

ENERGY & GEOPOLITICAL RISK

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A large-scale photograph of an industrial refinery or oil processing plant. The structures, including tall distillation columns and complex piping, are silhouetted against a dramatic, orange and yellow sunset sky. The scene is backlit by the low sun, creating a strong contrast and highlighting the intricate metal framework of the facility.

Iraq Upstream Opening: Logistics, Geopolitics



ENERGY & GEOPOLITICAL RISK



Since the later part of the 19th century oil and gas have dominated the lifestyle and welfare of the human species. The pursuit of oil and gas has brought about technological innovations that have produced both beneficial and harmful consequences for the development of human welfare. On one hand they have helped to improve the quality of human life and contributed to the reduction of disease, illiteracy, poverty and insecurity. On the other hand no other source of energy has created such devastating and unabated political instability among nations. The ensuing geopolitical risk identification, management and mitigation with respect to energy sources constitutes a central factor in the modern international relations. Their ramifications cross all boundaries among the mutually dependent economic, political, social and environmental factors that shape the plans and aspirations of nations.

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COMMENTS

Iraq's upstream expansion plan to raise oil production capacity to over 10mn b/d by mid-decade is an uppermost question raised by the global petroleum industry today. The issues involved include the deteriorating political conditions in the country, the absence of an efficient civil service; and, last but not least, the lack of security. Last July, at the Baghdad Oil Seminar, Mr. Thamir Ghadhban, Chairman of the Iraqi Prime Minister's Office, and former Minister of Oil, addressed representatives of IOCs working in Iraq. Mr. Ghadhban defined the logistical challenges ahead. These include, among others: the development of 15 giant or super giant fields at the same time, entailing the drilling of several thousands of wells, and laying thousands of kilometers of flow lines and pipelines. The requirements of such a program mean mobilizing dozens of drilling and work over rigs, and the materials associated with them. Moreover, the Iraqi national network will also need major expansion (storage, a gas grid, and transport and export networks). The logistics will involve thousands of Iraqis and expatriates going in and out of the fields daily, and a continuous influx into the country of heavy equipment, machineries and materials through Iraqi ports and airports, as well as land border entry points with neighboring countries.

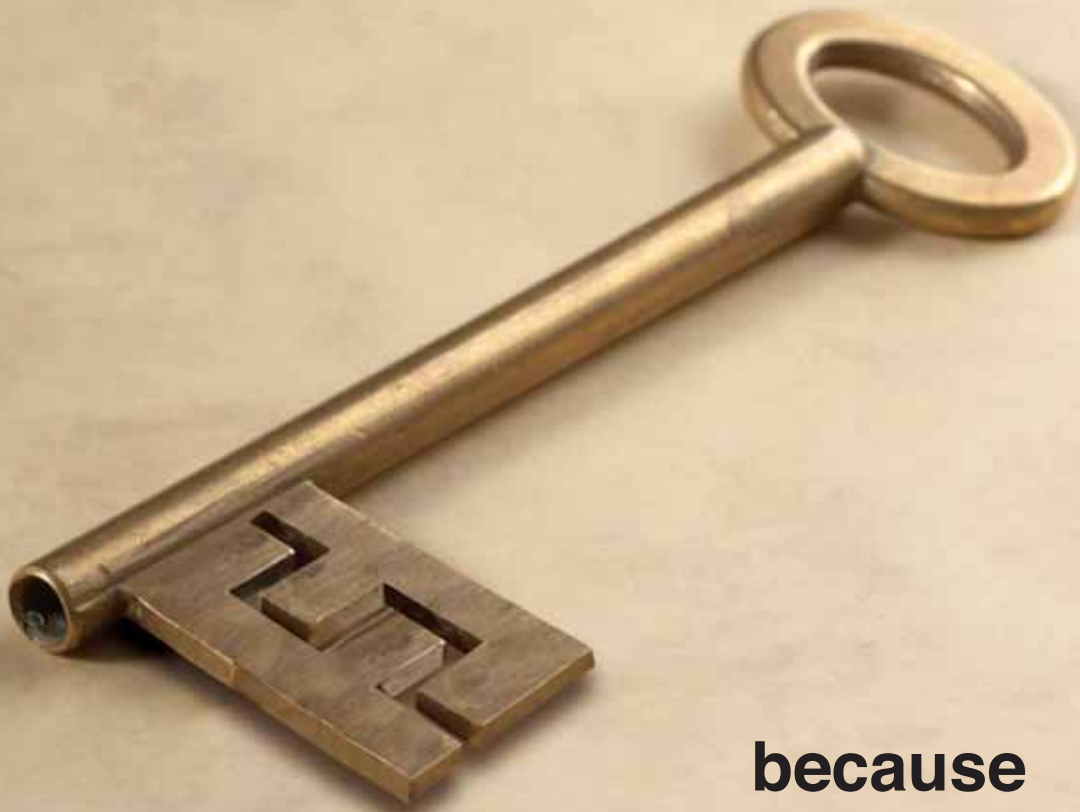
The challenges to the oil policy do not rest with the logistics. They also entail geopolitical risks that the Iraqi authorities have to start confronting as soon as possible, if Baghdad wants a smooth maximum flow of the exports. Iraq has two handicaps: it is a semi-landlocked country with a narrow direct corridor to international waters; and, it has around 24 oil fields that straddle the borders of Iran, Kuwait and Syria. Mr. Ahmed Jiyad an economic consultant, formerly adviser to the Iraqi National Oil Company (INOC) and the Ministry of Oil, argues that "geography could impose formidable limitations on Iraq's ambition as a major oil exporter unless politics of regional cooperation manages to overcome the disadvantages of the semi-landlocked location of the country."

Another important energy geopolitical risk in the Middle East is the secure transit of crude oil through the Strait of Hormuz. This issue has received much attention lately because of the continuous threats and counter threats between the West and Iran over Tehran's nuclear program, as well as a terrorist attack against Japanese tanker in late July. A serious and prolonged disruption to tanker traffic through the Strait of Hormuz would hamper global oil trade. Mr. Ali Khajavi, member of the Strategic Planning Department at the Iranian Ministry of Petroleum, discusses the importance of Hormuz, as well as other major waterways (Strait of Malacca, Bab al-Mandab and the Sumed Pipeline). The focus of the paper, however, is the new UAE 48" pipeline between Habshan and Fujairah with an optimum capacity of 1.8mn b/d, scheduled to be completed in mid-2011. The pipeline would carry around 10% of the crude currently transiting Hormuz to the Gulf of Oman, hence by-passing the strategic waterway.



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IRAQ'S OIL SERVICE CONTRACTS AN OVERVIEW*

Thamir A. Ghadhban**



Iraq has been trying for three decades to ramp up its production and export capacities but in vain due to wars and sanctions. Now, we have succeeded to put the first foot on that path in order to rebuild our upstream oil sector to what it should have been, in par with our neighbors. The Advisory Commission, being aware of the paramount importance of the upstream sector to the country's economy and the dire need for revenues, has always supported the Ministry of Oil in its endeavor to raise production and increase its export capacity. This, together with the maximization of the oil revenues in the short and medium terms and the building of our national capability in managing and administering the upstream oil sector, are all cornerstones in our national oil policy.

As things stand today, the government is challenged to provide enough revenues to invest in vital services for the population, such as health, education, supply of potable water, building sewage treatment systems and providing housing, not to mention the capital intensive infrastructure such as highways, railways, airports and ports. One of the main reasons behind involving the international oil companies (IOCs) in developing the oil fields and building the required infrastructure is to avoid relying on national financial resources in view of the huge investment required, and to substitute it with foreign direct investment. The present environment in Iraq is conducive to carry out such a task in cooperation with the IOCs and the issue itself is of paramount importance to the country and its future as Iraq regains its status on the international oil market.

Through those 11 contracts awarded in two successive bid rounds, we are looking at reaching production targets that could exceed 10mn b/d in the next decade - market conditions permitting - through the further development of producing fields as well as bringing some partially developed or non-developed fields into production. Additional production would come from fields operated by our regional oil companies and the federal region of Kurdistan.

The experience of working with the IOCs is not new and goes back to the 1960's and 1970's, before and after nationalization. We had a service contract with France's Elf which resulted in the discovery and development of Missan oil fields and another service contract with Brazil's Petrobras that led to the discovery of Majnoon. There were also negotiations with some 80 IOCs in the 1990's which culminated in the award of two exploration and three development contracts.

The more recent service-type contracts we are discussing today were awarded in a very transparent and highly



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competitive process. The IOCs are required to carry a number of well defined tasks starting with providing investment, further develop the oil fields in accordance with approved development plans and shoulder the responsibility for meeting production targets. Transfer of technology, capacity building, training of Iraqi personnel in all kinds of skills required for the management and oil operation as well as providing work opportunities for Iraqis and utilization of the national content, are all part of the requirements included in the signed contracts.

The objective of this seminar is to focus on the main characteristics of the contracts and what they entail when they reach the implementation stage. One of the major characteristics of those contracts is their sheer scale. There are huge volumes involved in all aspects of these contracts and at all phases, whether during their execution or the final results. I mean here the production and export capacities that we are adding, the scope and volume of work involved, both as direct core and as supporting work, all of these over the duration of the contracts which is at least 20 years.

This scale is unprecedented. We are not talking about one or two oil fields here that we need to develop, but rather about 15 fields, most of which are classified as super giant or giant fields, that all need to be developed at the same time. The incremental production capacity targeted is not a modest percentage of existing capacity but rather several folds what we are producing now. Once realized, it will put Iraq back in a leading position among the world's oil producers and play a major role in insuring world stability through the security of energy supply.

An overall simplified overview shows that those contracts entail the drilling of several thousands of wells, both oil production and injection wells and laying thousands of kilometers of flow lines and pipelines. The requirements to achieve those targets are quite varied and large in size and number; dozens of drilling rigs and work over rigs need to be deployed all over, the majority of which need to be brought into Iraq from abroad. With the rigs, a huge amount of equipment and materials will need to be imported starting from casing and tubing material, to wellheads, Christmas trees, and valves, in addition to heavy equipment for logging, cementing and acidizing trucks, coil tubing units and heavy vehicles such as cranes and forklifts. The requirements also include thousands of tons of mud, cement and chemicals for drilling wells.

Besides what I have just described, the development of new or "Green" fields will require a lot of civil and electro-mechanical work. The building of degassing stations, with flow tanks, pumps and compressor stations as well as transfer lines, will add to the work I have just described. It will also involve the construction of control rooms, power stations, and industrial zones, housing, workshops, warehouses, stores and yards, together with work camps, residential areas and roads.

At another level, the implementation of these contracts that we have signed would require the addition of another dimension to our national networks, namely our national storage, transport and export networks.

We are going to see a number of oil storage depots with sizeable storage tanks, high rate and high pressure pumps connected to large diameter transfer pipelines, extending for long distances between the fields. The depots and offshore export outlets are going to witness major expansion work as well. Similarly, expect large scale water injection and industrial water supply systems with large diameter pipelines extending from offshore sources for hundreds of kilometers into the fields.

The infield gas gathering and processing facilities and gas transfer lines present a large scope of work on its own. The gas network is not large enough at present to cater for the production and export volumes that will come on stream as a result of the two bid rounds. As a result, we will witness a major expansion of the gas network as well as the construction of a new network. Again, to build this necessary infrastructure, a large volume of equipment, material and manpower will be involved.

Now, let us assess the logistics required to implement work at this scale. It is expected that work shall intensify at a high rate with time and continues for the next ten years as far as those contracts are concerned, to be followed by a maintenance period. One can visualize during this period, and on a daily basis, thousands of people, Iraqis and expatriates, going in and out of the fields; A continuous influx into the country of heavy equipment, machineries and materials through our ports, our airports in Baghdad, Basra, and Mosul, and land border entry points with neighboring countries. There will be a large number of engineering and field service companies that will add up to the international oil companies, both international and national, getting involved. Numerous foreign and local contractors providing all sort of services in the fields of civil engineering, construction, transport and catering, will also become part of this web of service companies whom we have invited to attend this seminar.

I have tried here to help you visualize the enormous tasks ahead. And having in mind the time constraints to reach the production targets mentioned, it is imperative to stress on the need that all parties concerned, whether directly or indirectly, national and international, work together for the efficient and speedy implementation of those contracts. It is with this objective in mind Iraqi institutions, as well as all the international companies, get involved. The early steps as the companies start implementing their contracts on the ground are crucial to the success of the whole project.

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To start with, registration of companies and the opening of their offices in Baghdad and their branch offices in the relevant cities have to be handled in a professional manner and done swiftly without delay once the required documents are provided.

Facilitation of the entry into the country of company's personnel, issuance of entry and exit visas and granting of residence permits in accordance with contracts requirements are essential to the success of the IOCs to meet their obligations.

Custom clearance at ports, airports and border entry points should not witness any unwarranted delay.

Other activities such as opening bank accounts and banking facilities, insurance and taxation as well as auditing of accounts, should be provided in a highly professional, transparent and friendly manner.

It is clear that such measures are governed by laws and regulations. Amending and revising such laws and regulations can be incorporated in the ongoing process of the Economic and Legislative reform in which the Advisory Commission is taking a leading role. However, managements could play a very effective role in reducing routines and avoid the burdens of bureaucracy.

The managements of the regional oil companies, the Iraqi members of the Joint Management Committees as well as the directorates in the Ministry of Oil could have profound effect in easing, facilitating and executing various resolutions and measures in order to carry day to day work, as well as handling medium to long terms plans and budgets without delay.

Local authorities, in particular, the Governors and the Governing Councils of Basra, Missan and Mosul as well as Kirkuk and Wasit have important roles to play in coordination with the Ministry of Oil and other Ministries such as Interior, Transport and Finance. Those producing governorates shall accrue great benefits from the implementation of those contracts whether in the form of revenues which will increase their annual budgets or through the employment of the local manpower and contractors, and many other forms of added benefits.

I would like to stress the firm desire of the Iraqi Government to conduct those contracts as well as all other activities in the energy sector in a transparent manner. This desire was exemplified by Iraq becoming a member of the International Transparency Initiative in the Extractive Industry.

I believe that all of us here recognize that great improvement in security throughout the country has been achieved, a decisive factor that made the award of those contracts and their implementation on the ground possible. The government of Iraq has stressed more than once its firm commitment to secure the fields and take all necessary measures to provide a safe working environment. It is the duty of the federal and local authorities on one hand and the IOCs on the other to work together to achieve this goal.

Finally, I would like to recommend to the IOCs to take social corporate responsibility seriously as they will always be conceived by the population as a yardstick for measuring the success of the contracts awarded. The local communities have expectations which I advise taking into consideration as companies review their investment plans.

Let me conclude by stressing again the importance of these contracts to the future of the country and the wellbeing of the Iraqi people. For this reason it is crucial that we all work together to insure they are implemented in the most effective and timely manner. The responsibility lies with both sides to make sure all commitments are delivered on time. I would like to invite in particular the leaders in government institutions and ministries to step in and be at the forefront in turning this huge exercise into a success story.

It is really a great pleasure for me, as a veteran of the Iraqi oil industry, to see Iraq finally breaking ground and is set on the way to become a major oil producer in the region and in the world. Very soon, we will start witnessing increases in our oil production and our oil exports, and with it additional revenues will be made available to the state. As we do this, it is important that we insure the creation of a win-win relationship with our partners, while maximizing our national effort to build our capabilities and maximizing the national content in the implementation of these contracts.

**The following is the presentation by Mr. Thamir A. Ghadhban, at the Baghdad Oil Seminar, held in Baghdad on 18-19 July, and attended by senior Iraqi oil officials and representatives of IOC's working in Iraq.*

***Mr. Thamir A. Ghadhban is Chairman of the Advisory Commission, Prime Minister's Office, Baghdad, Iraq; and, former Minister of Oil.*



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GEOPOLITICAL DETERMINANTS OF IRAQ'S OIL CAPACITIES

Ahmed Mousa Jiyad*

Iraq is a semi landlocked country with a narrow direct corridor to international waters of the Gulf through the southern oil hub Basra. This geographical reality has its own implications and effects on the development efforts and policies in the country, the economic and political relationships with the neighboring states, and the development of the petroleum sector in particular. Development efforts in the country could be highly affected by the state and condition of the infrastructure and facilities (ports, terminals, roads and bridges) inter and intra the said countries.

If the aimed production and export capacities are realised and Iraq becomes a game changer in international oil industry, as stated by the Oil Minister Dr. Husain Shahristani in his opening remarks to the mid-July 2010 Baghdad Oil Seminar, many would not necessarily acquiesce changing the rules of the game, while others would take advantage of the new situation. In both cases the unprecedented expansion of Iraq's production and export capacities would bring with it a high degree of vulnerability to external pressure and associated risks.

The Seminar organized by the Ministry of Oil (MoO) for the IOCs in Baghdad was mainly concerned with the IOCs grievances about getting in needed personnel and equipment, the inadequacy of logistics and infrastructure inside Iraq and burdensome bureaucracy and corruption. The realization of "oil export objectives" would be seriously affected by geography. Three issues of particular importance are addressed in this paper. They are oil export facilities on the Gulf, options and politics of the pipelines across neighboring countries, and the oil fields that straddle Iraq and the neighboring states. The paper argues that geography could impose formidable limitations on Iraq's ambition as a major oil exporter unless politics of regional cooperation manages to overcome the disadvantages of the semi landlocked location of the country.

Gulf Export Terminals

Most of Iraq's currently produced and exported oil comes from the southern fields, and the same pattern would continue when the contracted oilfields reach their plateau production level and beyond as envisaged by the 12 concluded contracts (see Jiyad 2010). 11 contracts were awarded in the two bid rounds and an earlier one, while (al-Ahdab field) contract was awarded to the Chinese through bilateral negotiations, it having been signed during the previous regime.



Currently, the Basra Oil Terminal (BOT), (ex-Mina Al-Bakr) was built in 1975 and is well beyond its 20-year technically designed life-span, can cope with 1.5mn b/d at best, while Khor al-Amaya Terminal (KAT) can tolerate only about 0.3mn b/d, thus bringing the Gulf outlet capacity to 1.8mn b/d.

In its effort to upgrade the two terminals, the Ministry of Oil (MoO) initially worked to increase their capacity to 4.5mn b/d and later asked, Foster Wheeler, to raise the capacity to 8mn b/d. The development of southern export facilities includes installing four single-point mooring (SPM) buoys, two 48-inch pipelines, an offshore manifold platform and all associated metering, and tank farms storage facilities and capacities, among other necessary logistics and infrastructure.¹

The timely development of the above stated export capacity from this outlet is very critical for the ambitious expansion of the country's production capacity. But it is also costly and by no means risk-free, geopolitically speaking, for the following considerations.

The Long-Term Service Contracts are production-related in the sense that IOCs get a remuneration fee for each incremental barrel as stipulated in the related oil contract. In other words, the risk of exporting the produced oil is squarely on the Iraqi side. Also export facilities and all related logistics are the responsibilities of Iraq.² Failure of the Iraqi side to have these facilities ready to cater for the production/export capacities, would make Iraq legally liable to pay the remuneration fees for the un-exported volume of the produced crude.

¹ For further details see Al-Chalabi, Issam (2009) and Mackey (2010).

² Available information indicates that Japan Bank for International Cooperation has loaned Baghdad \$430 mn to cover one SPM system.



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The IOCs, however, have obligations to proportionally take part in the finance and development of the common facilities such as water injection, pipelines and terminal installations. The investment requirements for the common facilities would be covered by the provisions of 'supplementary cost' in the contract. The possibility of cost inflating is both real and significant. Furthermore, outstanding balances on all supplementary costs bear interest at LIBOR+1.

There have been concerns that Iran had hinted that KAT falls within its territorial waters, and a similar claim might also be made by Kuwait and Iran in respect of BOT. If Iraq were to be forced to withdraw further upward, there will be lesser water depth at terminals for large tankers or Ultra Large Crude Containers.³ Needless to say such claims constitute potential high risk and could be severe determinants on Iraq's oil exports in the future.

Pipelines Options and Reality

To diversify oil export outlets, Iraq attempted to pursue the pipeline option through the territories of the neighboring countries.

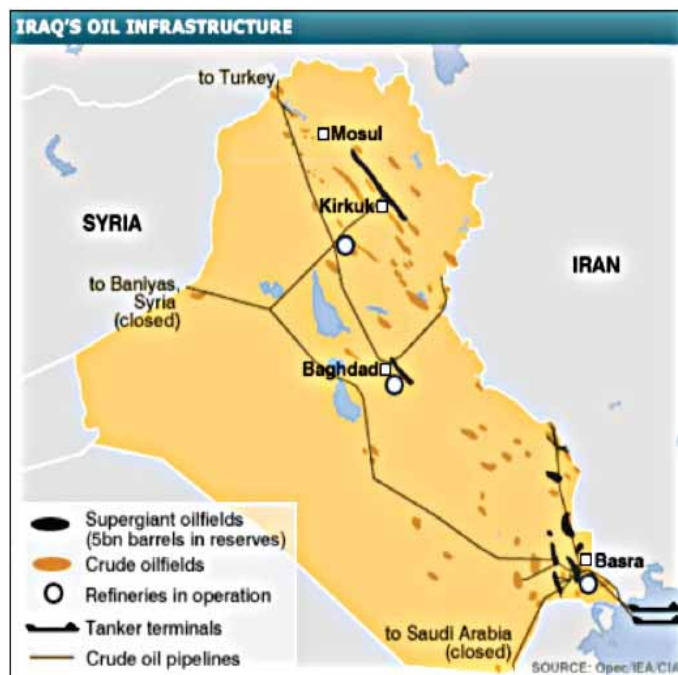
Throughput through the Syrian pipeline has been on and off depending on the political relationships between the two countries. As of mid- May 2010, Iraq was considering the possibility of reviving this pipeline with its capacity of 0.2mn b/d. Furthermore, there were talks to construct another pipeline for the heavy oil that would be produced from Najma and Qaiyara oilfields in Naiynawa Governorate.

Similar efforts were taken to rehabilitate the pipelines through Turkey to reach an export capacity of 1.7mn b/d, especially after the two countries had agreed to extend the existing oil pipeline agreement for more than 12 years.⁴

The Iraqi pipeline through Saudi Arabia (IPSA) was built in its two phases (1985/9) with a capacity of 1.6mn b/d. IPSA was constructed to link the southern Iraqi oilfields with the Red Sea. IPSA was shut down in the immediate aftermath of the Kuwaiti invasion and then confiscated by Saudi Arabia. Officially, very little attention was given to this pipeline due to the political stalemate between the two countries under the former Iraqi regime and since its demise.⁵

Iraq could also revive plans for the construction of the 1mn b/d pipeline to the Jordanian Red Sea port of 'Aqaba, which was shelved in 1985 though it received preliminary approval by the US Export-Import Bank of nearly \$500mn in credit guarantees at that time.

The post -2003 political climate brought Iran for the first time as another outlet in pipeline options. Both countries



http://news.bbc.co.uk/nol/shared/spl/hi/in_depth/post_sad-dam_iraq/img/oil_infra_map_416.gif

signed a Memorandum of Understanding in February 2004 to construct the Basra-Abadan pipeline. A draft agreement concerning that pipeline was reported to have been submitted to the Iraqi government in April 2010. Once completed the pipeline is expected to carry around 0.15mn b/d of Iraq's crude, through a twin pipeline system, to the Iranian refinery in Abadan and the pipeline would bring refined products back to Basra.⁶

The rationale for multiple export outlets can and should be examined from different aspects.

Feasibility and Efficiency Considerations

A multiple export outlet strategy entails substantial investments that can be justified as a risk aversion strategy. This implies that even though each outlet can be economically feasible on its own merits, however, when taken together the strategy could be questionable on efficiency and sustainability premises. Part of this outlet capacity is bound to be either idle or not operating at one time or another, unless one assumes that the whole capacity would be fully utilized, which is highly unlikely. This brings forth the issue of capacity utilization and efficiency of operation. Furthermore, the maintenance cost of the pipelines could be very high, especially if a pipeline is left idle for considerable and frequent periods of time with crude residual accumulates along some sections of the system.

³ Such concerns were expressed by the Iraqi Minister of Transport, 'Amir 'Abd al- Jabbar, in an interview with alFayhha TV on 16 June 2010. Similar concerns were raised earlier by Al-Chalabi, Issam (2009)

⁴ The prolongation of the agreement was reported by the Arabic TV channel ANB, 18 June 2010. But no further details were provided.

⁵ It is also surprising that the "Objectives of the Iraqi Petroleum Industry" paper representing al-Iraqiya Bloc (Allawi list) makes no reference to IPSA. The paper was posted directly to the author on 14 April 2010.

⁶ http://www.oilvoice.com/n/IranIraq_Oil_Pipeline_Moves_Closer_To_Construction/e6ca5cbf8.aspx Accessed 5 May 2010.



Security Risks and Vulnerability

In addition to these operational considerations there is also the security risk. Pipelines are very vulnerable and could be an easy target for sabotage whether for disrupting the flow of crude oil or for simple theft to smuggle oil. Iraq is very vulnerable to such incidents, as demonstrated by recent examples. The Kirkuk-Ceyhan pipeline has been repeatedly sabotaged, not only in Iraq itself, but also in Turkey. A Turkish analyst suggests that the Kurdistan Workers' Party (PKK) could be targeting the pipeline system in order to weaken Turkey's position as an energy/pipelines hub transiting Eastern oil supplies to Western markets.

A strand of conspiracy/construction theory could also suggest that worsening Turkish-Israeli relations might prompt the Israeli Mossad, which is reported to have active

presence in Iraqi Kurdistan, to utilize this option to inflict harm on Turkey and erode its growing regional stature. In the final analysis, regardless of the targeted country, it is Iraq which suffers most from such disruptions to transit pipelines.

Leverage and Entitlements

The transit (neighboring) countries have location rent vis-à-vis Iraq. At the time of high oil prices the transit country could claim part of the economic rent generated by such high prices, through demanding higher transit fees, renegotiating the governing arrangement or any other modalities. This is especially the case if the transit country is energy deficit such as Turkey, and to some extent, Syria. Thus, location rent generates entitlement and this could give the transit country some leverage over Iraq.



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Moreover, there is a good deal of political vulnerability and detrimental consequences associated with these pipelines. The transit country could, for political considerations, especially during times of worsening bilateral relations, exert pressure on Iraq by suspending the flow of oil through the pipeline. This was actually the case with the Syrian closure of the pipeline in April 1982, and Saudi Arabia shutting down IPSA since the international sanctions imposed on Iraq in 1990.

Similar moves could be envisaged for oil related reasons as well. During the feasibility phase for IPSA in the mid 80s, a question was raised about the possibility of Saudi Arabia shutting the pipeline if Iraqi exports impact negatively the Kingdom's position or influence negatively the global markets and the price level.⁷ The same situation could arise again if Iraq has pipelines through Saudi Arabia (revival of IPSA) and /or through Iran, especially if Iraq pursues its current program to reach a production capacity of 12mn b/d. Such a production capacity would anger Iran and threatens Saudi Arabia, thus prompting both countries to act against Iraq, by blocking the flow of oil through pipelines in their territories.

Pipeline systems between Iraq and Iran are bound to be affected by the US' Iran Sanction Act (ISA) of 1996 and its amendments, the last of which was legislated in July 2010. And as long as the US-Iran confrontation regarding Tehran's nuclear program remains contentious and influences American foreign policy towards Iran, all these pipeline projects could fall under the US/UN/EU sanctions regimes, adding further geopolitical uncertainty and high risk, potentiality for Iraq.

Border Fields

Geological formations know no political boundaries, sovereignty, and they extend through the territories of two or more neighboring countries. Consequently one country could become a major partner and the other(s) minor partner(s) depending on the proportion of the field in each country. Such border fields are more susceptible to a premature depletion and thus permanent loss of resources when the neighboring countries lack cooperation in the development of such fields. The minor partner might pursue the 'rule of capture' and maximize production from the joint oilfield without due regards to the best business practices that ensure maximum recovery from the field, and benefits cost-free from any efforts and investment by the major stakeholder to enhance the recovery from the related field. Advanced drilling technologies such as directional, horizontal and multi formation deep-drilling could even penetrate across political borders causing more sucking of oil from the territory of the

other country in addition to the possible migration of oil due to drilling activities. The lack of cooperation among the concerned stakeholders and the absence of a well-defined international régime governing such border fields or non-observance of such a régime could contribute to a deteriorating relationship and develop it into serious animosity.

There are several examples of border fields with Iran and Kuwait that have remained a source of concern and tension. The focus in this paper is to assess the impact of the border fields on the current and future oil production and export capacities of Iraq. Hence, the emphasis will be on post 2003, and therefore will not address the historical events predating 2003, except for referencing purposes when necessary.

According to the Iraqi MoO, Iraq has 24 oil fields common with Iran, Kuwait and Syria, including 15 producing fields.⁸ A thorough study by the former Director General at MoO indicates there are 15 fields and structures common with Iran, located from the Governorates of Sulaimaniya in the north down to Basra in the south; there are also three common fields with Kuwait and two with Syria.⁹

The common fields with Iran include: Naft Khana, which shares the Shah oilfield on the Iranian side, and the oilfields of Abu Gharab, Howaiza, Fakka and Badra. While Iraq emphatically asserts that the giant Majnoon oilfield is totally inside its territory, Iranian geologists believe Majnoon oilfield and the Iranian Azadegan oilfield are or could be linked since Iranian wells drilled closer to Iraq found oil in some reservoirs and no sign of a westward closure of Azadegan (Mackey and Schindelar 2010). This probably explains the increasing attention given to the Azadegan oilfield by the Iranian authorities and expedited the talks with China's CNPC, which is "moving quickly to complete a detailed master development plan" for the said oilfield.¹⁰ This also seems to support the new orientation in Iran towards border fields as expressed by the Iranian Oil Minister, Masoud Mir Kazemi, who said, 'If need be, we will shift attention away from the interior fields to concentrate attention on jointly-owned ones, since this will result in further improvement of the country's economy and optimum use of its energy reserves.'¹¹

There have recently been many Iranian incursions targeting Iraqi border oilfields, and the Iranians had taken over 15 Iraqi wells at Fakka and started producing from them. News from Missan Governorate suggests that the Iranians had prevented Iraqi oil personnel from operating Abu Gharab producing wells, and interrupted the work on Majnoon oilfield and surrounding area in 2008 (See Uqaili 2008 and al-Chalabi, 2009).

The Fakka incident was well documented and attracted publicity and attention. On 18 December 2009 Iranian

⁷ This author was member of the team in charge of conducting the feasibility study on IPSA.

⁸ See MoO website <http://www.oil.gov.iq/117576.php> Accessed 26 May 2010.

⁹ For more on Iraq's border fields see Thamir Uqaili, 2008.

¹⁰ <http://www.upstreamonline.com/live/article225005.ece> Accessed 6 August 2010

¹¹ http://business.maktoob.com/20090000482270/Iran_wants_minimum_65_for_each_barrel_of_oil/Article.htm?utm_campaign=Day-Newsletter&utm_medium=LatestBusiness-news7&utm_source=Day-Newsletter&utm_content Accessed 21 June 2010.

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troops accompanied with engineers took control for a few days of well no. 4 before pulling back to their former position. The event triggered strong reaction against Iran inside Iraq, which prompted the Prime Minister Nuri al-Maliki to accuse certain media sources of exaggeration in order to damage the close ties between the two countries, as he put it.¹²

Negotiations between the two governments managed to defuse the situation rather quickly. However, this incident should not be taken lightly, and it could indicate a highly potential future problem.

Observers viewed the event as “a warning that Tehran will not sit by and watch Baghdad overtake it as an oil power.” (Mackey and Schindelar 2010). This could mean that Iran would not allow Iraq develop its production and export capacities to surpass the Iran-Iraq quota parity in OPEC.

Such a warning could also send messages to IOCs to stay away from border fields, or that the concerned IOCs should also consider Iran’s interests in these oilfields. In essence, the Iranian action could be to prevent Iraq from developing the border fields unilaterally. Alternatively, Iran could accept the “unitisation” of developing these fields. Officials have hinted as much, giving credence to this possible interpretation.

Less than three weeks after the Fakka incident the Iranian Foreign Minister Manouchehr Mottaki said in Baghdad, ‘Technical dialogue is being held between the two countries to invest jointly in these joint oil fields’, but did not provide further details.¹³

The Iraqi Minister of Oil, Dr. Husain Shahrstani, gave a somewhat different view but one that could lead to a similar conclusion. Upon signing the Missan contracts on 17 May 2010 with the Chinese company CNOOC and the Turkish company TAPO he said at a press conference following the signing ceremony, “in relation to the oil field Fakka which is common with the Islamic Republic that it was agreed to invest and develop the part that extends inside Iraq and the Iranian side can make an agreement with the two Chinese - Turkish companies to develop the field and achieve greater benefit to both sides’¹⁴

It was reported earlier, in this regard, that the two countries had signed in July 2009 a memorandum of understanding- for “joint development of shared fields”, but no further details were provided on the modalities of such joint development.¹⁵

If the above has any implications, then it could be that Iran wants to make use of the Iraqi efforts with IOCs to develop the part of the border oilfields straddling into its territory. But this also implies that Iran should accept similar conditions to those concluded by Iraq. Furthermore, what



was accepted for Fakka could also apply to other border oilfields, which Iraq had concluded with other IOCs such as Badra and Abu Gharab. Finally, if Iran pursues this path of indirect unitisation of border oilfields development and assuming the concerned IOCs accept the same terms and conditions that have been concluded with Iraq then Iran secures the involvement of these IOCs in the development of its petroleum sector at the time Iran faces increasing pressures and boycotts. This could also contribute to a smooth development of these border oilfields and facilitate the required logistics such as minefields clearance. It could also contribute to the ongoing efforts to fix the border post demarcation and finalise this issue between the two countries.

However, the US sanctions against Iran remain to be a serious hurdle facing any joint Iran-Iraq efforts regarding these border fields. What makes this matter even more important is the level of investment required for the development of the border fields, which is by far much higher than those for the proposed pipeline.

On the other hand the Fakka incursion had prompted the revival of the Iranian claims for war reparation. The former Iranian Minister of Oil, Mohammad Nejad Hosseini, told the Mehr News Agency, “Iraq is blessed with an abundance of God-given natural resources...”, “Therefore, compensating Iran for the war should not be that much of a problem for the country’s economy.” Then he warned, “The Tehran-Baghdad dispute on the range of the joint oil fields and the related border disputes could endanger the security of the region.”¹⁶

Recent mediareports indicate that Iranian parliamentarians are working on a motion mandating their government to request war reparations from Iraq, which they estimate to be equal to 1mn b/d for 50 years.¹⁷

¹² <http://www.upstreamonline.com/live/article202930.ece> Accessed 8 January 2010.


¹³ <http://www.upstreamonline.com/live/article202930.ece> Accessed 8 January 2010.

¹⁴ <http://www.oil.gov.iq/117576.php> Accessed 26 May 2010.

¹⁵ <http://news.ino.com/headlines/?newsid=71620091162> Accessed 17 July 2009.

¹⁶ http://www.upi.com/Science_News/Resource-Wars/2010/01/04/Tehran-wants-cut-of-Iraqi-oil-revenue/UPI-46071262629352/ Accessed 5 January 2010.

¹⁷ As reported by albaghdadia TV channel, 9 August 2010.



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Does this proposal represent the personal view of a few legislators, or is it much more than that, or does it reflect the opinion of certain factions within the Iranian power structure. Regardless of what this view might represent, it remains to be an alarming proposition indicating serious risks and uncertainty.

Joint Fields with Kuwait

Thamir Uqaili reports that South Rumaila, Zubair and Umm Qasr fields have extensions in Kuwait. And when Kuwait started operational activities in the early 1970s, Iraq drilled two lines of wells (6-8 wells) near the old borderline in an attempt to stop the migration of the crude to the Kuwaiti side (Uqaili 2008).

After the Kuwaiti invasion, the UN, with Iraq reluctant acquiescence, shifted the Kuwaiti borderline northward, giving Kuwait effectively more reserves from South Rumaila, Zubair and Umm Qasr fields. Accordingly, Iraqi parliamentarians claim that Iraq lost 11 oil wells in Rumaila, and 3 wells at the Safwan Dome in Zubair. Furthermore, Kuwait drilled more than 20 wells in the Ratqah area (located in the Southern part of Rumaila) and 25 wells in the area opposite the Safwan Dome on its side. Hence, according to the Deputy Chairman of the Oil and Gas Committee in the Iraqi parliament, Muhammad Husain al-Yasin, "this causes '1600 barrels of oil moving from Iraq to the Kuwaiti fields daily' ¹⁸

Iraq's efforts to unitise the joint border fields with Kuwait

have not yielded results so far.

Moreover, Kuwaitis have expressed concern regarding the Rumaila contract with BP/CNPC on the grounds that BP had worked for many years on the Ratqah oilfield and information and experience can be used for Rumaila since both oilfields are possibly connected. Consequently, the Rumaila deal could create a problem for BP in Kuwait (PIW 2010).

However, this could also prompt the two countries to coordinate their efforts closer if BP managed to get the work on Ratqah in Kuwait in addition to Rumaila in Iraq. This, however, remains to be seen since political relations between Iraq and Kuwait, though correct, still leaves much to be desired to enable the "unitisation" of joint oil fields. The Macondo/ Gulf of Mexico oil spill incident and its financial consequences for BP compels the company to seek strategic partners from sovereign wealth funds (SWFs) and/ or national oil companies in the Gulf Corporation Council area to avoid takeover by other IOCs. If Kuwait gains significant shares in BP, this could strengthen its stand vis-à-vis BP and might affect the Rumaila deal.

Western Border

Sfaya field in Iraq, which has been producing for over 25 years, is an extension of the Syrian Suwaidiya field. In addition there are structures extending from Syrian fields believed to be hydrocarbon bearing as they are situated between the Iraqi discoveries south of Ain Zala-Butma fields.

¹⁸ <http://www.iraqdirectory.com/DisplayNews.aspx?id=6439> Accessed 7 July 2008

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As for the border fields with Jordan, they are confined for the time being to the Risha gas field. The Jordanian Risha gas field is believed to have a limited extension in Iraq that is still not confirmed, according to Uqaili (2008). However, current maps show a shift of Jordan's territory to the area containing Risha gas field as compared to older maps where a straight line demarcated the Iraq-Jordan borders. Such a shift in the border-line occurred during the Iraq-Iran war, which leaves one to speculate that the related area was "de facto" given to Jordan for its support to Iraq during the war.

Exploration efforts in the Western Desert and the Jazeera Area (North of the Euphrates) may reveal new discoveries, including border fields with neighboring countries.

It is important at this juncture to mention that the proposed Federal Oil and Gas Draft Law obligates the "Council of Ministers to take necessary measures to protect the interests of the Iraqi people in the petroleum discoveries that extend beyond Iraqi borders" (Article 25).

As a matter of sound petroleum policy such border fields should retain special priority and attention and be developed either unilaterally or bilaterally through cooperation efforts with the neighbouring country(s). In either case certain modalities and frameworks have to be at place to safeguard Iraqi interests.

The Ministry of Oil asserts it has established a "Committee" dealing with this issue, and the Iraqi Minister of Oil has called for the speedy conclusion of border fields "unitisation" agreements with the neighbouring countries Iran, Kuwait and Syria, to insure the rightful interests of all parties, asserting, "joint committees" with the said countries are working to reach final agreements on the matter.¹⁹

Time will tell how successful and effective these cooperative and "unitisation" efforts would be. However, the issue of border fields could be a problem in waiting that could explode and cause yet another military confrontation. Hopefully, these fields bring the countries closer to jointly and cooperatively develop them for the mutual benefits of Iraq and its neighboring countries. The two eventualities could have totally different impacts on the realization of Iraq's big-push strategy since some of the oilfields involved are border oilfields or close to the borders.

Concluding Remarks

Iraq's policy to expand its production and export capacity significantly would make neighboring/producing countries act differently. Iraq's planned production capacity would anger Iran since Iraq would bypass its parity within OPEC and thus Tehran is expected to utilize all leverage so it has not to see Iraq reach such a position. Iran has the following options to derail Iraqi plans: the border fields,

the war reparation claims, the water issue of the rivers flowing towards Iraq, border demarcation, and the Shat al-Arab- water way.

Iraq's capacity expansion could also encourage Turkey (and to a lesser extent Syria) to call on "water for oil" in order to extract concessions through bilateral arrangements instead of resorting to international and multilateral forums and agreements to secure Iraq's water share.²⁰

The envisaged production and export capacities expansions could challenge Saudi Arabia's dominant role in the industry, hence, weakening its role as "king maker" in the global markets..

Thus, Iran and Saudi Arabia could hinder Iraq's drive to attain the stated objectives, while Turkey and Syria would maximize their "location rent", and Kuwait consolidates its claims if it has to facilitate the opening of a special border crossing to ease the inflow of needed heavy equipment for the IOCs.

Finally, it should be expected that when Iraq has the additional capacities, it would not be immune from US pressure to use such capacities to serve the national interests and foreign policy objectives of Washington rather than Baghdad.

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¹⁹ <http://www.alnajafnews.net/najafnews/news.php?action=fullnews&showcomments=1&id=64614> Accessed July 8, 2008.

²⁰ Fouad alAmeer (2010) provides detailed chronology on water issue between Iraq and its neighbours Iran, Syria and Turkey.

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UAE CRUDE PIPELINE TO BY-PASS STRAIT OF HORMUZ

Ali Khajavi*

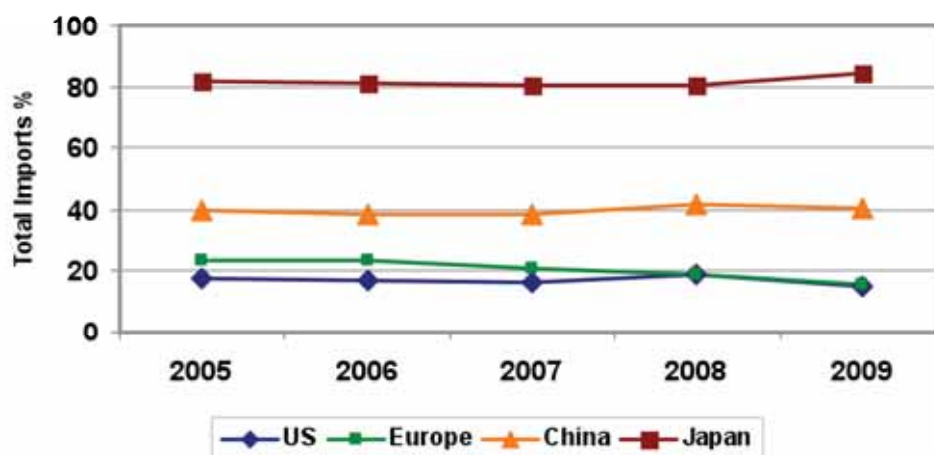
Approximately 42mn b/d of crude oil, or 53% of the world's total production, passes through five vital waterways, with the top three alone accounting for 46% of the overall supply. Disruption of the world's crude oil supply through any of these export routes can have a significant impact on global prices and the world economy.

The Strait of Hormuz separates the Persian Gulf** from the Sea of Oman and around 16.5-17mn b/d of crude oil, or over 20% of the world demand, pass through it every day.

As a key waterway, the Strait of Hormuz plays the most crucial role in the global transportation of crude oil and petroleum products. Moreover, around 37% of all global crude oil exports during 2005-9 transited through the Strait of Hormuz.

Europe, America, Japan, China, India and other Asian countries are the major destinations of the crude oil that passes through the Strait of Hormuz. (Figure 1)

Figure 1: Gross Oil Imports from the Persian Gulf as a Percentage of Total Gross Oil Imports



Source: BP Statistical Review of World Energy, 2010

Following the Strait of Hormuz, other key waterways of the world that play important roles in the global transport of crude oil are:

- Malaysia's Strait of Malacca (connecting the Indian and Pacific Oceans), is used to transport crude oil produced in the Middle-East to the Asian markets. Through Malacca around 15mn b/d of crude oil, some 18% of the global demand transit each day.

-Suez Canal and the Sumed Pipeline in Egypt (linking the Red Sea to the Mediterranean), through which about 4.5mn b/d of crude oil, some 5% of the global demand, pass each day.

-Bab-el Mandeb Waterway in Yemen (connecting the Arabian and Red Seas), through which about 3.3mn b/d of crude oil, some 4% of the global demand, pass each day.

-Strait of Bosphorus in Turkey (linking the Black Sea to the Med), through which about 2.4mn b/d of crude oil, some 3% of the global demand, pass each day.

During 2005-9, the oil producing countries of the Persian Gulf region produced over 30% of the global oil output, which

**"Gulf", "Persian Gulf", "Arabian Gulf". MEES editorial policy is to use the term "Gulf" for the "Persian/Arabian Gulf", the exception is when either Arab or Iranian officials choose to name them differently.

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was about 97% of all crude oil produced in the Middle-East (Table 1).

Given the future trend of the world's crude oil production, it is expected that the non-OPEC crude output will drop from 59.7% of the global production in 2010 to 53.2% in 2030. Besides, demand for crude oil from Asian countries will rise further, increasing the dependence of the world on crude oil produced in the Middle-East, 1

Table 1: Crude Production of the Persian Gulf countries & those of the Whole world During 2005-2009

Unit: Thousand barrels daily

Year/Country	2005	2006	2007	2008	2009
Iran	4234	4286	4322	4327	4216
Iraq	1833	1999	2143	2423	2482
Kuwait	2618	2690	2636	2782	2481
Oman	778	742	715	754	810
Qatar	1028	1110	1197	1378	1345
Saudi Arabia	11114	10853	10449	10846	9713
United Arab Emirates	2753	2971	2900	2936	2599
All Persian Gulf Countries	24358	24650	24362	25446	23646
Whole World	81261	81557	81446	81995	79948
Share of P.G in Whole World	30	30.2	29.9	31.0	29.6

Source: BP Statistical Review of World Energy, 2010

During the war of the tankers in the Persian Gulf (the Iran-Iraq war of 1980-88). Iranian officials threatened to close the Strait of Hormuz, if their country was to come under military assault. These threats impelled the authorities in some littoral countries of the Persian Gulf to plan for lessening their dependence on the Strait of Hormuz.

These plans were mainly focused on the following three routes:

1. the UAE, taking the oil to the Sea of Oman;
2. Iraq, taking the oil to the Mediterranean Sea; and
3. Saudi Arabia, taking the oil to the Red Sea

There are specific projects planned for each of the above routes. In this article, however, focus will be on the construction of the pipeline designed to carry UAE crude oil to its port of Fujairah, by-passing the Strait of Hormuz. (Figure 2)

The UAE pipeline to carry crude oil beyond the Strait of Hormuz is to be inaugurated by early 2011.

The pipeline starts at 'Habshan' onshore oilfield of Abu Dhabi and will have an initial capacity of 1.5mn b/d of crude oil, with plans of an optimum capacity of 1.8 mn b/d by the middle of 2011. In fact, the Habshan-Fujairah pipeline will eventually carry around 10% of what passes through Hormuz.

The 360 km long 48" Habshan-Fujairah pipeline, being constructed by China Petroleum Engineering & Construction Company at a cost of \$3.29bn, will not only safeguard most of the UAE crude exports if the Strait of Hormuz is threatened, but will also be a part of a much larger industrial plan.

¹ OPEC. *World Oil Outlook, 2009*.

Fujairah is to be transformed into an 'Energy Special Zone' with extensive crude oil refining facilities, crude storage tank farms and a petrochemical plant. The Habshan-Fujairah pipeline will be feeding a 300,000b/d oil refinery as well as the Zone's crude oil export terminal. Italy's Belleli has won the project's main engineering, procurement and construction (EPC) contract on the Fujairah-based Vopak Horizon's estimated \$100mn expansion of its oil terminal in the northern emirate. Under the deal, the Italian engineering firm will add 600,000 cubic meters of storage facilities to the terminal, which was formally awarded on 15 April 2010. This project is scheduled to be completed in Q1 2012. Its current storage capacity is 1.5mn cubic meters.



Figure 2:
Route of Habshan-Fujairah Pipeline

Source: International Petroleum Investment Company/Poten & Partners

Moreover, UAE officials have even expressed their desire to convert Fujairah into a small Rotterdam of the region.

The new pipeline is also expected to reduce the costs of UAE crude exports since there will be no Strait of Hormuz insurance premium.

In 2009, an average of 2.6mn b/d of crude oil was produced by the UAE, around 455,000b/d of which was consumed domestically and over 2.144mn b/d was exported. Hence, the Habshan-Fujairah pipeline could have handled around 84% of the exportable volume in 2009 or about 70% of the UAE crude oil. (Figure 3)

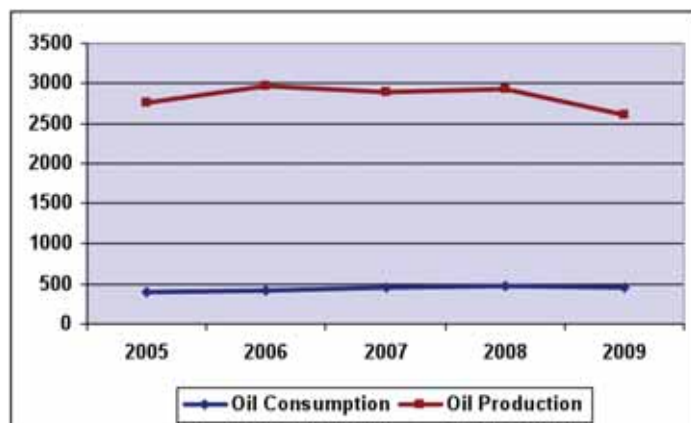


Figure 3:
UAE's Crude Production/Consumption in 2005-2009

Unit: Thousand barrels daily

Source:
BP Statistical Review of World Energy, 2010

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YEMEN: FAILING TO HARVEST THE RAIN

Sana'a, 10 August 2010 (IRIN) - Despite record rainfall in the Yemeni capital Sana'a and other areas this summer, very little is being done to harvest this water to mitigate water shortages, experts say.

In May at least seven people were killed in what officials described as the worst flooding to hit Sana'a in a decade. Flooding has brought large parts of the city to a standstill on a number of occasions.

Attempts by the government to harvest rainwater are very limited, according to Ramon Scoble, a consultant for Germany's Technical Cooperation Committee (GTZ).

"The government is doing very little," he said. "Very little funding is dedicated to rainwater harvesting for water supply and groundwater recharge. There are a number of ineffective dams in Yemen and none are supplying significant water to cities, agriculture or groundwater recharge."

Sana'a is predicted to be the first capital in the world to run out of economically viable water supplies by 2017. Experts say this is due to a rapid increase in Sana'a's population in recent years because of rural-urban migration, and the widespread planting; and inefficient irrigation of 'qat', a water-thirsty plant believed to consume 40 percent of all irrigated water.

According to Salem bin Shueb, head of the Water Resources Department in Sana'a Municipality, a study carried out with the Ministry of Agriculture and Irrigation concluded that dams needed to be built to harvest rainwater to prevent water shortages.

Roadmap to nowhere

In an attempt to feed the Sana'a water basin, which is shrinking by 5% annually, and provide drinking water to the city, a 2008 plan entitled: "A Road Map to Harvesting Rainwater in Yemen" was designed to ensure that 70 % of city rainwater was harvested by 2012, and 100 % by 2020.

The plan envisaged harvesting through the building of water barriers, small dams, concrete tanks in valleys, and water harvesting systems in or on houses.

Shueb explained that the government is encouraging people in areas with higher rainfall, such as Sana'a and Taiz, a city 256km south of Sana'a, to erect water collection devices on the roofs of their houses, schools and government buildings to harvest rainwater.

Recently a committee issued a decree that rainwater roof harvesting should be compulsory, said Shueb, adding: "These plans are moving ahead slowly because of the



limited technical capacity, expertise and poor information." Shueb said water shortages had been exacerbated by the widespread use of private wells and water pumps for domestic and agricultural use.

"Something has to give"

However, Shueb said rainwater harvesting was not the ultimate solution: What were required were the more efficient treatment of waste water and the reduction of water consumption, especially for irrigation, he said.

But even these measures might not be enough.

A 2007 study by the Japanese International Cooperation Agency (JICA), the National Water Resources Authority (NWRA) and the Ministry of Water and Environment (MWE) suggested that even the most aggressive measures to improve efficiency, conservation and recharge, would at best delay water depletion in Sana'a by a couple of years, perhaps until 2020 at the latest.

Calling for more funding for rainwater harvesting, GTZ's Scoble said that in the 1940s only 60,000 people lived in Sana'a, whereas today there are close to two million. "Rainfall has probably varied from year to year, but the population has increased. Something has to give, and it will probably be the donors - not the clouds, or the crowds of Yemenis."

Source: *Integrated Regional Information Networks (IRIN), August 10, 2010*

<http://www.irinnews.org/Report.aspx?ReportId=90122>

IRAQ'S UNTOLD CRISIS



The water situation in Iraq is reaching a crisis point due to many factors.

- 1 in 4 cannot get sufficient clean drinking water.
- The Tigris and the Euphrates rivers are slowly draining.
- The underground water in some areas is becoming unfit for human consumption due to high salt content
- Approximately 83% of sewage is being let into rivers and waterways according to the UN.
- Water treatment and distribution facilities are disrupted by persistent power shortages.

Human Relief Foundation Responded by:

- Delivering 1000s of bottled water to the suffering people in the short term.
- Drilling eight water wells alleviating the suffering of 5,000 families in the Iraqi provinces of al-Anbar, Salahaldeen and Naiynawa.
- Implementing a program of rehabilitation and restoration work for water treatment plants in three areas in the Babylon province namely, (Al-fodalia village, Al-jazra village and al-Mahweel district) benefiting 1940 families.



- Building the capacity of the human resources working in the water facilities through training and coaching.
- Launching a hygiene awareness campaign promoting proper usage of water, the importance of healthy water, the harmful human activities that affect water, and how to avoid water born diseases.

Source: The Human Relief Foundation: http://www.hrf.co.uk/appeals_2.asp?idAppeal=33



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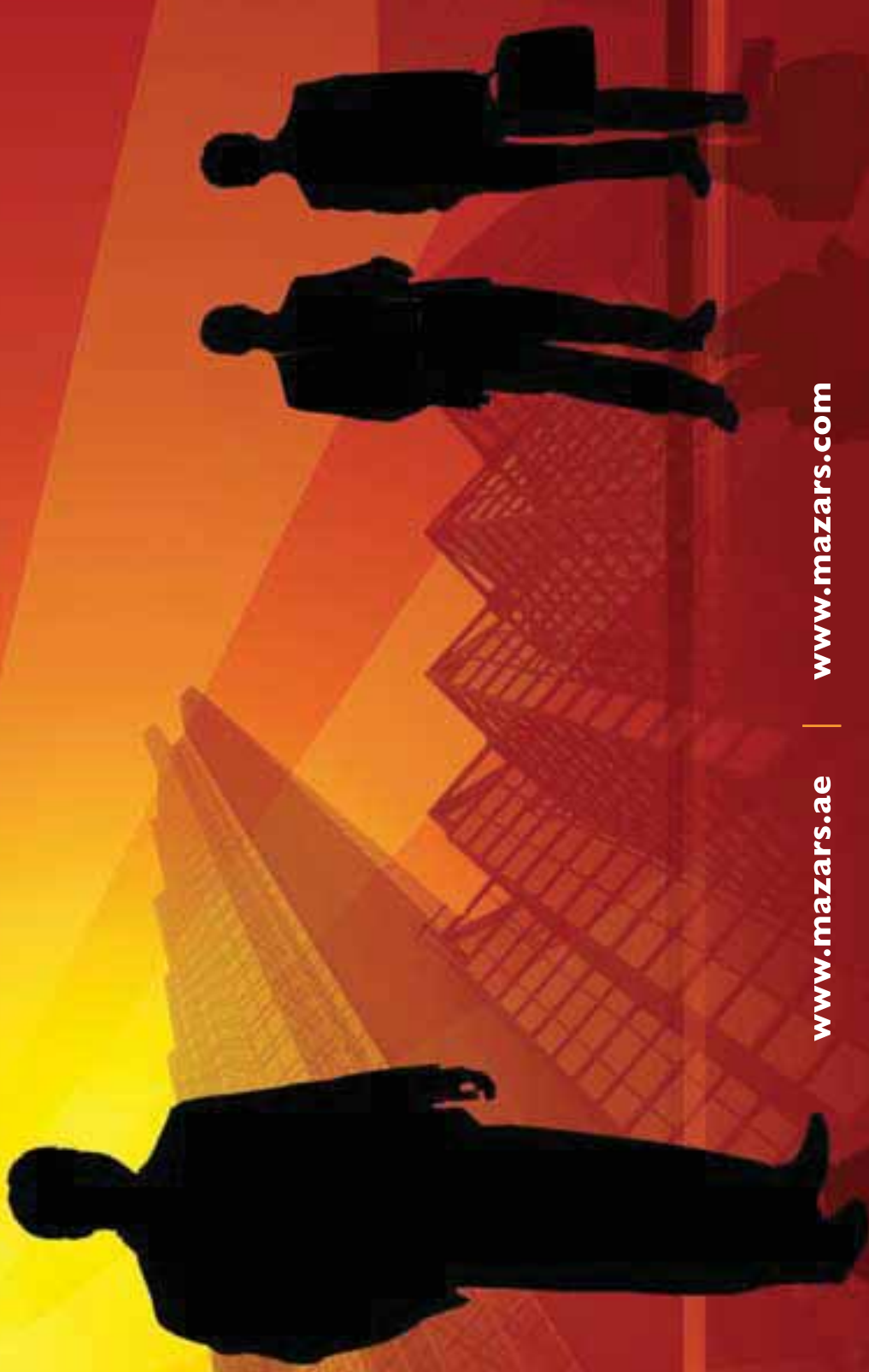
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