

JOAN MIGUEL TEJEDOR-ESTUPIÑAN¹

OIL, DEVELOPMENT AND CONFLICT IN IRAQ: AN INTRODUCTION²

This article provides evidence on the economic and social importance of the oil sector in Iraq. Existing literature allows to understand the background, context and institutional framework that regulate the oil sector, the main implications and limitations for its development, and the impacts of the current conflict on human development. By using a comparative analysis of different secondary sources and statistical databases, the results show that Iraq has one of the largest oil reserves in the world; and the challenges that Iraq faces in order to overcome mismanagement of the sector, the underdevelopment of the infrastructure, the gap in the human development and the internal war.

1. INTRODUCTION

Iraq's possess an important wealth of crude oil, and natural gas, nevertheless, the development of this sector seems uncertain. Different sources show how this country has one of the largest reserves worldwide, the experts argue, that a democratic and real management of the advantages of this sector may provide high level of welfare and thus, human development, by mean of a participative, democratic and transparent system of production. Nevertheless, this wealth has not been exploited and distributed according to these principles (Tsui, 2011). Surrounded by the international and domestic interests, this strategic sector of Iraq's economy has been extremely affected by subsequent devastating wars, and after decades of a state control (by a military regime and dictatorship).

The real capacity and benefits of the oilfields has been underestimated and moderately developed. Nowadays, Iraq faces several options on how to exploit this strategic sector in order to bring welfare for its population and develop for the county. With one of the largest crude oil reserves, Iraq can lead the world oil market after 2020, but it depends of the capacity of the country to overcome the instability emerged after the regime and three wars developed between 1979 and 2003 (Maugeri, 2012). The oil production in Iraq has been managed under the framework of

1 PhD Student, International Relations Multidisciplinary Doctoral School, Corvinus University

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Notes on contributor: Joan Miguel Tejedor-Estupiñan is a senior research associate and lecturer at the Faculty of Economics, Catholic University of Colombia. Professor Tejedor is a scholar of economic history and international relations. His research focuses on topics related to world economy, development, human rights and democratization.

the Production-Sharing Contracts (PSC). Afterwards in 2009, the Iraqi government and several multinational companies signed the re-development contracts, which allows the exploitation of 11 of the country's oilfields. In addition, the development of Iraqi oil potential is directly affected by the political instability, the lack of bargaining power by the government, and the difficulties in the infrastructure development.

This article is based in the latest data and researches on the subject of the development of oil sector in Iraq, and presents an approximation to the impacts in the human development. The analysis and information presented may be useful for those researchers interested in the assessment of economic and social impacts of oil production in Iraq and the implications of the internal conflict. The first part of this paper, provides a brief review about the history of oil in Iraq. The second part, describes some indicators about the oil potential and production of oil in Iraq. The third part focuses on the obstacles and alternatives to the realization of Iraq's oil potential. Finally, some conclusions are proposed.

2. A BRIEF HISTORY OF OIL IN IRAQ

The oil in Iran was discovered in 1908. Then, in 1909 the Anglo-Persian Oil Company (later becoming British Petroleum-BP) was born. In 1911, the Turkish Petroleum Company (TPC) was founded (later becoming the Iraq Petroleum Company-IPC), prompting arise of the foreign involvement (British and German) in the extraction of Middle Eastern oil. In the twentieth century, the national interests of Middle Eastern governments were closely linked to the interests of foreign oil companies (FOCs). Until the Middle Eastern oil nationalization movement of the 1970's, oil resources in Iraq were dominated by oil companies from the West. Since then, the access to the reserves of the Persian Gulf region has been limited (Behn, 2007).

After 1950's until today, the production of oil in Iraq has been developed in the middle of tensions generated, by both, the interests of the modern Middle Eastern states, and, the interests of the FOCs. The end of the British control on Iraq was marked by the coup of 1958. In 1961, the new government of General Qassim passed Iraq's first national petroleum law (Public Law 80), by means of which the expropriation of all oil field concessions held by the IPC, except those oil fields that were in production in that time. The National Petroleum Law also created the Iraq National Oil Company (INOC). Later on, the law 97 was introduced in 1967, allowing to the Iraqi government the control on Iraq's oil by the INOC. Then, with the Public Law 123, the INOC started to be controlled by the Iraqi government. In 1968, the Baath Party came to power and started to control Iraq's territory and government until the War of 2003. In 1972, Saddam Hussein as Assistant General Secretary of the Baath Party, nationalized the remaining of the IPCs assets, completing the nationalization process of oil in Iraq (Behn, 2007).

In 1979, Saddam Hussein's coming to power, in an environment of war, strife, isolation, and sanctions, this evident conflict limited his country's ability to extract and sell its most important commodity. Despite its enormous oil endowment, Iraq has never been able to move its production above 3.5 million barrels per day (bbl/d). The experts hold Iraq has the potential to be pumping over ten million bbl/d, if the country overcomes the instability environment. Saudi Arabia, the largest oil-exporting country in the world, producing nearly 11 million bbl/d. Iran comes in the second place of proven reserves with a current production of approximately 4.2 million bbl/d (Behn, 2007).

After the invasion in March 19 of 2003, the production of oil in Iraq has been decreasing. While the Ministry of Oil (MOO) has continued to function, the INOC has ceased its operations. The current conflict between the military forces of Iraq with its allies US army and the rebels has severely damaged the oil infrastructure in Iraq. In this context, rehabilitation programs were introduced by the US and have awarded billions of dollars in foreign contracts. Pipelines were under the protection of occupation forces, because they were targets of sabotage by the rebels (Center on Global Energy Policy, 2014). As a result of the pressure of the international community, in October of 2011, the President Barack Obama announced the withdrawal of all US troops located in Iraq since 2003.

Apart from Western FOCs, before to the Iraq War of 2003, Saddam Hussein made an attempt to increase the production by offering development contracts to a select group of Russian, Chinese and Indian oil companies. Nevertheless, the UN sanctions prevented these contracts from being signed. The history of oil sector in the Middle East shows the importance of national oil sovereignty, the rise of the national oil companies, the historical instability of the region due to war and influence of the foreign companies' power, and the pursuit of oil control by the West companies. The current tension can be expressed, on one hand, it is the ever-increasing need for crude oil by the oil-consuming world, and on the other hand, is the resistance by the people of Iraq to relinquish their right to control their most valuable commodity (Behn, 2007).

Oil deposits in Iraq are near the surface and easily accessible, therefore, oil is extremely cheap to extract, and its development and production costs are among the lowest in the Middle East. Crude oil costs about one dollar a barrel to produce. Nevertheless, Iraq oil remains relatively undeveloped. Only 17 of the 80 discovered oil fields in Iraq have been developed, and just about 2,300 wells have been drilled (Behn, 2007). In the last two decades, Iraq has been ranked as the fourth largest oil reserves in the world behind Venezuela, Saudi Arabia and Iran. Iraq possesses at least 115 billion barrels of proven oil reserves, which represent 10 % of the world's proven oil reserves. Oil is Iraq's most important asset and constitutes 70 % of its GDP, and 95 % of the Iraqi government's annual revenue (Behn, 2007).

3. METHODS AND DATA

The method applied in this paper is a comparative analysis of different secondary sources, statistical databases and development indicators, such as: The economic sector contribution in Iraq's GDP, the contribution of oil revenues to the public budget, the Iraq's proven, semi-proven & recoverable reserves, the existed refineries and its capacities, among others development indicators, that allows to understand the complex context of the exploitation of the most important commodity of Iraq's economy and the impact on the human development of Iraq's people.

The main data was collected mainly from the World Bank, Central Statistical Organization IRAQ, British Petroleum Statistical Review of World Energy, the Iraq Prime Minister Advisory Commission. Some secondary sources like books, articles and reports on the economy, society and the issue of oil wealth in Iraq, also were analyzed.

4. THE OIL INDUSTRY AND ECONOMIC DEVELOPMENT IN IRAQ

Between 2008 and 2016, the Iraq GDP annual growth rate passed from 6.6 % to 11%, it is remarkable that in 2014 felt till -2.4 %, during the period of rising of the Islamic State and consequently

the increasing of the conflict and violence in Iraq. Nevertheless, Oil represent the most important sector in the Iraq 's economy. It is also important to underline the share of this important sector in the national income

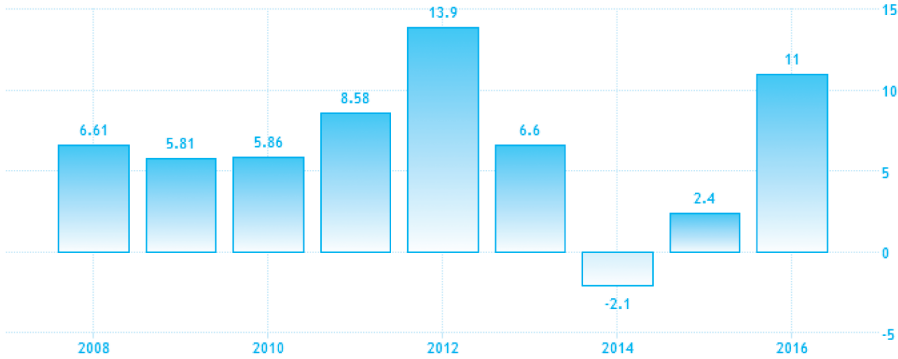


Figure 1. Iraq GDP annual growth rate.

Source: World Bank

The Iraqi oil sector activities in general can be divided to the following: Exploration, drilling, extraction, transportation, refining, local distribution and exportation. The share of crude oil as a percentage of the gross domestic product is very significant, it was over 50% before the crisis of 2008 and 45% till 2014, were the contribution fall to a 33.1%, (See Table 1).

Activities	Years	2013	2014	2015
Crude Oil activity		45.7	45.0	33.1
Agriculture activity		4.8	4.9	4.6
Industry activity		2.3	1.9	3.1
Private Sector activity		38.4	36.6	-

Table 1. Economic sector contribution in GDP of Iraq for the period 2013-2015.

Source: Central Statistical Organization IRAQ (2015).

The contribution of oil revenues accounted in the period 2005-2012 was in average more than 90% of the total public budget sources (See Table 2). As the main income of the Iraqi government is originated by the crude oil activity, it shows that this income may be affected by the fluctuations in the global oil prices. The dependence from the oil sector may produce future instability on Iraq's economy.

Year	Oil Revenues %
2005	96.6
2006	92.0
2007	93.0
2008	90.5
2009	85.4
2010	90.8
2011	88.8
2012	92.2
2013*	43.5
2014	43.5
2015	32.8
2016	42.1

Table 2. Contribution of oil revenues to finance the public budget in Iraq for the period 2005-2012
Source: World Bank, (2014).

* The data for 2013-2016 presents Revenues minus production cost of oil, percent of GDP.

The average production in 2008 was 2.4 million barrels per a day, but the specialist assumes it must be 6 million barrels or more (Musa, 2011). The table 3, shows the compared reserves and production for few crude oil producing countries in 2015, were the share of crude oil production of the total proven reserves of Iraq is 8.4%, the lowest compared to some oil-producing countries. Iraq may have an important global performance and potential oil production growth by 2020.

Country	Reserves (Thousand million barrels)	The Production (Thousand barrels per day)	Share of Total (%)
Venezuela	300.9	2626	17.7
Saudi Arabia	266.6	12014	15.7
Iran	157.8	3920	9.3
Iraq	143.1	4031	8.4
UAE	97.8	3902	5.8
Libya	48.4	432	2.8
Nigeria	37.1	2352	2.2

Table 3. Proportion of crude oil production of the total proven reserves for few oil-producing countries in 2015.

Source: British Petroleum, (2016).

According to the 2016 BP Statistical Review of World Energy, Iraq's proven oil reserves at the end of 2012 were 143.1 bb, positioning the country at the fourth place internationally, the experts think the country's true potential is still underestimated, partly because the current assessment is based on a recovery rate much less than 20% and probably lower than 15% of its oil-in-place

(OIP). In addition, there are deep oil-bearing formations without exploring, especially in the western desert, which could boost reserves by as much as 186 bb. Iraq's proven and probable reserves are estimated at 315 bb with some experts believing that Iraq actually holds more than 400 bb of reserves (See Table 4). They are concentrated in the southern oilfields of Majnoon, Bin Umar, West Qurna, Rumaila and Halfaya. Moreover, only 70% of Iraq's territory has so far been explored for oil (Mamdouh Salameh, 2013).

Proven reserves	150.00
Probable reserves	165.00
Possible recoverable reserves	70.00
Total	385.00
% of Iraqi territory explored for oil	70

Table 4. Iraq's proven, semi-proven & recoverable reserves (bb).

Source: Mamdouh Salameh, (2004).

Among the super-giants, Iraq's developed and discovered oilfields, the largest field in production is West Qurna with 43 bb of proven reserves. The second largest is Rumaila with proven reserves of 17 bb. Majnoon is third with reserves of 12 bb. The untapped East Baghdad oilfield has proven reserves of 8 bb, while Kirkuk in the north has 9 bb (See Table 5). There are also more than 60 discovered but undeveloped oilfields in Iraq containing at least 75 bb of reserves. Almost 75% of Iraq's total reserves are located in the south of the country, approximately 17% are in the Kirkuk area while the rest 8% is situated in central Iraq. These data do not include Iraqi Kurdistan, the region's authorities have estimated its reserves at about 40 bb (Mamdouh Salameh, 2013).

Oilfields	Region	Proven Reserves (bb)
West Qurna	South	43
Rumalia	South	17
Majnoon	South	12
Zubair	South	8
Nahr Umr	South	6
East Bagdad	Central	8
Kirkuk	North	9
Total		92

Table 5. Iraq's Supergiant Oilfields.

Source: Center on Global Energy Policy, (2014).

According to Musa, the prices of oil products (gasoline, kerosene, gas, oil, etc.,) are still not actual prices, but administrative and relatively fixed prices which do not reflect the economic value of the resource (crude oil). It shows the need to adopt an international oil prices in the calculation of local oil refined products, which makes them to change according to the changes

of international crude oil prices. The low and insufficient production capacity of the Iraqi oil refineries does not satisfy domestic demand at a time that Iraq should become a major source of these products by having a large refining capacities relative to its crude oil reserves.

The total oil refining capacities in Iraq has reached approximately 750.000 barrels per day in 2008. This amount is insufficient to satisfy domestic demand, making Iraq import refined oil products (Musa, 2011). Table 6, shows details of Iraq crude oil refining capacity in 2008 and 2016. There are new refineries opened to 2012 such as: Karbala, Maissan, Nassiriya, Kirkuk, Ninewa, Iraq's oil capacity passed from 630 bbl/d in 2008 to around 886 bbl/d in 2012.

Refinery	Location	Capacity (bbl/d) 2008	Capacity (bbl/d) 2016
Baji	North-Central Iraq	310.000	310.000
Basrah	Near Basrah	150.000	140.000
Daura	Baghdad	110.000	210.000
Erbil	Erbil	40.000	40.000
Diwaniyah	Diwaniyah		20.000
Kasak	Ninewa		10.000
K-3 Haditha, Kirkuk, Khanaquin, Muftilah, Najaf, Nassiriyah-Samawah, Gaiyarah-Mosul, Maysan	Scattered	≤ 20.000 each	30.000 -180.000

Table 6. Existed refineries and its capacities in Iraq 2008 and 2012.

Source: Musa, (2011).

5. PRODUCT SHARING CONTRACTS AND FOREIGN OIL COMPANIES IN IRAQ

One of the types of managing the oil production in Iraq has been the Production-Sharing Contracts (PSC), proposed in Indonesia in the 1960's, as a solution to the relations between a FOC and an oil-exporting state (Behn, 2007).. These types of contracts are fundamentally a profit-sharing contract between a host state and any FOC. The contract allows FOCs to develop oil fields in an oil-exporting state in exchange for an agreed percentage of the oil production. The main aims of the state in negotiating a PSC are: a) increasing revenues by limiting the FOC's in this sector, b) establishing a legal regime that allows to the state the control on the projects, and c), maximizing profit through contract stability.

These competing interests create tensions in the contract negotiations. While the oil resources technically and legally remain with the state, the PSC allows the FOC to manage and operate the development of the oil field. Some experts argue that these contracts are just a modern form of the traditional concession agreement, the continuity of an imperial model which allows FOCs the exploitation of the resources of developing countries (Behn, 2007).

According Maugeri (2012) in 2009, the government of Iraq awarded to several international oils companies the re-development contracts for 11 of the most important country's oil fields.

Re-development contracts for the super-giants oil fields of Kirkuk, Nasiriyah and East Baghdad, are to be offered in auction at a later date. The awarded re-development contracts have the aim to reaching a total production of more than 11.6 mbd, it means 9.60 mbd, more than the existing level of mentioned fields (See Table 7).

Field	Foreign Companies	Initial Production (mbd)	Production Target (mbd)
Rumalia	BP (38%) CNPC (37%)	1.10	
West Qurna 1	Exxon (60%) Shell (15%)	0.27	2.35
Zubair	Eni (32.8) Occidental (23.5%) Kogas (18.75)	0.20	1.20
Missan Fields*	CNOOC (63.75%) TPAO (11.25%)	0.10	0.45
Majnoon	Shell (45%) Petronas (18.75%)	0.05	1.80
West Qurna 2	Lukoil (56.25%) Statoil (18.75%)	0.12	1.80
Halfaya	CNPC (37.50%) Petronas (18.75%) Total (18.75%)	0.07	0.54
Gharaf	Petronas (45%) Japex (30%)	0.03	0.23
Badra	Gazprom (30%) Kogas (22.5%) Petronas (15.5%) TPAO (7.5%)	0.02	0.17
Qaiyarah	Sonangol (75%)	0.02	0.12
Najmah	Sonangol (75%)	0.02	0.11
Total Production		2.00*	11.62**

Table 7. Peak Planned Production of Already Awarded Iraqi Oil Contracts.

* Includes the Fakka, Buzurgan and Abu Ghirab fields

** End of 2011. Includes other fields that still await re-development, like supergiant Kirkuk, East Baghdad, and Nasiriyah.

Source: (Maugeri, 2012).

Some of the most important international oil companies, including Eni, Exxon, Shell and BP, as well as, some of the national oil companies such as CNOOC, Gazprom, PetroChina and Lukoil, are still operating in Iraq. In the Kurdistan Regions, were the more attractive production sharing contracts have been offered, there are some independent operators, like Gulf Keystone, MOL Group, DNO and Afren. Exxon, Total, and Chevron, the biggest IOCs have also entered the Kur-

distan region, defying threats by the central government that they may lose licenses in the south. According to several oil companies, the renovations of Iraqi fields showed an important growing in the production level and a steady flow of oil. The evidence showed that future production could be major than the contractual targets established upon with the Iraqi government (Center on Global Energy Policy, 2014). As a result of oil fields mismanagement and poor technology used in the past, there are still several of the Iraq's fields underexploited (Maugeri, 2012).

Under the contract terms for the re-development of the West Qurna oilfield with proven reserves of 43 bb, the multinationals companies ExxonMobil and Shell will invest \$50 bn divided evenly between direct investment and operational costs. In return, the two companies will receive \$1.9 for every barrel produced and the contract could be extended for another five years. BP and China's CNPC will re-develop Rumaila oilfield with 17 bb of reserves and will be paid \$2 per barrel produced to raise production from the current 1 mbd to 2.85 mbd (Mamdouh Salameh, 2013).

The Italian consortium Eni is expected to develop the 4.1 bb Zubair oilfield, which lies near West Qurna and Rumaila. Eni and its partners, the US Occidental Petroleum Corporation and South Korea's KOGAS, aim is to reach 1.1 mbd up from the current 200,000 b/d. Output from West Qurna stage 1, Rumaila and Zubair is projected to reach 6.4 mbd in 6-7 years with the companies expected to invest \$100 bn in the projects (Mamdouh Salameh, 2013).

The optimal production of crude oil can be achieved through the development of the infrastructure of the extractive sector, but it is not enough for Iraq as it faces two problems (Musa, 2011). First, the limited marketing possibilities, for example, ports and pipelines are not ready, specifically the pipelines stretching through Syria and Jordan. In addition, the Iraqi-Saudi pipeline is also broken down since 1990. This pipeline has a full capacity of 1.65 million barrels per day. The Iraqi-Turkey pipeline is the only one of the pipelines as good as for exporting as with full capacity, by 1.6 million barrels/day. Moreover, the south ports are functioning well, which includes the port of Basras (Al-Bakr, previously), that has a capacity of up to 82,000 barrels per hour with about 1.6 mbd and the port of Khor Amaya, which was expanded in 1974 to become having a capacity by 1.6 mbd as well (Table 8).

Exporting Facility	Exporting Capacity (mbd)
Iraqi-Turkish Line	1.6
Iraqi-Saudi Line	1.65
Iraqi-Syrian Line	1.4
Basra Port (Formerly Al Baker)	1.6
Khor al-Amaya	1.6
Total	7.85

Table 8. Iraq's Crude Oil Exporting Capacity at 2010.

Source: Musa, (2011).

The Iraq Prime Minister Advisory Commission, presented an estimation for the Northern Evacuation with 3.75 mmbpd by 2017, North-South Link, 3.15 mmbpd by 2017, and Southern Evacuation 6.8 mmbpd in 2014. Regarding to the share of Iraq in the Organization of Petroleum Exporting Countries (OPEC), it lags significantly after the Iran-Iraq war in 1980, and its crude oil production without the quota to it of the total OPEC production, which make part of its

distributive share to go to other members (Iraq Prime Minister Advisory Commission, 2012). Therefore, the idea of raising Iraq's production to high levels will require coordination with the rest of the organization's members and agree to amend its share of the output, especially since Iraq is unable to reach its production to its share since the early eighties, as well as its needs to maximize oil revenues, in order to develop its economy effectively (Musa, 2011).

If the re-development plans are applied without any inconvenience, Iraq's oil production could rise from 3.00 mbd in 2013 to 12.72 mbd by 2020 (See Appendix 1). In this scenario, Iraq might emerge as the largest crude oil producer and exporter in the world. Probably, Iraq could reach additional unrestricted new production of 10.4 mbd in 2020, or 5.13 mbd recognizing the different risks (Mamdouh Salameh, 2013).

6. OBSTACLES AND ALTERNATIVES TO THE REALIZATION OF IRAQ'S OIL POTENTIAL

Iraq has a population around 36 mill of people, the unemployment rate is about 18 % overall, the level of deprivation and poverty is one of the highest in most of southern and middle provinces, the poverty incidence in rural areas (30.6 %) is more than twice the poverty incidence in urban sectors (14.8 %) and also there is a gap between the rural and urban areas regarding the access to improved water sources and sanitation facilities, the incidence of poverty is specially located in the southern and middle provinces, regions were the most giants oil fields are located (World Bank, 2014). Thus, the question of redistribution of oil wealth in Iraq should be analyzed seriously in order to improve the level of human development and the conditions of the population in condition of poverty, by allowing peace and respect for the human rights.

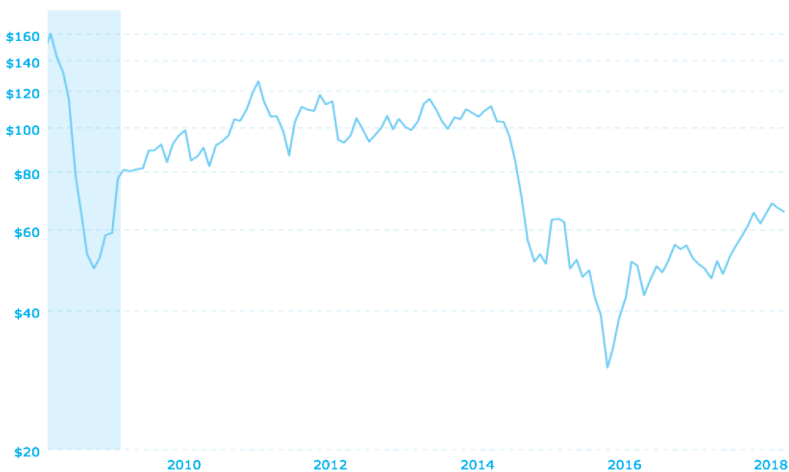


Figure 2. Crude Oil Prices 2008-2018.

Source: Macrotrends, (2018)

Figure 2, illustrates the trend of the oil prices in the last ten years, the most important to underline here is the fall of the prices in 2008 which coincides with the crisis of the global economy

in the same year and the fall of the prices after 2014. The issue here is the global discussion on the Paris agreement and its implications with the development of alternatives sources of energy, which push-down the oil prices. This situation affects directly the economy and call the attention on the Iraq dependence to just one sector and its implications in the low development of the rest sectors.

6.1 THE GAP IN THE HUMAN DEVELOPMENT

Political instability, internal conflict, underdevelopment of the oil sector, are the three main obstacles for an equitable redistribution of the oil wealth in Iraq. The Human Development Report (HDR) in 2016, shown the performance of Iraq regarding several human development indicators (United Nations Development Programme, 2016).

Firstly, according to the Human Development Index, Iraq is a country with medium level of human development, Iraq's HDI value for 2015 was 0.649, ranking it 121 out of 188 countries and territories. Iraq's 2015 HDI is below the average for Arab countries as Algeria and Saudi Arabia which have HDIs ranked 83 and 38 correspondingly. From 1990 and 2015, Iraq's HDI value pass from 0.572 to 0.649. In the period 1990-2015, Iraq's mean years of schooling increased by 3.4 years, expected years of schooling raised by 0.5 years and life expectancy at birth increased by 3.4 years. Iraq's GNI per capita increased by about 8.3 percent between 1990 and 2015 (United Nations Development Programme, 2016).

Secondly, the Inequality adjusted HDI (IHDI), which is basically the HDI discounted for inequalities. While Iraq's HDI for 2015 was 0.649, the IHDI falls to 0.505, a loss of 22.3 % as a consequence to inequality in the distribution of the HDI dimension indices. The Human inequality coefficient for Iraq is equal to 22.0 %. The average loss due to inequality for Arab States is 27.5% and for medium HDI countries is 25.7 % (United Nations Development Programme, 2016).

Third, the Gender Development Index (GDI) which reflects gender inequalities according the same three dimensions of the HDI, it is defined as a ratio of the female to the male HDI, and in the 2015 was calculated for 160 countries. In Iraq, the HDI value is 0.569, contrasted with 0.708 for males, shows a GDI value of 0.804, positioning the country into Group 5. The GDI value for Saudi Arabia was 0.882 and 0.854 for Algeria.

Fourth, The Gender Inequality Index (GII) presented in the 2010 HDR, reflects gender-based inequalities in three dimensions, such as economic activity, reproductive health, and empowerment. Iraq's GII for 2015 was 0.525, ranking it 123 out of 159 countries. Algeria and Saudi Arabia were ranked at 94 and 50 respectively on this index for the same year. In Iraq, 35.8 percent of adult women have reached at least a secondary level of education compared to 55.5 percent of their male counterparts and 26.5 % of parliamentary seats are held by women. For every 100,000 live births, 50 women die from pregnancy related causes; and the adolescent birth rate is 84.0 births per 1,000 women of ages 15-19. Female participation in the labour market is 15.1 %, very low compared to 69.7 % for men (United Nations Development Programme, 2016).

Finally, the Multidimensional Poverty Index (MPI) is focused in three main dimensions: living standards, health and education. In 2011, the most recent MPI for Iraq was 13.3 % of the population (4,241 thousand people) are poor from this multidimensional perspective, while an additional 7.4 % live near multidimensional poverty (2,343 thousand people). The MPI, is the

share of the population that is poor from the different dimensions assessed, adjusted by the intensity of the deprivations, was 0.052, and the average deprivation score experienced by people in multidimensional poverty, was 39.4 % (United Nations Development Programme, 2016). The average user in developing nations consumes less than one fifth, which is an important development indicator, one manifestation of this problem is exemplified in the case of Iraq, where post-invasion domestic oil consumption has fallen by over one third, and even in China, where mean per-capita energy use is 1/15th that of the US (Williams, 2006, p. 1086).

6.2 POLITICAL INSTABILITY

The indicators presented above, show the improvement in some aspects but the critical situation in terms of inequality of gender. Nevertheless, another important issues to analyze are the differences among the principles and positions of the main communities such as the Kurds, the Sunni Arabs and the Shias, because each one of the groups, coalitions and domestic trends of the country has different views on federalism as a way to organize the Iraqi state (Moradi & Motalebi, 2015). Thus, there is a division even into the different groups which compose the dominant groups, becoming the first challenge to the establishing of a democracy in Iraq.

Some of the obstacles for development of Iraqi oil sector are strictly related with political instability, the lack of criteria in the bargaining power by the government, and the low-level infrastructure development (Mamdouh Salameh, 2013). These problems could significantly reduce Iraq's future supply. Iraq's oil industry has been devastated by three wars between 1979 and 2003 and its recovering depends on urgent political actions and billions of dollars of investments for rehabilitation (Mamdouh Salameh, 2013). The IOCs should take social corporate responsibility seriously in order to redevelop the oil infrastructure, the modernization of its infrastructure and the expansion of pipelines and oil-export terminals on the Gulf, in order to increase oil revenues in the short and medium terms, and finally the creation of an environment of political stability in the country are a necessary and urgent condition for the stabilization of the economy and Iraq's society (Ghadhban, 2009).

Between 1941 and 2014, at least ten wars have been fought over oil, among them the 21st century's first oil war was marked by the invasion of Iraq by the US army in 2003 (M. Salameh, 2008). The study of Danju, Maasoglu, and Maasoglu by comparing several theories, such as Realism, Liberalism and Marxism, analyzes foreign policy issues differently, these theories are focused on the individual, state, systemic and socio-economic level of analysis, with the aim of explaining the foreign policy issues and decisions. By analyzing, different theories this study explains the decision of George W. Bush to invade Iraq (Danju, Maasoglu, & Maasoglu, 2013).

This study concludes that US decision led by George W. Bush decision was advantageous for the US, in the national and international level, obtaining the control of oil resources. Thus, the main aim of this war was to serve US interests. George W. Bush (as a rational and individual actor) considered the costs and benefits of invading Iraq after 9/11. Realist theory from the perspective of the individual level, allows the analysis of US decision to invade Iraq. Realism considers national interest, rational decision taken by individuals (Danju et al., 2013). This topic can be addressed in another research.

Chwastiak, addressed the issue of how some US companies have earned incredible profits from the ostensible reconstruction of Iraq, while the Iraqis and US taxpayers have suffered the worst

part. His study illustrates how Bush Administration created a type of capitalist paradise for predominantly US and UK corporations working on the reconstruction of Iraq, and also how the corruption and fraud has been institutionalized in the Iraq reconstruction (Chwastiak, 2013).

Whit the aim of controlling the market of oil, the US has been receiving unexpected outcomes of the invasion of Iraq affecting also the local stability as well as explains:

If the intention of the war was to secure cheap oil supplies for the United States, the consequences have been the opposite: oil prices have soared. The war has also impacted on the global oil production capacity by creating instability in the Middle East and thus increasing the risk of investing in the region (M Salameh, 2008, p.12).

The instability after the war of 2003, until today has been a constant in the daily life of Iraq. Saddam was sentenced to death by hanging, and the execution took place on Saturday 30 December 2006, after being condemned of crimes against humanity by the Iraqi Special Tribunal for the murder of 148 Iraqi Shi'ites in 1982, in retaliation for an assassination attempt against him (BBC, 2006). As a result, a civil war has been held by the different ethnical groups and the emerging Islamic State (IS) emerged as a new army of rebels which affects directly the security and rights of the population and the infrastructure of the country (Gvenetadze & Hegazy, 2015).

6.3 THE UNDERDEVELOPMENT OF THE OIL SECTOR

The mismanagement of the oil sector is the result of the political instability and the corruption inside the Iraq institutions. The establishment of a government after Hussein's era has not been an easy challenge due the cultural differences and the internal instability. In relation with the government decisions the major issue with the new oil law is not in its authorization of FOC involvement, rather the extent of involvement that the neither a completely privatized oil sector nor a completely nationalized new Oil Law permits. The new Oil Law should allow foreign involvement, but in manner compatible with Iraq's ideals of oil sovereignty. Iraq is now tasked with modifying its Oil Law, despite its political weakness, into an equitable legal framework for the future exploitation of Iraq's oil reserves. Balancing the oil-consumption world's pursuit of petroleum against growing economic poverty, violent instability, sectarian division, lack of political cohesion, and the need for oil revenue Iraq's leaders have a challenging road ahead (Behn, 2007).

Despite of the low level of development in the oil sector infrastructure, the war has seriously affected the existing infrastructure. Thus, the development of a governmental policy to regulate the different oil sector activities and the development of strategic alliances are extremely urgent and important. According Musa, (2011) the tension appears in the bargaining on the level of control of the oil sector between the state and the FOC, in this sense, some possible alternatives for Iraqi oil sector management can take the following systems:

- a. *Public sector management system*, where the government controls the activities of the oil sector, exploration, drilling, production and marketing, with the possibility of leasing foreign private companies in any activity to provide service.
- b. *Concession system*, which was implemented by most of the oil countries until the 1970s and in Iraq until 1972, it includes granting one foreign company or more long-term

contracts for crude oil extraction and the extracted crude oil shall become property of the company which can act by either sale or refining and it pays rent, as well as paying tax on profits.

- c. In a *Share contracts system*, the company or, group of foreign companies, provide the necessary funding to complete the exploration and extraction, including the infrastructure, and then the crude oil extracted quantities are divided into two quantities. The first, called cost oil and its ownership goes to the foreign company to cover cost, and this quantity is often marked in the upper limits by 40%, while the second is so-called profit oil, which is divided between foreign companies and countries that possess oil at rates agreed upon, in addition the state gets a royal for the overall production, taxes on profits, and it may enter as the owner also as a trading partner in the contract and provide a share of the capital and receives the same percentage of cost oil and profit oil.
- d. With a *Contracting or service contracts*, the government controls over the activities of the oil sector, and it is granting foreign companies a specific part of the activities, where foreign companies bear the burdens and risks in return for agreed share it gets in the activities that will be made later.

Reducing geographically expansive oil consumption could yield multiple benefits running the gamut of geopolitical, economic and even the environmental concerns, if adherence to higher emission-reduction standards compels the implementation of less wasteful processes (Williams, 2006, p. 1086). Nevertheless, there is an evident tension between the economic interests of the multinational companies, the national interests and the problems faced by the humanity currently, as the global warming which has been the core of different rounds at the global level where there is a focus on establishing a new era of renewable energies.

The Iraqi authorities must to achieve both, the development of the oil sector and the stability of the economic, social and political situation in the country. There is a paradox that rich countries in terms of natural resources tend to have less levels of democracy,³ less economic growth and less development, than countries with fewer natural resources, in some case this situation is explained by some aspects that need to be overcome like: asymmetries in the level of development, volatility of revenue, lack of economic diversification, wasteful spending and weak institutions and accountability, and the internal war (British Petroleum, 2016).

7. CONCLUDING REMARKS

Iraq has one of the largest proven oil reserves in the world after Saudi Arab and the United Arab Emirates, nevertheless, after three wars between 1979 and 2003, the conflict has produced political instability, the mismanagement of the oil sector and the lack of a modernization of the oil sector infrastructure, creating obstacles to the development of the most important asset in the Iraq's economy. The periods corresponding with high level of oil prices, has not been reflected

³ The study of World Bank, Republic of Iraq Public Expenditure Review., provide new evidence regarding the impact of oil wealth on democracy, his analysis shows that larger oil discoveries are causally linked to slower transitions to democracy

in improvements of the human development conditions of Iraq people. Such a complex situation implies, on one hand, a reduction in the production and productivity of this sector, and on the other, the improvement of human development of Iraqi people.

The structural challenges for the development of Iraqi oil sector are related with political instability, governmental decisions, and the reconstruction and development of the existing infrastructure such as pipelines and export terminals. Iraq can dominate the world oil market in the second and third decades of the 21st century, but it depends of the capability to overcome the instability emerged after the war, the calculation and exploitation of the real potential of the oilfields and its technological development.

The history of oil sector in Iraq, has been marked by different wars, but ultimately, the political instability has been linked the US invasion promoted in 2003 and the rising of the IS, and then, the execution of Saddam Hussein. The war, as well as, the attacks of the rebels as the militants of the IS leaved serious damages in the population, in the Iraq's heritage and the infrastructure of oil in Iraq. Thus, the human development in Iraq is affected by interests conflicts among the Foreign Oil Companies, the domestic interests (sovereignty) and the claiming of the Iraq's people.

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Appendix 1. Iraq's Current & Projected Oil Production, Consumption & Exports, 2010-2020 (mbd)

	2010	2011	2012	2013	2014	2015	2020
Production	2.49	2.80	3.14	3.11	3.28	4.03	12.72
Consumption	0.60	0.75	0.79	0.83	-	-	1.17
Exports	1.89	2.17	2.33	2.41	2.51	2.22	-

Source: Own calculations based in (United Nations Development Programme, 2016) and (United Nations Development Programme, 2016).