**TI-UP Enquiry:**

**Review of Iraq Grand Port Project Proposal**

## Summary and Conclusion

Hanna Shaikh Holding Company (HSHC) proposes to build a vast and hugely expensive port ($10-12 billion) with 40 km of berths at the Fao peninsula, a marshy region adjoining the Arabian Gulf in the extreme south-east of Iraq, between and to the south-east of the cities of Basra (Iraq) and Abadan (Iran). Its chief importance is its strategic location, controlling access to the Shatt al-Arab waterway, and thus access to the ports of Basra and Umm Qasr, and it was occupied by Iran in the course of the Iran-Iraq war.

The main purpose of the terminal would be to export oil. The other potential traffic is gas liquids, containers, general cargo, and bulks. The entire development also includes a town and a free zone, but presumably the main source of actual revenue would be ship and cargo handling.

The documents provided to justify the project consist of a series of unproved assertions supported by forecasts (to 2015 or 2055) that are questionable because they were made in 2003 immediately following the invasion of the country. These forecasts address issues which would influence port throughput, such as the potential volume of Iraqi oil exported via the Arabian Gulf, but not port throughput as such – this would also be determined by the share achieved by the port. HSHC says that a project study update “will be available at the end of August 2007”.

There is a brief overall cost estimate, but it is not phased. There are no revenue, throughput, or operational cost forecasts such as would be required for a business plan, and no demonstration of viability. Our investigation suggests that it is extremely unlikely that the port can be commercially viable as presented. It is far too big for Iraq’s possible medium term needs, and in any case no requirement for new facilities, as opposed to rehabilitation and development of existing infrastructures, is demonstrated.

The documents ignore the existence of the renovated Al Basrah offshore oil export terminal, which is currently responsible for exports of virtually all Iraqi Arabian Gulf exports and is only operating at half capacity. As it is offshore, it is well able to handle very large crude oil carriers so that there is no need to provide equivalent, and relatively very costly, onshore facilities.

The documents do not provide sufficient justification to secure private finance for the project. Although HSHC says that there is no direct recourse to Government funding for the development, a vast and unspecified amount of Government funding would be required to provide the transport and services infrastructure for the port and new town.

If no such work is already in train or completed, it is clearly necessary for the Iraqi Government to assess its transport, distribution, and logistics requirements, in the context of its plans for industrial and economic development, and develop a strategy for its international trade. It is not immediately obvious that such a strategy would involve a new port at the Fao peninsula, but the possibility cannot be ruled out at this stage.

**Commentary on Oil Production Forecasts**

The HSHC proposal is not placed in any context for the future political and economic development of Iraq, and there are no scenarios and no risk analysis. There is no attempt to map out or describe any possible future for the country in which any of the forecasts and the proposal itself might credibly be placed. There is no recognition of the present actual situation of the country.

This is because of the age of the information presented. The proposal is believed to have been first put forward by Sheikh Joseph Hanna, an Iraqi entrepreneur now based in Abu Dhabi, in 2006, but (as is stated by HSHC) the document provided relies on information, data, and forecasts produced between June and September 2003, when Iraq was officially expected to become a free, liberal, western style market economy following the invasion that began on March 20, 2003. As this has not yet happened, none of the forecasts provide a credible basis for the $13 billion project. Since the forecasts were produced, and up to mid-2007, there have been some 400 insurgent or terrorist attacks against pipelines, pumping stations, oil fields, and other parts of Iraq's oil infrastructure, according to the Brookings Institution. Mismanagement of oil reservoirs, inadequate maintenance of pumps and pipes, and shortage of storage facilities at offshore loading terminals in the Gulf, as well as security failings, have hampered production.

The HSHC project is currently stalled because of a dispute between Baghdad and Basra over who should run the facility, and what proportion of the port's revenues should stay in the southern province. Reconstruction officials in the south of the country have also expressed scepticism over how it will be financed. Hanna's proposal would be entirely funded by international banks, and (according to recent reports) officials in Basra do not believe that money on this scale can currently be secured for private sector projects in Iraq.

The business plan and viability of the project depend critically on forecasts for oil production, exports, and HSHC share. However, because of the age of the HSHC data the most fundamental of the forecasts provided, those for the growth of Iraqi oil production, bear little relationship with reality. (There are, of course, significant problems in estimating production levels because of the volumes stolen).

The table below shows that actual production in 2007 was around 2.2 MBD, compared with a forecast of 3.19 MBD. The same production level is implied by the Government of Iraq (GoI) Budget for 2008, against a HSHC forecast of 3.19 MBD. The table also compares HSHC forecasts, shown to 2015, with EIU forecasts to 2011 produced in 2007.

**Iraq crude oil production: forecasts and actuals.**

| Year | HSHC: MBD | Actuals – best estimate: MBD |
|---|---|---|
| 2004 | 2.10 | 2.00 |
| 2005 | 2.42 | 1.80 |
| 2006 | 2.78 | 2.00 |
| 2007 | 3.19 | 2.20 |
| | | **GoI budget implied MBD** |
| 2008 | 3.67 | 2.20 |
| | | **EIU forecast 2007: MBD** |
| 2009 | 4.22 | 2.40 |
| 2010 | 4.50 | 2.80 |
| 2011 | 4.68 | 3.10 |
| 2012 | 4.86 | |
| 2013 | 5.01 | |
| 2014 | 5.16 | |
| 2015 | 5.20 | |

Since the 2003 U.S.-led invasion that removed Saddam from power, Iraqi production has mostly hovered between 1.7 million and 2 million barrels per day, according to the International Energy Agency. Pre-war production was 2.58 million barrels per day. Iraq's peak production was realized just before its invasion of Kuwait in July 1990, when output reached 3.5 MBD, before exports were halted by an international boycott.

However, because Iraq's oil output climbed in November 2007 the ministry in charge of production forecast that it could surpass 3 million barrels per day by the end of 2008. Iraq's average production was 2.4 million barrels per day in November. In January 2007, output was 1.9 million barrels. At the time this prediction was made, before the Budget was produced, there were no figures available for December or detailed month-by-month figures for the rest of the year. Furthermore, Iraq has missed oil production targets every quarter since 2004

Less information is available for exports, though inevitably they have been lower than HSHC forecasts. In 2006 exports were 1.4 MBD, compared with the HSHC forecast of 2.13 MBD, and in 2007 they were 1.7 MBD (the production ministry claimed 1.9 MBD) compared with a forecast of 2.49 MBD. The EIU forecasts 1.7 MBD for 2008 as well, against HSHC 's 2.97 MBD.

Exports are divided between the offshore oil terminal Al Basrah, with (according to the Ministry) 1.6 MBD, and "more than 300,000 barrels per day from Kirkuk in the north". Oil shipments by pipeline from the Kirkuk oil fields to the Turkish Ceyhan export terminal, often prevented by sabotage, resumed in 2007 and this potentially allows Iraq to increase production further.

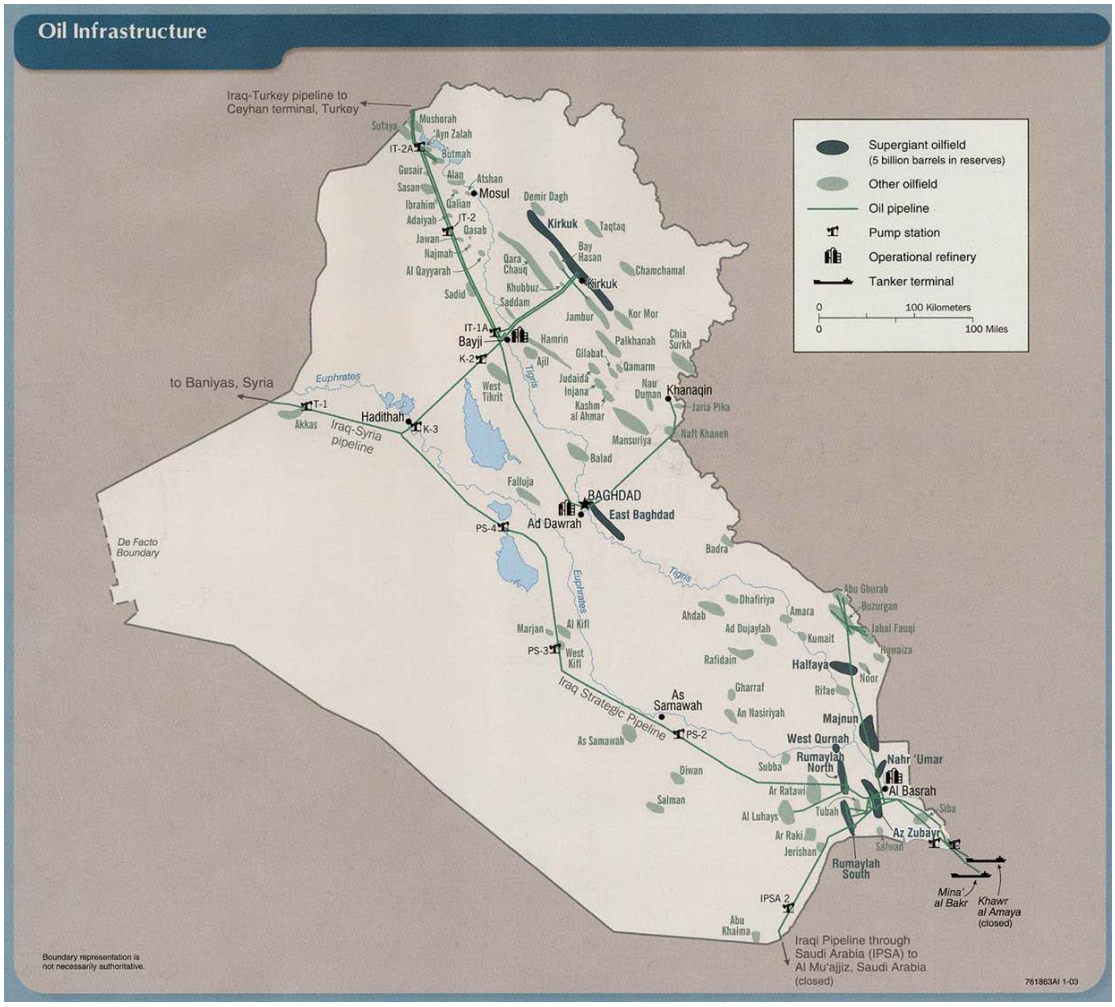
The errors may be less damaging to the HSHC case than at first appears, because HSHC did not take account of the closure of the Ceyhan Mediterranean pipelines. Its Arabian Gulf forecast of 1.37 MBD for the Arabian Gulf is not greatly in excess of the

actual, something between 1.1 and 1.3 MBD, because the actual of 0.3 MBD for Kirkuk is so much lower than the HSHC 1.12 MBD. On the other hand, the HSHC forecast for the Arabian Gulf is always 55% of total production less forecast domestic refinery production, so that in future years the link with production is critical.

The 600-mile Kirkuk-Ceyhan pipeline is actually two pipes — a 40-inch diameter pipe with a nominal capacity of 1.1 mbd (although DOE reports that 900,000 barrels per day was its practical maximum), and a parallel 46-inch pipe, with a nominal capacity of 500,000 barrels per day. It does not appear that the second line was ever used on a commercial basis. But, taken together, the theoretical capability of transporting 1.6 mbd of Iraqi crude to west-of-Suez oil markets exists

HSHC assumes that 45% of Iraqi oil production will transit the Grand Port, which means that all forecast Arabian Gulf exports will use it. Presumably the Al Basrah offshore terminal will be closed, although it might be considered a substantially cheaper option, as it already exists and is responsible for virtually all current Arabian Gulf exports. Offshore terminals served by underwater pipelines are inevitably cheaper to provide than land based terminals, particularly any that require reclamation. The United States has no onshore terminals for large vessels as until recently no US port had a draft of more than 13 metres (not much more than Umm Qasr port), and has one offshore terminal. Otherwise the USA is adequately served by lighters transhipping crude oil at sea.

The **Al Basrah Oil Terminal (ABOT)** is located 50 km offshore in the Arabian Gulf off Iraq's south-eastern coast (see attached map), and is one of the country's most important pieces of economic infrastructure. Supplied by a 48” undersea pipeline from the southernmost tip of the Al Faw Peninsula, the terminal has four berths capable of handling very large carrier type vessels (VLCCs) and offloading 300,000-400,000 barrels per day on each berth.




The U.S. Army Corps of Engineers has invested $67.5 million to rehabilitate the export facility, and all four of its berths have been fully operational since spring 2007, after it was first reopened in 2003.

About one and a half million barrels of crude oil per day leave Iraq via tankers loading at ABOT. That volume is half of the terminal loading capacity of 3 million barrels per day achieved with the upgrade.

A second and much smaller facility, Khawr al Amaya (KAAOT) terminal, reopened in February 2004, but only provides about 5 percent of Iraq's oil distribution capacity. It remains in a dilapidated state.

Even on HSHC's optimistic export assessment this means that it will be later than 2015 before further export capacity is required in the Arabian Gulf.

## Prospects for Iraqi Oil Production

Iraq's enormous reserves of an estimated 115-billion barrels of proven crude are the world's third largest after those of the Saudi Kingdom and Canada, and only 17 of the 80 fields discovered in Iraq have been developed. Given a stable security situation, very large amounts of capital investment, and the involvement of one or more large oil companies, it would be realistic to suggest potential output ramping up to 5 or 6 million barrels per day over a period of several years. But, given current difficulties, it would seem that this eventuality is far off.

Indeed, Iraqi reserves, were they more intensively developed with the application of current reservoir management techniques, the drilling of additional wells, and infrastructure improvements, could easily support still greater production. Ten million barrels per day, three times greater than Iraq's highest output, and rivalling Saudi Arabia's production — could potentially be achieved with the application of up-to-date geophysics and substantial investment in field development and infrastructure. Iraq offers one of the world's best long-term petroleum prospects, with substantial output potentially flowing from relatively few, high-yield wells.

The US Department of Energy(DOE) estimates that the cost of bringing oil production on line in Iraq is among the world's lowest, about $3-$5 billion per mbd of output. In contrast to a mature oil-producing province such as the United States, where 521,000 wells produce about 5.8 mbd, Iraqi output comes from only 1,600 wells potentially able to produce almost 3 mbd. (This is the current capacity of the Iraqi oil industry, and exceeds the HSHC forecast for 2006, suggesting that HSHC consultants expected new reserves to come on stream, whereas none have. The main reasons for this lack of investment have been lack of security, the politicization of the oil ministry, the absence and/or exodus of trained personnel, and poor or corrupt management in the oil sector, rather than lack of funds).

In practice, the director and senior fellow in the energy program of the Center for Strategic and International Studies recently remarked that Iraq was "years away from being a reliable 4-million-barrel-a-day producer". Iraqi government projections that production will rise to 3.1 million barrels a day by 2008 are seen as unrealistic by US experts, who estimate that further investment of $5 billion to $10 billion will be necessary to get back to pre-war oil pumping levels, and that another $15 billion to $25 billion would be required to increase production further.

"Most analysts believe that there will be no major additions to Iraqi production capacity for at least two-three years, with Shell's vice-president recently stating that any auction of Iraqi's oilfields was unlikely before 2007," said the EIA report released late in December 2005. At the beginning of 2008 no such auction has yet taken place, but Iraqi oil officials said recently they hoped to issue tenders to develop the country's vast oil fields at the beginning of 2008. They said the oil ministry was preparing contract models for the first group of oil fields.

In 2005, the manager of the Exxon planning division responsible for supply / demand forecasts was reported as saying that crude oil production in Iraq was expected to more than double or nearly triple by 2030. At the time, this implied a forecast for 2030 of between 5 and 7.5 MBD.

United Nations reports have said that badly managed production practices in the south, where the vast majority of Iraq's proven oil wealth lies, have probably permanently damaged reservoirs forcing them to produce quantities of crude far below their potential. According to the EIA, damage done to the facilities during the 1991 Gulf War remains, and about seven major fields in the south are either partially damaged from substandard drilling operations, or have been mothballed.

In conclusion, Grand Port is not needed for oil exports until after 2015, and another offshore facility would be substantially less expensive to provide at that time. Offshore facilities can be relatively easily defended from terrorist attacks (probably more easily than land-based facilities), while neither offshore facilities nor ports can easily be defended from missile attacks launched by hostile states.

## Container traffic

Container volumes are projected by HSHC to rise from 120,000 TEU in 2005 to 6.4 million TEU in 2055. That is, Iraq will handle a little less than the UK does at present. The UK population is a little more than twice that of Iraq, so that the average Iraqi will be responsible for twice as much container volume in 2055 as the average Briton now. To achieve this result the container handling volume will grow at an average compound rate of 8.3% per annum for 50 years, which is high.

It is pointless to consider whether this forecast is accurate or not. In terms of return on capital, no reputable consultant would attempt to forecast much more than 20 years ahead, and the figure is meaningless, as is the associated tonnage forecast.

## LNG/LPG

HSHC forecasts a 4 million tonne/year LNG train by 2020. The most obvious destination for Iraqi LNG is Kuwait, which has a shortage of natural gas and does not require Grand Port as there is already a pipeline. Lack of time has prevented further research of this issue.

HSHC forecasts that Iraq would export 3.9 million tonnes of LPG per year by 2010. In 2004 production was only about 800,000 tpa, but under Saddam there were significant plans for development of exports of gas liquids to neighbouring countries and the Asia/Pacific region.

Recent information suggests that supplying domestic needs has priority over developing exports. An Iraqi company has recently been awarded one of the biggest refurbishment projects of gas plants in Iraq, which after completion will boost the LPG production of the South gas plants to 3000 tons / day, (one million tpa) to assist in solving the LPG shortage.

LPG is a by-product of crude oil production, so that any reduction in the forecast volume of crude oil will be mirrored in a reduction in available LPG.

## Free zone

Free zones are places where goods are taken for value to be added before re-export. They always require a particular locational advantage. Dubai is the classic example, as a relatively free society without corruption, where it is easy to do business, surrounded by very rich Arab states where it is often difficult to do business. Because it is able to bridge the two worlds it has become a natural middleman.

Southern Iraq fairly obviously shares none of Dubai's advantages, and is located at the far end of the Arabian Gulf far away from major shipping lanes. Kuwait would appear a more likely location for a free zone, and, indeed, it has one. The Kuwait Free Trade Zone (KFTZ) is located in Shuwaikh Port, and has ambitions to serve emerging markets in northern Iran, Iraq, Turkey, and the Commonwealth of Independent States.

Developments in the Iraqi Grand Port free zone are possible, however, but are more likely to serve Iraq's domestic needs. Such developments will make some contribution to port handling.

## Project viability

HSHC provides no revenue figures so that it is not possible to assess the viability of the project. It speaks of phasing the project, but does not say what the phases

consist of. However, it is plain from the diagrams that most of the reclamation will need to be completed in the first phase, as the port area itself is at the southern tip. Dredging, reclamation, protection, quay walls, and a first tranche of infrastructure will probably cost in the region of $8 billion.

Assuming a generous eight-year payback (a high risk project such as this would normally seek a faster return), and ignoring operating costs and lease payments, the requirement is for revenue of $1 billion per year. The container contribution in the first eight years could, again generously, average $100 for throughput of an average 400,000 TEU, giving revenue of $40 million. Most of the remaining $960 million would need to come from crude oil handling and port charges.

On HSHC estimates, average oil exports would be in the region of 2 MBD, or about 700 million barrels per year, or about 100 million tons per year. Revenue required per ton would therefore be $9.6. this would need to be achieved through port charges of which the more important is stevedoring. Aden charges 30 US cents per ton for stevedoring crude oil, so that Grand Port appears to require a very high return to achieve viability.

Although this calculation is extremely rough and ready it is unlikely to be dramatically wrong.

**Technical Issues**

Halcrow are a reputable civil engineering company and there can be no doubt that the project is deliverable at or close to the costs identified. However, the proximity of the port to other countries' national waters raises some significant issues, of which the most obvious is that the coastal regime may be affected. Careful modelling, and an environmental impact assessment, will be required to check the impact that the reclamation will not have adverse effects on the river's bathymetry and confirm that there will be no adverse effects on the local environment and ecology. Canalisation of this section of the waterway could conceivably affect coastal morphology, including Bubiyan Island in Kuwait, for instance.

There should be no problem with disposing of dredged spoil, as it would be used for reclamation.

**Other issues**

HSHC lists the economic benefits of its project. However, since all the economic benefits may equally be obtained by using other ports or terminals they cannot be monopolised by HSHC, unless it proves that alternatives do not exist. HSHC argues that alternatives are congested, which is partly true, but measures are being taken to expand facilities or rehabilitate them, as has already happened with the Al Basrah export terminal.

One of the claimed benefits is a reduction in transport costs for containers and general cargo of, initially, $500 million. Without knowing the full argument this cannot be refuted, but it seems extremely unlikely, as transport operators always use the cheapest routes safely available already. Umm Qasr is crowded, and has been said to be operating at 130% capacity, but there have not recently been reports of waiting ships.

Some economic benefits listed are a little strange. Leisure and tourism industries are not commonly located in modern industrial towns adjoining large new ports. Transhipment of cargo through the port to Europe will never happen, however peaceful and free Iraq becomes, not least because Iraq's own container cargo is all

transhipped into feeder vessel from Salalah or Aden, because ship owners increasingly avoid entering the Gulf at all with main haul ships, as it is an expensive diversion.

**Comments on the proposal**

As the project is to be entirely privately financed and there is no alternative use to which the area involved could better be put, while there is a potential revenue gain to the GoI, it might be felt that the project can only provide economic benefit and should be permitted. However, the cost of the required associated inland pipeline and rail distribution infrastructure has not been assessed, presumably because the developers expect the GoI to provide it free. A proper cost/benefit analysis of the project would need to include these costs. Furthermore, it is not reasonable to expect the Iraqi people to subsidise a private project unless it is clear that the project is economically viable and nationally beneficial. Countries that do provide inland infrastructure free generally plan port developments nationally as well, own port freeholds, and assign long term leases, not ownership, to developers. In the UK, of course, port developers are expected to finance the cost of associated inland infrastructures.

There is, clearly, an issue about how a future Iraq's oil related, bulk, and container maritime transport needs will be met, and this is an issue for the GoI, which needs to examine a range of credible options including the Grand Port. If the project were permitted there is a risk that the GoI would carry out such a study and decide that there are better alternatives, so that the infrastructure would not be provided. The proposal does not consider this issue, merely stating that alternative ports are congested, without examining the expansion plans under way at, for instance, Aqaba, and in Kuwait.

The proposed port has a strategically vulnerable location, adjoining Iran, a potentially hostile state. It seems unlikely that GoI would risk placing too large a part of its economy somewhere it could quite so easily be destroyed – it should spread the risk. The same goes for placing too large a part of its oil economy in the hands of a potentially monopolistic private company.

**Background to the production assessment:**

***Economist Intelligence Unit - Nov 15th 2007***

The Iraqi cabinet has passed an expansionary budget for 2008, based on the expectation that the recent improvements in security have created conditions for a big increase in investment in reconstruction and development. However, the reduction in violence in Iraq over the past few months has come about mainly as a result of local initiatives buttressed by extra US troops and cash, while the political divisions at the national level have if anything widened. The lack of progress towards national reconciliation raises questions as to how the plans for forging ahead with major infrastructure development and reconstruction projects will be implemented.

A reinvigorated reconstruction programme would clearly contribute to political stability through improving living standards and creating jobs. However, it remains doubtful whether such a programme can get off the ground under the present fractious political conditions

The bulk of the revenue in the budget will come from oil exports, which are projected to average 1.7m barrels/day (b/d)—roughly the same as in 2007

***Economist Intelligence Unit – 2006***

Iraq's primary economic objective will be to increase oil output on a sustainable basis from the 2005 average of around 1.8m barrels/day (b/d) to the claimed capacity level of 2.5m b/d. This target is looking increasingly unrealistic. Although output in the three months to August 2006 has averaged 2m b/d, an improvement compared with the first five months of the year, when average production was 1.8m b/d, it is constantly subject to sabotage and practical problems, over both capacity and export supply. Achieving the formal target, however, will be crucial if the government is to generate the funds necessary to achieve the politically vital goal of ensuring the stable provision and expansion of basic services. Nonetheless, oil production should gradually increase over the forecast period as the oil sector recovers from years of neglect. Continued instability will also deter the capital spending necessary to boost productive capacity over the longer term. Commitments to the liquidation of some loss-making state-owned (non-oil) enterprises and the full privatisation of profitable companies, together with a comprehensive reduction of price subsidies, are unlikely over the forecast period.

Given ongoing security problems in 2006, we expect that oil output will rise modestly. Additionally, government spending on development will be constrained by security costs and corruption, and the non-oil sector will continue to be blighted by the lack of security and the slow pace of reconstruction and fund disbursement. As a result, we forecast that real GDP growth in 2006 will be around 3%. In 2007 this will pick up only slightly, rising to 4%, as oil output increases remain modest and inherent constraints on the non-oil economy remain. If the security situation deteriorates further, then even the modest projected increases in oil output will not be possible, and the non-oil sector will also suffer.

***The Iraq Oil & Gas Report Business Monitor (2007)***

Iraq real GDP growth is forecast by BMI at 10.2% for 2007, following an estimated 9.1% in 2006. We are assuming 14.7% growth in 2008, 11.4% in 2009 and 7.7% in 2010. We expect oil demand of an estimated 570,000b/d in 2006 to rise to 800,000b/d in 2011, depending on investment in infrastructure and the development of domestic production. International oil companies (IOCs) are in 2007 expected to join production sharing agreements with the state, which should help accelerate the growth in oil output. Based on the efforts of existing contractors and national oil industry bodies, we are forecasting average oil production of 2.15mn b/d this year. December 2006 production was 1.77mn b/d, with more than 1.4mn b/d of exports. Further field reactivation work and the initial IOC efforts point to output of an estimated 3.1mn b/d in 2011. The government has much more ambitious targets, aiming for 0.5mn b/d annual output expansion and a long-tem goal of 6.0mn b/d. However, there are major risks involving attacks on oil installations, Iraq's OPEC entitlement and the success of new energy policy in stimulating IOC investment -

*(Note: BMI and EIU GDP forecasts are very different. BMI is more optimistic, and assumed that international oil companies would join production sharing agreements with the state in 2007, which has not happened.)*