The Geopolitics of Energy and Impacts on Iraq Petroleum Sector

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This is summary of a PowerPoint Presentation prepared for and to be delivered before the international "8th Turkey Energy Summit Congress", held at Antalya-Turkey, 10-11 October 2017.

The presentation was formulated on two interrelated premises;

1- Iraq is the only Arab country that is «**Resource rich**» and "**semi-landlocked**"; has only narrow corridor to international waters with two close **chokepoints**: one at northern Arabian Gulf (with Kuwait and Iran) and the other is Strait of Hurmuz.
2- Hence, **Geology**, **Geography** and oil **Dependency** make Iraq inevitably highly vulnerable to Geopolitical risks; **Kleptocracy** exacerbates such vulnerability.

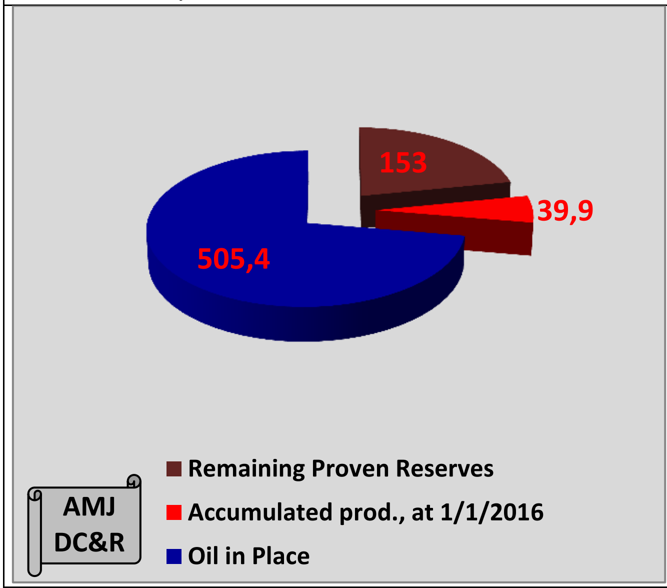
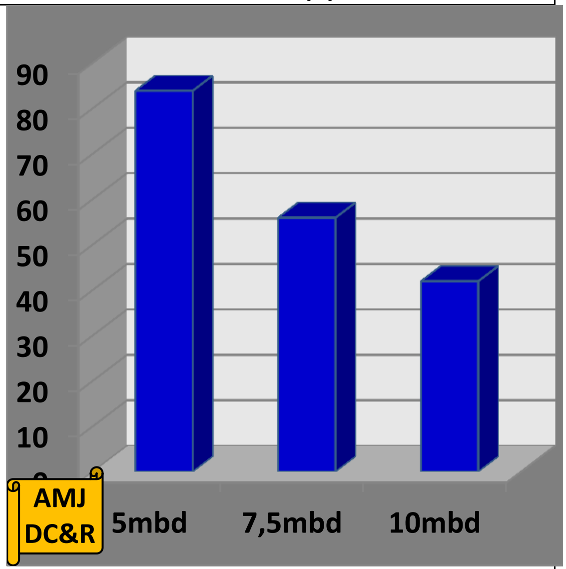
It covers the following topics:

1- Geology: resource richness and potential resource conflicts;
2- Geography Governs: Semi Landlocked; Locational Rent (Economic & Political) & Expensive Strategy of Multiple Export Outlets;
3- Oil Dependency, Vulnerability and Volatility;
4- The Big-Push Strategy of a Game-Changer;
5- Kleptocracy, Resource Curse & Major Policy Failures; and finally,
6- Prospects: Iraq' Geopolitical Vulnerability Continues.

I- Geology: Resource Richness & Potential Resource Conflicts

According to and based on formal / official date, Iraq is a resource (hydrocarbon) rich country with over 500 billion barrel "Oil in Place"; estimated oil Current Remaining Proven Reserves-CRPR stands at 153 billion barrel (in 2017) and accumulated oil production of 39.9 billion barrel up to 1 January 2016.
Based on oil production of 5 million barrel per day (as from 2018) CRPR could last for 84 years (Reserve Production Ratio- RPR); doubling daily production would reduce reserves durability-RPR by half.

But most oil professionals, especially reservoirs and reserves specialists, argue that potential proven reserves could be much higher than the currently estimated. The argument premised on three basic facts: Iraq, geologically, is under-explored; it has a relatively high success (discovery) ratio and finally the advancement of reserves estimation methodologies and enhanced recover factor. The following two charts 1 and 2 exhibit the above.

1- **OiP, CRPR & AP Profile-Billion Barrel**	**2- RPR (Y)**
	

But **Geology is "permanent" and knows no borders**: sovereign, regional or provincial/administrative borders; hence, could cause severe, costly and long lasting or recurring resource conflicts.
That depends, largely, on the adopted "resource development strategy":

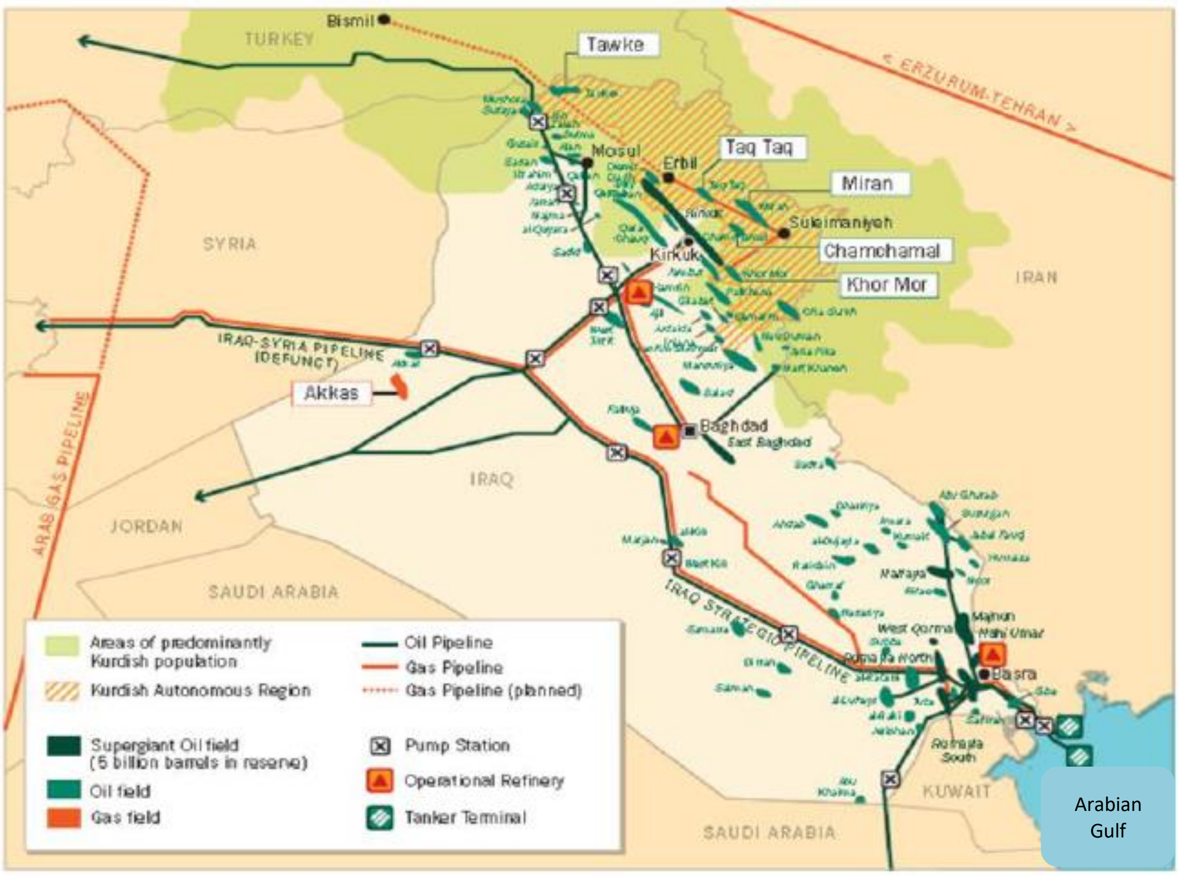
> Sovereign border fields: Unilateral & Competitive vs. Bilateral & Collaborative
> Provincial/Regional shared fields: Federal vs. Provincial/Reginal Management.

II- Geography Governs: Semi Landlocked; Locational Rent (Economic & Political) & Expensive Strategy of Multiple Export Outlets.

Iraq is the only Arab country that is «**Resource rich**», as highlighted above, and "**semi-landlocked**"; has only narrow corridor to international waters with two close **chokepoints**: one at northern Arabian Gulf (with Kuwait and Iran) and the other is Strait of Hurmuz.

The state of been "**semi-landlocked**" proved to have serious implications on the development of upstream development (and by organic links on the petroleum sector and the national economy at large) through export outlets, boarder fields and indirectly through OPEC politics.

The map below demonstrates that the case of landlocked-ness that provides Iraq's neighbours with continued opportunities to extract from Iraq economic rent and exerts political rent or leverage:



Economic rent is mostly through "transit fees", linked to oil prices. But the **political rent (or leverage**) was, and could actually be most evident, effective and impeding.

To mitigate this curse of geography, Iraq was compelled to adopt expensive strategy of multiple export outlets, through pipelines, formulated on flexibility and security considerations more than project-based fiscal feasibility.

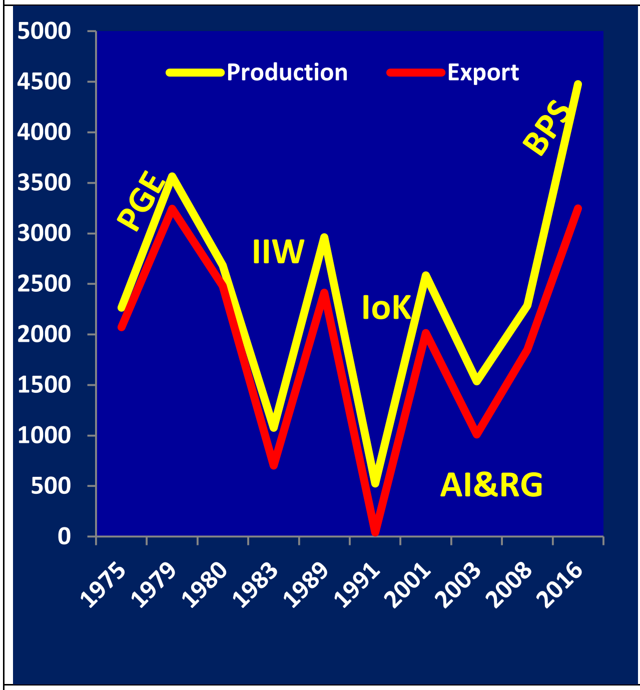
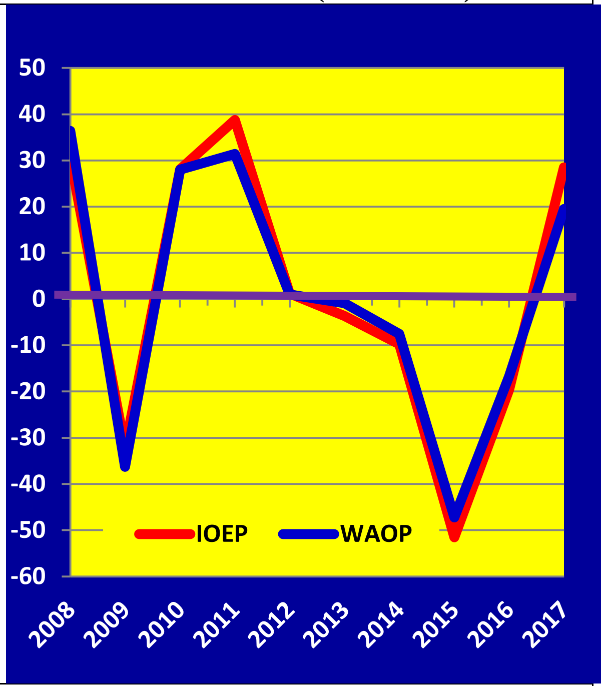
Ample evidences, since September 1980 up-to-date emphatically support the above assertions most evidently by the pipeline operations and projects through Syria, Turkey, Saudi Arabia (IPSA 1&2) Jordan (Aqaba) and oil terminals on north Arabian Gulf.

III- Oil Dependency, Vulnerability and Volatility

In addition to geology and geography, Iraq vulnerability to geopolitical events and associated risks deepens further by oil dependency through two channels: oil production and export and oil price volatility, as exhibited in the following 3 & 4 charts.

Two main facts are indicated through Chart 3: the first; oil export constitutes a high percentage of oil production and, thus, highly correlated to it; implying high national economic dependency (in different aspects) on oil. The second, both oil production and its exports are highly sensitive to geopolitical events.

Chart 4 demonstrates that oil prices, for both Iraq oil export and world average, are usually volatile as measured by year –on-year percentage change; annual oil price volatility is normally smoothed by the averaging compared with the daily, weekly or monthly levels, which usually very abrupt and takes Yo-Yo shape.

3- Oil Production & Export-kbd	4- Oil Price Volatility-YoY% Change IOEP&WAOP (2008-2017)
	

PGE: Petroleum Golden Era; IIW: Iran-Iraq War; IoK: Iraq invasion of Kuwait; AI&RG: American Invasion & Regime Change; BPS: Big-Push Strategy in Petroleum Upstream Development.; IOEP: Average Iraq oil Export Price; WAOP: World Average Oil Price; kbd: 000 barrel daily.

The above two charts clearly indicates that Iraq is exposed to high, severe and negatively impacting vulnerability of both geopolitical events and geopolitics of energy, especially petroleum.

IV- Big-Push Strategy of a Game-Changer

Through four bid rounds, Iraq adopted what could be considered as Big-Push Strategy of a Game-Changer.

14 oilfields (brown and green) with a total of 67 billion barrel of proven reserves were contracted in 2009 & 2010 with a total production plateau of ca. 12 million barrels per day (mbd) to be realized in 2017 and sustainable for seven years.

In addition, three (free) gas field and four exploration blocks were contracted through two separate bid rounds.

That big-push ambition proved to be unattainable in timing and magnitude. Thus, plateau production targets were reduced many times, plateau period moved further from 2017 and its duration prolonged by more than seven years, leading to extension of the contract terms by a few years.

Accordingly, related contract were amended by giving certain concessions to the contracted IOCs.

By end 2017 oil production (from all oilfields covered by the bid rounds and the national efforts) is projected to reach 5mbd only, as stated by the current Minister of Oil.

V- Kleptocracy, Resource Curse & Major Policy Failures

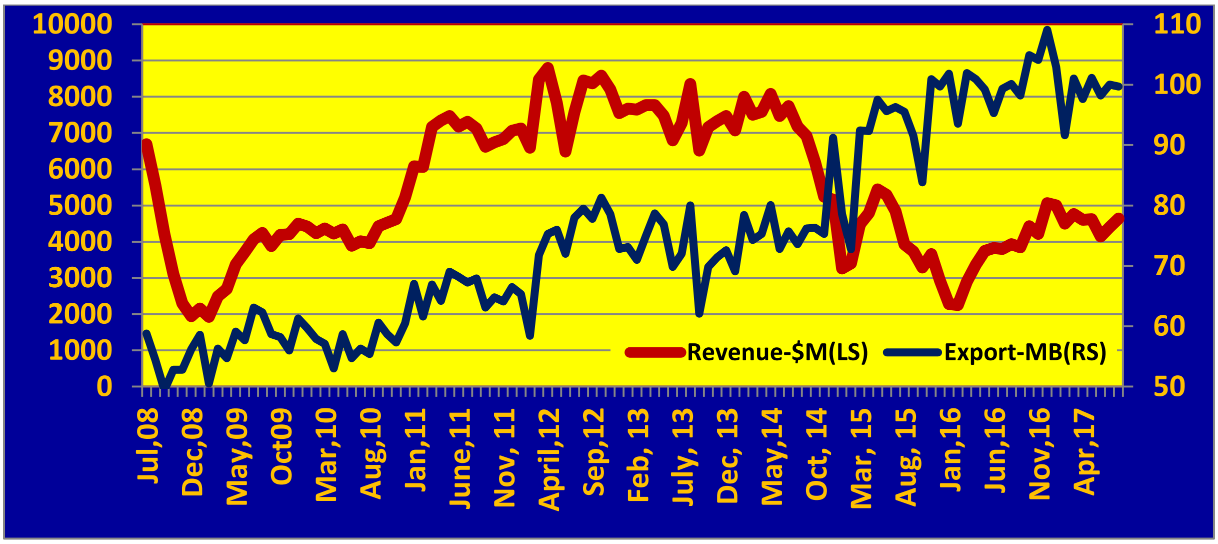
Kleptocracy, defined here as formalised legalised and institutionalised hyper-corruption, is the most lethal and destructive manifestation of resource cures of the rentier state; it is the cause of most

impacting financial, contractual and execution irregularities (camouflaged by democratic norms!) that lead to wasteful resource mismanagement and minimum sustainable development performance.
This brief presentation addresses only three major policy failures without going through them meticulously.

<u>1- Oil Export Revenues and the Serious Fiscal Crisis of the Rentier State- Lessons Not Learned</u>

Between end June 2008 and end September 2017 Iraq exported a total of 8.373 billion barrels of oil, generated $602 billion of revenues; decision makers did not learn from 2008 fiscal crisis as they are facing more acute fiscal crisis since mid-2014. Now, Iraq's accumulated debt stand at $110 billion and face challenging and costly destruction due to Da'esh effect.
The following chart indicates an upward trend in oil exports while oil export revenues went through two major dips due mainly to collapsed oil prices: a short-lived one when Iraqi oil prices plunged from $113.81/barrel in July 2008 to $34.57/b in December 2008; and a prolonged second dip when oil prices dropped from $102.61/b in June 2014 to as low as $22.21/b in January 2016 and now (in September 2017) it stand at $50.23/b.
Between these two "floors", i.e., $34.57/b and $22.21/b, oil prices has been mostly at $100+/b. Obviously , such cyclicality produces, what I warned against, a "Honeymoon & Nightmare" situation, which I suggested the decision makers to be aware of and take necessary precautions and mitigating concrete actions; unfortunately, kleptocratic mentality pays no attention to advice or warning!

Chart 5: Oil export (Million barrel) and Revenues ($million) July 2008-September 2017



<u>2- Gas Flaring Continues</u>

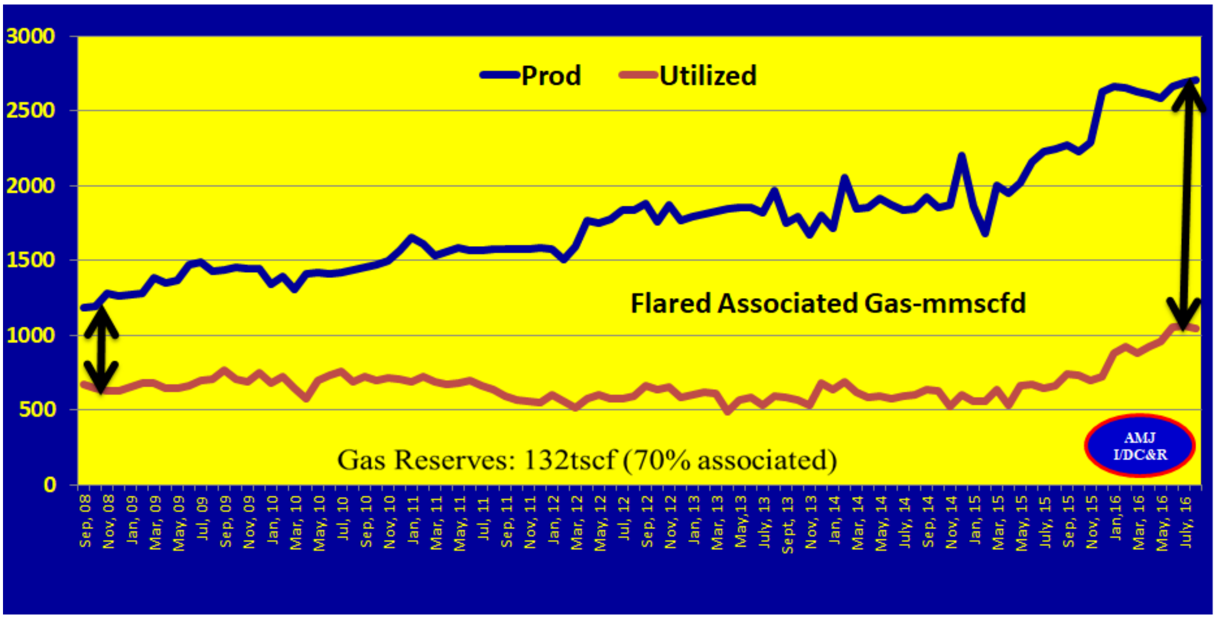
A second policy failure is the continued flaring of significant volumes of associated gas; as oil production increases so does gas flaring. According to recent statement by MoO, ending gas flaring would generate ca. $6 billion of annual revenues. Moreover, flaring cause costly health and environment damages in addition indirect cost of lost production and services country-wide. So why gas flaring persists?

The Ministry is signatory to World Bank Zero Gas Flaring Initiative by 2030, but it hopes to achieve that much earlier. However, the Ministry is inconsistent regarding how and when gas flaring ends; first it says by 2019 and a few weeks later it says 2021!!

It is worth mentioning that formal data indicates Iraq has 132 trillion standard cubic feet (tscf) mostly (70%) is associated gas.

The following chart 6 exhibits the increasing magnitude of gas flaring as associated gas production increases rapidly while gas utilization remains both low and increases marginally. Ironically, while gas is flared, Iraq imports gas from Iran!

Chart 6: Associated Gas: Production, Utilisation and Flaring (September 2008-September 2016)



3- Outdated Refinery Configuration

The third major policy failure is related to the inability to modernise refining sector to satisfy increasing domestic demand for the lighter parts of the refined barrel.

Chart 7 exhibits both aggregate refinery production of various petroleum products and domestic demand on them. Production –demand divergence intensified since mid-2014 reflecting the substantive damage to northern refineries due to Da'esh effects.
But that production-demand mismatching has been a chronic deficiency of the refining sector for decades, causing the country to import petroleum products at estimated $2 billion a year from 2003 onwards.
The country attempts, repeatedly, to incite private investors into four modern refineries for the last ten years and promulgating a specific refinery investment law with many and significant incentives. That only resulted in one dubious -scandalous refinery with technically incompetent and financially bankrupt company/Satarem. A state-funded modern refinery, in Karbala, was put on hold half-way in its construction due to lack of funding!!

Chart 8 provides a comparative profile of regional refinery configurations comprising (in terms of the percentage composition of the main petroleum products in 2016) in Iraq; Iran, Saudi Arabia and Turkey.
The chart clearly indicates to Iraqi refining as the worst among the four neighbouring countries due to the heavy component with low-valued residual fuel oil is the dominant compared with the other countries.

Chart 7: Refining Products' Production-Demand (kb) 2009-2017

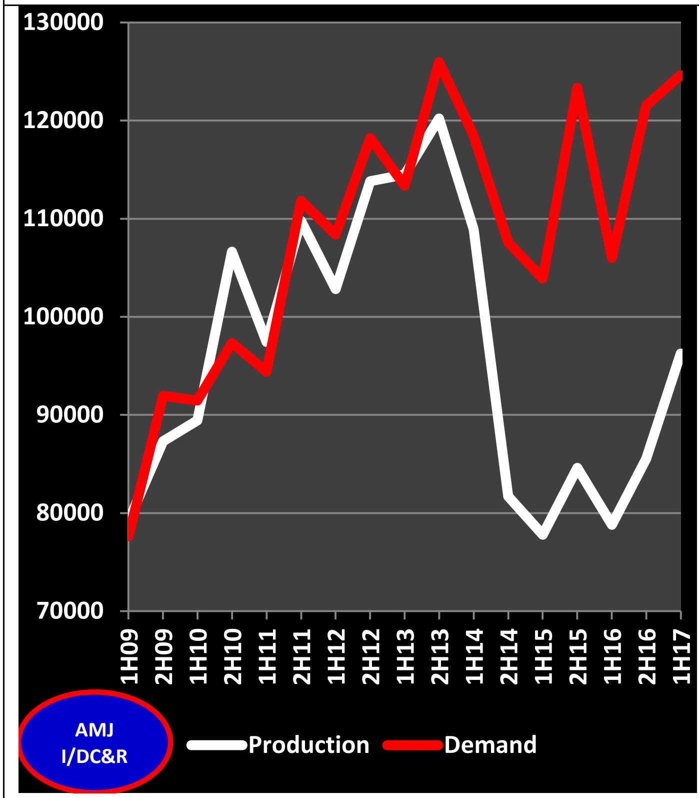
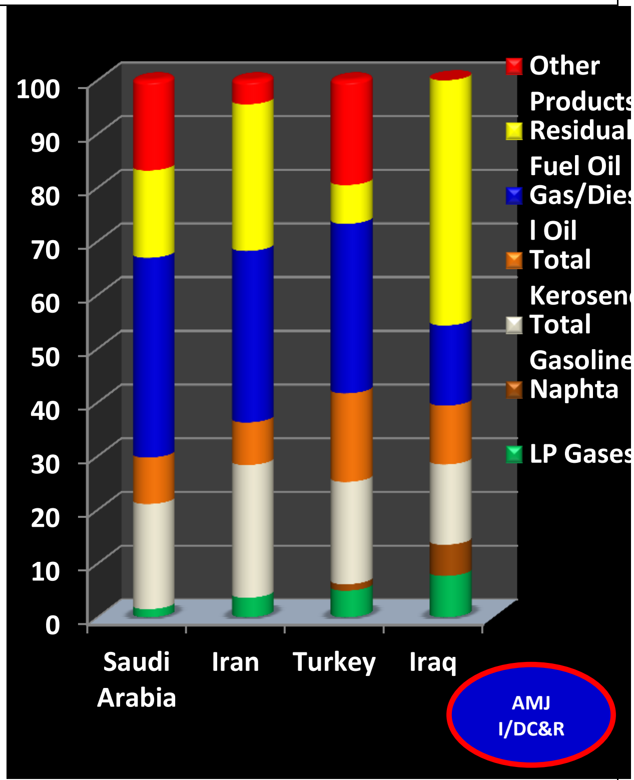


Chart 8: Regional Comparative Refinery Products Configuration (2016) (%)



VI- Prospects: Iraq' Geopolitical Vulnerability Continues

It is reasonable to conclude that in the short and medium terms, Iraq may continue to be highly vulnerable to and negatively impacted by geopolitical events and associated risks. Such vulnerability may be attributed to or exacerbated by any of the following topics, among others. (But due to time consideration these are listed only without further elaboration, could be highlighted during the Q&A session and might be addressed in future occasions as each topic is by itself complex enough):

- The "New-normal" of "lower for longer": How normal is the "new normal"? How low oil price would be and for how long!!
- Fracking Revolution vs. OPEC-NOPEC accord; a catch22/ Zero-sum-game
- GCC dilemma (IPO-SA-vision 2030; Qatar vs. 3+1) & Arab «Bloody» Spring;
- Trump: Iran' Nuclear Program Deal & North Korea;

- Iraq’s Triple whammy (Da’esh effects, collapsed oil prices since June 2014 and KRG referendum ramifications on domestic political structure and system and regional stability)!!
- Kleptocracy & Lack of Structural H&V Diversification in the country?

8 October 2017
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