

**Iraq - Jordan Oil Pipeline- Financially Costly, Contractually Complex**  
**Ahmed Mousa Jiyad**  
**Development Consultancy & Research**  
**Norway**

**Introduction**

Since 1983 the Basra – Aqaba, or Iraq-Jordan, oil pipeline (**IJOP**) has been on-and-off the screen of the bilateral relation between the two countries. And from 2011 to date, every Iraqi government had “approved a frame-agreement” relating to the same pipeline; but none of such agreements was published and, thus, nothing known about the terms of these, so claimed, approved agreements!

Scope of the pipeline, route, length, funding, execution, duration and cost have been on a changing course since 2011; but the most dramatic change is the staggering cost, which reportedly, increase from \$3billion to \$26billion between 2016 and 2022!. No surprise, therefore, this pipeline have been viewed diametrically different and with absence of full transparency, on the part of the Ministry of Oil- MoO and its affiliate SCOP, the feasibility of this project remains a pure intelligent guessing.

This article addresses first the different views and what prompted them by recent development and information on the pipeline, then in part two calculates barrel cost corresponding to actual pipeline utilization. Part three examines the re-export options in the comparative, and part four provides cautionary notes on the limitation of cash flow analysis for such a project. Moving from the quantitative mode to real life environment, part five debates strategic considerations, geopolitical vulnerability and security risks and that is complemented, in part six, by highlighting and identifying the needed contractual and legal modalities, then the article ends with concluding remarks.

**I-VIEWS AND RECENT DEVELOPMENT**

Views on the need for, urgency and feasibility of the pipeline among Iraqis, inside the country and outside it, vary widely. Those views fall in four broad groups: the majority are “cons” and the “pros” who premised their positions on variety of very broad and mostly politicized reasoning and arguments. A third thin category call for doubling the capacity of the pipeline and the fourth category is the least specific; they mix-up between the pipeline project and the repetitive temporary oil supply bilateral agreements, which have nothing to do with this pipeline.

A few days ago a new wave of attention focusing on the pipeline re-emerged on the public debate; it was triggered by a press statement attributed to the Jordanian Minister of Energy. The minister alleged that his Iraqi counterpart, the Minister of Oil, informed him by a phone call that Iraqi Cabinet has approved the frame-agreement and authorised him to finalize it. Again, an approved frame-agreement referred to, but with no details provided and nothing posted on the Iraqi MoO website on even the phone call itself; something unusual for such development!

Ironically, the State Company for Oil Project-SCOP, an affiliate of MoO, issued, on 19 January 2022, a “Clarification...” asserting “the pipeline is investment, economic, strategic and development project... استثماري ، اقتصادي ، استراتيجي ، تنموي”.

And, again, SCOP did not clarify, analytically and by calculation, any such adjectives/ attributes of the pipeline!!!

The most specific information from the Iraqi minister of oil was reported in July 2021; it comprises the following.

Basra-Aqaba pipeline (BAP) costs \$26 billion, payable over 50 years; it is BOOT type and the exports range between 200kbd and 1mbd; Jordan takes \$0.30/barrel (transit fee) and Egypt imports 24 million barrels annually.

Many important information are missing from the above statement, they are:

- 1- The composition of this \$26billion was not disclosed; for such BOOT funded project, at least four categories of major costs should be specified and quantified: Capex, Opex, funding cost (Fundex) and investor’ return cost (Invex).
- 2- The cost of Aqaba-Egypt pipeline (if needed as alternative to tanker transport) and related transit fee were not mentioned.
- 3- The nameplate capacity of BAP if it could exports 1mbd.
- 4- Does BOOT cover both parts of BAP: Basra-Haditha and Haditha-Aqaba.
- 5- Oil ownership in the pipeline.
- 6- The pricing mechanism for Jordan and Egypt deliveries.
- 7- The commitments of Jordan and Egypt to purchase the oil and 8- Their share in the pipeline cost among other matters.

Despite the above mentioned reservations and missing items, the analysis in this paper is premised on the parameters mentioned in the minister’s statement.

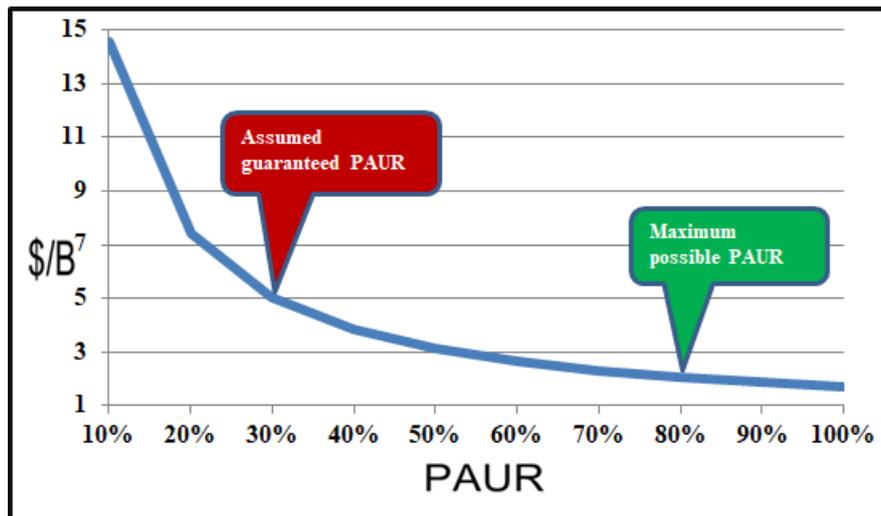
## **II- BARREL COST VS. PIPELINE UTILIZATION**

Economically speaking, barrel cost is dependent upon the actual pipeline utilization rate, i.e., the closer is the actual utilization to the nameplate capacity of the pipeline, the lower per barrel cost becomes.

This is exhibit in the below chart, which assumes the nameplate capacity is 1mbd and premised on the computation of barrel cost (\$/B) at different levels of pipeline actual utilization rate- PAUR.

The below chart reveals the following cost estimation:

### **Chart (1) Barrel Cost vs. PAUR**



- 1- At lowest PAUR, barrel cost including \$0.30 transit fee to Jordan is at astronomical \$14.54. But this is not possible logically and practically since it is highly unlikely that the pipeline operates at 10<sup>th</sup> of its capacity for 50 years;
- 2- On the other extreme, barrel cost drops to \$1.7 at full capacity utilization. This also unrealistic and operationally impossible, since it is totally unlikely to operate the pipeline at full capacity non-stop for 50 years;
- 3- The minimum utilization rate is taken that covers the combined needs of Jordan and Egypt which is 216kbd. Hence, barrel cost at the assumed guaranteed level at 30% PAUR is \$5.05;
- 4- The maximum possible utilization rate of the pipeline during its 50 years operation is assumed at 80%PAUR; at this level barrel cost goes down to \$2.08;
- 5- In case the pipeline is non-operational for reasons related to the Iraqi side, Iraq should pay the investor \$1.424 million outage charges per day; and application of “Deliver or Pay”, an essential provision in BOOT funded projects covering capacity and throughput charges.

These cost indicators are high, there is also impacting degree of uncertainty and the best case scenario is, implicitly, a re-export oriented option, as discussed next.

### **III- RE-EXPORT OPTIONS IN COMPARATIVE COSTS**

The best case scenario at 80%PAUR implies a surplus of significant volume of Basra crude oil that should be re-exported from Aqaba; the volume ranges between 584kbd and 650kbd depending on the re-export option route: by oil tankers or through another pipeline respectively. Failure to re-export such significant volumes adds further and incredible burdens of the project on Iraq.

#### Aqaba-Egypt Pipeline-AEP option

A surplus oil of 650kbd should be exported by this option from Aqaba through Sinai desert to destination terminal in Egypt. But no information is available on this new AEP regarding capacity, route, length, destination terminal, transit fee and cost among other things. Needless to say that AEP, just like any pipeline project, should be premised on long-term commitment

and agreement, which lacking here. Therefore, I will not address this option for the time being.

#### Oil Tanker Option-OTO

For this option there is some 584kbd that should be re-exported from Aqaba. But there are logistical, operational and cost considerations that could impact the viability of this option.

**Table (1)**  
**Transport Cost at Different Means and Different Market Destinations (\$/b)**

<b>Basra-Aqaba Pipeline-\$/barrel cost/PAUR</b>			
<b>PAUR</b>	<b>30%</b>	<b>50%</b>	<b>80%</b>
<b>Europe via Suez Canal</b>	<b>6.55</b>	<b>4.65</b>	<b>3.58</b>
<b>USA via Suez Canal</b>	<b>8.15</b>	<b>6.25</b>	<b>5.18</b>
<b>Basra Export Terminals- Tanker charges \$/b to:</b>			
<b>Europe via Suez Canal</b>	<b>3</b>		
<b>USA via Suez Canal</b>	<b>3.2</b>		
<b>Far East via Strait of Hurmuz</b>	<b>1.6</b>		

The above data indicates clearly the non-competitiveness of transport cost from Basra through the combined route of BAP and sea-transport from Aqaba to both European and American destination event at best case scenario of 80%PAUR.

At this best case, barrel cost is \$0.58 more expensive to European destination and \$1.98 to the American destinations compared to seaborne transport from Basra to these two destinations via Suez Canal.

Market-based differentials become more revealing when comparing BAP' best case with the Asian markets for both transport cost differentials, oil price differentials and relative market-share in total Iraqi crude oil export.

Barrel transport cost differentials are in favour of the Asian markets by a margin of \$1.98 and \$3.58 compared with European and America markets respectively. Also, barrel price differentials sold to Asian markets are higher, during 2018 latest available data, by a margin of \$2.93 and \$4.31 compared with European and America markets respectively. In other words Asian markets provide Iraq with the highest "netbacks" per barrel (sales revenue minus transport cost).

The combined effects of both differentials give Asian market comparative advantage per each barrel of oil a minimum \$4.91 and \$7.89 to European and American markets respectively through this pipeline. It is a minimum because oil price issue for oil supplies to Jordan and Egypt are not yet known.

The implication is: Each barrel of oil diverted from Asian market, Iraq loses a minimum \$4.91 when that barrel goes to European market or loses a minimum of \$7.89 to the American markets if that barrel exported to these two destinations through Aqaba. The corresponding annual Iraq losses amount to \$1.435billion and \$2.306billion if oil diversion goes to the European or American destinations respectively; theoretically in this case, total

IJOP cost increases, on Iraq, from \$26billion to \$97.7billion or \$141.3billion depending on which market that diversion goes and assuming all remains equally the same.

Moreover, this option faces very serious challenge concerning Aqaba re-export logistics and access limitations. To re-export excess oil supply there should a storage capacity (tank-farm) of, say, ten million barrel; it should have loading terminal of no less than 1mbd capacity; the sea-depth and berth at loading terminal should be enough for a one million barrel tanker size; smooth access in and out of Aqaba loading terminal, a bridge from the depo to loading arms among other things. Nothing on these matters is provided though their Capex and Opex are vital to assess properly the economics of this pipeline.

Operationally but hypothetically, a surplus of 584kbd could be loaded on oil tankers of 250kb and 600kb size destined for European markets daily. This case assumes no seaborne “traffic” problem and easy daily downloading at destination terminals; both assumptions are not assured. Even if such re-export is possible, per barrel cost from Aqaba becomes higher than I assumed in the above calculation since barrel cost correlates to tanker size; lower tanker size means higher barrel transport cost and vies-versa.

If the market destination is the US then a minimum tanker size is one million barrel; this complicates further the operational viability of direct re-export from Aqaba and could lead to “ship-to-ship” mode on the Mediterranean, which adds charges that lead to much higher cost than assumed in my estimation.

The re-export from Aqaba appears to be logistically and operationally less viable, and with the absence of the relevant data from the MoO and SCOP, the economics of this option remains unclear and the justification of entire IJOP becomes difficult and very doubtful; too many unknowns and too much uncertainty.

#### **IV-LIMITATIONS OF CASH FLOW ANALYSIS**

It might be necessary and useful to make a few remarks about the most appropriate approach in assessing, economically, this pipeline project. Two universally known methods can be used here: Cost Structure Optimization-CSO (also sometime known value-for-money) and Cash Flow Analysis-CFA. Both methods can be used separately or combined and both should be based on very detailed technical and engineering study covering all components of the project.

CSO method entails assessing, prioritizing and choosing the best technical option for all major components of the project. These include, for example, the choice for a given pipeline capacity between its two ends, the diameter, length and route typography among others. Also the above three parameters decide the number, capacity, location and type of the pumping stations along the pipeline. Pumping stations have big chunk in total Capex and Opex of the pipeline and, consequently, they should be assessed fully and selected carefully too.

Moreover, as this pipeline is designated for oil re-export from Aqaba (as mentioned above), it is imperative to install export terminal at minimum one million barrel capacity, a multiple that of storage capacity (tank-farm) at Aqaba, measurement, communication and control system and flexibility storage tanks on the selected pumping stations along the pipeline. Variation in any of the above mentioned components have serious implication for their cost and, logically, on the total cost of the pipeline.

In my view the above CSO approach is the most relevant and appropriate to adopt, and I am sure any FEED study uses many industry standards and formulas in their cost estimation and, further, am confident that SCOP uses them also; we had used them back in mid 1980s when assessing IPSA, for example!

The other approach is Cash Flow Analysis-CFA. Two concepts/measures are at the core of CFA in project feasibility studies: Net Present Value-NPV and Internal Rate of Return-IRR. Both concepts rely on calculating the flows of costs and revenues over the life of the project (a full-cycle method) at discount rate(s); for any given cost the higher NPV and IRR indicate profitability, feasibility, of the project.

But CFA, for assessing a stand-alone pipeline, has limitations and thus should be used extremely carefully for the following reasons.

First; CFA result, at a given cost, aggregated or itemised, is completely sensitive to oil export price. In IJOP case both NPV and IRR show profitability at \$26billion aggregated cost if oil export price is \$10 or \$100 a barrel under 30% PAUR and 80% PAUR cases.

My computation based on the stated cost recoverable during 50 years duration, at different oil price, both PAUR and at 10% discount rate shows, in all cases the pipeline is “profitable”, but is more profitable when oil prices are higher than \$10/b.

But this could be deceptive, and potentially dangerous; it camouflages corruption, other forms of collusion, rent-seeking behaviour and klepotcracy to the detriment of the Iraqi interest.

Proponent of this proposed pipeline might argue that oil export revenues justify the pipeline even at such high cost or even much higher. This is erroneous and corruption-enabling argument and probably explains the huge difference, of \$17billion, between SCOP cost estimation and what the oil minister had declared.

Second; if CFA ignores the “netbacks” to Iraq due to “market differentials” the aggregated cost becomes much higher than the \$26billion.

As shown above the cost of diverting oil from Asian market causes Iraq annual losses amount to \$1.435billion and \$2.306billion if oil diversion goes to the European or American destinations respectively; theoretically in this case, total IJOP cost, to Iraq, increases from \$26billion to \$97.7billion or \$141.3billion depending on which market that diversion goes and assuming all remains equally the same.

Consequently, NPV and IRR values change downward dramatically and, thus, CFA could be seriously misleading.

Third; opportunity-cost perspective is very vital in assessing the profitability of any project at macroeconomics level and in comparative analysis. As shown above, ignoring the opportunity-cost perspective in the CFA could deny Iraq much better alternative(s) than investing \$26billion in IJOP; in this case CFA contributes to damaging resource misallocation.

In conclusion CFA could be irrelevant, deceptive and dangerous if it relies solely on export oil price, ignores the opportunity cost of market differential and disregards other viable options. There is absolutely no evidence suggesting that MoO or SCOP had taken these important matters in their cost estimation of this pipeline project.

## **V- STRATEGIC CONSIDERATIONS, GEOPOLITICAL VULNERABILITY AND SECURITY RISKS**

Geography is sovereign, and for Iraq too; the country is a semi-landlocked with very narrow waterway to north Arabian Gulf and thus depends on the neighbouring countries for exporting its oil to major international oil destinations.

During the last four decades Iraq had (and used at different times) four oil export outlets: a major export outlet in the south on the Arabian Gulf and pipelines through Turkey, Syria and Saudi Arabia. Each of these export outlets has strategic significance for Iraq and, equally, each was actually impacted, partially or fully, temporarily or permanently, by geopolitical and security events. And each faced risks and each is still vulnerable to such risks.

Today, only southern oil terminals on the Arabian Gulf (Basra oil terminal-BOT; Khor Al-Amaya oil terminal- KAOT and the four single-point mooring buoys-SPMs) are functioning and operational, and the pipeline through Turkey is partially utilized.

In 2021 Iraq generated \$75.677billion of revenues from exporting 1.1 billion barrels of oil, 96.7% of which was exported from the southern export terminals and only 3.3% (Kirkuk oil) exported through Ceyhan in Turkey (According to SOMO and MoO official data).

In a comparative analysis and strategic perspectives I could argue for the following:

- 1- The IJOP faces similar, if not even higher, vulnerability to geopolitical events and security risks due to or generated from domestic, regional or international causes or reasons;
- 2- The IJOP has absolutely no intrinsic peculiar unique strategic significance better than any of the other mentioned four oil exports outlets;
- 3- In terms of oil export easiness and fluidity the re-export from Aqaba is the least preferable due, primarily, to locational factor in comparison to the export terminals of the other four routes;
- 4- Financially and economically (an opportunity-cost perspective), the IJOP cost of \$26billion could be invested in four pipeline projects in three countries: a- upgrading Kirkuk-Ceyhan/Turkey pipeline and b- the rehabilitation of the existing but damaged regular crude oil pipeline and the new heavy crude pipeline through Syria and c- rehabilitation or reconstruction of the existing Iraqi Pipeline through Saudi Arabia-IPSA to Muajjiz near Yanbu port on the Red Sea; total pipeline capacity of these four options is 7.95mbd.

Any pipeline option in the above three countries would add higher export capacity at same \$26billion cost or even lower than that with more convenient geographic locations, much better logistical and operational convenience conditions and higher netback compared to Aqaba. This could generate much more export revenues, increase and diversify export options; enhance SOMO's market share in the European and American oil markets and sustain and consolidate the comparative advantages of the Asian market for Iraq.

Therefore, any claim that IJOP has a strategic importance is factually and analytically baseless, stands on thin ice and should not carry much weight to justify such exorbitant costs of the pipeline.

## **VI- CONTRACTUAL AND LEGAL MODALITIES**

Apart from financial and economic analysis and considerations, the implementation and operation of this pipeline throughout its life span require the signing of many documents, agreements and contracts, some of which are of a sovereign nature, others are financing and some are operational. However, as is the case with the issue of total cost, all these documents, their details, the conditions associated with them, and the requirements that must be provided have not been officially mentioned or disclosed on the public domain. Therefore, I find it necessary to include some of the most important of them with a very brief note on each.

### **1- Sovereign document**

There should be an inter-governmental document; a bi-lateral (between Iraq and Jordan) or tri-lateral (if Egypt is party to it). This document constitutes the sovereign base for the project and could take many forms such as "Agreement", "Fame Agreement", "Memorandum of Understanding-MoU", "Minutes of Meeting-MoM", "Joint Committee Accord- JCA" or any other form.

But from legal and constitutional perspectives there is, in Iraq, a marked distinction between "Agreement" and all other above mentioned modalities; international agreements should be promulgated by law adopted by the House of Representatives-HoRs (the Parliament). This makes IJOP agreement dependent upon domestic politics under the dome of the HoRs; a recipe for delay and procrastination.

The government could choose other form of documents to avoid a parliamentary impasse. But such choice faces many hurdles since the cost of the project is unusually high, the duration extends to 50 years, it is a major BOOT funded project and there is too much geopolitical vulnerability among others.

Also, that assumes both Jordan and Egypt follow same route and adopt similar type of document!!

In my view and for legal and practical considerations it is preferable that the document be in the form of an "international agreement - bilateral or tripartite" either in a detailed form or a frame agreement comprising all fundamental principles and basic issues relating to the pipeline such as ownership, cost sharing, transit fees, national formal entities and their respective roles and responsibility, participation of their national companies and other important issues.

In this case, the legislative authorities of the contracting states must approve such agreement according to their legal processes.

For the purpose of the following requirements I assume and use the term Sovereign Agreement, bi or tri-lateral.

### **2- The pipeline contract**

The parties to this contract are the executing company or consortium of companies on one side and the designated entities from the involved countries (Iraq, Jordan and Egypt) depending on the contents of the sovereign agreement.

If the contract for the pipeline is to be signed by Iraq only, as most information suggest so, and the entire pipeline, from Basra to Aqaba, is to be executed as BOOT funded project, it is vital to separate and clearly highlight the funding and investment matters from other provisions of the contract. The Iraqi entity, presumably SCOP, must exercise great caution when discussing and negotiating the terms, controls, and all paragraphs of the executive

contract and all its appendices. I expect that the details of the investment executive contract will be complicated, difficult and long, and the investment party (and its advisors) may resort to adopting linguistic formulations that are often interpreted in favour of the investor. Because of the long life of the project, the investor is expected to hedge, which leads to inflating costs (capital cost, financing cost and investment return); this may explain the huge cost of the project, amounting to 26 billion dollars, and this justifies the need to detail the components of this high cost! A good learnt lesson in contract negotiation is: text matters most.

3- Sovereign financial guarantees: It is very likely or certain to ask the Iraqi Ministry of Finance to provide a guarantee, on behalf of the Iraqi government, to pay the financial dues on the Iraqi side (regardless of the Iraqi contracting party).

4- Guarantees of Transfer of Receivables: It is very likely or certain that the Central Bank of Iraq will be required to submit an undertaking to guarantee, on behalf of the Iraqi government, the transfer of financial dues from the Iraqi side (regardless of the Iraqi contracting party).

5- SOMO pledges and commitment: SOMO could be requested to submit a pledge to provide crude oil according to the design capacity of the pipeline - as a maximum.

6- A pledge to provide power necessary to construct and operate the pipeline: such undertaking could be from the Ministry of Electricity (in case of operating pumping stations with electric power) or the South and Midland Gas companies (in case of operating pumping stations by dry gas) or the South and Midland Refineries companies (in case of operating pumping stations with oil products).

7- Export Credit and Guarantees Agreements: The implementation of the project requires, according to what the consultant stated, to benefit from the facilities of the export financing and support systems in force within the Organization for Economic Cooperation and Development (OECD) and outside it.

To utilize these facilities, an agreement must be concluded with the concerned official institution or agency in the exporting country on one side and the concerned Iraqi authority(s); this is what we were doing in the eighties of the last century with many European countries.

In recent years, annual state budget laws include provisions and paragraphs relating to payment of dues to or credit facilities from some of those concerned international bodies. The Ministry of Finance signed, on 11 May 2018, a detailed one of such agreement with the China Export & Credit Insurance Corporation "Sinosure"

8- Bank financing agreement: Because of the huge cost of the pipeline and the long time to pay that cost, it is necessary to provide the required financing during that period. Experience tells it is not possible or not expected that one institution or one bank will bear the burden of such a cost for such a long period. Practical experience indicates the possibility of forming a banking alliance/ syndicate that includes many international banks led by a well-known first class international bank. Negotiations between the bank syndicate and the concerned Iraqi side are required to conclude a "European Loan Agreement (ELA)". This agreement is usually long, detailed, complex and costly, and requires many sovereign guarantees, official confirmations, and a huge amount of government data and statistics.

9- Legal confirmation from the Ministry of Justice: In most cases, the Iraqi Ministry of Justice is asked to confirm the legality and constitutionality of the guarantees, assurances, and powers of contracting agreements and authorizing them to sign them.

It is worth noting that most of the above-mentioned requirements are required by OECD, European and Western investors, companies and banks, but they are at a lower level in the case of Chinese or Russian companies.

10- Security guarantees: It is very likely or certain that the Iraqi security authorities will be asked to provide guarantees, on behalf of the Iraqi government, to protect the pipeline and its workers.

## **CONCLUDING REMARKS**

First; the above analysis raises serious doubt concerning the economic viability of this pipeline because of its high cost, as a standalone, or in the comparative in terms of opportunity cost premised on market differentials or in relation to other options for alternative pipelines;

Second; but the above analysis, particularly what relates to the main parameters of the pipeline was based on data and information attributed to the Minister of Oil mid-last year. Available evidences suggest significant degrees of ambiguity, inconsistency, and uncertainty regarding all or some of these main parameters. The clear implication is, any change in the quantitative values of these main parameters would, for sure, impact the above analysis and generate a dramatic change in the outcome of calculation and their implication for making the final investment decision- FID either way.

Third; this pipeline has been on-and-off for thirty years; its economic viability is doubtful; the legal and contractual requirements are many, demanding, complex, and finally as SCOP confirms, on 19 January 2022, the project is still under “study and analysis”;

Fourth; this pipeline has equal strategic importance and faces similar geopolitical vulnerability and security risks other options and alternative face. But this pipeline has very costly disadvantage, as BOOT, condition of “Deliver or Pay” covering capacity and throughput charges;

Fifth; therefore, there is absolutely no urgency to take or make a final decision on the pipeline unless and until a full comprehensive comparative feasibility study that clearly and quantitatively demonstrate this pipeline has, by far, priority over other alternatives and options as outlined in the above analysis; as it stands now it is not.

\* On a personal note, I have been following this pipeline since its inception in 1982 and was member of the Iraqi official working groups charged with assessing and negotiating the second expansion of Iraqi-Turkey (Kirkuk-Ceyhan) pipeline and IPSA. Hence, I have well organized updated database on these and all other Iraqi cross-borders pipelines.

Norway

1 February 2022

An earlier article written in Arabic was widely circulated and posted on many Iraqi websites such as:

[انبوب نطف البصرة- العقبة: تقييم اقتصادي اولي // احمد موسى جياذ](#)

<https://akhbaar.org/home/2022/1/291012.html>

<http://www.alnoor.se/article.asp?id=381313>

<https://kitabab.com/2022/01/24/%d8%a7%d9%86%d8%a8%d9%88%d8%a8-%d9%86%d9%81%d8%b7-%d8%a7%d9%84%d8%a8%d8%b5%d8%b1%d8%a9-%d8%a7%d9%84%d8%b9%d9%82%d8%a8%d8%a9-%d8%aa%d9%82%d9%8a%d9%8a%d9%85-%d8%a7%d9%82%d8%aa%d8%b5%d8%a7%d8%af%d9%8a/>