financial exposure and enabled the allocation of funds towards socio-economic infrastructure projects. § In Iran, buy-back contracts have not been very successful. Foreign participants' criticisms of this arrangement include: "contracts too rigid; allowed fixed rates of return limited in relation to risk taken; too restrictive with regard to performance penalties and lack of rewards when exceeding targets". This has led to significant delays in projects, especially in the gas sector (Iran's current emphasis).						

1.14 Oil and Gas Depletion Planning

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ KPC aims to compensate for crude oil produced by adding proved reserves equal to average production of the previous three years. KPC follows good reservoir management practices.	§ No stated depletion policy, but clearly stated objective of production capacity increase.	§ The Ministry of Energy and Mines approves all depletion plans. § PdVSA also approves depletion plans for foreign operated assets. § ENAGAS formulates the national gas strategy; PdVSA formulates the national petroleum strategy – both are implemented by PdVSA and foreign investors.	§ Annual oil and gas production is restricted to a certain proportion of a field's reserves in order to safeguard depleting the nation's oil and gas reserves.	§ Saudi Aramco's aims to replace annual crude oil production with new reserves.	§ Policy for oil and gas exploration /exploitation and depletion is the province of the Ministry of Mines and Energy. § Various contractors have input into the process, suggesting seismic and other pre-appraisal activities.	§ No publicly available information found.
Where defined, depletion planning closely involves the NOC, which has a key role in implementing the policy.						

LESSONS LEARNED

- § NOC involvement means that the most experienced technical expertise is involved in the planning process.
- § Ministerial approval of depletion plans can ensure protection of the national interest. It also allows wider government policy objectives to be taken into account.
- § The absence of a depletion plan can result in a lack of direction for the sector and may create uncertainty.
- § A restrictive depletion policy could have a negative impact on IOCs' development plans.
- § Linkage of government economic development planning with export revenue targets can influence depletion policy.
- § Elements of depletion plans (such as maintaining a minimum level of spare production capacity) may impose uneconomic costs upon the NOC.
- § The involvement of an NOC in regulating the exploitation of a nation's resources may conflict with its role as a commercial entity and decisions may not be made from the point of view of the optimal long-term interests of the nation.
- § Possible conflict of interest may emerge if an NOC is an investor and it is also required to ensure compliance with depletion policies.

1.15 Oil and Gas Revenue Accounting

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ Financial statements are produced, although there were not found in the public domain.	§ NIOC publishes consolidated financial statements, using Iranian accounting standards.	§ Annual revenues are accounted for and audited by the Central Bank. § PdVSA publishes consolidated financial statements and its submissions to the US Securities and Exchange Commission (SEC).	§ Petronas publishes summary consolidated financial statements.	§ Saudi Aramco's accounts are audited. § Although they were not found in the public domain, they are approved by the Supreme Council for Petroleum and Minerals.	§ Pertamina is audited by the Government of Indonesia's Financial and Development Supervisory Board (BPKP), the government auditors. § Making Pertamina's upstream accounts subject to the same accounting standards as those of the PSCs will improve accuracy and transparency.	§ The sector is being restructured in an attempt to introduce greater fiscal transparency. § A State Oil Fund (SOFAZ) has been established with clear operational rules to receive, manage and accumulate oil revenues. SOCAR is adopting International Accounting Standards.
Audited accounts are produced for all the NOCs and these are generally subject to government review and approval. However, accounts are not generally in the public domain. There appears to be a general lack of separation between the accounts of the NOC and those of the State, in particular in terms of the "rent" secured from the exploitation of the nation's resources.						
LESSONS LEARNED § Publication of audited accounts provides for financial transparency and allows the NOC's performance to be monitored. The demonstration of transparency in a major state company can enhance the overall business environment. § Publication of audited accounts also provides for greater transparency to joint venture operations. § The receipt of oil and gas revenues by an entity other than the NOC can disrupt the NOC's budget and may result in delays to the funding of joint ventures. § Lack of transparency and separation of accounts can distort the government's overall budget position, with wider macroeconomic implications. § Some NOCs mitigate against possible uncertainty in the planning process resulting from lack of accounting clarity by creating ongoing investment plans. § The absence of clearly separated accounts has allowed some NOCs to fund and implement major projects of significant national interest (e.g. Saudi Arabia's Master Gas System). § Absence of accounts confuses tax liability calculations (with government budgetary implications) and does not allow the NOC's performance to be monitored.						

1.16 Gas and Petroleum Product Pricing Policies

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ Petroleum product and gas prices are set by the government and are heavily subsidised.	§ Petroleum product and gas prices are set by the Ministry of Petroleum after approval by the Majlis and are heavily subsidised. § Subsidies have a significant impact on the government's budget.	§ The Ministry of Energy and Mines controls domestic oil and gas prices. § Prices are subsidised and preference is given to the residential and local industrial (especially petrochemical) sectors.	§ Domestic petroleum product prices are set by the government and are low by international and regional standards. § The government sets gas prices for the power sector; prices for other sectors are market-related.	§ Prices are set by the government and are subsidised.	§ Pricing of crude oil is done using a reference price (Indonesia Crude Price or ICP) that is calculated as a market basket of various regional crudes. § This calculation is now in the hands of the upstream implementation body. § Pricing of domestic refined products has moved toward market levels in recent years, largely due to the intervention of the IMF and World Bank.	§ Domestic energy prices are being raised to world market prices as part of the government's wider economic reform programme.

In these resource-rich countries, energy prices are generally set by the government and are subsidised. Apart from Azerbaijan (where the sector is currently being restructured), domestic prices are set at below economic market rates.
The management of all NOCs and relevant government agencies (including Ministries of Petroleum or Energy) have a full understanding of the potential negative impact of price subsidies (such as the sub-optimal allocation of resources within the economy). However, it is unofficially acknowledged that this is a politically sensitive issue.
Where implemented, the removal or reduction in the level of subsidies has taken place in a gradual fashion and has been accompanied by a commitment to provide a social safety net.

LESSONS LEARNED

- § Subsidised prices can kick-start industrial development.
- § Subsidised prices provide ongoing protection to local industry, but reduce the incentive for efficiency and industries may not be internationally competitive.
- § Consumers benefit directly from the country's natural resources, but those who benefit are those who consume oil products rather than the population as a whole.
- § Lack of accounting clarity over the provision of price subsidies can distort a government's true financial position.
- § A return on assets dictated by the government set price may act as a disincentive to new investment.
- § Low prices act as a disincentive to maintaining the existing capital stock, which may deteriorate and cause disruption to supplies.

1.17 Gas and Petroleum Product Marketing

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ KPC has traders in Kuwait and also utilize field offices in Houston, London, Singapore and Tokyo.	§ Data not available	§ PdVSA sells crude oil, LPG and refined products to international markets through its Trading and Supply division § In the 1980's, PdVSA acquired overseas retail networks, storage & terminal facilities, and refineries to sustain and/or increase market share in key markets. § To supply this international system, PdVSA swaps oil supplies and buys spot market crudes.	§ Petronas has traders in Kuala Lumpur	§ Saudi Aramco has traders in the Kingdom and also utilizes field offices in New York, London, Singapore and Tokyo	§ Pertamina sells its share of crude in international markets. § Pertamina is the marketing agent for all LNG. § Pertamina buys and sells refined products.	§ SOCAR uses international tender solicitations to sell export crude.
NOCs use a variety of sales techniques externally to support the overall financial soundness of the company. Domestic refined product sales generally lose money. Only recently has domestic gas begun to fetch prices that make supply nearly economic.						
LESSONS LEARNED § An internationalization strategy can effectively help sustain market share, especially when a country has difficult-to-market crude oils. § An internal Trading and Supply organization helps guarantee critical knowledge sharing of international markets and is easier to control and audit. § The use of external traders can provide short-term relief, but frequently leads to second-guessing and transparency issues.						

1.18 Funding Principles and Practices

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ KPC's funding principles and practices are unclear, but no indication of external debt suggests that funding comes from retained earnings. § There is no perceived financial pressure on the part of the National Assembly to involve foreign companies, but KPC stresses the urgent need for foreign capital and technology.	§ The NIOC budget is prepared by its Board and submitted for approval by the NIOC General Assembly. § The Management and Planning Organization (MPO) verifies the budget's compliance with the relevant five-year development plan. § MPO approval results in the release of funds.	§ The Ministry of Energy and Mines approves PdVSA's budget. § Internal PdVSA departments monitor and audit all expenditures.	§ Business activities are funded from a combination of cash flow and debt, as well as the issuance of notes. § Policy is to keep a debt total assets ratio of about 30 percent.	§ Saudi Aramco's funding principles and practices are unclear, although it has tapped international capital markets. § It is only now coming under financial pressure to involve foreign companies in upstream gas development.	§ Funding for Pertamina was derived from its fees from upstream production and gas liquefaction. § Downstream losses were made up directly by the Ministry of Finance. § Large investments were financed by the government or by private investors § After restructuring, it is expected that Pertamina will make extensive use of joint ventures and partnerships to provide funding for new activities.	§ Restructuring of the sector is expected to result in the transfer of the receipt of oil revenues to the State Oil Fund, with the Treasury controlling expenditure. § This will provide greater transparency and improve SOCAR's financial accountability. § SOCAR receives funding from IFIs and MLAs.
In general, there is a lack of clarity and transparency over funding principles and practices.						
LESSONS LEARNED § Ministerial approval of an NOC's budget gives the government more control over the operations of the company. § Lack of Ministerial involvement may result in insufficient oversight of the use of the nation's resources. § Separation of organisations responsible for approving budgets and for allocating expenditures may delay the provision of funds for an NOC's joint-venture operations. § Optimum capital structures usually involve some debt – it is not clear if these NOCs follow this principle. § The absence of explicit pressure to earn a return on the investment made by the NOC may result in an inefficient allocation of resources. § Central role of the NOC within an economy has been a mixed blessing in terms of access to finance. Some NOCs have been able to secure very competitively priced finance while others have been adversely affected by the nation's economic performance and have had to revert to using joint ventures to secure better terms.						

1.19 Financial Policies

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ The draft budget for each financial year is prepared and presented to the KPC Board, which then passes it on to the SPC, the Ministry of Energy, the Ministry of Finance, then to the Budgetary Committee of the National Assembly, and then to Parliament itself. § No publicly available information found on accounting standards or the remuneration of the Board.	§ Financial statements are audited to local standards and approved by NIOC's General Assembly. § No publicly available information found on the remuneration of the Board.	§ PdVSA uses US GAAP and International GAAP for accounting and auditing purposes. PdVSA also files Form 20-F with the United States Securities and Exchange Commission. § No publicly available information found on the remuneration of the Board.	§ Audited financial accounts are published each year. No publicly available information found on the remuneration of the Board.	§ The Supreme Council for Petroleum and Minerals approves Saudi Aramco's audited accounts. § No publicly available information found on the accounts, the accounting conventions adopted by the company or the remuneration of the Board.	§ With new legal arrangements, Pertamina, will be forced to issue the same financial statements as other SOEs in Indonesia. § In particular, this means, Audit by the government auditors, (BPKP); and management control through a board of directors, appointed, by the Ministry of State Enterprises.	§ The government is committed to introducing International Accounting Standards to all state enterprises, including SOCAR. § No publicly available information found on the accounts or the remuneration of the Board.
A very limited amount of information is publicly available on the NOCs' financial accounts and how the companies' budgets are developed. However, all companies' accounts are subject to higher scrutiny. A limited amount of information was found on accounting standards – a combination of local and international standards have been adopted. No publicly available information found on the remuneration of the NOCs' Boards.						
LESSONS LEARNED § In some instances, the time taken between budget proposal and its approval can mean that investment plans can become out of date. § A close relationship between an NOC and its Ministry of Finance allows for a close alignment of its financial policies with those of the government. § The use of International Accounting Standards and publication of accounts increases transparency and can provide an NOC with greater credibility in the international financial community. § An NOC's use of International Accounting Standards can provide closer alignment with joint venture partners. § A close but opaque relationship between an NOC and its government can raise concerns about the NOC's finances if the government's overall financial position is perceived to be or is under pressure.						

1.20 HSE Policies

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ KPC and its subsidiary companies have an active and integrated HSE Programme. § Its policy is to comply with local standards and to pursue the most appropriate international standards to ensure that KPC becomes a regional leader in HSE performance.	§ NIOC has a central Safety, Fire Fighting, Hygiene and Environment Department and all of its operating companies have HSE units.	§ PdVSA has a strong HSE function that monitors all operational activities for compliance with Venezuela's environmental laws. § PdVSA calibrates its HSE performance against international norms.	§ HSE has a high profile within the Petronas organisation. HSE Management Systems are in place for all of the company's operating divisions.	§ The Loss Prevention Department works to ensure the safety of employees, the public and company assets.	§ Pertamina has made progress over the past few years by honoring the same types of HSE standards that its PSCs all adhere to. § Most of the company's efforts in HSE have gone into processing and refining for LNG, LPG and refined oil products.	§ SOCAR is known to have an HSE Department, but no publicly available information was found detailing its HSE policies.
All of the NOCs have HSE Departments and are keen to publicise their commitment to sound HSE practice. However, the definition and perceived implementation of HSE policies is variable across the NOCs.						
LESSONS LEARNED § Government oversight of the implementation of HSE policies provides greater transparency to the process and can raise standards. However, such oversight is a potential source of project delays. § The implementation of sound environmental protection policies by an NOC can set an example for other state industries and benefit the nation as a whole. § The adoption of and adherence to sound national policies raises credibility with NGOs.						

1.21 Employment and Remuneration Policies

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ New Board instruction to calibrate the grade structure and to activate new salary, allowances and benefit structure for all employees. § Annual performance appraisals linked to bonuses and salary increases.	§ NIOC is one of the largest public sector employers in Iran, but no publicly available information was found detailing its employment and remuneration policies.	§ PdVSA employees receive salaries above those of public sector employees and benefit from the base line policies and benefits established for public sector employees. § PdVSA aims to maintain salaries above the 75 percent percentile of all Venezuelan private companies.	§ Some information is available on the content of employees' remuneration and benefits packages.	§ Saudi Aramco employees are considered to be among the best paid in the Kingdom. § No information found on employment and remuneration policies.	§ Pertamina employees previously enjoyed a pay status that was separate from and higher than the prevailing norms for state enterprises in Indonesia. § With the company's change in status pay scales have reverted to state enterprise standards.	§ Employment and remuneration policies are not thought to have changed since before independence. § Under these, there is a "grade system" that applies to all State workers and which sets their salary and benefits.
All NOCs are perceived to give preference to national employees. All NOCs are committed to enhancing employees' skill and tend to allocate substantial resources to training. NOC employees are among a country's best-paid employees.						
LESSONS LEARNED § Employment and remuneration policies have encouraged the growth of a professional middle class. However, these may have caused NOC and public sector salary levels to diverge significantly. § Liberal hiring policies have led to higher employment and, with a constrained ability to cut employees, has provided greater job stability to workers. However, this may have caused labour market rigidities to develop. § Restrictions on expatriate staffing levels result in a greater number of employment opportunities for citizens and greater integration by investors with the local community. § High salaries offered by an NOC may create the expectation of higher wages throughout the sector. § An NOC's commitment to developing, upgrading and enhancing the technical skills and competencies of employees will result in the enhancement of the nation's labour resources. § Joint ventures have proved to be a good vehicle for technology and skills transfer.						

1.22 Quality Assurance

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ A number of KPC's subsidiaries have been accredited to ISO 9000 or ISO 14000.	§ NIOC subsidiaries are reported to implement ISO standards in their dealings with IOCs. § No publicly available information was found on whether they have been accredited to ISO 9000 or ISO 14000.	§ PdVSA complies with ISO 9000 and ISO 14000 quality standards.	§ Petronas places considerable emphasis on QA and is currently implementing a company-wide QA programme. § Some Petronas subsidiaries have secured ISO 14000 accreditation.	§ Vela International Marine Limited, a Saudi Aramco subsidiary, has earned ISO 9002 accreditation. § No publicly available information was found on whether other parts of Saudi Aramco have been accredited.	§ Pertamina has just recently instituted a QA program that is intended to bring the company into compliance with international standards by the end of the decade. § At the present time the company still sell products that are below international quality standards as well as current commercial quality standards in the region.	§ No publicly available information was found on whether SOCAR has been accredited to ISO 9000 or ISO 14000.
Limited publicly available information was found on whether NOCs or their subsidiaries have been accredited to ISO 9000 or ISO 14000.						
LESSONS LEARNED § The imposition of formal QA systems and standards on an NOC's suppliers can be at a considerable cost, both to the NOC and its suppliers. § Compliance with QA standards can provide greater protection to employees and installations. § Compliance with QA standards can improve the alignment between an NOC and investors, can provide some comfort to investors and can provide greater credibility with NGOs. § QA is crucial for certification and the need to define international insurable standards for future FDI						

1.23 Commitment to Technology and R&D

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ KPC's aims to use the latest technologies throughout its businesses, develop skills and expertise to use these technologies, and to strengthen relations with local research institutes and organisations.	§ NIOC has a central department for Research and Development and a board director in charge of R&D. Policy statements also stress the company's commitment to technology and R&D. § NIOC has an established Oil Industry Research Centre and an Oil Industry University.	§ PdVSA has established a subsidiary specifically to support R&D across the whole organisation.	§ Petronas has established several subsidiaries that are dedicated to providing high quality research activities and business advancement services with new technologies across the organisation. § It has a defined Technology Policy.	§ Saudi Aramco has shown a strong commitment to R&D, becoming a world leader in certain elements of oil and gas sector technology. § It has developed industry-specific modelling tools, is investing in a major new R&D Centre and has established an Intellectual Asset Management Group to protect its intellectual property.	§ The company's research and development center currently has projects ongoing in the following areas: § Catalyst § Product Development § Process § Advanced Material § Testing Method § These activities are primarily applications and most new technology is obtained from foreign vendors through licensing arrangements.	§ No publicly available information was found on SOCAR's policy towards technology and R&D.
The NOCs generally have a strong commitment to R&D and appear to be prepared to allocate significant resources to those activities. Some have established research centres, universities or higher education institutes for oil related research.						

LESSONS LEARNED

- § Investment in R&D activities can help to build up the intellectual capital of the state and the NOC, promote the development of local talent and provide a local resource at competitive prices. It can also provide support to local universities.
- § The desire to continue using state-of-the-art technology helps to maintain industry competitiveness and provides better alignment with investors.
- § Care needs to be taken to ensure that the investment in R&D is providing a satisfactory return in the long term.
- § NOCs can become considered potential joint venture partners in technology developments.
- § An NOC's commitment to using the latest technologies can provide future opportunities for licensors in the sector.
- § A perceived lack of commitment to R&D can imply dependence on foreign expertise, potentially increasing costs. However, if local design institutes are small and under funded, a requirement to use them becomes a "tax" on projects.

1.24 Procurement

Kuwait Petroleum Company	National Iranian Oil Company	PdVSA	Petronas	Saudi Aramco	Pertamina	SOCAR
§ Some of KPC's subsidiaries publicly announce their tenders. But we cannot confirm that it is done for all tenders. § International bidders have to be registered with the Kuwait Chamber of Commerce in partnership with a Kuwaiti company or agent (except for upstream contracts). § Restrictions apply for imports of foreign labour for short-term contracts.	§ NIOC has a special subsidiary for manufacturing support and procurement with international offices and affiliated companies in key locations. § NIOC has an online tender announcement section. However, we are unable to confirm that all tenders are publicly announced.	§ Tenders must be publicly announced. § Ministry of Energy & Mines can directly award licenses, service contracts and permits if deemed in the national interest.	§ Petronas follows procurement guidelines and procedures of Ministry of Finance. § Some tenders are restricted to Malaysian bidders while others are open to international bidders. Malaysian bidders are extended preferences.	§ All bidders need to be registered with Saudi Aramco. Information on Contract Policies and Procedures available. § Lump sum contracting is Saudi Aramco's preferred contract form "when it can be properly used".	§ In its former status Pertamina had been able to use procurement standards that were close to those commonly used by IOCs. § Now the company must use Government of Indonesia procurement and contract standards, which permit almost no discretion on the part of mid-level Pertamina managers. § Virtually all purchases must be made either from Government sources or via open bids.	§ No publicly available information on procurement procedures.
Information on procurement procedures and practices is limited for the considered set of NOCs and it is not clear that all the tenders are publicly announced. In some cases preferences are given to local bidders						
LESSONS LEARNED § Publicly announced tenders enable a large number of bidders to participate and improve competitive bidding process. But, pre-qualification stage is crucial to the effectiveness of the process. Issue of qualified local bidders. § Complicated/long pre-qualification and bidding procedures and in some cases, local participant requirements are reported as key problems by foreign bidders. Where qualified local skills/services are available, procurement procedures improve local content element with obvious benefits to the national economy. But, where this condition is not met, the local content becomes a cost burden for international bidders.						

Section 2¾ International Good Governance and the Rule of Law

In assessing best practices for the management of good governance within the global oil sector, it is important to recognize that not all governance issues carry equal weight within the current Iraqi context; there is a significant difference between fundamental issues and other, more routine, operational issues. Nevertheless, good governance is good business. Fundamental issues, by their very nature need to be addressed immediately, even during the immediate "Rehabilitation" period, when economic and political stability, and security, have not yet been restored and oil production remains below historic levels. Once these challenges are met, a "Transition" period will follow, enabling key follow-on issues to be addressed, which in turn will set the groundwork for the creation of a fully-fledged Iraqi oil policy framework in the longer-term ("Transformation"). This "three phase" options approach is further explored in Section 4 of this report, where the relative importance, impact and timing of the individual best practices identified below are described in more detail.

The broader focus of the Evian anticorruption and transparency declaration is appropriate in all three phases, since it focuses on host government policies, structures, and processes in the areas of budget, procurement, and concession letting transparency (as well as oil company/NOC payments disclosure to the host government). This focus on public financial management and accountability extends to budget expenditures as well as revenues, because accountability and transparency are both at the heart of good governance, responsible resource allocation and sustainability.

In identifying best practices in governance and the rule of law, seven key areas were addressed:

- Business ethics and anti-corruption policies.
- Investment and fiscal policies, political oversight and checks and balances.
- Accounting, safety, and environmental policies.
- Contracts and procurement.
- Quality assurance.
- Remuneration and training.
- State Oil funds.

In keeping with the aims of the TOR for this study, the elements of a realistic Code of Conduct that could be adopted under a petroleum regime for Iraq may be found in Appendix 8.

2.1 Business Ethics and Anti-Corruption Policies

Formal adoption, and implementation, of modern business ethics and anti-corruption policies by the Board of Directors of any potential Iraqi oil and gas entity (OGE) is essential. Such policies should be applicable to every employee with no exceptions. Expecting all directors, officers and employees to observe the high standards of integrity in the conduct of their business is fundamental to both the long- and short-term success of the Iraqi oil sector.

This said any expectation that the adoption of policies alone will automatically translate into employee conduct that reflects those policies is probably unrealistic. Indeed, excessive emphasis on policies can lead to cynicism, both within and outside the organization. Strong organizational leadership, and fundamental changes in the business and political environment will be required before workers can begin to understand the meaning of, and see the value in business ethics and

anti-corruption policies. The difficulty in rooting out corruption once it is embedded also supports moving ahead with these best practices immediately.

As such, while it is appropriate for senior management to adopt policies for employees to follow at this time, these should be reinforced through the adoption of employee compensation, benefits, and recognition and rewards programs that provide incentives for employees to behave in the best interests of their business units and the organization as a whole.[3] Management consultants and others who have experience in effecting organizational change may be able to assist in this kind of comprehensive transformation process.

Any effective ethical and anti-corruption program needs to recognize and focus on four groups of OGE stakeholders:

- *Customers:* policies should recognize that some customers may have difficulty complying with Iraqi government orders because other laws to which they may be subject in their home countries.
- *Employees:* recognize that the exceptional quality of the team will provide a definite competitive edge if the conduct reflects strict understanding of all the laws applicable to their business.
- *Communities:* request companies whose operations involve high pressure, high temperature and other safety and environmental risks be managed by citizens of the highest integrity following strict safety rules.
- *Owners:* other governmental employees and their management will judge the reputation of the OGE by the standards they strive to maintain.

For additional data on how to communicate with these stakeholders and obtain their support for the new organization's objectives, please see Appendix 9.

Best Practices

- A definition of a ***corrupt payment*** should be defined; then under Iraqi law anyone found to be engaged in such payments would lose the right to do business and to participate in all existing contracts in Iraq without compensation for 5 years.
- Legally binding incorporation of OGE anti-corruption and ethics policies under Iraqi law Policies should be set forth in a ***written policy statement*** reviewed and approved by the Board of Directors. Key elements should include:
  - It ***does*** matter how results are achieved.
  - Offers of improper payments ***should*** be declined and reported to supervisors if they conflict with approved ethics standards.
  - Accurate reporting of transactions and record keeping is fundamental to an honest business organization.
  - Be honest with internal and external auditors.
  - Avoid conflicts between organizational and personal interests.
  - Report suspected violations to management-whistle blowing is acceptable.
- Effective communication of the policies with employees and stakeholders.
  - Conduct direct written communication on policies with ***every*** employee.

[3] It should be noted that the latter goal is very ambitious. Indeed, even the most modern organizations in developed economies often have difficulty in achieving this objective.

  - Develop an easy-to-read brochure on OGE anti-corruption and ethics policies. Make it available for distribution to all stakeholders, including contractors and others outside the OGE.
- Regular reinforcement of the policies within the organization, and their incorporation into OGE incentive structure:
  - Senior management as well as legal and human resource professionals should consistently and regularly reinforce anti-corruption and ethics policies.
  - Policy reinforcement should be supplemented by periodic ethics training for employees. This training should include real-life examples of personnel that were influenced by the application of this policy, good and bad.
  - All employees should be required to acknowledge their understanding of the policy by signing statements that re-affirm such understanding.
  - Finally, as discussed above, compensation and incentives should be oriented to reward policy-compliant behavior.

2.2 The Development of Appropriate Constitutional and FDI Laws, Fiscal Policies, and the Nature of Political Oversight and Internal Checks and Balances

Background

Transactions involving the production of oil and gas are governed primarily by the domestic law of the country in which the resources are located.[4] The following basic principles apply:

- Under customary international law, Iraq as a sovereign State, has jurisdiction over its territory, including the subsoil beneath its territory in which minerals and hydrocarbon resources are found.
- Iraq's sovereignty over its territory does not, in and of itself, determine the ownership of sub-surface resources.[5] The ownership of Iraq's hydrocarbon resources should therefore be expressed in a law ("hydrocarbon law" or "petroleum law") or, possibly in a provision of the country's constitution.
- If under Iraq's new constitution, the country is structured as a federation, with provinces, states or other separate political units that have some degree of internal self-governance, the allocation of rights over the development of natural resources between the central government and these political subdivisions should be clearly set forth a petroleum law or other legislation.

[4]For purposes of this discussion, it is assumed that all of Iraq's hydrocarbon resources are located within its territorial boundaries. Resources that extend beyond the international borders are beyond the scope of this analysis.
[5] While in virtually all countries other than the United States and Canada, valuable minerals such as oil and natural gas belong to the sovereign, this has not always been the case. Where, for example, a country once permitted private ownership of mineral rights, questions can arise as to rights that were acquired before the system of ownership changed.

Constitution

The inclusion in Iraq's constitution of provisions governing the ownership of the country's hydrocarbon resources will depend on the political structure that is ultimately selected, and the degree of autonomy accorded political subdivisions of the country[6]

- A legal basis may provide a strong framework of guiding principles, without foreclosing the possibility of adjusting the country's economic policies to accommodate changing regional or global conditions.
- Foreign investment in the hydrocarbon sector should be governed by a petroleum or foreign investment law, rather than the constitution, to provide flexibility with respect to the nature, timing and extent of that investment regardless of the current status or level of foreign participation.[7]

Foreign Investment and Hydrocarbon Laws

If foreign investment is permitted in the hydrocarbon sector, it can be accommodated by a variety of strategies and structures, ranging from privately -negotiated arrangements to competitive bidding, none of which requires that Iraq enact foreign investment or oil and gas law. However, establishing "rules of the road" that apply uniformly to all investors, and that clearly articulate the terms and conditions on which investment is permitted, can facilitate investment and reduce the opportunities for rent-seeking behavior.

Best Practices

Among the provisions that might be included in a foreign investment law are the following:

- "fair and equitable" treatment of investors[8].
- "most favored nation" treatment of investments.
- "national treatment" for investments.
- compensation for losses due to internal conflicts, terrorism or war.
- protection against expropriation or nationalization.
- right to repatriate investment and returns.
- access to international arbitration to settle investment disputes.

Best Practices

In addition to these provisions that would apply to any foreign direct investment in Iraq, a petroleum or hydrocarbon law would address the additional issues:

- roles and responsibilities of state organizations (such as ministry of petroleum) responsible for administering and regulating the hydrocarbon sector.

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[6] This will also be true of the fiscal regime, if political subdivisions of the country have a measure of control over the development of natural resources within their territories, and the right to the revenues from that development.
[7] The difficulties experienced by the Mexican government in recent years in attempting to liberalize its hydrocarbon sector would suggest that restrictions on foreign divestment investment should be left to laws and regulations, rather than constitutional provisions. While laws can usually be easily amended or repealed, a constitution is much less easily changed.
[8] See Emil M Sunley,Thomas Baunsgaard and Dominique Simard, "Revenue from the Oil and Gas Sector Issues and Country Experience" (Washington, DC: International Monetary Fund, Post Conference Draft, June 8,2002), available at http://www..worldbank.org/wbi/publicfinance/documents/taxpolicy/Sunley.pdf

- § corporate and governance structures of state-owned entities conducting oil and gas operations.
- § roles and responsibilities of sub-national political units with respect to the hydrocarbon sector.
- § types of contracts permitted for oil and gas operations.
- § foreign participation in the hydrocarbon sector.
- § taxes specifically applicable to the hydrocarbon sector, including provisions with respect to stabilization.
- § import/export rules specific to the hydrocarbon sector.
- § local content rules specific to the hydrocarbon sector.
- § environmental protection rules specific to the hydrocarbon sector.
- § investor protection principles, including rules with respect to dispute resolution(if not specified in a foreign investment law).

2.3 Fiscal policy

An efficient fiscal structure for Iraq's petroleum sector is one that will provide to the State, as owner of the country' s hydrocarbon resources, the maximum possible value without compromising the economic viability of investments. It should sustain incentives for economic efficiency in operations, reservoir management, investment and funding.

The overriding principle should be that business, commercial and governance structures are disciplined, wherever possible, by competitive commodity, procurement, and funding markets. This will require that they are independent of government revenue and borrowing.

This separation of the petroleum sector operations from government functions is especially important in the early years, when both operations are likely to require large net inflow of funds. This principle should be observed regardless of whether the ownership of the petroleum sector is national or provincial, or public or private.

- § Business activities within the petroleum sector should be divided so that commodity transactions that can be mediated by competitive markets (e.g. for crude oil and refined products) and are arms-length transactions between separate entities. Thus upstream oil and gas activities should be conducted by an Upstream Oil and Gas Organization; refining and supply activities should be conducted by an Oil Refining and Supply Organization; and domestic petroleum marketing activities should by conducted by an Oil Marketing Organization. The same principle should apply to domestic gas distribution and marketing activities: these should be conducted by separate organizations, with commodity transactions between them conducted at internationally competitive prices. The first two entities will be competing in global markets and will possess no market power and need no regulations. The domestic marketing activities may (at least initially) have monopoly franchises that require regulation by an independent regulatory agency and a transparent process. (An early investigation of the possibility of establishing a competitive wholesale electricity market with private participation may show the way to significant FDI in an acceptable market and business structure).

- The Upstream Oil and Gas Entity should be subject to resource-rent taxation after paying the usual corporate income taxes.[9] The Oil Refining and Supply Entity should be subject to usual corporate income taxes. The domestic marketing entities should also be subject to usual corporate income taxes. Domestic prices and margins, which may be regulated, should include tax costs and competitive capital recovery costs. To preserve economic incentives, any subsidy of domestic sales prices should be funded by explicit and visible payments from the government, rather than by price controls or other techniques that reduce revenues to the marketing entities.
- Each entity should be "corporatized", so that it has incentives to invest and fund its investments on conventional economic market terms. These entities should not have access to government revenues or funding other than those provided for in the tax and ownership structure.

Political Control

The enactment of laws and regulations specifying the terms and conditions on which foreign participation in the hydrocarbon sector is permitted, and the use of a "corporatized" structure for government-owned entities involved in the development and management of the country's oil and gas resources, can provide a level of transparency that will facilitate public scrutiny and accountability in the sector. If the sector is managed solely by the State, separation of the resource development activity from other government functions (such as treasury, finance, and regulatory functions) will contribute to this objective.

Checks and Balances

Development of a legal regime in the country should be applicable both to public and private sector activities, providing an institutional framework through which laws and regulations can be enforced. Such a framework can control the powers conferred upon a state-owned enterprise, as well as private-sector investors (whether domestic or foreign) that may participate in the hydrocarbon sector. In the case of state-owned enterprises, the use of a "corporatized" governance system for the enterprise that requires publication of financial and operating results audited by an independent internationally-recognized firm on a regular basis can act as a check on otherwise unrestrained corporate behavior. Opening the sector to other investment (domestic or foreign), provides an additional frame of reference against which the operations of the state-owned enterprise can be compared.

Other techniques that may be considered include:

- Appointment of directors representing other constituencies (e.g., ministries other than the oil ministry; workers organizations; local communities).
- Separation of upstream, downstream and other functions that can be mediated by competitive markets.
- Separation of upstream exploration and production functions from mineral ownership functions through creation of a separate body to represent government ownership interest.

[9] See Thomas Baunsgaard, " A Primer on Mineral Taxation" (Washington DC:International Monetary Fund, 2001), available at http://www.imf.org/external/pubs/cat/longres.cfm?sk=15320.0

2.4 Adoption of international Accounting Standards, audit practices, (external and internal) and statutory management accounting. The application of health, safety and environment (HSE) regimes appropriate to the region

Adoption of International Accounting Standards

The normal process of developing/changing an accounting system is to review the structure of the organization, the data needs and the controls. Once this review is complete, the accounting system is built, or modified, to fit both the input and output requirements.

The first issue to be settled in restructuring Iraq's hydrocarbon sector will be the fundamental business and organizational structure applicable to state participation. The identification of the standards to be used for consolidation and reporting will be a much smaller part of the process.

That said, adoption of an international accounting standard will provide transparent fiscal accountability. The benefits from this will be:

- Better confidence in the quality of financial reporting.
- A financial reporting package that will allow international lending agencies to evaluate the financial capability of state entities operating in the sector.
- A framework for efficient development of joint ventures or other strategies for production sharing if they are desired.
- Increased attractiveness for foreign investment, should the Iraqi government seek external-financing.
- A basis for comparative analysis to other industry participants.
- A basis for suppliers of goods and services to use to establish credit worthiness.
- To establish the overall level of confidence in the integrity of the sector.

If the structure of the sector is to operate as an extension of the government, then it should be managed independently of other government functions to the maximum extent possible.

Failure to do this could require the OGE to maintain two sets of financial records and this could significantly increase the accounting effort and undermine the sector's credibility and efficiency.

The adoption of International Accounting Standards will allow state-run entities to achieve transparency and financial accountability, and to begin to allow comparisons with the rest of the industry. Adoption of US GAAP will require more stringent accounting procedures, but will result in increased transparency and accountability, and facilitating collaboration with private sector firms. It should also facilitate access to international capital markets.

Audit Practices

Audits are done on process as much as on actual numbers, so it may be some time before external audits will provide meaningful results. This is of concern because the sector will have very large cash flows and this will make independent auditing of the performance of the company extremely important.

If the accounting is in compliance with an international standard, there will be a great deal of flexibility in the selection of auditors. These auditors will also be able to bring experience from other countries to the audit process in Iraq. If the accounting is done to another standard, the pool

of auditing expertise is likely to be smaller and there will be a risk that the credibility of the audits will be poor, and that readers' familiarity with the standards will be limited.

Implementation of a credible accounting system in a modern petroleum company is a complex process. The reserves in the ground are not a fixed or verifiable quantity and they do not provide a basis for measuring production or estimating oil inventory. In the oil industry, the inputs (oil) are pumped from the ground and if the controls are insufficient to accurately measure the true production at the wellhead, any losses (theft) will go undetected. In the case of Iraq, where there is an increased risk of illegal oil entering regional markets, robust systems for measuring the true level of production will be essential.

This transparent data will be beneficial not only to the managers of the organization, who will have reliable data on which to base their business decisions, but to others with whom the organization has relationships (e.g., contractors, suppliers, customers and lenders) as well as the general public.

For more information on the Key Elements of an International Oil Company's Operational Audit System, please refer to Appendix 10.

Best Practices:

- Establish fundamental organizational and governance structure for all government entities.
- Develop a clear legal framework for the ownership of assets.
- Apply international standards for consolidating and reporting.
- Develop a credible measurement and verification protocol of the oil flow at the point where production is achieved.
- Track the flow of hydrocarbons through the collection systems, and the pipelines to the point of wholesale.
- If oil is processed through domestic refineries, continue this tracking through the refinery to the point of final retail sale.

Health, Safety and Environment (HSE) Policies and Practices

Current operating practice in the petroleum industry incorporates a comprehensive Health, Safety, and Environmental/Protective program. This program reduces operating risk and provides a framework for minimizing future environmental costs.

For Iraq, the implementation of Safe Work practices in accordance with industry standards could be quickly achieved if they are not already in place. Enforcement of these practices will be a great challenge requiring a management commitment and a system of compliance monitoring. The development of appropriate safe work practices is normally the first step in developing a comprehensive HSE program. In the longer term, health issues will need to be assessed so that appropriate procedures and facilities upgrades can be made.

The environmental issues are more complex. In many cases, even though efforts are made to improve environmental programs, the actual enforcement of standards and procedures is not a priority so the improvement is limited.

The development of an appropriate environmental strategy will have to address the issue of disposal of associated gas. For most NOCs, the minimization of gas flaring has become a priority, particularly since the price of natural gas has made recovery of the gas economic. For Iraq, it is unlikely that gas recovery and marketing will expand at the same pace as the increase in oil production. The options for dealing with this surplus gas will be limited to re-injection or flaring. The flaring of additional high sulfur gas is unlikely to be acceptable in the long term.

The development of a comprehensive HSE policy will be challenging given the current state of infrastructure and the need to focus efforts on increasing the production of oil. Tradeoffs will have to be made between 1) investing in improvements in infrastructure, and 2) investing in the expansion of oil production and delivery capability.

Best Practices:

- Develop an HSE program of standards (extract from other countries in the region and modify as necessary to fit the local situation).
- Develop a process for evaluating and prioritizing HSE investments including risk analysis of existing non-complying facilities.
- Apply the new standards to all facilities where their application will not require additional investment.
- Apply the new standards to all new facilities that are being designed and installed in which HSE is a priority.
- Invest in HSE improvement in existing facilities only when the level of exposure risk is unacceptable.

This program is consistent with practices in most companies as they reconcile differences in facilities that have been built at different times and to different standards.

For more information on an example of an IOC Environmental and Safety Policy, please see Appendix 11

2.5 Contracts and Procurement

There is an extensive set of standard contracts that can be applied to most of the normal purchasing activities in the industry. These standard contracts have evolved from the experience of many companies in a variety of situations and are well understood by suppliers of both goods and services. The adaptation of these standard arrangements to the needs of a specific company or OGE is usually a straightforward process.

The challenge with purchasing systems in National Oil Companies has been to find a balance between allowing too much purchasing autonomy, which can result in corruption and waste, and creating an inefficient purchasing system by implementing so many constraints that the system cannot efficiently respond to the real needs of the organization. This can result in missed opportunities and reduced levels of production.

The practice in the region has been to establish purchasing processes that are rigid and frequently slow. The experience in KPC, for example, is that it can take as long as 6 months to get formal approval for a non-routine purchase of a few hundred thousand dollars. A larger purchase that requires approval from the government's Central Tendering Committee can take several years.

For more information on key elements of an IOC's Delegation of Authority Guide (DOAG), please refer to Appendix 12

Best practices:

- *Establish authority levels, develop budgets and give relative autonomy to middle management to approve purchases within authorities and budgets.*
  This limits the direct involvement of senior management to non-routine or very large expenditures. While this model works well, it requires a dissemination of authority that is greater than the traditional practice in the region.
- *Consider contracting out some operations and associated purchasing activities so that the contractor has the responsibility to provide the necessary goods and services.*
  This would reduce the number of purchasing decisions that must be made by the organization. It would require the development of performance-based contracts though, which could be time consuming.
- *Develop clear rules for bidding and a transparent process with timely decision making.*
  Timeliness is almost as important as transparency: some suppliers have indicated that bid prices presented to regional NOC's tend to be inflated because suppliers know that negotiations will be long and difficult. Clearly Iraq would want to establish a system that avoids this penalty.
- *Develop banking arrangements that allow routine international payment for goods and services, the issuance of Letters of Credit and other bank secured instruments.*
  Until the Iraqi banking sector becomes connected to the international financial markets, this will necessitate offshore accounts for conducting routine business
- *Utilize group purchases when appropriate.*
  Group purchasing alliances are generally beneficial to small and medium sized companies that can gain economies of scale by consolidating their purchasing. This approach is unlikely to have application to a Iraqi OGE. However, there may be benefits to "contracting out" certain types of purchasing, particularly where routine restocking of materials is involved.

2.6 Quality Assurance (QA)

The implementation of international QA standards is a relatively simple process. Most QA programs in the petroleum industry are based on standards of design and materials that evolved as the industry has matured. While the largest multinationals have their own proprietary QA standards, these standards are usually a refinement of one of the generic industry systems – the API and complementary standards in North America, ISO and associated standards in Europe, or GOCT standards in the former Soviet Union. Generally, the Middle Eastern NOC's have accepted the North American standards in their facilities although there are some differences from country to country. These NOC's have operated within this framework for many years and they have generally developed reliable and safe facilities.

The insurance industry recognizes international QA standards and uses compliance with those standards as its basis for establishing its assessments of various operating risks. A company that has well documented procedures, strict technical standards, clear lines of authority, and well documented QA programs will generally meet customary insurance industry standards. This said, the use of insurance is limited in most NOC's because many of their activities are self-insured.

Best Practices

- *Develop common QA standards throughout the entire enterprise.*
  While there will be specialized QA standards for different parts of the hydrocarbon sector, there are significant advantages to developing common standards throughout the whole enterprise: commonality of equipment will improve availability of spare parts, while standardized plant minimizes the need for specialized personnel training.
- *Conduct comprehensive audits to determine the degree of non-compliance.*
  Once standards have been established, comprehensive audits of the existing infrastructure will need to be done to determine the degree of non-compliance. These should be repeated regularly. Where non-compliance is identified, a risk assessment can be used as a basis to identify where specific problems need to be addressed. Most older facilities have a mix of standards. Non-compliance with current standards should not automatically be considered a reason to upgrade.
- *Conduct Operational Audit.*
  There are international firms that specialize in auditing facilities to compare them to similar operations. These audits provide an effective due diligence and, since they measure against international benchmarks, the audit results can be used to improve performance. Generally the firms that do these audits focus on a single area of operations at a time (for example production operations). Utilizing a variety of specialists to audit all areas of the organization is now standard practice in many companies and NOCs because it allows executives to objectively evaluate the comparative performance of their business.
- *Implement International Standards.*
  The ISO 9000 process can provide assurance that certain operations are properly documented and that there is a system of procedures compliance. The process can only be implemented after an extensive process of procedures development and personnel training and it will not have early application in the structuring of any OGE. The ISO 14000 standard is an environmental standard that can provide a process for administration of environmental compliance monitoring. The ISO 14000 standard is also bureaucratically intense and it will present challenges to the initial structuring of Iraq's petroleum industry.

2.7 Application of Remuneration, Employment and Training Policies

Remuneration Policies

The objective of a remuneration policy for state-owned oil and gas entities will be to attract and retain a highly motivated and qualified workforce. In order to accomplish this objective, the organization will need to consider and adapt procedures to assess the competitiveness of its salary programs with those of other national oil companies, particularly in the Gulf.

Best Practices

Generally, three different methods are utilized to gain this competitive assessment of salary programs:

- Direct face to face communication.
- Self-administered surveys.

- Third party administered surveys.

Other national and international oil companies utilize a mix of the above approaches depending which functional part of the organization is involved.

Direct face-to-face communications are utilized by Saudi Aramco with other national oil companies for comparison of certain key positions. They are not used for comparison of broader segments of employee groups like technicians, engineers, etc.

Self-administered surveys are designed by management but involve input from other national oil companies. No compensation is provided in return.

Third party administered surveys are utilized especially by large international oil companies. Generally, they involve an independent third party company providing consistent survey input requirements and sharing the results in a confidentially protected manner. Hay Management produces a study of local and expatriate compensation in the Gulf region.

For more information on KPC's remuneration policy, please refer to Appendix 13

Employment Policies

In addition to remuneration (and associated employee benefit plan policies), another key policy for effective long term employee motivation and retainment is the evaluation and career planning of all employees in the organization. World-class organizations generally have the following elements in their employee evaluation design:

Best Practices

- Formal, specific work objectives developed and agreed with each employee tied to the overriding vision and objectives of the organization.
- Annual performance appraisal sessions conducted by supervisors with employees at all levels of the organization.
- Career planning input, options and strategies developed by management.
- Position replacement planning developed by management.

Training Policies

Training policies are a key feature in career planning. Both managerial as well as professional and technical training programs may be utilized for the orientation of new hires as well as for the continuing development of experienced personnel.

Best Practices

Both international and national oil companies utilize a mix of training approaches that should be considered:

- In-house programs conducted at a specific training center and sometimes supported by consultants.
- External programs at major international universities.
- Placement of employees in foreign subsidiary offices or in IOC offices.
- Utilization of specialists seconded from other organizations.

Historically, the major international oil companies have offered and provided seconded opportunities to personnel from national oil companies in the Gulf. Also, IOC's are often willing to second specialists to NOC's for specified periods to assist with the development and training of local personnel.

Common NOC Practices in the Arabian Gulf

Practices	Saudi Aramco	KPC
Remuneration surveys	Saudi Aramco utilizes direct face-to-face communication and self-administered surveys to obtain remuneration data.	KPC and its subsidiaries use Hay Management to assess both local and expatriate salaries in Kuwait every 2 years.
Performance appraisals		At KPC, every employee below the CEO gets a performance appraisal every year. Every 3 years, KPC uses an outside firm to verify the process they use by which they administer appraisals and policies in line with other companies in the Gulf.
Employee training	Saudi Aramco and KPC utilize both managerial and technical training programs for the orientation of new hires as well as for the continuous development of experienced employees and managers.	
External placement	Saudi Aramco and KPC have placed employees in technical and manufacturing plants of US, European and Asian oil companies.	
Secondment	IOCs have provided specialists seconded to Saudi Arabia although this trend has declined as local Saudi's gain the necessary specialist skills required.	

2.8 State Oil Funds

Many counties have established a special fund to manage the use and disposition of revenues from their hydrocarbon sector. With the benefit of experiences elsewhere, Iraq can critically evaluate the implications of such funds in order to make an informed and appropriate decision on whether or not to implement one. The following table illustrates some of the key characteristics of the various types of fund implemented elsewhere:

Type of Fund	Where	Key Characteristics	Strengths	Weaknesses
Future Generations	Norway, Alaska Alberta Kuwait	Invested in income and growth assets outside country Oil reserves large relative to population *Managed by independent outside professionals*	Independence from current budget issues Hard to tamper with Present benefits, if dividends are paid (Alaska)	Requires strong protection & consistent governance / management Competition with current needs (Norway) Potentially attractive to international creditors
Mixed Use	Azerbaijan Kazakhstan Some elements of Norway, Canada & Alaska	Capital fund for future investments Current usage can include budget support, infrastructure and macroeconomic stabilization *Managed by Ministry of Finance or Central Bank & outside professionals*	Gives citizens a sense of participation in country's wealth Political system & operating rules can make tradeoffs between present & future needs	Weak control over current spending Potentially attractive to international creditors Capital fund insufficiently funded if production small relative to population Requires very strong macroeconomic management, plus robust operating and constitutional rules
Current Use	Mexico Ecuador Venezuela	Current usage Macroeconomic stabilization Debt buyback Infrastructure *Managed by Ministry of Finance or Central Bank*	Immediate relief of pressing problems Can be managed to minimize currency & fiscal impacts Provide financing for infrastructure when government has poor credit Preempts creditor claims on oil assets	Can create overvalued currency May adversely affect certain sectors of economy (e.g., agriculture) May create undisciplined & unsupportable spending patterns May exacerbate longer term fiscal problems, especially in terms of tax base
Transfer to Budget	Colombia Indonesia	Government share of oil revenues transferred directly to Central Bank Funds go into general government budget *Managed by Central Bank*	Immediate relief of pressing problems Few macroeconomic problems if fund is small relative to economy or if all revenues spent on current needs, rather than capital account Easy to establish & operate – required safeguards are simpler than for other funds	Easy to divert for unconstructive ends Can create overvalued currency Does not enhance capital accumulation May exacerbate longer term fiscal problems, especially in terms of tax base May lead to currency overvaluation Does not provide stable base for government revenues with fluctuating government share of revenues

Best practices

- Analysis of potential oil fund strategies should consider six key questions:
- What is the time period over which the use and disposition of revenues should be considered?
- Is the fund likely to receive a great deal of money over its lifetime?
- Are there competing current uses for the money? If so, where do the nation's interests lie and do these change over time?
- Who are the intended beneficiaries of the fund and how best to serve them?
- Who will set up and control the fund?
- What safeguards can be built into the fund to preserve it for its intended uses and beneficiaries?

Section 3¾ International Upstream FDI Oil and Gas Contracts

3.1 Introduction

NOC/IOC oil and gas contracts have evolved significantly in the past 10-15 years. Sovereign nations have developed better understandings of their resources available for exploration and exploitation and the IOCs have improved their portfolio management process and their understanding of the various risk categories (technical, commercial, and legal). The alignment of reward with the risk undertaken has thus improved and the resulting contract terms represent a negotiated or legislated apportionment of the risks and rewards to the two main parties; the government and the IOCs.

Governments invite IOCs to undertake exploration, development and production activities at a predictable cost. The differential between that known cost and the price of oil is the contestable sum known as the economic rent. The less risk the investor takes in the upstream activities, the less the government will want to share the economic rent. On the other hand, when the IOC bears risk, it will expect a commensurate share of the economic rent. This split of risk and reward extends to the exploitation phase itself, where an appropriate mix of incentives and taxes can encourage the contractor to improve production methods to approach the technically feasible level of output.

Today, contract terms often vary (customized for conditions and risks) for specific blocks or basins within a country. Indeed, contract terms are even customized to improve the rate of resource extraction, for example, by encouraging enhanced recovery investments. Furthermore, the oil price volatility experienced over the past 15 years has led to widespread use of sliding scale contract mechanisms to reduce the impacts of such volatility on the investors through extracting incremental profits for the nation during times of high prices, while in some cases, reducing the governments take during times of low prices.

The evolution of contract terms has been the result of numerous lessons learned – both by host nations and by the IOCs in ventures where significant value has been created, and in many cases destroyed, for both parties. Contracts and case histories from around the world have been reviewed and those cases where both the host nation and the investor have benefited have been noted. We define “benefited” as when the host nation experienced sustained revenue from royalties (and taxes) and where the IOCs consistently earned profits split equitably with the state. In these cases, we have found the following contract characteristics

- Economic stabilization—fiscal and contractual.
- International arbitration—in the event of technical or commercial disputes.
- Equitable reward to the investor for risks undertaken.
- Ability for the investor to receive financial recognition of the contract (such as reserve or cash flow booking).
- Investment protection—such as nationalization.
- Freedom to repatriate profits.
- Opportunity to access produced crude (title to production, or off-take agreements).

In today’s world, there are three fundamental types of agreements: a) Concessions, b) Production sharing contracts, and c) Service contracts. The table on the following page compares different

types of contracts for their strengths and weaknesses under various resources and production conditions.

Contract Type	Typical Allocation of Risk	Benefits for Host Country	Benefits for Investor	Where it is used	Situations where it works well	Situations where it does not work well
Licenses: Concessions (Tax, Royalty. 0% State Equity)	100% IOC – technical, price, and market risk	Bonus payments, full risk aversion, attracts large IOCs	Project control, ownership of reserves, ownership of assets (equipment), all upside	High risk, such as pure exploration. Where title to hydrocarbons are not host country issue	Free market business environments	Where there is political aversion to foreign ownership of hydrocarbons
Licenses: Joint Ventures (Tax, Royalty, & State Equity)	Typically 100% IOC technical risk during exploration, shared risk in production phase with State % varying widely	Bonus payments, risk management (exploration), technology transfer, shared upside	Project control (when operator), risk sharing w/State, accelerates permitting & project approvals, shared upside	State has access to capital to participate, commerciality is declared, production risks are low	Sate has funding (to make cash calls), alignment of interests is required, where State majority interest is required	High risk production, high market risks
Contracts: Production Sharing Contracts (Tax, Royalty, delayed State Equity)	100% IOC risk in exploration, State shares ~30-70% in production phase risk (technical, price and operating cost)	Bonus payments, risk management (exploration), possible State operatorship, assets revert to State, technology transfer, shared upside	Project control (when operator) , risk sharing w/State, risk capital recovery time, shared upside	Exploration, high-risk exploitation High country risk perceived by IOCs	Potential exposure to large resource volumes, where hydrocarbon entitlement is not problem	Very high risk (exploration failure), small resource volume found single target exploration, excessive work requirements, remote gas exploration
Contracts: Risk service, Buy-backs, Cost-Plus, and Technical (Tax & 100% State Equity)	Usually 100% IOC technical risk, State usually has 100% price and market risk	Attracts all size IOCs and local companies, title remains with State, immediate ownership of all assets, all upside	Lower early investments, ability to “test before you invest”	Under developed resources, exploitation, low-risk exploration, where title must remain with the State	Large proven reserves that need investments to extract, where advanced technology is needed to optimize recovery	Only low-energy reserves remain, high risks, large front-end capital is required.

Concessions are used typically in OECD countries where title to the crude is not a national/constitutional issue. By virtue of the design of the concession, the state is shielded from all risk, though this type of exploitation structure can lead to extremely high profits for the investor when efforts are successful.

The terms used in production sharing agreements and services contracts are now so intertwined that the IOC's and the State's cash flows can look almost identical - for either type of contract – through crafting of the terms. Thus from a financial perspective, it is often not material to either a host government or an IOC whether a contract is labeled a "Joint Venture", "Production Sharing Contract" or a "Service Contract". Usually the label is selected by the State to satisfy political, legal, or public needs. The terms of the PSC or service contract are then developed to fit the risks of the opportunity and to fit the need to be competitive with the investor's other prospective opportunities.

The commercial success and sustainability of hydrocarbon exploration and production ventures is only possible when; a) hydrocarbons are found, b) they can be produced, c) they can marketed at a price above their cost, and d) the contract's terms listed above are present.

As the survey of NOC case studies show, upstream contractual arrangements vary according to the history, domestic political circumstances, and goals of the country. Case studies exhibit a wide array of possible examples ranging from Saudi Arabia where the state has traditionally enjoyed adequate national funds to invest in oil capacity maintenance and expansion and has not relied on IOC involvement to SOCAR which relies very heavily on IOC investment under extremely attractive PSA contracts terms that were designed to compensate IOC partners for the high geologic risk, distance from markets and the lack of well-developed political institutions and governance.

For every NOC examined, there are lessons to be gleaned from the progress of the upstream sector. Evaluation criteria revolve around several issues including but not restricted to government take. Governments must also be cognizant of the consequences of certain choices for development of the overall society, for the speed and level of capacity expansion, and for the exposure of investment budgets to changes in oil prices.

For both the NOCS in this survey, as well as a majority of other oil producing countries around the globe, using some form of PSAs with a competitive rate of return has proved the most successful way to attract IOC investment to expand oil productive capacity significantly and quickly. In comparison, countries that opted to self-finance or tried to negotiate service style contracts with less attractive profit margins to IOCs generally took longer to raise money and showed smaller changes in reserves and production. In this regard, it is useful to note that the International Energy Agency's World Energy Outlook 2003 estimated that total investments of $16 trillion dollars are needed between now and 2030 to meet the expected rise in energy demand worldwide, implying an intense competition for the limited capital that can be attracted from international investors in this time frame. Of this 16 trillion, over $6 trillion will need to be utilized for oil and gas infrastructure worldwide.

Lessons learned from the NOC survey include the following:

<u>General</u>

- A state oil company, as an industry monopoly, has a natural conflict of interest to the successful completion of IOC contracts for oil field development and exploration if not

properly regulated. This conflict of interest is even more severe if the state oil company is the government's legal representative in its hydrocarbon resources.

- High oil revenues enhance a country's ability to self-finance the expansion and sustainability of production in their oil sectors. However, most countries were unable to maintain such self financing in the late 1990s and most of the countries in the survey have stared to abandon the practice of 100% self-financing in favor of some form of IOC participation.
- Failure to offer adequately attractive contract terms in initial offerings can delay capacity expansion for many years (examples include Iran, Indonesia, Kuwait) and demonstrates the kind of competition that exists for investment from IOCs.

Specific

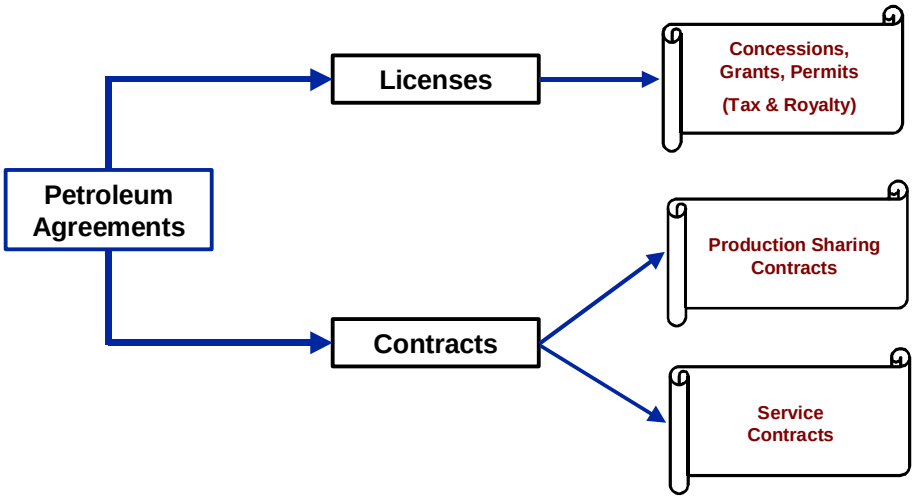
- **Saudi Arabia.** Self-financing can restrict the adequate development of private sector industry and service sector not linked to oil development projects.
- **Saudi Arabia, Kuwait, Iran (prior to mid-1990s).** Self-financing can leave upstream investment budget highly susceptible to swings in oil prices, leading to stop/start budgeting that can affect the long term sustainability of capacity levels. Such policies have led to production declines in Iran which only recently reversed a long slide in production capacity.
- **Kuwait**. Use of agents to represent the interests of IOCs can stall the approval of contracts by the legislature. Also, rules which entities are required to follow to get contracts approved must be clear and transparent. Lack of clarity in such responsibilities can lead to delays and conflict.
- **Saudi Arabia.** Conflicts of interest between an NOC interested in maintaining its position and a government anxious to bring in new investment in the oil sector are often resolved in favor of delay. Saudi Aramco did not provide adequate incentives to IOCs to boost both production and refining capacity and was in open opposition to stated government policies.
- **Venezuela.** The country was able to use a new legal provision to provide stable economic terms throughout the duration of a contract. Using this tool, the country reversed a long period of stagnation and decline in production and is currently on course to increase output by more than 2 mmbd over the next ten years. By the end of this decade, IOCs may account for more than 40% of the country's output, up from an extremely small share just a few years ago.
- **Azerbaijan.** Since 1994, Azerbaijan has attracted $8 billion in foreign direct investment under mainly PSA agreements. This is very high given geologic and logistical risks inherent in developing oil in the landlocked Caspian Sea. The country was able to attract high levels of foreign investment without a fully restructured, transparent, corporatized national oil company. SOCAR is still at an early stage in the process of reorganization, and the oil sector also lacks clear government institutional roles, delineated oversight procedures, and a final sector organization. SOCAR also lacks an adequate balance sheet and revenue reporting at international standards and does not follow recommended observance of standards and codes for transparency and separation of powers. Investors have counted on the stability of the regime and have been compensated for the risks associated with the unstable state of the country's institutions and legal framework by extremely attractive PSA fiscal incentives.

3.2 Types of contracts

There are many names, and variations, for global oil contractual arrangements, but they can typically be categorized into one of three main types:

- Concessions/Licenses.
- Production Sharing Agreements (PSA).
- Service Contract.

Figure 3.1 Types of Petroleum Agreements



3.3 Contract objectives

Flexibility and Stability

Contractual terms need to accommodate and respond to the following elements of oil and gas exploration and development:

- Exploration success rates.
- Size of hydrocarbon discoveries.
- Type of hydrocarbon discoveries (oil and/or gas).
- Variable oil and gas prices.
- Varying capital development cost and operating costs.

Because of these variables, and other economic success risks, Foreign Direct Investors such as IOCs prefer to have as many fiscal and contractual liabilities as possible fixed for the duration of the contract. If these contracts do not have the terms fixed, or if there are no economic, legal and tax stabilization assurance clauses provided for in the contracts, then they are often subject to frequent and time-consuming re-negotiations during the course of the term. While the provisions of petroleum contracts will vary widely owing to the above factors, in the long run Iraq's petroleum industry will only be placed on a sound footing when three mechanisms are firmly in place: (1) contractual stability arising from long term political legitimacy, (2) contractual longevity honoring the obligations of all parties agreed to in the originating documents and (3) a legal system providing enforceable redress in the event of disputes that is seen as fair and

impartial by all parties to the agreement. Contractual longevity is also important because over time the expertise and knowledge of Iraq's petroleum reservoirs by the staff of the IOCs working in close collaboration with the staff of the IGE or its alternate companies becomes invaluable.

Competitiveness

Contract terms must yield project economics that are competitive with terms for similar projects elsewhere in the world, as IOCs have little incentive to invest where the structural elements of a contract do not provide competitive economic returns. In these cases a state will not achieve its objective of extracting economic value from the discovery and development of hydrocarbon the discovery and development. With uncompetitive terms, the discovery and development process will not occur in a timely, efficient manner and will result in a diminished Net Present Value of the state's revenues.

Risk Allocation

The allocation of risks between the state and IOCs is a significant factor in the selection of a contract structure to use, and in the subsequent formulation of efficient terms for the contract. This process will inevitably involve a sharing of the rewards which are related to risk allocation, and which entity shoulders the majority of the risks. The sharing of price and market risk directly relates to the overall risks involved (legal, commercial, technical) and the ability of each party to shoulder such risks. Where the government has insufficient resources to run an industry at a certain size then it has to have favourable terms through service, production sharing or concession agreements that will generate the level of investment needed to reach its desired production level. In such a scenario, the tax regime that the investor faces will have to be at least as attractive as investments in other countries open to the IOC that have the same attendant price and market risk. In situations where the Government for political or other reasons, decides to develop its resources at a more measured pace the negotiating strength may shift to the Government. This is especially true in countries such as Iraq where the cost of oil production is relatively low, there remain possibilities of finding a giant or super giant field and the prospect of a long-term market presence looms large.

Contractor's Financial Returns

The terms and conditions of a concession contract should be set such that the contractor receives a financial return commensurate with the risk undertaken. If this is not the case, then contractors will not enter into concession agreements.

In deciding whether exploration and production under a concession contract will be economic, the contractor will evaluate two main criteria. The first criterion is whether the level of financial risk, as defined by the work commitment, is reasonable compared with the probability of a commercial discovery. The second criterion is whether the level of returns from a commercial discovery, as influenced by the field size, oil and gas unit prices, operating costs and the participation rates, bonuses, royalties and taxes, provides an acceptable financial return. Oil companies, both large and small have a variety of commercial opportunities available to them in many parts of the world and attempt to the greatest degree possible to balance their risk profiles so that if they have high risk projects in some areas they seek lower to medium risk projects elsewhere. How a company does this is a complicated process not easily categorized. For example a company long on crude may have a different risk profile for new production than a

company short on crude and also having substantial downstream assets. Risk profiles also have to gauge the degree of political risk arising from (1) the prospects for political change that might adversely affect the company's interests, (2) the lack of a viable system for timely dispute resolution, (3) the history of the country in honouring its contractual obligations. Consequently, no particular contract terms will always prove superior to another set. The Russians painfully learned that the issue was not simply writing better PSAs to attract investment but changing the whole business culture. As a result of this failure, Russia saw oil and gas investment plunge for a decade.

3.4 Key Modern Concepts in States' Take

Sliding Scales

Contract terms can be linked to a sliding scale so that the State Take changes as certain key parameters change:

Average Daily Production Rate

- Government Take increases as production increases and vice versa.
- Government has downside and upside exposure to prices and project costs with investor.

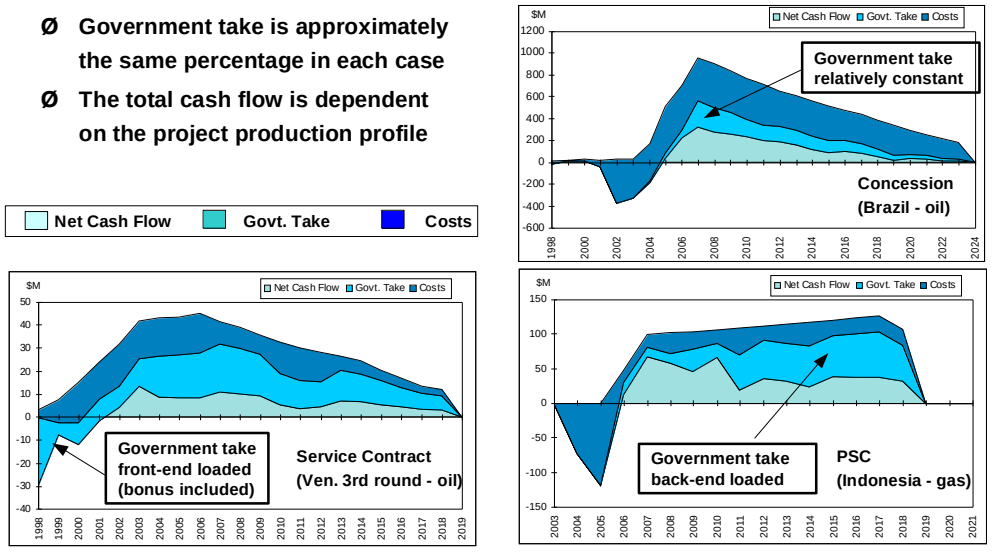
Cumulative Production Levels

- Government Take increases once cumulative targets are reached.
- Government has downside and upside exposure to prices and project costs with investor.

Project Profitability

- Government Take increases as project profitability increases.

Figure 3.2 Different Contract Types Produce Different Cash Profiles for both Government and Contractor



3.5 Alignment of Interest

A critical aspect of Exploration and Production agreements is the alignment of the parties' interests. In most international negotiations there is considerable misalignment prior to negotiations because both the investors and the government want to preserve their interests.

However, if the contract is appropriately crafted, there can be mutuality of interests, and a well-balanced contract will provide greater contract stability.

Common elements

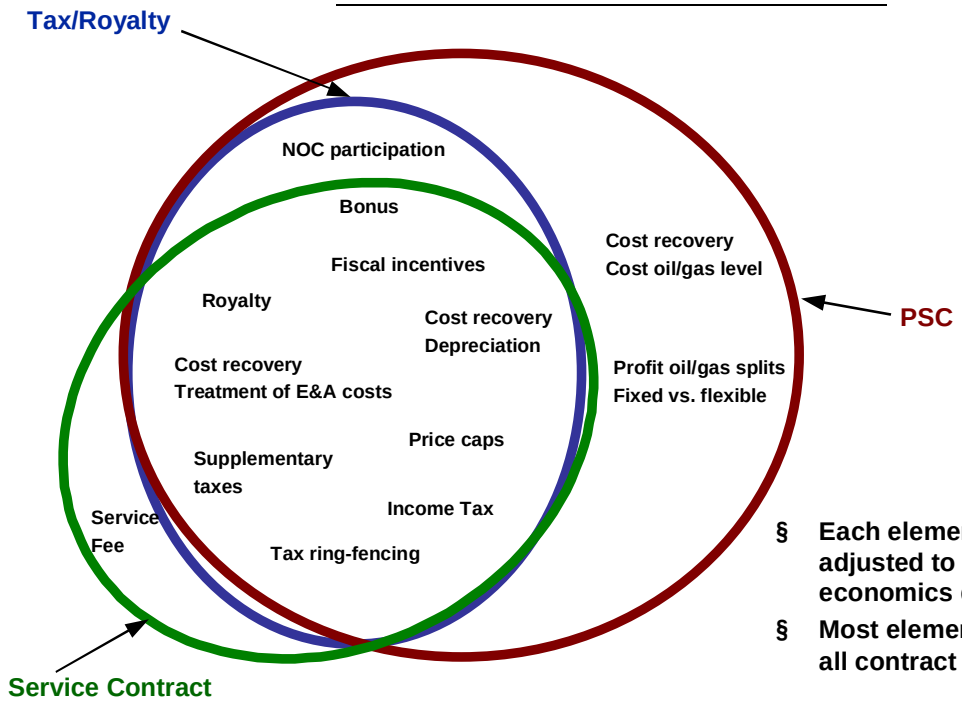
Many contractual elements are common to all contract types, and as such the individual elements hold the key to success of any contract. The manner in which these elements are incorporated in the contract structure can open up opportunities to be innovative in the way investors and the government are rewarded. The contractual elements or components usually comprise three basic categories:

- Commercial:
  - These elements are related to issues impacting government take and investor profits derived from the successful execution of the project and often include provisions on taxes, bonuses and cost recovery.
- Legal:
  - These elements are related to applicable laws that impact the flexibility and stability of the contract, and include provisions on arbitration and assignment.
- Technical:
  - These elements are related to the manner in which the contract will govern project activities.
  - Includes provisions on work programs, relinquishment and operator ship.

3.6 Commercial Elements

As the name implies, the commercial elements have a strong impact on project economics. Many of these are fixed by applicable laws and cannot be modified, while others are completely within the authority of the government's negotiating team and can be adjusted to impact project economics after the declaration of commerciality. The following are some of the key commercial elements to any upstream petroleum contracts.

Figure 3.3 Commercial Elements May Be Mixed and Matched According to Contract Type



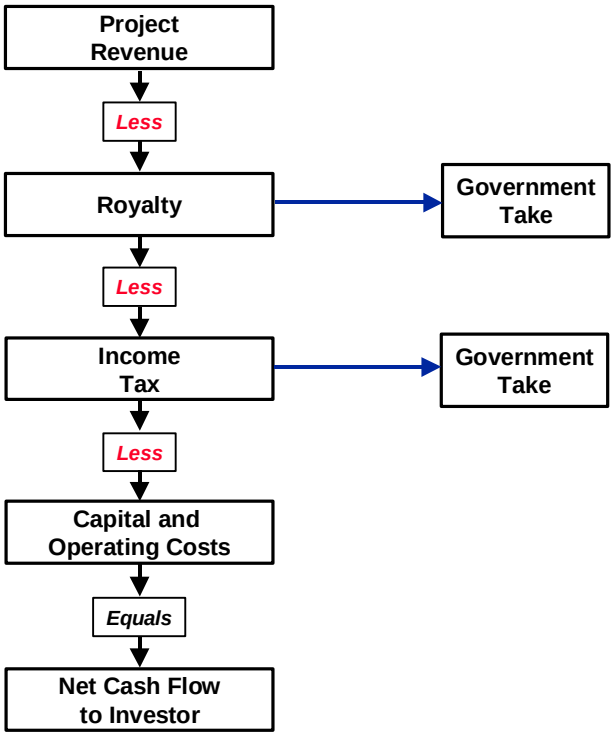
- Each element shown can be adjusted to impact project economics differently
- Most elements are common to all contract types

Frameworks for Contract Arrangements

3.7 Concessions

Definition

Figure 3.4 Typical Concession Contract Structure



Concessions are contracts between the State, being either the Government or a Government appointed body, and IOCs for the exploration and production of oil and gas.

The key legal feature of a concession-based contract is that legal title for the oil and gas is transferred to the Contractor. In some countries, ownership of the oil and gas is transferred on the signing of the concession contract, although for most countries the hydrocarbon ownership is transferred to the IOC when the oil and gas is produced.

Early characteristics

- State has no financial risk, revenue is via royalty on production and business taxes.
- Development rights granted to IOCs, often covering large high-risk areas.
- Contracts were for long periods of time (50+ years).
- IOCs given ownership of the hydrocarbons produced.
- IOCs permitted control over schedule of development and depletion.
- No requirement to produce.

Changes in modern concession contracts

- Shorter contact periods (20-35 years).

- Work obligation requirements.
- Relinquishment provisions if exploration or production work stops.
- Bonus payments.
- NOC participation, under joint ventures.

Key Contractual Provisions

Concession contracts have been implemented in various countries throughout the world, most notably in the United States, the United Kingdom and Australia. However, although each country's concession regime does vary, there are a number of similarities in the key provisions between the regimes.

Of these key provisions, those that are critical to both the State and the Contractor in terms of risk and financial exposure are:

- **Contract Duration**—The duration of the agreement. Normally divided into exploration and production periods, and normally extendable by mutual agreement.
- **Work Commitment**—The minimum exploration requirements that the oil and gas company is expected to undertake.
- **Participation**—Whether the National Oil Company participates in the project.
- **Bonuses**—Payments to the State, usually on a milestone basis that may be linked to rate of production or level of reserves. However, bonuses at concession signature are also common.
- **Royalties**—Payments to the government based on either the production of oil and gas or the revenues from oil and gas production.
- **Taxes**—Payments made to the government based on the revenues or profits from oil and gas production.

How these provisions impact on oil and gas projects is summarized in the following table:

Table 3.4.1 Concession Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Contract Duration	The duration of the agreement. Normally divided into exploration and production periods, and normally extendable by mutual agreement	The contract duration is important to the State in that it cedes to the Contractor the right to produce from the oil and gas reserves for the duration of the contract. The longer the contract, the greater the period of time the State does not have the right to production from the discovery.	The contract duration is important as it defines for how long the Contractor can produce from a commercial discovery. The contract duration should be long enough for exploration and development costs to be recovered, and a reasonable profit made, from the production during the production period. Contract durations that are too short may impact on the project as follows: 1) the field may not be developed, as there is insufficient production to fully recover costs or yield a reasonable financial return on the investment made, and 2) the field may be intentionally developed at a higher capital cost, which is recovered to the detriment to the revenues allocated to the State, so as maximize total production over the limited contract duration.
Work Commitment	The minimum exploration requirements that the Contract is expected to undertake. Work commitments are generally measured in kilometers of seismic data and number of wells drilled. Work commitment provisions often include penalties for non-performance.	Large work commitments benefit the State in that the greater the work commitment: 1) The more the exploration investment made in country, which has positive implications for economic growth and employment. 2) The higher the probability of a commercial discovery, which has positive implications as the State will benefit from significant revenues from the Concession contract.	Work commitment represents most of the Contractor's financial risk in respect to oil and gas exploration. As so many wildcat wells are dry, there is only a 10% to 15% probability of moving to the development and production phases, at which point revenues are generated and the exploration costs can be recovered. In general terms, the higher the work commitment: 1) the less the probability that a Contractor will enter into an agreement as, with more up front investment required, the greater the financial risk, and 2) the higher the financial return the Contractor will require, so as to reflect the increased risk undertaken by the Contractor.
Participation	Participation is when the national oil company participates in development projects. Participation is similar to a working interest partner (i.e. joint venture) in that costs and revenues are divided between the partners in proportion to the participation rate.	Participation benefits the State in that the National Oil Co. is entitled to a share of profits from the project, without normally bearing any of the risks associated with exploration. The greater the level of participation, the greater the benefit as the National Oil Co. is entitled to a greater share of the project's profits.	As the level of participation by the National Oil Co. increases, the total monetary return to the Contractor decreases.
Bonuses	There are key two types of bonus: 1) Milestone bonuses, for example on contract signing or on commercial discovery. 2) Production bonuses, for attaining pre-defined levels of production.	States prefer bonuses as money is received early on in the contract and usually irrespective of the level of profitability of the project. The greater the level of bonuses, the greater the share of the project's revenues that can be potentially allocated to the State.	Contractors do not favor bonuses as they are unrelated to project profitability – for any given level of bonus, the less profitable the project, the higher the effective tax rate. As bonuses impact more on less profitable projects (marginal or high cost), Contractors will be less inclined to develop these reserves, which may not be in the national interest.
Royalties	Royalties are a payment to the government based on either oil and gas production or the	States prefer royalties as the State receives a share of the revenues irrespective of the level of project	Contractors do no favor royalties, as they are unrelated to project profitability – for any given royalty

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
	revenues from oil and gas production. Royalties can take difference forms, including: 1) Percentage rate – set percentage of the value of oil and gas production. 2) Specific rate – fixed amount per unit of oil and gas production. 3) Sliding scale – percentage based with the percentage varying with different levels of production.	profitability. The greater the level of royalties, the greater the share of the project's revenues that are allocated to the State.	regime, the less profitable the project, the higher the effective tax rate. As royalties impact more on less profitable projects, Contractors may make decisions that may not be in the national interest: 1) Will be less inclined to develop marginal or high cost reserves. 2) Cease operations before the end of the production life of the field, as the impact of royalties makes continued operations uneconomic.
Taxes	Taxation of oil and gas projects can take many forms, including: 1) Corporation taxes levied on the Contractor's profits from oil and gas production. 2) Other taxes, which may be either a flat rate per year or based on other criteria, such as revenues.	The State receives a share of the project's revenues through taxation. The greater the level of taxation, the greater the share of the project's revenues that are allocated to the State.	Profit based corporation taxes are favored by Contractors as they are based on project profitability. As Contractors evaluate projects on an after tax basis, at some level of taxes, oil and gas projects become uneconomic, and exploration and production activities will not be undertaken.

Optimizing Concession Contract Provisions

It is important that the State optimally defines each of the above-noted provisions, as the structure of these will impact the Contractor's cash flow from exploration and production activities. If the provisions are structured too much in the favor of the State, then exploration and production activities will not be sustained. However, if the provisions are structured too much in the favor of the contractor, then the State will not be recovering the optimal (maximum) after risk economic value of its resources, giving IOCs disproportionately high financial returns for the level of risk undertaken.

The following table shows the potential impact on exploration and production activities of incorrectly setting each of the provisions, together with the methodology for how these provisions should be structured.

Table 3.4.2 Optimizing Concession Contract Provisions

Provisions	Impact on Exploration and Production of structuring incorrectly	Methodology for correctly setting
Contract Duration	Contract durations that are too short may impact on the project as follows: 1) The oil and gas fields may not be developed, as insufficient oil and gas can be produced to fully recover costs or yield a reasonable financial return on the investment made. 2) The oil and gas fields may be intensively developed at a higher capital cost, which is recovered at the detriment to the revenues allocated to the State, so as maximize total production over the limited contract duration.	The contract duration should be long enough for exploration and development costs to be recovered, and a reasonable profit made from the production during the production period. This will be highly dependent on the probable field characteristics. Too short a contract duration could result in production rates that damage the ultimate recovery from the reservoir.
Work Commitment	As the level of work commitment increases: 1) The less the probability that a Contractor will enter into an agreement as, with more up front investment required, the greater the financial risk. 2) The higher the financial return the Contractor will require, so as to reflect the increased risk undertaken by the Contractor.	The level of work commitment should be related to the probability of an oil and gas discovery in the contract area, as a large obligation with limited probability of discovery would deter investment.
Participation	As the level of participation by the National Oil Company increases, the total monetary return to the Contractor decreases. At some level of participation, oil and gas projects will become uneconomic to the Contractor, with the consequence that exploration and production activities will not be undertaken.	The level of participation should be such that, when taken together with other the other provisions, it provides a pre-tax rate of return commensurate with the risk undertaken.
Bonuses	Bonuses impact more on less profitable projects (marginal or high cost reserves). As the bonuses required, increase the less likely the Contractors are to develop these reserves, which may not be in the national interest.	The level of milestone bonuses should be related to the probability of discovery, whereas production bonuses should be linked to the size of the reserves and production of the field, so as not to burden low volume fields with bonuses that cannot be recovered from total production.
Royalties	Royalties impact more on less profitable projects. As royalties increase, Contractors are less likely to develop marginal or high cost reserves, and more likely to cease operations before the end of the production life of a field.	The level of royalty should be related to the cost of production. If the royalty rate is set to high, production becomes uneconomic and development and production of discovered reserves will be deterred. Sliding scale royalties add flexibility to

Provisions	Impact on Exploration and Production of structuring incorrectly	Methodology for correctly setting
		encourage development of smaller fields and increases the State Take on larger fields.
Taxes	As Contractors evaluate projects on an after tax basis, at some level of taxes, oil and gas projects become uneconomic, and exploration and production activities will not be undertaken.	The level of taxes should be set so as to provide the Contractor with a post tax rate of return that is commensurate with the level of risk undertaken

Concession Contract Experiences

Where they have worked and why

United States, United Kingdom and in many countries prior to the 1970 oil crisis.

Worked globally where States had weak economic systems and could not finance their risked interest levels. Also, they continue to work where the ownership of resources are not vested with the State

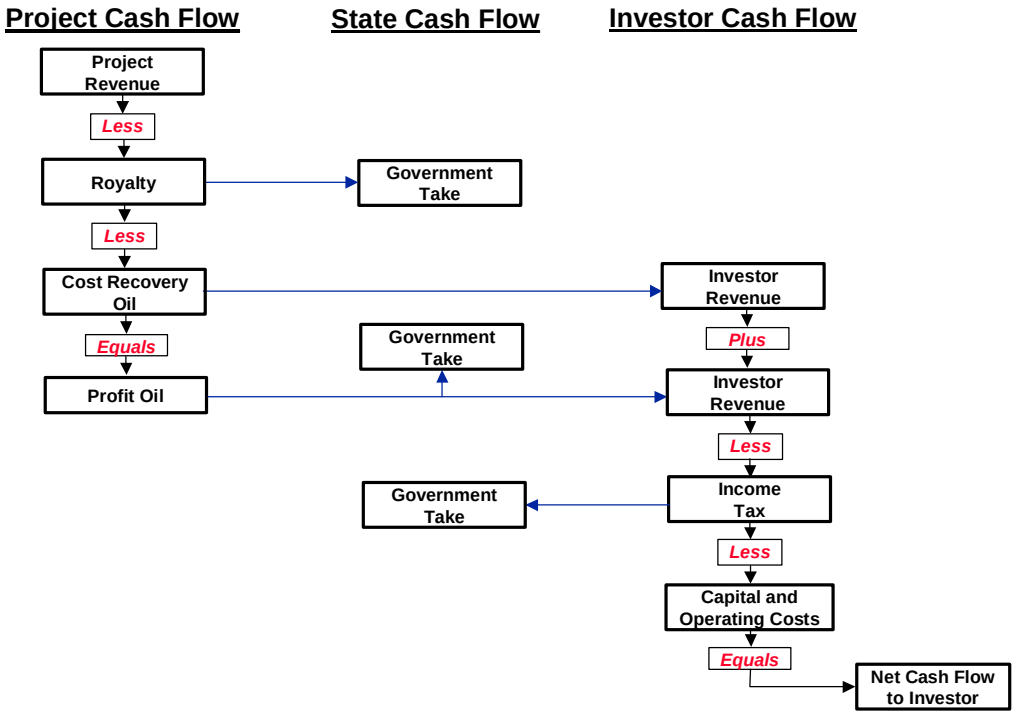
Where they have not worked and why?

Since the oil crisis, most States have enhanced financial capabilities, and better access to global capital, which allows them to undertake, to a degree, more price and risk exposure in monetizing their resources. They do not work where there are legal (or political sentiments) against giving ownership of hydrocarbons to foreign investors. They are not wise to use (but they do work) in situations of high prices and/or low cost, and low risk. In these conditions too much of the economic rent is given to the IOC

3.8 Production sharing contract

Definition

Figure 3.5 Structure of a Typical Production Sharing Contract



Production Sharing Contracts are contracts between the State, being either the Government or a Government appointed body, such as the National Oil Company, and a Contractor for the exploration and production of oil and gas.

The key legal feature of a Production Sharing Contract is that legal title for the oil and gas remains with the State. The Contractor has the right to receive a share of this production in accordance the Production Sharing Contract.

Early characteristics

- The production belonged to the host government.
- A share of production was allocated to IOCs as compensation for risk.
- IOCs explored at sole risk, and if commercial, developed the resource.
- Contract parameters were cost oil, profit oil, royalty and income tax.

Changes in modern production sharing contracts

- Duration of exploration period.
- Minimum work programs.
- Bonuses.
- Definition of commerciality and State participation in development of discoveries.
- Pricing.

- Domestic market-supply obligations.
- Export marketing.
- Relinquishment.
- Arbitration.

Key Contractual Provisions

Although Production Sharing Contracts have been implemented in numerous countries throughout the world, specific provisions and terms and conditions have varied. However, there are a number of similarities between these contracts such that a set of key provisions can be defined.

Production Sharing Contracts also can have similarities with Concessions. There are, however, two key provisions relevant to only Production Sharing Contracts that are critical to both the State and the Contractor in terms of risk and financial exposure. These provisions relate to:

- **Cost Recovery**—Allocations to the contractor, usually in the form of oil or gas, so as to recover the Contractor's exploration, development, and operational costs.
- **Production Split**—The division of the profits between the State and the Contactor from oil and gas production.

These provisions, and how these provisions impact on oil and gas projects, are summarized in Table 3.3 below.

Table 3.5.1 Production Sharing Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Cost Recovery	Cost recovery recoups the exploration, development and operational costs out of gross revenues. The amount set aside for cost recovery is known as 'cost oil' (for oil) and 'cost gas' (for gas). Most cost recovery mechanisms limit in any given year the amount of revenues that can be allocated to cost recovery, but will allow any un-recovered cost to be carried forward. Cost recovery is usually either on a percentage rate or a sliding percentage rate based on production.	The cost recovery limit will affect the timing of revenues received from the Production Sharing Contract by the State. For example, the lower the cost recovery limit, the earlier the State receives its revenues, as the Contractor is forced to recover its costs later on in the project.	The cost recovery limit can impact on the project economics – the higher the cost recovery rate, the quicker the costs are recovered, which can have a significantly beneficial impact on the Net Present Value of a project. The ordering of how costs are recovered can also impact on the project's economics.
Production Sharing	Production Sharing is the division of production between the State and the Contractor. The Production Sharing Contract determines the amount of oil and gas available for profit sharing. The definition varies from contract to contract – however, it is usually defined as revenues less royalties less cost recovery. Bonuses are unlikely to be an allowable deduction. How the production is divided can be based on: 1) A percentage rate. 2) A sliding scale based on production. 3) Other mechanisms linked to the overall profitability of the project.	The state receives a share of production based on the production split between the State and the Contractor. The higher the production split in favor of the government, the greater the production allocated to the State.	Contractors favor production splits as they are based on project profitability. Fiscal regimes more focused on production splits than profit taxes are more likely to encourage investment in marginal fields, high cost fields, and fields nearing the end of their production life.

Production Sharing Contracts also normally include provisions that are similar in both scope and nature to those found in concession contracts. These provisions include:

- **Contract Duration** ¾ The contract term, which is normally divided into exploration and production periods, and typically has a production period that is extendable.
- **Work Commitment**—The minimum exploration requirements that the oil and gas company is expected to undertake.
- **Participation**—Joint venture participation in the project by the National Oil Company.
- **Bonuses**—Payments to the State, usually either on a milestone basis and may be linked to levels of production.
- **Royalties**—Payments to the government based on oil and gas production.
- **Taxes**—Payments made to the government based on the revenues or profits from oil and gas production.

Optimizing Production Sharing Contract Provisions

Setting the production sharing contract provisions optimally is very important. If the provisions are structured too much in favor of the State, then exploration and production will cease, but if the provisions are structured too much in favor of the Contractor, then the State will receive less than optimal levels of revenue.

The following table shows the potential impact on exploration and production activities of incorrectly setting each of the provisions, together with the methodology for how these provisions should be structured.

Table 3.5.2 Optimizing Production Sharing Contract Provisions

Provisions	Description	Key Elements Critical to the State
Cost Recovery	The lower the cost recovery rate, the slower the costs are recovered, which may deter investment in exploration and production because of the negative impact on the Net Present Value of a project.	The cost recovery rate should be such as to recover all production costs in the current year, and allow the Contractor to recover its development costs over a reasonable period of time.
Production Sharing	At some level of production sharing, oil and gas projects become uneconomic, and exploration and production activities will not be undertaken.	Profit sharing mechanisms should be set at rates that allocate sufficient profit in line with the risk taken by the oil and gas companies.

Production Sharing Contract Experiences

Where they have worked and why

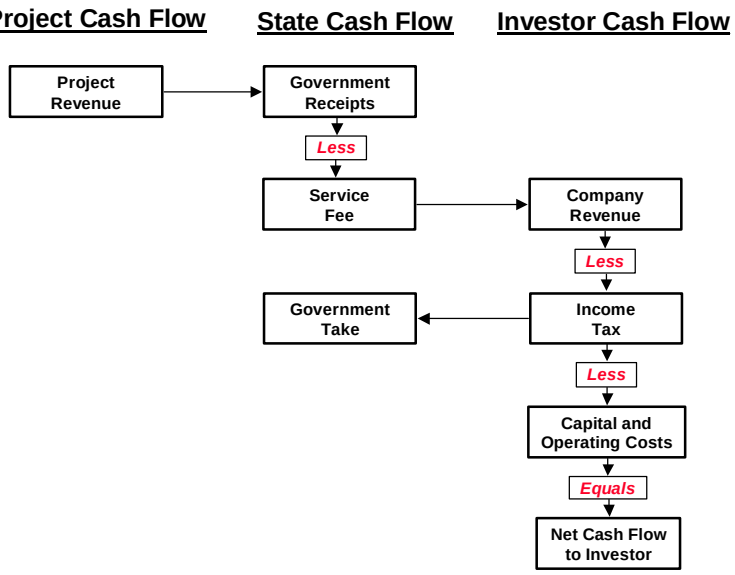
Malaysia, Indonesia, Egypt, and Nigeria. These PSC's have balanced risk allocation with rewards to the IOCs. They have stable but flexible terms, (sliding scale, etc) that permit both State and IOCs to experience the positive and negative effects of hydrocarbon pricing. It is important to note that under sliding scale methodologies in PSAs it is critical that any movement up or down in production levels or prices must be shared equally among the parties based on key contractual provisions where all risks and rewards pass equally to both parties. If any dispute arises it is vital that all equalization clauses in the contract be enforced with the full rigor of the law.

Where they have not worked and why

Brazil, select FSU contracts, Peru, Kenya, and Madagascar. In many cases the upfront investments (in work or bonuses or both) created an economic threshold (cost recovery) that required discovering very large volumes that could be produced at very high rates. In these cases, the poor hydrocarbon systems and high cost structure for those hydrocarbons found were the cause for commercial failure, not the terms of the PSC itself.

3.9 Service Contracts

Figure 3.6 Structure of Typical Service Contract



Definition

A petroleum service contract is an agreement whereby a contractor provides the services of hydrocarbon production (typically) and/or exploration (less common) for a direct fee payment. The contractor makes the investments and takes the risks of the outcome of the work. Payment is typically linked to the volume of hydrocarbon produced or discovered. As the government retains ownership of the hydrocarbons produced, the nation takes most of the market and price risk.

Early characteristics

- Development and production activities for a fixed fee.
- IOCs supply services, technology, and experience.
- IOCs do not own the reserves or the major assets acquired.
- State approves project budgets and controls major work program elements.
- Contractor incurs tax liabilities, but no royalty obligations.

Changes in modern service contracts

- Relatively short contract periods (20-25 years).

- Work obligations.
- Bonus payments.
- Incentives for efficient operations and cost control.

Key Contractual Provisions

In a service contract, the type and amount of work to be performed is generally specified or agreed to in a field development plan. The equations for establishing the fee payment are also specified and are typically based on a combination of factors, such as: crude oil API gravity, reference crude prices, the percentage of hydrocarbon value shared with the contractor, the crude oil delivery point, and the associated gas purchase price. The contractor's cost to perform the services is typically not specified, leaving the contractor the flexibility to provide the required services in the most cost efficient manner possible.

In a service contract, a key legal provision is that title to the hydrocarbons remains with the nation or the NOC. Because title to the hydrocarbons never passes to the contractor, the IOC cannot book the reserves as financial assets on a direct volume basis (in some instances, the SEC has allowed partial booking of service contract reserves). Additionally, title to all permanent equipment or facilities installed within the contract area typically transfers to the nation or NOC.

Service contracts have many variations, including those that approximate the financial characteristics of production sharing agreements. They are popular in countries where constitutions, sovereign laws, or popular sentiment do not allow the nation to transfer ownership or control of hydrocarbons to anyone but the national oil company. They are also popular with investors where there is sufficient information on the expected hydrocarbon volumes and where these hydrocarbons can be economically exploited for a reasonable capital investment. However, historically service contracts have not provided IOCs with high rates of returns. Therefore, when significant risks are involved, they are not that popular with IOCs. The risks typically include the probability of exploration success, the size of the undiscovered resources, industrial security, pre-existing environmental damage, and highly variable operations costs.

Variations of the basic service agreement can transfer limited risk to the contractor and/or provide incentives to the contractor for cumulative production milestones, efficient reservoir development/depletion, and overall cost efficiency.

Table 3.6.1 Service Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Contract Duration	The duration of the agreement.	The contract duration is important to the State in that it cedes to the Contractor the right to produce from the oil and gas reserves for the duration of the contract. A secondary objective of the State in a service contract is to effect know-how and technology transfer to nationals. The contract should be long enough to successfully facilitate this, but short enough to allow the State to take over operations and put the know-	The contract duration should be long enough for the contractor to test and put their best practices and technologies into practice. The contract period should also be long enough to allow IOCs to recover their costs and earn a profit commensurate to the risk exposure. Contract should also allow the option to extend the agreement by consensus of both parties.

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
		how into practice	
Work Commitment	The minimum requirements that the Contract is expected to undertake. Work commitments are generally measured in kilometers of seismic data and number of wells drilled. Work commitment provisions often include penalties for non-performance.	Large work commitments benefit the State in that the greater the work commitment: Investments made in country have positive implications for economic growth and employment. Although the State prefers the work be done, IOCs should be required to complete the work program, or pay the equivalent cost for the program to the State.	Work commitment represents most of the Contractor's financial risk in respect to oil and gas development. IOCs want to do enough work to confirm the initial business evaluation, but only a bare minimum if the validation of the business is unsuccessful. In general terms, the higher the work commitment: 1) The less the probability that a Contractor will enter into an agreement as, with more up front investment required, the greater the financial risk, and 2) The higher the fee the Contractor will require, so as to reflect the increased risk undertaken by the Contractor.
Bonuses	There are three types of bonus: 1) Milestone bonuses, for example on contract signing or on commercial discovery. 2) Production bonuses, for attaining pre-defined levels of production. 3) Signature bonuses, upon execution of the contract	States prefer bonuses as money is received early on in the contract and usually irrespective of the level of profitability of the project. Too high a signature bonus can effect the project profitability before it even begins Too high a of production bonus can encourage inefficient ultimate recovery reservoir depletion practices	Contractors do not favor bonuses as they are unrelated to project profitability – for any given level of bonus, the less profitable the project, the higher the effective tax rate. As bonuses impact more on less profitable projects (marginal or high cost), Contractors will be less inclined to develop these reserves, which may not be in the national interest.
Taxes	Taxation of oil and gas projects can take many forms, including: 1/ Corporation taxes levied on the Contractor's profits from oil and gas production. 2/ Other taxes, which may be either a flat rate per year or based on other criteria, such as revenues.	The State receives a share of the project's revenues through taxation. The greater the level of taxation, the greater the share of the project's revenues that are allocated to the State.	Profit based corporation taxes are favored by Contractors as they are based on project profitability. As Contractors evaluate projects on an after tax basis, at some level of taxes, oil and gas projects become uneconomic, and exploration and production activities will not be undertaken.

The distinction of the following service contract variants will be addressed:

- Fixed fee.
- Technical service.
- Cost plus.
- Risk service.
- Buy Back.

Fixed Fee

Definition

A Fixed Fee Contract is an agreement for the exploration and production of oil and gas in return for a fixed payment per unit of production. As with every type of service contract the Contractor provides all the investment, and in return receives a payment based on volume of hydrocarbons produced in a given time period. The contractor takes significant financial risks under this type of contract, in the evaluation of both the expected volume of hydrocarbons to be produced, as well as the capital cost and operating cost required to develop the volume.

Key contractual provisions

There are a number of key provisions to Fixed Fee Contracts that are critical to both the State and the Contractor in terms of risk and financial exposure:

- **Hydrocarbon volume**—The volume of hydrocarbons that are expected to be recovered (the risk) during the contract directly affects the service fee bid.
- **Fee**—The rights of the Contractor in the contract area.
- **Contract Duration**—The duration of the agreement. Provides the contractor with period over which to recover the fee.

Table 3.6.2 Fixed Fee Service Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Fee	Fixed Fee paid per unit volume of hydrocarbon produced	Low enough to minimize price risks for hydrocarbon produced during the period. High enough to encourage maximum recoverable hydrocarbon volumes	High enough to compensate for risk of total volume expected. High enough to compensate for capital and operating cost of production
Term	Contract Duration	Sufficient time to extract maximum hydrocarbon recoverable volumes	Sufficient duration to recover all costs and provide for maximum time during optimal profitability period before high unit cost begin near the end of life of reserves

Technical Services

Definition

A Technical Service Contract is usually associated with existing oil and gas fields, or occasionally with an abandoned field. IOCs take over the operations, which can include existing equipment and people and bring in capital, and specialized technical know-how. The agreement provides IOCs with recovery costs and shares the value of the incremental production that results from the application of the technology.

Key Contractual Provisions

The key provisions of a technical services contract are:

- States need for technology and capital.
- IOCs have the technology needed, and personnel with experience in applying it.
- Some form of existing production, infrastructure, and equipment.

Joint management of the project (for technology transfer to the state)

Table 3.6.3 Technical Service Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Work phases	Intermediate steps of technical evaluations (pilot programs) for the technology prior to full financial commitment	Measurable milestones at each evaluation phase for assessing progress of IOCs	Sufficient number of evaluation phases to determine viability of the technology before making full project capital commitment.
Bonus	Contract signature payment or milestone achievement payment	Provide early-time cash flow to the state while evaluations underway	Level of bonus should be directly proportional to the level of technical success
Profit split	Ratio of the incremental oil recovered via application of the technology that is shared with the IOCs	Compensate the IOCs for risk taken, but not over-compensate	This split is the "upside" that attracted the IOCs to the opportunity
Term	Time established for the technical evaluations, pilot programs, and project period.	Long enough to establish the success of the technical evaluations, and long enough for the know-how to be transferred to state employees	Long enough to be comfortable with the success of the technology, recovery of costs, and profit earnings.

Cost Plus Service Contract

Definition

A Cost-Plus Service Contract is usually applied to known or suspected hydrocarbon deposits, and where there are un-quantifiable risks and/or excessively high cost risk exposure to the development and production of the resources. It can be applied to exploration or equally to the development or restoration of production from existing fields.

Key contractual provisions

The key provisions of a Cost-Plus Service Contract are that the IOCs are reasonably assured of the recovery of costs and a fixed/capped rate of return on a cost basis.

- Assurance of the recovery of costs – cost is not at risk
- Fixed profit payment – can be risked profit when tied to unit production performance
- Limited contract duration
- State has no capital investment requirement.

Table 3.6.4 Cost-Plus Service Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Cost recovery	Reimbursement in full of all direct costs	Monitoring / watchdog to ensure that costs claimed are reasonable and required (gold-plating)	Requires assurance that regardless of risks, that all expenditures one recovered
Term	Length of time services are provided	Shortest period possible to overcome issues and mitigate cost risks	Long, as rate of return is capped, contract duration is only mechanism to improve cumulative contract cash flow.

Risk Service

Definition

A Risk Service Contract is an agreement for the exploration and production of oil and gas in return for a variable payment for unit of production. As with every type of service contract the Contractor provides all the investment, and in return receives a payment based on the volume of hydrocarbons produced during the contract term. The contractor takes financial risks under this type of contract, in the evaluation of both the expected volume of hydrocarbons to be produced, as well as the capital cost and operating cost required to develop the volume.

In a risk service contract, the contractor is provided a disproportionate incremental fee in return for taking on risks associated with improved rate and/or cumulative recovery of hydrocarbons.

Key contractual provisions

There are a number of key provisions to Risk Service Contracts that are critical to both the State and the Contractor in terms of risk and financial exposure:

- **Hydrocarbon volume**—The volume of hydrocarbons expected to be recovered (the risk) during the contract directly affects the service fee bid.
- **Fee**—The rights of the Contractor in the contract area.
- **Contract Duration**—The duration of the agreement. Provides the contractor with time over which to recover the fee.

Table 3.6.5 Risk Service Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Fee	Per unit of production fee paid by the State to IOCs	Provide incentives for achievement of rate, volume and cost management. Low enough to manage market price swings	Recovery of all costs and sufficient recognition of risk undertaken
Term	Contract period	Desire to monetize maximum remaining hydrocarbon volumes	Sufficient time to get project started up, recover back costs of investments and develop and apply lowest cost operation methodology

Buyback Contracts

Definition

A Buyback Contract is an agreement for the exploration and production of oil and gas that has only been implemented in Iran to date. Under a Buyback Contract the Contractor provides all the investment, and in return receives a share of production so as to provide a fixed rate of return. After the completion of the contract (meaning after the contractor has recovered their investment plus the fixed rate of return, the operation of the field is transferred to the state).

The key legal feature of a Buyback Contract is that legal title for the oil and gas remains with the State, as the Iranian constitution prohibits the granting of petroleum rights either on a concessionary basis or as a direct equity stake. In operation, the contract has similarities both with service contracts and production sharing agreements.

Key Contractual Provisions

There are a number of key provisions to Buyback Contracts that are critical to both the State and the Contractor in terms of risk and financial exposure:

- **Rate of Return**—The rate of return offered to the Contractor by the State, in terms of the allocated production share.
- **Exploration and Production Rights**—The rights of the Contractor in the contract area.
- **Contract Duration**—The duration of the agreement. Normally divided into exploration and production periods, and normally extendable by mutual agreement.

These provisions, and how these provisions impact on oil and gas projects, are summarized in the table below.

Table 3.6.6 Buyback Contract Key Provisions

Provisions	Description	Key Elements Critical to the State	Key Elements Critical to the Contractor
Rate of Return	The rate of return specifies a fixed return on the investment of the Contractor, in the form of an allocated production share	The state bears all the risks in respect to the price of oil. If the price of oil drops, then the state has to allocate more oil or natural gas to the contractor, so that the contractor can earn the contractual rate of return.	The Contractor is required to make a full commitment on investments. This could potentially deter investment, as the Contractor is responsible for bearing any additional investment costs to boost production if the field fails to live up to expectations. Traditional exploration and production companies may be deterred from investing in Buyback Contracts because as there is a lack of a risk/reward element due to the limited upside potential.
Exploration and Production Rights	The rights granted to the Contractor over the development of the hydrocarbon reserves of the contract area.	These contracts may offer the State a cost saving as, as the state is not committed to developing any discoveries with the Contractor that made the discovery, the State can re-bid the development rights so as to secure the least cost bid.	As the Contractor does not have the automatic right to develop any discoveries, investment in exploration may be deterred because the contracts have limited upside potential.
Contract Duration	The duration of the agreement	The contract duration is important to the State in that it cedes to the Contractor control over exploration and production for the duration of the contract. At the end of the contract the State is free to pursue other avenues to developing the oil and gas resources	Iranian buyback contracts have tended to be of 5-7 years duration, which is significantly less than that of a Production Sharing Contract or Concession Contract. Most exploration and production companies consider this to be too short. As a consequence, Contractors are forced to sacrifice any long-term returns that might be available from the projects. This may therefore act as a deterrent to exploration investment.

Buyback Contracts also normally include a Work Commitment provision that is similar in both scope and nature to that found in Production Sharing Contracts and Concession Contracts.

Optimizing Buyback Contract Provisions

Optimising the buyback contract provisions is important. If the provisions are structured too much in favour of the State, then exploration and production will cease, but if the provisions are structured too much in favour of the Contractor, then the State will fail to derive the maximum economic benefit from its natural resources.

In the implementation of Buyback Contracts in Iran, recent concerns have focused on a perceived lack of benefit to Iran from these contracts and their failure to attract sufficient investment.

The following table shows the potential impact on exploration and production activities of incorrectly setting each of the key provisions, together with the methodology for how these provisions should be structured.

Table 3.6.7¾ Optimizing Buyback Contract Key Provisions

Provisions	Impact on Exploration and Production of structuring incorrectly	Methodology for correctly setting key provisions
Rate of Return	The rate of return offered may be insufficient to encourage potential Contractors to invest in exploration and production activities in the country.	The rate of return offered should be in line with that generally available from exploration and production investments in similar countries
Exploration and Production Rights	No automatic rights allowing the contractor to develop the fields that they discover is likely to discourage interest in exploration and production.	In November 2003, Iran has for the first time reportedly offered buyback contracts that include exploration, appraisal and development, offering contractors a significantly greater incentive to invest.
Contract Duration	A much shorter contract length than is generally offered in the industry may also discourage interest in exploration and production, as a longer-term return in a different country may be more economic.	Increase Buyback Contract durations to be comparable with internationally accepted periods.

Drawbacks Of Risk Contracts

Other than for short term development projects, Buy Back Contracts are poor contractual alternatives. The risks associated with development costs can erode the ROR for the investor leaving him little or no incentive to drive down costs to effect commensurate savings or to benefit from any upside potential by employing innovative development techniques.

Service Contract Experiences

Where they have worked and why

Venezuela 2nd Round, Algeria, Colombia, Iran (from the State's perspective). States have successfully attracted IOCs and investments and are experiencing enhanced hydrocarbon production. Investors (excluding Iran) are achieving reasonable returns on investment, without onerous up-front government take (bonuses)

Where it has not worked?

Venezuela 3rd Round, Ecuador, Colombia. In these cases, the target hydrocarbon volumes turned out to not be of material size, yet the service contracts terms and bonus were structured on the assumption of the presence of significant volumes of hydrocarbons. The contractors did not

have sufficient volume and cost risk protection in these contracts to merit the investments required.

3.10 Conclusions ¾ Contract Adaptability to Specific Conditions

Any of the three principal contract types can be used to sufficiently align the interests of the participating parties and achieve a reasonably flexible and stable contractual instrument.

Nevertheless, worldwide experience has shown that certain contract types are more adaptable under certain conditions. In the following table, the principal contract types have been qualitatively ranked with respect to their adaptability under specific conditions of the business environment.

Table 3.7.1 Adaptability of Contract Types

(1 – preferred; 2 – neutral; 3 – less favorable).

Conditions	Concession	Production Sharing	Service Contract
The contract area is unexplored acreage	1	1	3
The contract area has large proven reserves	3	2	1
There is pre-existing hydrocarbon production from the contract area	3	2	1
There is extensive pre-existing environmental damage in the contract area	3	3	1
The contractor would be operating in environmentally sensitive areas	2	2	1
Extensive new production infrastructure would be required to commercially develop the area	1	1	3
There is need to initiate or expand large scale secondary recovery projects	2	1	3
The hydrocarbons produced are difficult to market without government incentives	2	2	1
There is a high probability that unitization of reservoirs will be required	1	1	3
Award of contract area is contingent on new refining capacity	1	2	3
Onerous local workforce requirements or strong labor unions	3	2	1
State NOC must participate as a consortium partner	1	2	3

Application of Contractual Arrangements to Opportunity Type

Exploration

- Concessions and Production Sharing Agreements are equally common.
- Agreed rates, and bonuses, reflect perceived geological, technical and market risks.
- Service contracts rarely, if ever, applied to pure exploration.
- Terms are often in the contractors favor due to sole risk exposure of the contractor.

Field Development & EOR Contracts

- Production Sharing Agreements and Service Contracts are most common types.

- Terms often separate “old” production and “new” production, with higher incentives for new reserves developed / new production.
- Terms generally more in government’s favor than exploration terms due to lower risk compared to exploration.
- Special terms may often apply and field is effectively sold (same as a bonus).

Gas Contracts

- Most commonly include incentives when compared with oil such as lower royalty rate, higher profit shares.
- Sliding scales more often linked to project profitability than production or prices.
- Gas can be co-mingled with liquids if both terms are linked to project profitability.
- Gas contracts in immature or remote regions are almost inevitably tied to long-term market contracts.
- Consolidation of upstream, midstream and downstream segments possible but uncommon.

Section 4¾ Policy Options for the Future of Iraq's Oil Sector

This section is intended to provide the senior management of Iraq's oil sector with a distillation of the key options and best practices identified in the previous three sections. These options, combined with the lessons learned from other countries about organization, staffing, finance, governance and management need to be assessed by the senior management of Iraq's oil sector in light of its own experiences, needs, goals, and constraints. To assist in this process, this section is organized to present potential options within three dimensions:

- Partners (who will implement or be a partner to, particular options)
- Timing (which options will be most relevant and when)
- Results (what will be the impact of various combinations of options.

Partners

The options and policies identified are organized around the three main parties either now active or have the potential to be involved in the future of Iraq's oil sector. The report examines what role these parties may play in defining and implementing future Iraqi petroleum policy, As outlined in the following sub-sections:

- Subsection 4.1: The Oil Producing Entity (OGE)—ethics, organization and practices, contracting, QA, personnel
- Subsection 4.2: The Government of Iraq (GOI)—transparency, rule of law, private participation, supervision/regulation, revenue transfer
- Subsection 4.3: International Oil Companies (IOCs)—contracting,

Timing

The nature of the activities to be undertaken and the relationships between and among the OGE, the Government of Iraq (GOI) and (potentially) the IOCs are considered within the context of the three phases of the recovery and transformation process. These phases correspond roughly to the short, medium and long term and for the purposes of this report and are defined as follows:

- *Rehabilitation:* immediate (Year 1) CPA-driven reconstruction measures ramp production back to approximately 3 mmbd level with Iraqi sovereignty restored by 30 June 2004.
- *Transition:* interim (Years 2-3) period following restoration of Iraqi national sovereignty characterized by developing legal, regulatory, contractual situation.
- *Transformation:* (Year 4+) post-interim Iraqi government in place. Legal, regulatory, contractual situation stabilizes. Oil sector governance defined. Production goals set for medium and longer terms.

Of these three phases, the Transition period is particularly important since the decisions and policies then developed and adopted will help to define the specific development paths for the OGE and GOI, in addition to setting the basic terms (if desired) for dealing with IOCs other private entities in the Transformation phase. Indeed, a key task for the immediate term is to devise a series of policies and activities promoting the rehabilitation of the country's oil sector without unduly constraining the medium and longer-term options for the country. The timing of

decision options is discussed in subsections 4.1-4.2 and highlighted in tables through appropriate color-coding.

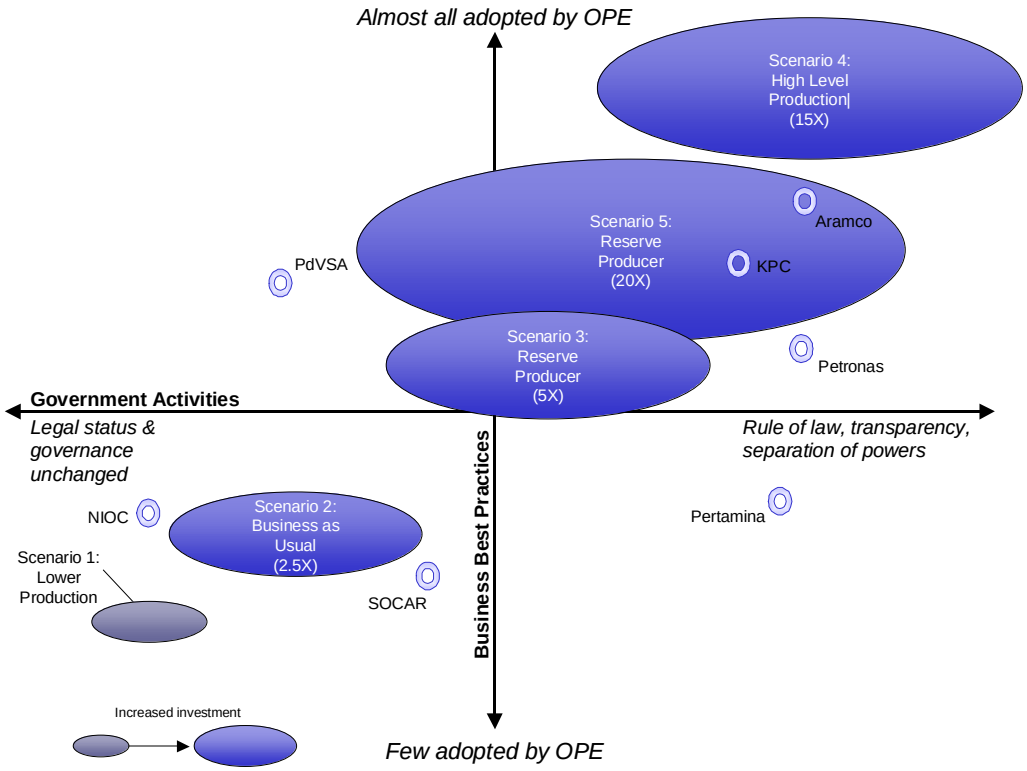
Results

Decisions taken during the Rehabilitation and Transition phases will drive the feasible range of oil production and oil governance outcomes in the longer-term Transformation timeline. Five production scenarios have been assumed for Iraq through the next six or so years.

Scenario	1. Low Output	2. Business as usual	3. Moderate increase	4. High level output	5. Reserve producer
Oil Production Level Approximate 2010 (mmbd)	1.75-2	3-4	4-5	5-6	6-7

These scenarios represent five potential outcomes, stemming from decisions made in the Rehabilitation, Transition and Transformation stages on the full-, partial- or non-adoption of identified best practices in business management (ethics, business organization/practices, contracting, QA, personnel management) and oil sector governance (transparency, rule of law, private sector participation, supervision/regulation and transparent revenue transfer). Figure 4.0, below, summarizes how varying degrees of adherence to best business management and governance practices can affect not only future levels of production but also associated levels of investment in the oil sector.

Figure 4.0¾ Production Scenario Investment Requirements



Improved OGE management, through the adoption of best industry practices, will produce a base for improved operations and production. Issues related to the national role of the OGE will have to be tackled head on; some governments have opted to use NOCs as a tool to achieve wider policy objectives such as employment, community services, revenue generation or economic diversification. In some cases, decisions regarding the utilization of the NOC's resources have been made on political rather than economic grounds. Although this may be judged to be beneficial to the nation as a whole, additional costs and non-core responsibilities are imposed on the NOC, affecting its profitability and ability to build core functions of capacity management and expansion.

Even with an enhanced management structure, it will be difficult for the OGE to raise the external funding required for operations under scenarios 4 and 5 from international sources without resorting to FDI or pledging petroleum asset streams. As discussed discreetly below, such pledges may preclude involvement by the MLAs such as the IMF or World Bank in the country's overall debt rescheduling. Raising investment capital by offering equity shares in a corporatized OGE will require a high degree of restructuring to bring operations in line with private sector international corporate structures and practices (see note on corporatization in Section 4.2). Further details of assumed investment / output scenarios are included in Appendix 16.

Self-Financing Reconstruction of Iraq's Oil Sector?

In the past, the state-owned oil entities of Iraq were responsible for the production of virtually all the country's oil and gas. After the Iraq National Oil Company (INOC) was formed in 1964 to develop concession areas taken over from the Iraq Petroleum Company, internal cash flow and sovereign debt financed virtually all oilfield development in the country.

Since 1975, no foreign oil company has operated with equity interests in the country's oil sector. Even after the merger of the oil company into the Oil Ministry in the 1987, the Ministry was able to maintain production of more than 3 mmbd.

Elsewhere in the region, large national oil companies have been built without an equity role by the IOCs. Service contracts and other similarly limited arrangements have provided the sole outlet for IOC involvement in Saudi Arabia, Kuwait and Iran.

It is likely that any substantial role of the World Bank and IMF in Iraq's reconstruction will be accompanied by their "negative pledge" requirement: an agreement that limits the government's ability to pledge oil production or related assets as security for foreign loans. If such a negative pledge requirement is a barrier to MLA involvement, and given the unsettled business climate in Iraq, the probable lack of unsecured external debt financing for oil rehabilitation and expansion would therefore limit the country's investment options to its own cash flow or equity from private investors.

Can Iraq self-finance the rehabilitation and expansion of its petroleum sector from its own cash flow? The answer is yes. At oil prices of $25/bbl, about $12 billion will be available annually as the government's share of oil revenues, after subtracting the real costs of sustaining oil production at 2.5 mmbd, and after accounting for domestic consumption (domestic sales of petroleum products are unlikely in the short to medium term to be a net cash generator for the sector). Industry analysts believe that restoring production to 3-3.5 mmbd over 2 years will require about $5 billion in new investment. Financing such expansion out of current cash flow will take about $2.5 billion annually over 2 years, or about 21% of the government's share of oil revenues.

A more ambitious program, one aimed at reaching production in the 5.5-6 mmbd range is projected to cost about $20-30 billion over 5 years, or $4-6 billion annually. Iraq could afford this as well, though the initial proportion of the government's annual share of revenues could be as high as 50%. However, during periods of unfavorable crude oil prices, say $18/bbl, an ambitious expansion plan could require as much as 85% of the government's take.

There are three obvious economic impacts of self-financing: (i) Iraq's government will emerge from the reconstruction process with much greater equity in its oil industry, (ii) more of the domestic economy will be oriented toward the oil industry than would be the case if external financing were used, and (iii) fiscal policy will be extremely dependent on world oil prices.

To reach ambitious levels of oil production from cash flow, the OGE will need to beef up substantially its accounting, audit, contracting and procurement activities to handle the expected high volume of activity. This will have the effect of focusing business skills needed to rebuild the economy on the oil industry alone. Domestic service industries will likely revolve around the oil contractors, blocking much needed economic diversification. In addition, OGE will need to maintain a high level of vigilance, given the attractiveness of corruption at such a high level of contracting. The political process for budgeting procedures for the OGE will have to be established firmly within the national planning process. To achieve steady oil field capacity growth in a self-financing strategy, the allocations to the OGE will have to be safeguarded even in times of low oil prices to prevent the highly disruptive effects that stop-start budgeting can have on major long term investment programs.

In the options discussed below, it is possible to have internal cash generation and service contractors replace the investments and activities of the IOCs. This is a matter for the Iraqis to decide. Three of the scenarios developed for this assessment, Lower Production (#1) Business as Usual (#2) and Reserve Producer (#5), implicitly assume lower levels of external investment and activity relative to the two remaining scenarios.

4.1 Management and Operational Options for the Oil Producing Entity (OGE)

To rehabilitate the Iraqi oil sector and to provide a firm basis for future growth, the OGE will need to consider a series of activities eventually resulting in the substantial adoption of world standard (or best) practices in the following areas of company management:

- Ethics and anti-corruption.
- Business Structure and practices—accounting, audit and HSE.
- Contracting and procurement.
- Quality assurance and operational audits.
- Personnel and employee development.

Table 4.1.1, below, depicts OGE activities necessary to adopt various degrees of industry best practices. It is critical to note that adoption of some of these best practices will require additional legal and regulatory steps. For example, accounting and audit standards, as well as financing for production activities by the OGE, must await the completion of the government's legal organization of the oil sector, including assignment of assets and liabilities. However, OGE can initiate reviews of a number of important practices in contracting, HSE, QA and employee training almost immediately, regardless of its legal status. Several of these, especially those in contracting and procurement, are essential to the successful completion of the rehabilitation phase.

As discussed above, whatever the source of funding – internal sources, multilateral lending agencies (MLAs) such as the World Bank, financial markets, or the International Oil Companies, any substantially greater level of investment activity should require a significant strengthening in OGE's management. The MLAs normally require specific management and governance reforms as part of their lending projects, promoting transparency and the rule of law and, often, a new legal framework for the sector. Were the OGE to opt for the self-financing route, and tap international markets to facilitate this, then such financing will almost certainly be accompanied by even more stringent management and governance requirements than the standard MLA covenants.

Some matters may need to be addressed earlier than others, owing to the current state of Iraq's oil industry. The most important are those arising from the age and skill structure of the current OGE staff. Short term needs include training in new oilfield management techniques, obtaining seconded employees from other NOCs or IOCs, and replacing the skills of the large number of managers in the OGE who are older than 55. On the government side, the establishment of hard budgets for the OGE's upstream activities is essential to understanding the availability of funding for other national reconstruction priorities.

Table 4.1.1 demonstrates that merely initiating efforts in some areas such as contracting and business practices is usually not sufficient to move OGE to a higher long-term level of activity. It is only with sustained efforts to move operational practices to a better level that gains in any of these areas can reliably result in improved output and lower costs.

Table 4.1.1¾ OGE Activities Required for Success in Different Future Options

Ethics &Anti-Corruption	Business Structure & Practices	Contracting & Procurement	Quality Assurance &Operation Audits	Personnel & Employee Development	Scenario (mmb/d)
Code of conduct not adopted	Extract HSE programs from past IPC programs & modify for current conditions	Develop short term contracting & procurement	No change from current QA situation	OGE employees status still unclear	Lower Production (1.75 – 2)
Devise ethics & anti-corruption policies & communicate to stakeholders	Develop measurement & verification protocols for oil flow & track through to final sales point (wholesale/retail) Develop banking instruments using recourse to CPA Extract HSE programs from other countries in region & modify for local conditions Apply new HSE standards & assess appropriate investments in HSE improvements	*All of above plus* Enhance & improve management autonomy	Start development of common QA standards undertake limited audit to identify major QA problems Implement QA standards	Initiate training of key upstream staff in modern field management & production techniques Develop formal employment policies with regard to position descriptions, performance appraisal procedures, career planning & skills replacement	Business as usual (3 – 4)
Above plus Adopt & legally incorporate modern business ethics & anti-corruption policies Reinforcement of ethics & anti-corruption policies through regular communication with employees & stakeholders	*All of above plus* Develop planning procedure to evaluate & prioritize alternative investment opportunities Apply international standards for consolidating & reporting business activities Develop banking arrangements using OPE's own finances	*All of above plus* Develop & implement best practices for contracting & procurement, including budgets & contracting authority, transparency & competition for production of discovered fields	*All of above plus* Conduct compliance audits Use risk assessment techniques to identify needs for specific problems of QA non-compliance	*All of above plus* Initiate study of remuneration policies with other NOCs Commence employee advanced training at US Universities IOCs & independent programs (e.g., Oxford)	Moderate increase (4 – 5)
Above plus Continuous monitoring of transparency of company with use of international consultants as appropriate	*All of above plus* Apply new HSE standards to new facilities	*All of above plus* Increase range of competitive tenders to exploration stage	*All of above plus* Implement ISO 9000 and 14000 standards	*All of above plus* Participate in third-party administered surveys of remuneration	High level output (5 – 6)
Same as # 4	*All of above plus* Strengthen arrangements for financing expansion of reserves from own resources	Limit contracts for exploration & development or construction of reserve production facilities to known fields	*Same as # 4*	*Same as #4*	Reserve Producer (6 – 7)
Legend: The colors of the adopted practices correspond to the timing of their adoption as follows: Rehabilitation Transition Transformation					

Meeting the best practices challenge completely, and on the approximate schedule noted above, will create the *ability* within the OGE to participate substantially in any of the higher production level scenarios noted in the introduction to this section. Even with an incomplete adoption of these best practices, it may be possible for the OGE to achieve a higher level of output than is currently the case in Iraq. In particular, the Business as Usual production target (3-4 mmbd) can be met with only partial satisfaction of some of the performance metrics discussed in Section 2, possibly including those involving HSE, QA and staff development. A reasonable rate of OGE progress through the Transformation phase can help to keep the door open to achieving more ambitious production targets in the longer term future.

In addition to the management and operational practices necessary to fulfill certain production goals, there are specific requirements for investments in existing and new upstream infrastructure along with the establishment of an enabling legal, institutional, regulatory and fiscal environment for the sector. The 3-4 mmbd scenario requires an additional $4-5 billion in short- medium-term expenditures for rehabilitation of infrastructure and replacement of essential equipment. Increasing production capacity at large, discovered fields, the next scenario (Moderate Increase), may require more than $15 billion. A move to high levels of output could well reach more than double that amount ($25 to $40 billion over the next few years.) (see Appendix 16 for details)

A well-functioning OGE may be able to finance most of this investment through internal cash flow, and the use of service contracts, under normal circumstances. OGE's stated commitment to good governance can also set a good example for the domestic business community as a whole, providing confidence to investors and foreign lenders. The implementation of sound environmental protection policies by OGE will also serve as an example for other industries and provide benefits to the nation as a whole.

If so desired, the ability of the country to attract outside funds is highly dependent on the policy steps taken by the government, including the attractiveness of fiscal terms offered to potential IOC investors; the legal and regulatory environment; and the establishment of appropriate roles for various oil sector institutions. Although changes in direction become progressively more difficult to make as time goes on, there remains, some flexibility in the options timeline, giving both the OGE and Government some leeway in the enactment of appropriate legal and institutional measures for restructuring of the sector.

The next subsection considers the roles of sector governance and the role of government in oil sector restructuring.

4.2 Policy Options and the Role of Government

This subsection deals with the tasks of establishing transparency, the rule of law and establishing the various institutional roles in the oil sector during the Transition and Transformation phases. During the Transition phase, it is assumed that the sector will lack a firm legal basis with which to attract outside investment. Therefore, the government's main tasks will include establishing governance, creating an adequate separation of powers between the government and the OGE, providing policy direction on depletion, the gas sector, and the regulation of the OGE; creating oversight institutions for the OGE, and writing a new oil and gas law. In addition, the government may undertake the corporatization of the OGE. Production may need to be maintained using current oil revenues to fund service contracts. A more complete discussion of

the important questions that need to be addressed during a restructuring effort and the resulting metrics for a successful NOC is found in Appendix 15.

The experiences of other NOCs, as summarized in Section 1 of this report, highlight important lessons for the creation of an adequate separation of powers between the government and the OGE. Potential conflicts of interest can emerge from a close relationship between the Ministry and the OGE, in particular if the Minister is also chairman of the Entity. The absence of separate regulatory oversight of the OGE raises the risk that the achievement of long term strategic objectives may be sacrificed in favor of short-term commercial goals. The involvement of the OGE in regulating decisions about the level and pace of exploitation of the country's resources may conflict with its role as a commercial entity, or that decisions may not be made in the optimal long term interests of the nation. Lack of separation of powers may also have an impact the relationships with IOCs which will be dealing with the OGE on several levels simultaneously: as their potential regulator, partner and possibly as a competitor.

A key consideration during this period will be the attractiveness of the Iraqi oil market vis-à-vis other competitive oil producers. The more Iraq's oil sector provides the type of transparency and firm legal basis that characterizes successful oil producers, the more the country will be able to frame the terms of third party financing for the sector, should such financing be desired. These governance issues are crucial, and the examples of Iran and Venezuela show that lack of transparency, faulty rule of law and defective corporate governance can severely restrict both the volumes and types of financing available to a country.

The adoption of best practices, discussed in the previous subsection, is critically important since some practices need to be completed, or be well under way, before development of others can commence. For example, no large upstream contract can be developed, much less awarded, until a legal structure for the sector is put into place by the government. The structure of contracts, in turn, is dependent on a series of fiscal policy metrics that will need to be tackled during the transition phase. Similarly, accounting and audit standards, as well as financing for production activities by the OGE, must await the completion of the government's legal organization of the oil sector. As noted in Section 2, the assignment of assets and organization of business units, steps critical to corporatizing the OGE, are the outcomes of a legal process that defines the boundaries of the various components of OGE's business.

During the Transformation phase the governance role will shift to establishing and running new supervisory and regulatory institutions for the sector, assessing the prospective role of private investment in OGE itself, and making decisions about deferred fiscal matters, including the potential for some kind of mixed use oil fund (see Section 2.7 for a discussion of oil fund options), and implementing a new gas production and use policy.

Unlike the management practices discussed above, the staging of each of the governance and legal steps is crucial. Any delays in enacting appropriate laws or policies will have immediate consequences for the OGE and its ability to achieve higher levels of production.

The set of activities that can place the country's oil sector on a firm policy and legal basis are the following:

Fiscal policies. Establish goals for the sector in concrete terms and set out rules that are understood by all. This establishes a funding mechanism for the OGE, along with fiscal and taxation programs for potential IOC partners and estimation of funds available to non-oil uses.

Only when there is some degree of certainty regarding fiscal policies and principals can the government establish a mechanism for transferring and securing such funds. The first stage in the process for Iraq is the development of hard budgets for the OGE for the short term. Only with this understanding can the government's fiscal analysts determine (i) the amount of funds available for other uses, and (ii) possible financial yields of different tax and contracting regimes for higher levels of oil investment and output.

Business structure. Provide a legal and business definition of the OGE enabling the company to corporatize its practices and provide a basis for signing contracts and establishing a viable financial mechanism for ongoing operations. The legal business structure is essential to defining the assets of the OGE and of other entities in the oil sector, as well as the relations among those entities. The absence of explicit pressure to earn a return on investment made by the OGE may result in inefficient or non-productive allocation of resources. A low or negative return on downstream products dictated by a subsidized government set price (especially on associated natural gas) may act as a disincentive to new investment.

Corporatization of a National Oil Company

There is a trend in the international oil and gas industry to move away from public sector oil entities and toward ones with a functional and decision-making structure that more resembles what is found among the international oil companies. In some countries, this trend has resulted in a substantial restructuring of the entire oil and gas sector, resulting in improved transparency and performance on the part of the NOC.

Once a decision is made to implement a more corporate type of management and structure for an NOC, the role of the Oil Ministry changes to policy and strategic decisions, rather than day-to-day management. Other institutions may also be formed in the areas of upstream oil contracting and regulation, especially if the NOC loses its governmental and regulatory role as a result of the corporatization process.

As an NOC undergoes a transformation from a state entity to a corporatized state-owned company, there will be many changes in both organization and business methods that will accompany the changes. In particular, a corporatized entity will generally be organized in a structure that facilitates the calculation of profit and loss for each business unit.

The key reforms in corporatization are the creation of line of business profit and loss responsibility, shedding of governmental and regulatory functions, transparent financial statements, (including sources and uses of funds), independent management and oversight, and benchmarking of operational and financial performance.

Individual business units will be expected to use standard performance indicators as measures of performance. These measures normally include the following:

Financial Performance	Operating Performance
• Return on equity • Return on capital employed • Gross margins	• Unit costs of operations in production, refining, reserves acquisition • Reserves replacement rate

When the corporatization process is successful, the NOC can set an example for the introduction of modern management and governance practices to the country's state enterprise sector. In recent years Petronas (Malaysia), Petrobras (Brazil) and Statoil (Norway) have all undergone successful corporatization transformations which resulted in improved operation and financial performances. As a result of these reforms, each company has also been able raise additional capital in public offerings.

Oil Ministry. Policies providing greater transparency in oil sector practices not only add legitimacy to the OGE and others in the sector; but they also provide an improved informational base for decisions regarding the role of foreign investors or lenders in Iraq's oil sector. The

absence of a depletion plan can result in a lack of direction for the sector and create uncertainty that blocks progress in capacity maintenance and expansion.

Table 4.2.1, on the following page, relates the governance-driven activities described above to the output scenarios outlined earlier in this section. It is interesting to note that there are several governance and policy steps that can be initiated but few that can be completed during the Rehabilitation phase. In the Transition phase the important governance and policy issues should be well under way or completed to achieve one of the higher production levels in scenarios 3-5. Conversely, it is possible to delay reforms, especially in the areas of supervision and revenue disposition, while maintaining production levels in the 3-4 mmbd range. A failure to provide a clear legal basis for the operation of the OGE or for contracting activities may result in an absolute decline in oil production (Scenario 1) once the CPA's funding for rehabilitation ends.

Table 4.2.1¾ Governance Options and their Affects on Future Production Scenarios

Transparency	Rule of Law	Private Sector Participation	Supervision & Regulation	Revenue Transfer to Government	Scenario (mmb/d)
Corporatization not adopted Data still largely unavailable Financial reporting minimal	Legal basis for asset ownership not yet established Specific rights and duties of OGE, Ministry unclear	Fiscal terms not set for contracts Private participation largely through service agreements	Minimal legal basis for sector oversight & supervision OGE retains contracting function No separate entity to collect & remit GOI's share of oil revenues	Hard budgets for OGE not completed, understanding of financial needs of OGE v. other claims on monies not yet firmly established	Lower Production (1.75 – 2)
Publish reserve, production, consumption & export data Publish regulations on financial statements, contracting Divest non-core assets Establish public market-based pricing procedure for crude oil used in domestic refineries Reorganize OGE into functional units Publish financial reports	Establish constitutional principles governing Oil Ministry & state enterprises Establish legal basis for corporate organization of OGE State specific duties, rights & responsibilities of OGE, Ministry of Oil, other institutions as appropriate Conform OGE to international standards for HSE, accounting, product quality	Specify rights & responsibilities of investors, including tax treatment, adjudication of disputes, rights to own assets in Iraq, banking rights & privileges	Establish legal basis for oil sector oversight & supervision, including separate entities to collect & remit government's share of oil revenues Establish upstream organization, possibly to take over Foreign Direct Investment contracting function from OGE Establish oversight procedures for procurement and FDI contracting	Specify split of revenues between cost recovery & investment at OGE and government's share of revenues Establish financial mechanism to collect payments of government's share of oil revenues directly by a special account at central bank	Business as usual (3 – 4)
All of above plus Publish business plan of Government to increase output, detail costs and alternative methods of financing investments	*All of above plus* *Develop detailed petroleum law and tax code based on principles set out in constitution* Limit financial obligations of OGE with respect to pledges of oil or reserves ("negative pledge") Incorporate OGE separately from government	*All of above plus* Implement new cooperation contract types with private firms Encourage private investment in gas production / transmission Consider broader OGE capital structure	*All of above plus* Make the upstream supervisory agency the representative of government's interest in oil sector	*All of above plus* Establish mixed use fund for capital expenditures outside oil sector, place fund offshore with professional management	Moderate Increase (4 – 5)
All of above plus Place legal restrictions on outside businesses of OGE Consider formation of new national entities for production or other roles in sector	*All of above plus* Change production relationship of OGE to contractual one with new government supervisory agency Eliminate GOI's residual OGE roles Equalize legal status of all producers with regard to production contracts & payments to government Consider reorganization of OGE into limited liability company, raising equity through partial IPO	*All of above plus* Place limits on government financing of oil production to encourage more investment from private sources Establish private oil transport companies	*All of above plus* Establish supervisory agency to take over upstream contracting & to represent government's interests Make supervisory agency oversee OGE contracts as well as private firms	*All of above plus* Establish long term fund for income & growth for period beyond 2050	High level Output (5 – 6)
Re-integrate OGE up and downstream Give OGE responsibility for gas production and transmission related to maintaining spare capacity Stop publishing precise reserves and limit specific field data publication	Establish OGE as government's legal representative with regard to mining rights	Limit private participation in upstream to allow for some capacity to be held in reserve to assure the maintenance of spare production capacity Change investment law to distinguish between government & private & foreign investors and their obligations to the government's goals as a reserve producer	No supervisory agency for OGE, apply to private investors only	*Same as #3*	Reserve (swing) Producer (6 – 7)
Legend: The colors of the adopted practices correspond to the timing of their adoption as follows: Rehabilitation / Transition / Transformation					

4.3 Potential Role of IOCs in Iraq's Restructured Oil Sector

The current state of the Iraqi oil sector makes establishing priorities for rehabilitation and reconstruction critical. At the same time, to position itself for the future, the country will also need to consider longer-term production and fiscal objectives and lay the groundwork necessary to keep any desired options open.

Although, decisions about longer range fiscal and production goals do not have to be addressed immediately, during the Transition and Transformation stages, such targets will become more critical especially for higher output scenarios, Ultimately, the production goals set will affect the question of whether there is a role for IOCs in the country's oil sector.

The major factors that affect the potential role of the IOCs, and the types of contracts that the government may wish to offer, include the following:

- Willingness to accept IOC investment in the oil sector.
- Short and long term fiscal objectives.
- Desire or ability of government to invest in sector.
- Ability of OGE to reinvest in new output.
- Willingness of IOCs to accept various degrees of risk—geological, technological, business, regulatory.

The highest priority facing the industry is to minimize any short- term production losses arising either for technical or security reasons while ensuring a safe operating environment for petroleum personnel at all levels of the industry.

International firms may be considered for a variety of roles in the longer-term rehabilitation and reconstruction of the country's oil industry. These include:

- Drilling services.
- Equipment rehabilitation and replacement.
- Development of known fields.
- Discovery and development of new fields.

While the involvement of IOCs in the latter two activities do not need to be decided at the moment, the government may find it useful to consider the pros and cons of initiating some interim external contracting programs to assist the OGE in restoring production over the next 2-2.5 years.

Spears and Associates of Tulsa, Oklahoma, estimate that to increase oil production to 6 mmbd, Iraq will need to make large investment commitments in drilling services ($10-12 billion) and infrastructure ($17 billion). These estimates are in substantial agreement with the estimates for possible future investment provided in Appendix 16. This appendix also shows some of the potential roles IOCs could play under various assumptions regarding desired production levels, assuming an acceptable contracting régime is devised.

As discussed in Section 3, activities that will take place at various times during the reconstruction of the oil industry, different contract goals may be appropriate in each of the three defined phases:

- *Rehabilitation*—Restoration/resumption of production from discovered fields.
- *Transition*—Further exploitation/enhanced recovery of reserves from discovered fields.

- *Transformation*—Identification of and exploration of new fields.

Table 4.3.1, below, shows some options for possible IOC involvement in the next 5-6 years, if desired.

Table 4.3.1¾ Investment Characteristics and Contracting Options for Iraq

Period	Key Production Characteristics	Contracting Options
Rehabilitation – restoration of production & facilities at known fields	§ Little risk on reserve volumes § High risk of large upfront capital costs § No government funding/contribution § Desire for rapid production gains § Lack of information, no records	§ Cost-plus contract type useful in short run where financial risk is high but geological risk is small § Unstable business environment not suitable for IOC assumption of risk
Transition – enhanced recovery at current producing fields & exploitation of fields using step-outs & infield drilling	§ Moderate reserve volume risk § Moderate capital costs § Limited government funds available for participation § Desire for both reserve and oil production rate gains § Fair data availability § Oversight capabilities available	§ Adoption of risk-sharing contracts for better exploitation of existing producer fields § Enhanced recovery can be handled by service contracts or risk sharing, as appropriate § Key consideration for contract type is fiscal policy of government and willingness of OGE to participate financially in production activities
Transformation – new reserve acquisition & field delineation	§ Moderate reserve volume risk § Moderate-to-high capital cost § No state funds risked § Limited data availability	§ Low risk contracts – can be used once business climate & fiscal/legal régime firmly established

Over the next two years, the Government of Iraq will make important decisions regarding the potential roles of IOCs and contractors in the country's oil sector. The most pressing issues will involve fiscal terms and government revenue objectives. In addition to the maters of fiscal policy, tax take and risk allocation, there are also other issues that may affect the activities of IOCs in Iraq. These issues include two decades of enforced insularity in local business and government cultures and the legacy of ethnic divisions in the country. Overcoming entrenched practices and attitudes may raise the cost of doing business and add time to contract negotiation and implementation.

Which fiscal regimes are best for the host country depend on how much risk capital of its own the government is prepared to invest. If a host government is short of money and yet has large financing needs, it may make more sense to let foreign direct investors take almost all the risks but for doing so, the IOCs will typically demand a higher return than if the Government, as a partner, also risks its own capital.

There are certain lessons that can be gleaned from a survey of external relations and upstream contracts utilized by other NOCs from around the world:

- Governments must be cognizant of the consequences of certain choices for development of the overall economy and society, for the speed and level of capacity expansion that can be achieved, and for the exposure of investment budgets to changes in oil prices. Iraq will need to consider these variables in evaluating the options for IOC participation in its petroleum sector over time.

- Should the country decide to pursue international participation in its oil sector, some forms of foreign involvement have proven more successful than others in attracting high levels of capital and boosting reserves and production rapidly.

- Inadequate regard for the risks borne by IOC contractors has led to less-than-successful investment programs or avoidable delays in meeting production targets (See Section 3).

- It is entirely possible that best policies for Iraq's oil industry may change over time. As the OGE generates more internal capital, its dependence on foreign participation for technology and expertise may lessen. At the same time, as the government, OGE and the IOCs become more comfortable with one another, the frictional costs of business may fall, leading to a greater willingness to invest for the longer term.

Decisions on which policy options are best can only be made by the Iraqi Government and the representatives of the Iraqi people, after detailed debate and discussion of the overall goals for Iraqi society in general and for their petroleum sector in particular.