Petroleum Investment Patterns in Iraq

The Transition Period (2003 – 2012)

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Abstract:

Iraq has huge oil and gas resources in terms of hydrocarbon reserves and high levels of expected production and export capabilities. Since 2003, dramatic political and economic changes have occurred, and these changes have affected the nature of, and trends within the Iraqi economy, mainly the petroleum industry which is the backbone of the Iraqi economy. There has been a radical shift in economic philosophy, to encourage new petroleum investment trends whereby the role of government is reduced and that of International Companies is enhanced, with the adoption of new investment patterns in upstream and downstream activities. These changes have occurred over a transition period for the institutional – legal framework after 2003, and have introduced unprecedented patterns in most Iraqi petroleum activities.

The subject of this paper is the fundamental changes in investment in relation to the Iraqi petroleum industry. The purpose of this paper is to examine the current and expected patterns of petroleum investment in Iraq into upstream and downstream activities during the period of 2003 – 2012.

Note: Public–Private Partnership (PPP), Build (B), Operate (O), Owned (O), Transfer (T).

General Framework:

1 – 1: Macro-economic Trends in Iraq

Iraq is a developing country dependent upon oil export revenues, and the economy has no specific identity, in terms of socialist or market management. The developments in the Iraqi economy, before and after 2003, were unorganized for political and economic reasons. During the 1980s, the dynamics of war dominated all life's aspects, and most resources were mobilized for the military efforts. Also over the period from the 1990s until the beginning of 2003, the international sanctions and penalties had a significant effect on the economy. Over that period the government had tried to cope with low levels of available resources. Those events played a significant role in restricting most investment opportunities and reducing development projects, especially the development of the petroleum industry [1].

2003 was the year of war and political change, which rearranged the economic map in general and the petroleum industry in particular. The most important relevant events were the elimination of international sanctions and the adoption of a market economy philosophy, in parallel with growing of crude oil production and increasing oil prices in the world market.

Over the years after 2003, the key macroeconomic indicators still reflect unbalanced trends where the oil income is the key source of government revenue, which leaves the country's finances totally depending on fluctuations in the external world economy. Also there is a lack of consistency in consumption and investment, and between the public and private sectors, since the working allocations are more than three times capital allocations; also public expenditure is considerably more than private expenditure[2].

Most economic indicators still reflect the unique condition of the Iraqi economy, aiming for fast change in political and economic situations, and synchronizing transition with the growing of oil production and increasing of world oil prices. These changes to some extent have delayed fundamental macro-economic reforms, especially the goal of building a market economy-based structure, attractive business environment and acceptable investment frameworks [3].

The official economic philosophy has been organized based on a diversification of investment management to achieve the goals of an Economic Five-Year Plan, and establish effective participation between public and private sectors [4]. But the critical dependence of macroeconomic indicators on oil revenues mostly leads to a focus on developing the petroleum industry. In that context, investment was the key goal through adopting open and progressive ways to accelerate oil production and encourage international companies to invest in the petroleum industry, which will pave the way to gaining huge financial rewards and at the same time support macroeconomic reforms.

1– 2: Iraqi Petroleum Industry

Over recent years, the Iraqi petroleum industry has made rapid changes; the trends are shown in table No.1. Highly ambitious plans have been set in motion to develop crude oil fields, increase oil production and export rates, to extend refining capacities by modernizing existing units and building new refineries، also to develop gas fields and the processing plants to reduce the flaring of gas, as well as the rehabilitation and establishment of infrastructures relating to storage in addition to ports and pipelines [5].

The results have been dramatic in terms of oil field development and increased production by national and foreign companies, most of them through two licensing rounds over the period from 2009 – 2010, and an additional two rounds from 2011 – 2012, for oil and gas development and exploration. Regarding refining activity, the changes have been moderated in increasing petroleum product outputs, which are still not satisfying local demand (for transportation, heating, and power generation). As a result, the import rates have been continuing at high levels especially for gasoil and gasoline.

Table (1) Iraqi Crude Oil Production, Export and Refining (2003-2012)

Million barrels per day according to Ministry of Oil

Items	2003	2008	2010	2011	2012
Production	1.53	2.28	2.35	2.55	2.95
Export	1.00	1.85	1.89	2.16	2.43
Refining Capacity	0.34	0.48	0.53	0.57	0.58

Internal Reports Iraq.

Concerning natural gas, significant results have not been achieved up to the end of 2012 given that development work on gas fields is still in the initial phases, while the real utilization of associated gas will begin in mid-2013.

Also, massive efforts have been made in the infrastructure sector, which include rehabilitation of existing facilities and the building of new ones; ports, export facilities, pipeline networks, new storage capacities, surface facilities, and the construction of new roads and small airports [6].

1 – 3: World Petroleum Investment Patterns

Globally, the historical paths of petroleum upstream and downstream investment have been developing for as long as the world energy demand has been growing. Generally, the investments have many goals and justifications ranging from maximizing the benefits and profits to meeting the need for finance, experience, technology, efficiency, and modern management. In this context, the parties of petroleum investments look to achieve a diversity of objectives. For example, in upstream activities the Government seeks to maximize wealth from its natural resources and maximize the revenues to meet their economic and social needs. Foreign Companies also seek to build equity and maximize wealth by finding and utilizing oil and gas reserves at the lowest cost and with the highest possible returns [7].

The most important sector in the petroleum industry is the upstream activities, and their common investment patterns are divided into three types. The first one is termed 'Classical Concessions', whereby International Oil Companies (IOC's) own all the oil reserves and fruits of production, while the Host Governments receives taxes and royalties. The second one is the Production Sharing Contract model, where the role of Governments is extended to receive an additional share of the extracted resource besides the taxes and royalties that accrue from oil production. The third one is the Service Contract , under which the Contracting Company may undertake to explore and develop production for a payment (in cash and/or in kind) by means of a per barrel fee, with no equity position[8].

Downstream activities are different, but similar to the investment patterns in businesses outside of the petroleum industry. In reality, there are many kinds of investment in this regard, ranging from full national investment, full private investment, participation between public and private and a variety of forms of ownership, funding, management, operating model, risk etc.. Each of those forms has key players, and specific features and roles. Table (2) shows samples of investment patterns that are common in the petroleum industry and their key players.

Table (2) upstream and downstream; Contracts and Key Players, prepared by the researcher

Upstream Sector	Downstream Sector	Key Players
Concessions Production Sharing Contracts Services Contracts (with risk) Services Contracts (without risk) Buy-back Contracts Joint Ventures Technical Assistance Contracts Others	BOOT BOT BOO Joint Venture Buy-back PPP Lease Contracts Management Contracts Others	National Companies International Companies Emerging Companies contractors Financers Bankers Sponsors Suppliers Customers Others

Iraqi Petroleum Industry; Management and Finance

2 – 1: Organizational Structure

Principally, the Iraqi petroleum industry has a broad structure, since all oil and gas operations are the responsibility of the Ministry of Oil, and the Ministry links to the Council of Ministers. The Ministry of Oil consists of eighteen state-owned companies specializing in upstream and downstream activities, four academic institutes, an Oil R&D Center, general Inspectors office, and nine directorates inside the Headquarters of the Ministry of Oil; each of these entities has specific tasks and functions [9].

2 – 2: Institutional and Legal Framework

2 – 2 – 1: Institutions and Entities

The institutional framework of investment, in general, and for the petroleum sector in particular, is broad and manifold, distributed among many government ministries and entities. On the one hand, the petroleum industry in Iraq as we mentioned composed of fully state-owned organizations, and its investment strategies, programs and projects are designed and implemented by the government. On other hand, the institutional framework of oil and gas investment is interrelated with a number of ministries, which are concerned with: petroleum, energy, the environment, legal issues, trade, and financial functions, including work with foreign companies.

2 – 2 – 2: Laws and Regulations

An integrated part is the legal framework and regulations; this part is so broad and surrounds most activities and operations of the petroleum industry. The framework includes laws, regulations and procedures, which organize all the work of government and non-governmental entities regarding petroleum operations. Part of that framework changes from time to time, ranging from abolitions and mandates to additions that have made it complicated due to their many interpretations table (3).

Table (3) Main Institutional and Legal Frameworks, Prepared by Researcher. (Iraqi Petroleum Sector)

Laws	Ministries and Entities
Laws of Hydrocarbon Resources Law of Public (State – Owned) Companies Law of Private Companies Investment Law Refineries Law Tax Law Law of Importing Petroleum Products Other Relevant Laws & Regulations of (Environment, Lands, Import & Export, Labor..etc.)	Ministry of Oil Ministry of Trade Ministry of Environment Ministry of Finance Ministry of Interior National Investment Commission Tax Commission Customs Commission Other Ministries & Entities

Moreover, there is a set of laws and proposals to be issued, or in the process of being transformed into legislation, and others are expected in the years ahead. The most important is the Oil and Gas Law for organizing the exploitation and management of hydrocarbon resources, including three laws focusing on: the National Oil Company, the Supreme Council of Oil and Gas, and the structure of the Ministry of Oil. Also there are a number of proposed laws either under discussion or at the initial stages to be organized as illustrated in table (4).

Table (4) Proposals and Expected Laws, Collected by Researcher.

Oil and Gas Law
Law of Restricted Oil lands
(Oil and Gas Projects) Privatization law
Joint Fields law
Gas Investment Law
Law of Petroleum University
Amendment of relevant laws (and Regulations)
Others

2 – 3: Ownership

Legally, all the companies and other entities in the Iraqi petroleum industry are owned by the government. The profile of ownership in Iraq, whether of lands or tangible and intangible assets, is very complicated and almost inherited from past administrative practices. For lands, there are two types: either owned by Ministry of Oil or owned by the Ministry of Finance, and these two types have dedicated use only for petroleum operations purposes. Regarding the assets, these also are fully owned by the government because they have been already bought by funds from the government's budget.

2 – 4: Finance

Simply, the financing of national (Oil) companies is classified into two parts. Firstly, central funding by the Ministry of Finance (Government Budget) to finance the capital expenditures of companies, academic institutes and R&D center. The second one is self-funding from companies' own budgets to finance most of their operating expenditure. Unspent funds, whether operating or capital allocations, will return to the Ministry of Finance to reallocate as a new budget for the next financial year.

2 – 5: Employment

Currently, Around 120,000 employees are working in the petroleum industry, managerial and technical specialties. Distribution of those employees is quite varied, from a company that has only 250 employees to another with more than 20,000 employees. The number of employees after 2003 has been inflated many times; the reasons behind this development were technical, social and political considerations [10].

2 – 6: Decision -Making Process

The mechanism of decision making is subject to laws and government regulations, which are divided based on their levels. In fact, there are three levels in this context; firstly, the decisions come from the Council of Ministers that should be applied by the Ministry of Oil. Also the decisions made by the Ministry, the so called Opinion Commission (General Managers Board headed by Minister) that should be applied by the companies, and the third one is decisions made by the company (Board of Management) that should be applied by a company's departments[11].

2 – 7: Pricing Systems

Although the petroleum industry has old and complicated pricing systems, they nevertheless remain functional in spite of many significant changes that have been made in recent years. The pricing systems are unique and can be divided into four classes: Firstly, the prices of crude oil among Extracting and Refining Companies and the Ministry of Electricity are administrated with roughly fixed levels. The second system is between Refining and Distribution Companies also the prices of products are very low and set only for accounting purposes. Third, product prices between the Distribution Company and final consumers are subsidized, whether produced locally or imported. Finally, the pricing of crude oil for export is subject to world market conditions [12].

Petroleum Investment Patterns in Iraq; Current and Expected

Preface

Historically, petroleum investment patterns in Iraq are not very diverse. Since 2003, many models have been proposed by foreign companies including models mentioned in previous sections. In fact, there are some reasons behind that; the nature of existing institutes, legal frameworks, and the lack of modern experiences, as well as the strong desire to make significant change. In contrast, the government was studying and consulting about many proposals, but it was careful in weighing its options and decisions to take account of social and political considerations, as well as factors relating to an experience of the selection.

Furthermore, there were many urgent goals to be met in selecting new investment patterns; quickly increasing crude oil production, reducing flaring gas, utilizing the associated gas, extending refining capacities, building new pipeline networks as well as storage and export facilities, and goals related to a number of logistic and strategic purposes.

In practice, adopting new investment patterns was linked broadly with the rapid development of crude oil extracting activities besides managerial and financing issues. The key goal was adopting new and non-classical investment patterns, the clear expression of that was the invitation of selected foreign companies to come; to bring their capital, experience, technology and management skills, as well as sharing risks.

Conceptually, the new investment patterns are homogenous with the new philosophy of a market economy in Iraq, but the pillars are still limited, especially the background of existing laws and regulations, also the nature of the society and culture. This is why some of the results run slowly and remain incomplete, as we will see later.

The new economic philosophy has opened the door for many options, most of them commonly and applied in neighboring countries, while also having been proposed by foreign companies and foreign consultation offices. In this context, the Iraqi government was not very keen to adopt any specific option before the accurate assessment. Until now, some patterns have adopted, but others are still under negotiations or are being studied.

3 – 1: Exploration and Production

Huge hydrocarbon (crude oil) reserves, around 150 billion barrels, have made the Iraqi upstream sector the backbone of the petroleum industry in general and the national economy in particular. Although the historical path of that sector, especially regarding investment issues, is not significantly different than the applications in Oil Producing - Countries in earlier periods, the wars and sanctions during the period from 1980 – 2003 have considerably affected that sector. The changes in oil investment strategies were unique; there are a variety of patterns which characterized the Iraqi upstream sector, which are classified as follows:

1- Classical Concessions
2- Profit-Sharing Contracts (50/50)
3- National Investment
4- Service Contracts

The first pattern was the Concession Agreements to exploit Iraqi oil, in practice from the 1920's until the mid-1970's, between the Iraqi Government and International Oil Companies (IOC's). According to these agreements, the government obtained taxes, royalties, leasing payments and bonuses, and the IOC retained all of the production as well as the explored reserves and the right to own and manage the petroleum operations without government intervention.

A significant change was made in 1952 through the advent of Shared Profits, on a 50/50 basis, with the government receiving half of the profits besides taxes and royalties, in cash or in kind. During the period from 1960 – 1964 most of the dedicated lands for IOC's had been recovered (the unexploited lands) and came under the control of the Iraqi National Oil Company (INOC) [13].

The period from 1972 - 1979 represented a turning point in Iraqi petroleum history, since those agreements with IOC's had been canceled and all the assets and operations transferred to the INOC (which is state owned company) to operate as a National Investment with assistance from specific companies (French, Indian, Brazilian and Soviet). The type of contract was known as a Technical Assistance Contract (TAC), and was agreed for a limited time and without risk [14].

During 1980's and 1990's, the role of national investment was continuing, with the assistance of companies from friendly countries. The work within those two decades had no a specific pattern neither for the NOC nor IOCs. This context had continued until 2003 in spite of government attempts to attract a number of foreign companies with new patterns of oil contracts (Production Sharing and Services Contracts) but no one had effected.

What happened after 2003 was a dramatic change, whereby the new philosophy raised new prospects for International Oil and Gas Companies to invest into oil and gas fields (Exploration, Development and Production). The new pattern is a Standard Service Contract, and during 2009 – 2012 four license rounds have been signed for oil and gas exploration, development and production activities table(5).

Table (5) Four Oil and Gas Licenses Rounds in Iraq according to IEA,(2012)

Date of Round	Field or Block Licensing	Operator	Type	Production Plateau Target (kb/d) for oil, (bcm/year) for gas
2008	Ahdab	Petrochina	Oil	140
One (2009)	Rumiaila	BP	Oil	2850
	West Qurna I	ExxonMobil	Oil	2825
	Zubair	Eni	Oil	1200
	Missan Fields	CNOOC	Oil	450
Two (2010)	West Qurna II	Lukoil	Oil	1800
	Majnoon	Shell	Oil	1800
	Halfaya	Petrochina	Oil	535
	Gharraf	Petronas	Oil	230
	Badra	GaspromNeft	Oil	170
	Qaiyarah	Sonangol	Heavy Oil	120
	Najmah	Sonangol	Heavy Oil	110
Three (2010)	Akkas	KOGAS	Gas	4.1
	Mansuriyah	TPAO	Gas	3.1
	Siba	Kuwait Energy	Gas	1.0
Four (2012)	Block 8	Pakistan Petroleum	Gas-prone	n/a
	Block 9	Kuwait Energy	Oil – prone	n/a
	Block 10	Lukoil	Oil – prone	n/a
	Block 12	BashNeft	Oil - prone	n/a

Elements serving numerous considerations have been implemented in those four rounds. First of all, the oil and gas reserves and production remain owned by the government. The role of foreign companies (Contractors) is centered on providing experience, technology, technical and financial expertise to develop oil and gas fields, and increase the production to the specified rates. Also with the exploration blocks, companies should carry the same requirements within the tasks of exploration and production. In contrast, those companies receive Service Fees included their capital and operating costs (Petroleum Costs), and they receive profit (Remuneration Fees) according to what is termed the R-factor and according to sliding scale techniques.

in this framework, a number of considerations may require some changes of philosophy or the nature of existing contracts (introducing, adjusting and changing), as well as upstream investment patterns, especially reducing the role of national companies and extending the role of specialized services provided by foreign companies and merging upstream and downstream activities. That should be driven by a number of factors: the sort of license round developments, and the implementation of Oil and Gas Law, the relationship with neighboring Oil Producing Countries, requirements of oil and gas infrastructure, as well as development into the world oil market.

3 – 2: Crude Oil Refining

Currently, there are three large refining complexes, which can be described as: Northern, Southern and Midland, besides a number of smaller refineries as branches associated with the large refineries table (6). Generally, all the refineries are State-owned, employ poor technology and productivity, have large numbers of employees, and produce heavy fuel oil, comprising some 50 per cent of total output. Although significant efforts continue, to rehabilitate existing units, add new modern units, as well as to increase and improve the quality of products, many critical issues need to be considered.

Table (6) Large and Small Refineries in Iraq according to Ministry of Oil. (2012).

Companies	Key Refining Complexes	Affiliates (Small Refineries)	Capacities.2012 (MM b/d)
Northern	Baiji Refinery	5	0.297
Southern	Basra Refinery	3	0.166
Midland	Daurah Refinery	2	0.123

Concerning the commerciality of those refineries, they operate differently than independent businesses, as the current principle is a Cost-Plus formula that is subject to the control of government. The refineries purchase the crude oil from extracting companies from (3 – 4)per cent of the export price (for Brent this was around $100 barrel at the end of 2012), also the selling prices to the Distribution Company (state-owned) are very low. These prices only cover their operating costs and some small profits, mostly for employees table (7).

Table (7) Internal Prices among National Companies, according to Ministry of Oil. (2012).

Crude Oil	Products	Selling Price from Refineries to DIS. Co (Cent/Liter)	Selling Price from Dis. Co to Final Consumer (Cent/Liter)
Selling Price from Extracting Co. to Refining Co. 3 - 4 ($/barrel)	Gasoline	4	38
	Kerosene	2	34
	Gasoil	2	12.7

Significant change has been initiated since 2007 when the law of refineries was issued, allowing for the private sector to build and operate its own, new, highly technical refineries in Iraq (The law No.64 of the year 2007). In 2010, four investment opportunities have been announced, in the north, middle and south. Also an initial memorandum has been signed on a heavy oil refinery in Al-Qaiyarah Oil Field (north of Iraq), as well as the preparation of an announcement regarding a large refinery as a special licensing round relating to the Nasiriya Oil Field in the south. All those potential refineries will be built and operate according to high levels of technology and environmental considerations. The value of petroleum products in those refineries will be based on international prices, whether the selling will be internal (local market) or external, for export table (8).

Table (8) New Proposals of Large Refineries in Iraq, according to Ministry of Oil. (2012).

Project	Capacity (000s of barrels/day)	Location
Maissan	150	South
Kirkuk	150	North
Karbala	140	Midland
Nassiriya	300	South

Right now, in spite of different patterns proposed by local and foreign companies, and after a wide range of discussions and negotiations, practically there is no contract signed due to financial, commercial, legal and security reasons.

Although there is no private refinery working in Iraq right now, the relevant discussions and negotiations have enhanced the business culture of Iraqi staff, and the problems of existing refineries, especially technical and financial problems have become more understandable with regard to the losses and waste of resources as well as the results of weak maintenance.

3 – 3: Natural Gas; Upstream and Downstream

Concerning the Iraqi gas industry, national investment patterns have two sides; the first one is upstream, and the second is downstream. To date, there is no national company specialized in extracting natural gas, since the national extracting companies are flaring most of the associated gas and delivering the remaining quantities to the national gas companies (those companies have no extracting activities) for gathering and processing associated gas, which is then transported to the refineries and the Gas Filling Company (state – owned)..

In fact, the government controls all the phases of the natural gas industry. Since 2008 the government has been in negotiations for new license rounds on gas fields; also for utilization of the associated gas that is still being flared in producing oil fields. Currently, there are three patterns of gas investment: national investment, joint ventures and service contracts.

National investment is the case of North and South Gas Companies as a downstream activity. In these companies, all the issues related to assets, financing, management and decision-making are controlled by government. Regarding the accounting system, the prices of natural gas and gas products (purchasing and selling) amongst the relevant national companies are very low and subject to government decisions. It is noteworthy, that those companies are always profitable due to government regulations and the flexibility of their accounting systems.

The second investment pattern is a joint venture (Basra Gas Company BGC) between Iraq (South Gas Company SGC) and a consortium of Shell and Mitsubishi, to gather and process associated gas, which is now being flared, to produce a number of products for local and international markets. BGC has a complex commercial model, and the work is based on international standards. According to the BGC's agreement, this company purchases the raw gas from SGC and also sells most of its products to SGC (especially dry gas). The price of raw gas represents 10 per cent of total BGC revenues, and the dry gas is sold to Iraq at 1/3 of world price (based on international fuel oil prices) [6].

Third pattern of gas investment is the Service Contract model, to invest into gas fields, and investment into Exploration Blocks with promised reserves (see aforementioned table(5)). Simply, these contracts have been designed based on paying (Signature Bonus) by Foreign Companies and which shall carrying the risks of operating and capital costs for development or exploration, and these companies will receive Service Fees to cover their costs and profits.

3 – 4: Oil and Gas Pipelines

Principally, all the assets of oil and gas pipeline networks are state owned. Also all the operations are conducted by a state-owned company so called (Oil Pipelines Company). The company's costs and revenues are subject to government decisions (Ministry of Oil), and table (9) shows an example of transport fees issued by the Ministry. The recent dramatic increases of oil production create an urgent need to rehabilitate the existing pipeline networks and plans are underway to establish new primary and secondary ones, especially pipelines connecting the south with north parts, and across neighboring countries towards the world market. Significant change, in this context, was initiated when the government adopted a new investment pattern. This pattern allows the private sector (mostly foreign companies) to fund, establish and operate new major pipelines based on business and profitability criteria that take into account real costs and efficiency terms.

Table (9) Oil and Gas Pipelines: Transport Fees, according to Ministry of Oil. (2012).

Products	Units	Tariff ($)
Light Products	1000 m3.km	16.6
Crude Oil	1000 m3.km	3
Fuel Oil	1000 m3.km	4
Dry Gas	1000000 m3.km	8.3

To date, new and unprecedented investment patterns that reflect a new era of participation between public and private sectors is still under discussion and negotiation.

3 – 5: Local Petroleum Products Distribution

Horizontally, this activity is the broadest. Covering all areas of the country and represented by the Petroleum Products Distribution Company (state - owned). The role of this company is critical, since the functions are dedicated for the local market only, and it is directly connected to social and economic interests. The distribution activity still uses traditional methods, in particular management and technology. Simply, the company's commercial framework consists of purchasing petroleum products from refining companies and receiving imported products from the Iraqi Marketing Company (state - owned), all at very low prices (around 10 per cent of real import prices). After that the company sells the products to the local market at subsidized prices (40 per cent or less of import prices) table (10).

Table (10) Key Petroleum Products Prices, according to Ministry of Oil. (2012).

Products	Consumer Price ($/Liter)	Import Price ($/Liter)	Subsidy Level ($/Liter)
Gasoline	**0.38**	**1**	**0.62**
Gasoil	**0.34**	**0.97**	**0.63**
Kerosene	**0.127**	**1.04**	**0.91**

There are many outlets in the distribution sector covering all the fuel stations and gas filling factories as well as selling yards. These units are divided between state-owned and those owned/leased by private sector. For instance, in 2012, the total number of fuel stations was 1320, 20 per cent of which are public and the remaining are part of the private sector. All those units are subject to government regulations, especially the selling prices and the locations.

It is noteworthy that the revenues of the Distribution Company are huge, and are mostly divided as follows:

- Covering operating costs.
- Profits for employees.
- Allocations for imported products.
- The remaining (largest part) for the Ministry of Finance (Budget).

The changes in this activity have been modest despite the plans for reform, which started more than three decades ago, and while it may be that the reasons are legal and commercial issues, the recent change of government philosophy carries some dramatic trends:

- Maintaining government domination along classical patterns.
- Leasing or selling some government distribution units.
- Preparing a variety of plans and designs to establish modern fueling stations.
- Allowing private companies to import petroleum products and sell them at commercial prices.

In practice, the first three trends are making rapid progress, but the fourth one is slower for many reasons; routine, the security situation and competition from government prices. In general, the reform framework of distribution sector is broad and complex, and the critical goals are still the quality of services provided to the people.

Challenges and Outlook

4 – 1: Challenges

Many revolutionary events coincided after 2003 in Iraq, mainly: political change, transition from a central economy to a market economy, State building, transition in philosophy regarding investment, rebuilding a new petroleum industry. The transition in the petroleum investment philosophy and framework, in spite of the variation in real progress of petroleum activities, was slow and faced critical obstacles. In fact, many challenges are broad and require a long time to assess and address.

The most important challenges, based on the petroleum industry's performance after 2003, are: the security situation, an unclear and incomplete legal framework, ministries and government entities slow interaction with rapid changes, inadequate infrastructure, lack of human experience of management and negotiation, government routine and tight controls, as well as issues relating to powers and responsibilities of authorities between the center and regions.

Those challenges mentioned are reflected in current practice within the petroleum industry. The upstream sector is the most important in this context, especially in dealing and interacting with international companies (IOC's) within four the license rounds. The refining sector still faces difficulties in convincing the relevant companies to invest in new private refineries, in particular issues related to crude oil cost and the purchasing of products by government. Natural gas also has no clear plans or programs, since all available options face obstacles, mainly the decision-making process. Pipeline projects have challenges concerning rehabilitation, finance, lands and routes. Many challenges still translate into inflated costs, exaggerated risk premiums of existing and future projects, poor quality, delays, or even abolition of small and large projects.

4 – 2: Outlook

The transition and rebuilding of a new state in Iraq needs huge and long-term funding, and the oil export revenue is the only available source for financing and implementing this transition. Therefore, the most important mechanism is investment to build a new petroleum industry; mainly in the upstream sector, to achieve rapid growth in crude oil production and export, in parallel with the development of the downstream sector to ensure harmonious progress.

More progress requires continuous work, further time and difficult decisions. New roles for laws and institutions are necessary but not sufficient; other efforts are required to achieve multiple goals in the Iraqi petroleum industry. Firstly, this can be accomplished by establishing and encouraging an investment environment through amending much existing legislation and completing new laws and regulations; also, by establishing a clear and integrated strategy for the petroleum industry as a road map for current and future work. Secondly, completing the supporting infrastructure, enhancing personal practice and acquiring modern skills and experience, especially regarding modern petroleum investment patterns, as well as the mechanisms of their preparation and application.

At this time, Iraq, with huge potential oil and gas reserves, is becoming a focus point at local, regional, and international levels. Rapid increase in oil production will release many questions and concerns for the world energy market about oil production rates and prices. That focus may give Iraq another reason to speed up its efforts to complete most of the requirements to build a modern petroleum industry.

Conclusion

Political and economic transition have opened the doors widely to make considerable changes in the Iraqi petroleum sector. The transition tasks are intensive and require a long time, huge funds, and massive efforts. In spite of the ambitious goals, the progress in actual performance of the petroleum sector was unbalanced. The upstream activity for crude oil production has been dominant and this remains the case, which has been clear from its results. For the upstream sector of natural gas, and the downstream activities related to crude oil refining and gas processing, as well as associated gas processing, progress remains slow and faces a number of complications. Currently, the key tasks are focusing on completing the institutional-legal framework, establishing a healthy business environment, and maintaining greater momentum in infrastructure-building efforts. In this framework, there is a need to review the developmental philosophy of refineries and gas investments to address the slow-moving progress, that can be made possible through improving the business environment and granting real incentives to foreign investors, while balancing other goals: the need for finance, the growing government budget, self-sufficiency regarding petroleum products and meeting the growing energy needs of the world.

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