

***Oil, Sustainable Development  
and the Management of the Transformation in Iraq***

***By***

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***The contents of the presentation are my own responsibility and thus do not represent the views and positions of any entity referred to in the presentation and/ or involved directly and indirectly in organizing symposium.***

## **I- Introduction**

As this conference is about Iraq it is therefore expected that other contributors would address sustainable development from different aspects and disciplines using probably different methodologies, terminologies and statistical data.

This presentation focuses on energy and more precisely on petroleum. And from this perspective sustainable development is taken within the context of the depleting finite natural resources in the country.

The presentation begins by outlining briefly the conceptual and analytical framework of sustainable development, in a rich deplete-able natural resources developing country, as a process of transformation through horizontal and vertical structural diversification. Then it uses “budget analysis approach” to draw few conclusions on whether “horizontal diversification” in the economy had occurred during the last ten years commensurate with the availability of the necessary development financing. A more detailed analysis of the efforts in the petroleum sector was provided to assess the “vertical diversification” in this important sector.

The presentation argues that the lack of and imbalances in both horizontal and vertical diversification during the last ten years had undermined the sustainable development prospect, entrenched the dependency on upstream petroleum subsector and pushes the economy further in the web of rentierism. However, the recent launching of the first ever energy strategy might bring some sense to development planning in the country. Hence the presentation suggests and highlights the urgency for adopting different and diversified strategies to manage the production of petroleum and the associated influx of export revenues. Moreover, it introduces and outlines the importance of full transparency of all resources and payments flows within the “Value Cycle” during the duration of the related projects. Finally, the presentation ends with few concluding remarks.

## **II- Sustainable Development in a Natural Resource Dependent Economy**

The concept of sustainable development has over the last three decades captured a very well deserved attention within the global development discourse. Hundreds of research works, book, articles, annual reports, guidelines, conferences, summits, workshops have focused on elaborating the term, what it imply, how to measure it, what are its indicators, benchmarks, lessons learned, success stories as well as failures, among others.

For the purpose of this presentation and for a petroleum resource rich developing country, such as Iraq, the essence of sustainable development is the transformation of extracted depleting underground national asset (oil and gas) into over-ground national assets specifically in terms of productive human, physical and institutional capacities in an orderly, timely and cost effective manner. Hence the essence of development is confined to the management of this transformation process through the chosen policy options within the frameworks of national development plans. This involve two sets of fundamental but very critical decisions pertaining to Production and Revenues- when and how much to produce from these depleting resources; and where, when, how much and what to do with the generated revenues. And the core of such transformation from deplete-ability to renewability is **structural diversification: horizontal** (across the national economy-sectoral and spatial) and **Vertical** (in specific sector(s)) along the value chain.

### **Horizontal macro-economy structural diversification**

Horizontal sustainable development manifests itself in on all sectors of the national economy across all its geography through real efforts to attain desirable sectoral and spatial structural diversification.

One important analytical tool to assess such horizontal structural diversification is the budgetary analysis, though admittedly this approach does not provide good indication of “cost effectiveness” or “value-for-money” aspects of resource allocation and spending.

Four budgetary parameters are used to address the horizontal macro-economy structural diversification in the country and briefly discussed hereunder:

#### 1- Investment vs. Consumption Allocation

Annual state budget usually comprises “investment” allocation and “current/ operating” consumption expenditures. Over the period 2004-2013 investment allocation totaled to 143111 trillion Iraqi dinars-IDs (ca. \$124 billion); increasing gradually from \$5.2 billion in 2004 to \$47 billion in 2013.

This impressive increase in investment allocation has come about due to the increase in the country’s oil export revenues and increasing investment proportion in the annual budget.

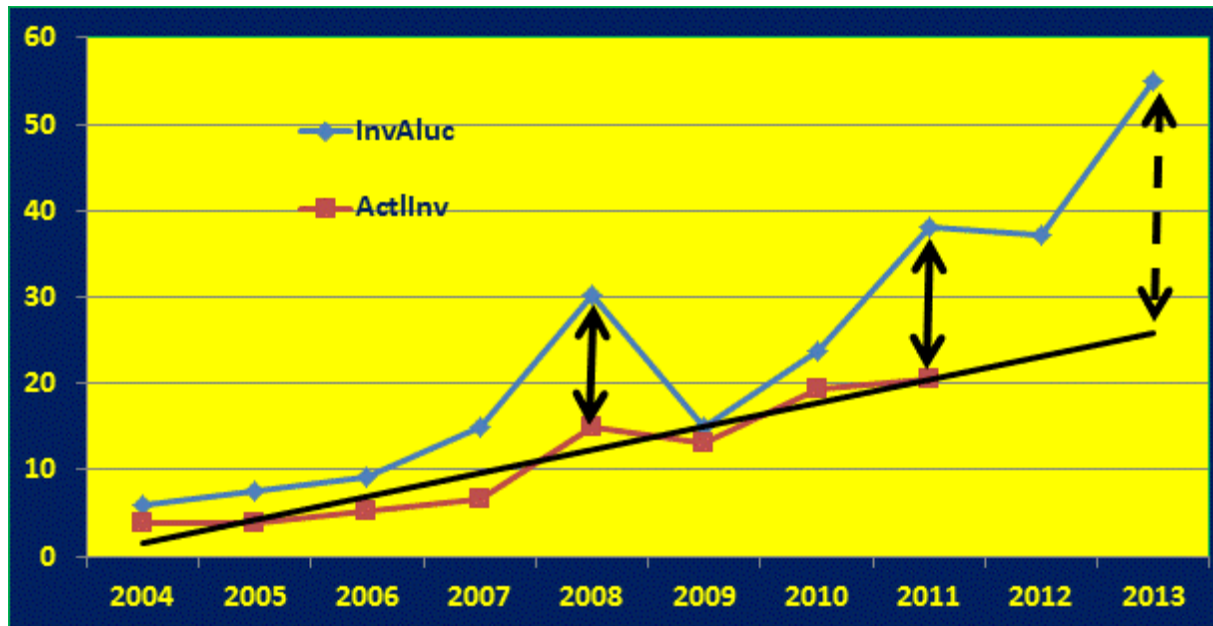
Investment allocation increased gradually from less than 15 % in 2004 to 40% in 2013. Oil export revenues increased significantly from \$52 billion in 2007 to \$94 billion in 2012 and projected to be \$111 billion in 2013.

#### 2- Allocation vs. Implementation

The significant budgetary allocation for investment means very little in terms of horizontal diversification unless these are translated into real investment across different sectors of the economy.

Spending investment allocation is a fiscal parameter for implementation though it does not necessarily means real investment has been achieved and translated into fixed capital formation. Keeping this serious reservation in mind the actual spending of investment allocation is a further cause of concern.

**Chart Nr. 1**  
**Investment allocation and investment spending 2004-2013 (trillion ID)**



Source and note for Chart Nr. 1: Author's compilation from different sources including budget laws (for investment allocation "InvAluc" and actual investment spending "ActInv". The straight line is extrapolation of the actual investment spending.

Two important observations can be made in this regard:

First; over the period 2004- 2011 only 60.4% of investment allocations were actually spent. Unspent investment allocations are considered surplus, and instead of allocate (save) them into a special "development fund" they are recycled to finance the following year' budget, thus partially used to finance ever increasing current expenditures.

Second, the "spending gap"- the ratio of actual spending over allocated investment funding- appears to be high when the volume of investment allocations are also high, as was the case in 2008 and 2011. By extrapolating the spending trend to 2013 the spending gap would be high as well. The occurrence of spending gap correlating to the magnitude of investment allocation indicates to, or can be explained by, effective absorptive capacity limitation.

### 3- Sectoral Allocation

Budget expenditure allocation among the sectors is the third vital indicator for meaningful horizontal diversification. Because of prevailing conditions during the last ten years "Defense and Security" get big chunk from the budget. Also, adopting a "big-push strategy" in upstream petroleum development had its impact on the share of "Energy" sector in the annual budgets.

For 2012 and 2013 the above two sectors scored the highest among eleven sectors. Energy sector "oil, gas and electricity" share was 26% in 2012 increased to 29.2 % in 2013, while the share of "Defense and Security" was 21.8% and 19.5% respectively. In contrast to these, the shares of other real economy sectors are alarmingly very low and declining. For these two years the share of agriculture was 3.1% in 2012 down to 2.7 % in 2013 and the share of the industrial sector was 1.8% and 1.7% respectively. Such insignificant allocations to these two important sectors is hardly conducive to any structural diversification, and thus leaving the economy to be more dependent on oil upstream as the main engine for revenue generation causing further structural dependency and imbalances away from the desirable path of sustainable development.

#### 4- Oil dependency

Oil export revenues constitute that main source of funding annual budgets, for both investment and current consumption purposes. The higher is such dependency the lower is the diversification, and thus lower contribution of other sources of funding such as the contribution of other sectors, taxes, social security, among others. Increased oil export revenues could be attributed to higher export volumes and or higher realized oil export prices due to qualitative factors and international markets configuration.

Since 1990 Iraq's oil export revenues are deducted by 5% as war reparation mainly for Kuwait. Hence what should be considered is not total but only "dispensable" oil export revenues.

Detailed available data indicates that annual budget revenues are squarely dependent upon oil export revenues. In 2009 the ratio of "dispensable" oil export revenues to annual budget revenues was 91.1% increased to 93.8% in 2010. But for 2011 and 2012 the ratio had exceeded the 100%.

The increase in "dispensable" oil export revenues would deepen budget dependency on oil revenues. Moreover, increased oil revenues beyond budgetary requirements prompted politicians to adopt populist policies calling for distributing the surpluses directly to the citizens, thus furthering the consumption share of the budget instead of development allocation.

According to 2013 Budget Law, revenues were estimated on the premises of exporting 2.9 million barrels per day (mbd), including 250,000 bd from KRG, and export price of \$90 a barrel. From first January to end May 2013 Iraq exported a total of 374.6 million barrels at an average export price of \$102.32/b, generating a total of \$38.329 billion of export revenues, and that gives an average of 2.483 mbd during this period. The realized export price has been on the decline for four month in a row from \$107.66/b in February to \$97.23/b in May 2013. Hence while the price parameter is still within the budget expectations, the daily export of oil has not. On aggregate export revenues has been 10% less than the envisaged budget revenues. If we consider the "dispensable" oil export revenues then the divergence (or the shortage) from the budgeted revenues would increase to 14.3%. Hence, if the same trends continue during the rest of the year Iraq might not even achieve the fiscal breakeven.

In addition to the above analysis of the four budgetary parameters few words are relevant pertaining to the current National Development Plan. As early as March 2012 while this author was a team-leader for an EU consulting assignment we learned that the current NDP 2011/14 would be replaced by a new NDP 2013/17. In a recent TV debate (mid-June 2013) the Deputy Minister of Planning admitted that NDP 2011/14 was wrongly premised and thus has to be abandoned and replaced by the new one, which was discussed by the Cabinet in June 2013. The Ministry of Planning has not yet published the new NDP 2013/17!

#### **Vertical/ Sectoral diversification: The development in the petroleum Sector.**

The three subsectors upstream, midstream and downstream represent the value chain of the petroleum sector and if petrochemicals, which is classified within industrial sector outside petroleum, are added the value chain of petroleum would be much higher and more significant.

Before reviewing these subsectors it is vital to identify some serious and unprecedented but interrelated developments of particular relevance to these subsectors:

- A grand opening to foreign direct investment-FDI facilitated by specific provisions in the new Constitution of 2005. Different FDI participation modalities have been considered and adopted depending on the sub-sector of petroleum;
- Formulation of different contractual frameworks governing the development in these subsectors:

- A new hybrid basic model ( with five versions so far) for long term service contracts-LTSCs for upstream development;
  - A Joint Venture –JV for Basra Gas Company-BGC;
  - A “BOOT” type of contract for Haditha-Aqaba section of the pipeline through Jordan;
  - A possible “full foreign ownership” for refineries;
- Offer the most prized petroleum fields in a short period of time and concluding many contracts through four bid rounds, and more under consideration; and finally
  - The formulation and adoption of the first ever Integrated National Energy Strategy 2013-2030 (INES), which addresses the future development of energy sector in more coordinated and harmonious manner.

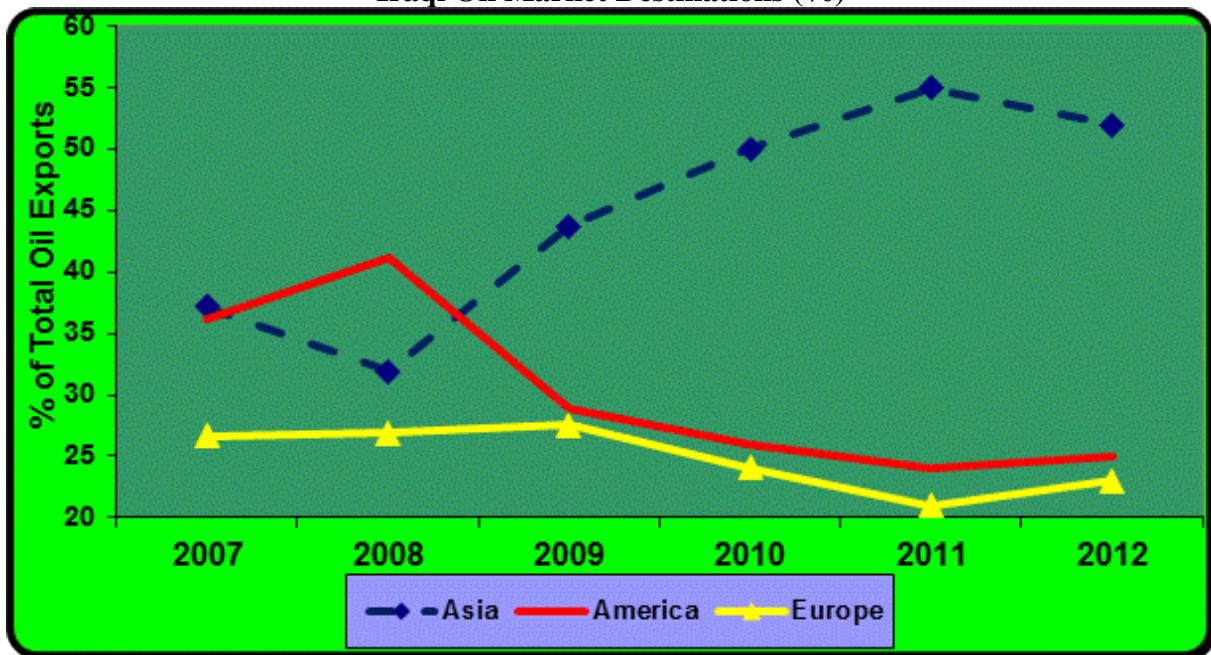
On the **upstream sub-sector**, Iraq adopted a Big-Push Strategy by conducting bid rounds and defined terms of their contracted oil production plateau targets and related time-horizons focusing on both the brown and green oilfields. During the first two bid rounds and one direct deal the Ministry of Oil-MoO signed 12 LTSCs covering 14 oilfields. The combined proven reserves of these fields amounts to 67 billion barrels representing 58.5% of the country’s proven reserves at that time. When these oilfields are developed as contracted, their total plateau target would increase from 1.7 mbd to 12.3 mbd by 2017. Moreover, three gas fields were contracted in bid round three and four exploration blocks were contracted in bid round four. Currently, there are plans for fifth bid round covering another exploration blocks- mostly with gas potential; the Nassriya Integrated Project-NIP covering the development of a field with 4.4 billion barrel of proven reserves and construction of a refinery with 300,000 bd capacity; the Kirkuk oil fields, and many others oilfields. If production from all these are added up total production could reach 13 mbd.

Many oil professionals, including this author, questioned the feasibility, attainability and sustainability of such a plateau production at such a pace. This had prompted the authorities to reconsider this ambitious plateau level of production through INES, as shall be discussed below.

**So far total oil production reached 3.15 mbd, and is due to reach 3.4 mbd by the end of 2013. Though this is significant compared with the 1.536 mbd production in 2003, it is still below the historical peak of 3.9 mbd in December 1979.**

**Expansion and diversification of export outlets.** Significant part of oil would go for export and thus expansion of export capacities and diversification of export outlets become imperative to give Iraq more flexibility and security. For this purpose Iraq plans on enhancing the access to the Mediterranean, the Red Sea and Arabian Gulf commensurate with the three major markets for its crude: Asia, Europe and the Americas.

**Chart Nr. 2**  
**Iraqi Oil Market Destinations (%)**



Source for Chart Nr.2: Author's compilation based on data from SOMO.

Export market destinations shows increasing significance for the Asian market since 2008. And the expansion of export capacities in the northern Arabian Gulf would indicate to the continuation of such a trend. The increasing share and role of the Asian IOCs, from China, Korea and Malaysia, in the Iraqi upstream petroleum and the payment of their dues in-kind would consolidate the importance of the Asian market for Iraqi crude. However, the expansion and actual export of crude oil would face formidable geopolitical determinants in addition to international oil market fundamentals as well as OPEC quota.

**Refining Capacity Development.** In addition to crude oil production and export capacity development, refining subsector has very significant economic importance. According to the plans of the Ministry of Oil the refining capacity would increase from 575,000 bd in 2011 to 700,000bd in 2014. The above expansion would be realized through renovating existing refineries of Baiji, north of Baghdad, the Doura in southern Baghdad and the Basra in the south and 10 smaller refineries distributed among other provinces, and partially through new and modern refineries. Four new refineries are Nassriya (300,000bd); Missan (150,000bd); Kirkuk (150,000bd) and Karbala (140,000kdb). Moreover there is a possibility for fifth plant to process heavy, sour crude from the Najma and Qayara field in Ninewa governorate. The legal frameworks for promoting refinery expansion are outlined in two laws: Investment Law (No. 13 of 2006) and the Refinery Investment Law (No. 64 of 2007) and their related amendments. Moreover, the ministry had conducted serious promotional activities to attract foreign investors, without any success.

The current plan is to offer Nassriya refinery in a special international bidding round as part of the Integrated Nassriya Project-INP. A workshop was held in Amman for INP on 8 and 9 April 2013, and recent information indicates that there are 26 international companies presented their offers for the licensing round which will be held in December 2013.

Moreover, it was reported on 30 Oct 2012 that the government has allocated \$4 billion for Karbala refinery. To this effect the French Technip issued a statement on 9 June 2013 in which it assert that the Iraqi State Company for Oil Projects awarded it a "significant contract for

project management consultancy services for the engineering, procurement and construction phase of the Karbala refinery.”

In reality supply of oil to domestic refineries according to official data from the Ministry of Oil stands, for April 2013, at 578,000 bd down from a high level of 627,000 bd in December 2012.

Investment requirements for the above mentioned four new refineries were officially estimated at total of \$23-\$25 billion. On the other hand Iraq used to export oil refined products prior to 2003, but since then Iraq imports refined products for reportedly \$4-\$7 billion a year. Thus instead of waiting for the private investors, Iraq should have financed its refining capacity expansion plan. Had Iraq done that it could have saved many billions of imported refined product, achieve significant diversification and capturing much of the value chain, strengthening the linkages with the national economy and probably increase export of oil products instead of crude oil only.

Finally, **gas utilization** issue. The utilization of this important natural resource is very critical for Iraq. This is particularly true and significant for the associated gas, which comes as by-product to oil production. Thus increase oil production, would lead to proportional increase in the associated gas depending on the related gas-oil ratio for each formation.

For the three oilfield concluded under first bid round, namely Rumaila, Zubair and West Qurna 1, their surplus associated would be utilized under the BGC Joint Venture. The Head of Agreement-HoA was signed and enforced in September 2008 but the established BGC began formal operation in May 2013. The agreement with Shell/Mitsubishi regarding utilization of flared gas from the three oilfields is totally a class of its own, though this contract could be considered as downstream not upstream, with totally different legal and financial regime. The agreement was concluded through direct negotiation leading to establishing of Basra gas Company as joint venture with participation interests of Iraqi South Gas Company, Shell and Mitsubishi of 51%, 44% and 5% respectively. Recent, June 2013, information indicates that the capture of natural gas has increased from 250 million standard cubic feet per day (scf/d) to nearly 450 million scf/d. Also BGC will, in the end of 2014, export LPG, and for dry gas, as LNG, the export will commence in 2020.

As for the second bid round pertaining to green oilfields processing associated gas is part of the contractual obligations of the IOCs with provisions for capital recovery and remuneration fees per barrel of oil equivalent. Similar provisions are valid for AlAhadab oilfield.

In May 2012 the Chinese company CNPC, with minority consortium partners Petronas and Total, began work on a \$36 million pipeline project to process associated gas from Halfaya and send it to the 180 megawatt Al-Kahla Power Plant in southern Missan province. The project anticipates that 50 million standard cubic feet per day (scf/d) of associated gas from Halfaya's oil production, of which 80 percent will go to Al-Kahla, and the remaining 20 percent will continue powering a plant built by CNPC at Halfaya.

For AlAhadab oilfield China's Shanghai Heavy Industries was awarded a contract earlier in 2008 to build a \$940 million power plant in al-Zubaydiya in Wasit province. The first of four 280 megawatt units started up in 2012 and was fuelled by 15,000 bd from AlAhadab oil. The

plant will later run on associated gas from AlAhdab, supplemented by gas from southern oil fields.

That said, gas flaring continues to be significantly high. As on end April 2013 data from the MoO tells that 73.4% of the associated gas in Iraq was flared, and most of that, 71.5%, occurred in southern oilfields. In words of a senior Shell expert, “Iraq currently imports 500 metric tons to 1,000 tons of LPG a day, while it flares 4,000 tons daily” 17 May 2013.

**The above review of the development in the petroleum sub-sectors tells very little about meaningful diversification in this sector. Apart from the noticeable increase in oil production, the disappointment is very obvious in the refining sector as well as in gas utilization.**

### **III-The way forward: Integrated National Energy Strategy 2013/30- INES**

Iraq in cooperation with and partial financing from the World Bank commissioned two years ago an international consulting company (Booz & Co) to conduct a thorough study for the energy sector, comprising petroleum and electricity generation.

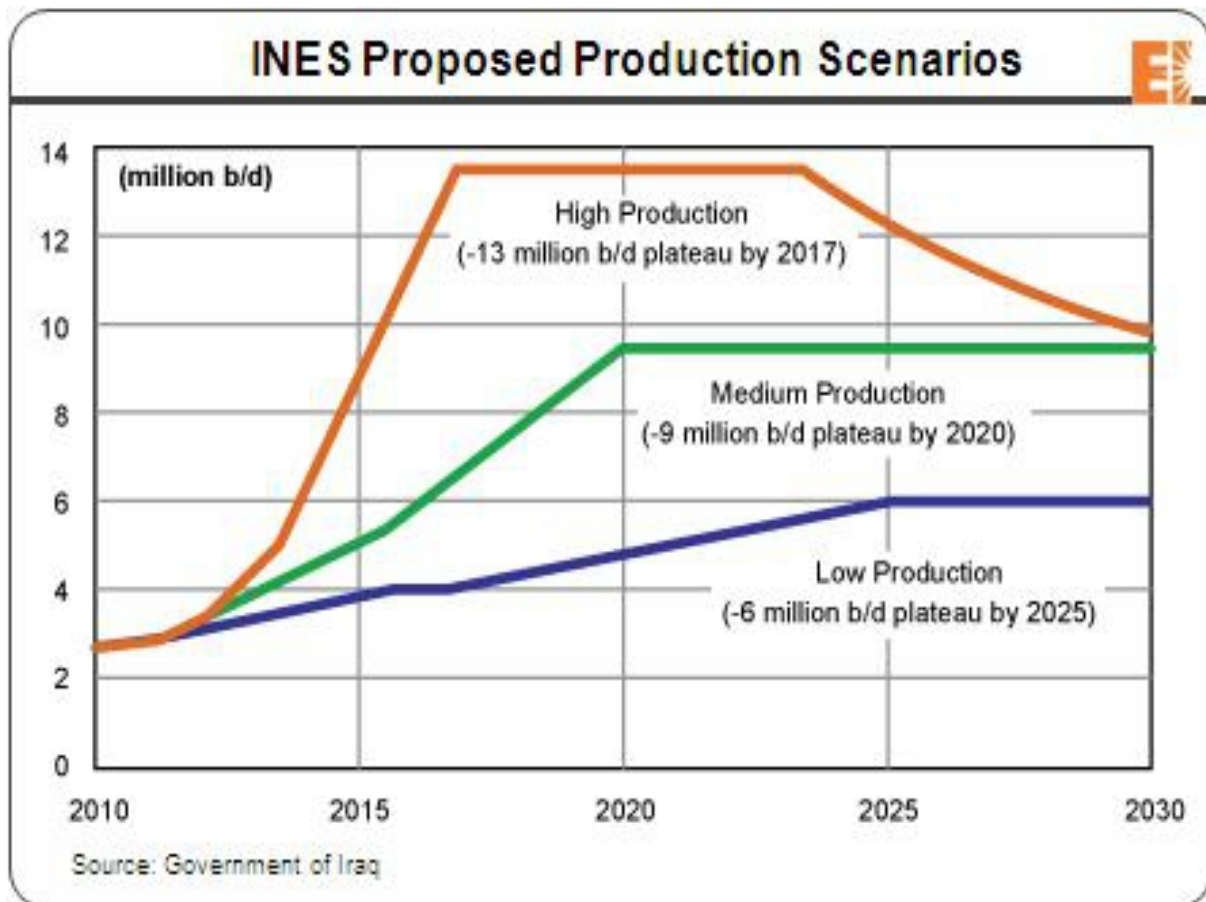
INES was formally launched on 12 June 2013, with a vision statement, *“Develop the Energy sector in a coherent, sustainable and environment-friendly manner to meet domestic energy needs, foster the growth of a diversified national economy, improve the standard of living of Iraqi citizens, create employment, and position Iraq as a major player in regional and global energy markets”*

Obviously, INES vision extends beyond energy sector and thus constitutes the backbone for future national development plans up to 2030. However, it remains to be seen whether the NDP 2013/17 is premised on INES.

***For the Upstream Oil Subsector*** INES proposes three scenarios of 13 mbd, 9 mbd and 6 mbd with different development and plateau production periods, as shown the following Chart. The upstream strategic objective aiming for production by the end of 2014 at a rate between the medium and high production profiles, with minimum target production level should be 4.5 mbd. Afterword, production will occur at the level of the Medium production profile.



**Chart Nr.3**  
**INES Proposed Production Scenarios**



**For the Downstream Oil Subsector** INES envisages increase in the refinery capacity from 800 kbd to more than 1,400 kbd, and this will permit Iraq to cover domestic demand in all oil products, at appropriate quality standards, by 2019. Additional capacity will be required in later years as domestic demand continues to grow. This requires addressing the existing challenges facing the system for domestic distribution of the refined oil products in transportation, storage, metering, and retail service.

In **the Natural Gas Subsector**, the three production profiles described above for future oil production yield three corresponding profiles for future associated gas production. Production of non-associated gas is expected to develop at a rate that will not be affected by the different oil production scenarios.

INES predicts by 2015, virtually all of Iraq's gas production should be captured and processed and available for transport to domestic end users. By that point, gas flaring due to inadequate infrastructure would be minimized, and all of Iraq's domestic gas requirements will be satisfied. At that point more gas will likely be produced and processed than Iraq can consume domestically. That surplus will need to be exported. If it cannot be exported, it will have to be flared, at volumes exceeding even those experienced today.

**For the Power Subsector**, INES estimates that the total cost to the Iraqi economy attributable to power shortages exceeds \$40 billion annually. Under the INES plan, 40 new plants will be build between now and 2016, adding 22 GW of capacity to the 7 GW of effective capacity

currently available. Thus there will be sufficient available capacity in the system to meet peak demand with a reserve margin of 15 percent. By 2030 it is expected that renewable capacity will exceed 2 GW, approximately 4-5 percent of total system capacity. Natural gas, which fuels one quarter of power production today, will fuel four-fifths by 2030.

***The Linked Industries Subsector.*** *INES identifies* six linked industries: petrochemicals, fertilizers, steel, aluminum, cement, and bricks, and recommends the establishment of the Iraq Strategic Industries Company responsible for managing the Iraqi government's investments in these industries and for sponsoring joint ventures with international investors.

#### ***INES Investment Requirements and Results***

The development program recommended by INES will require capital and operating expenditures of approximately \$620 billion (\$530 billion as capital expenditures and \$90 billion as operating expenses), in 2011 dollars between 2012 and 2030, including all contracted payments to TSC operators.

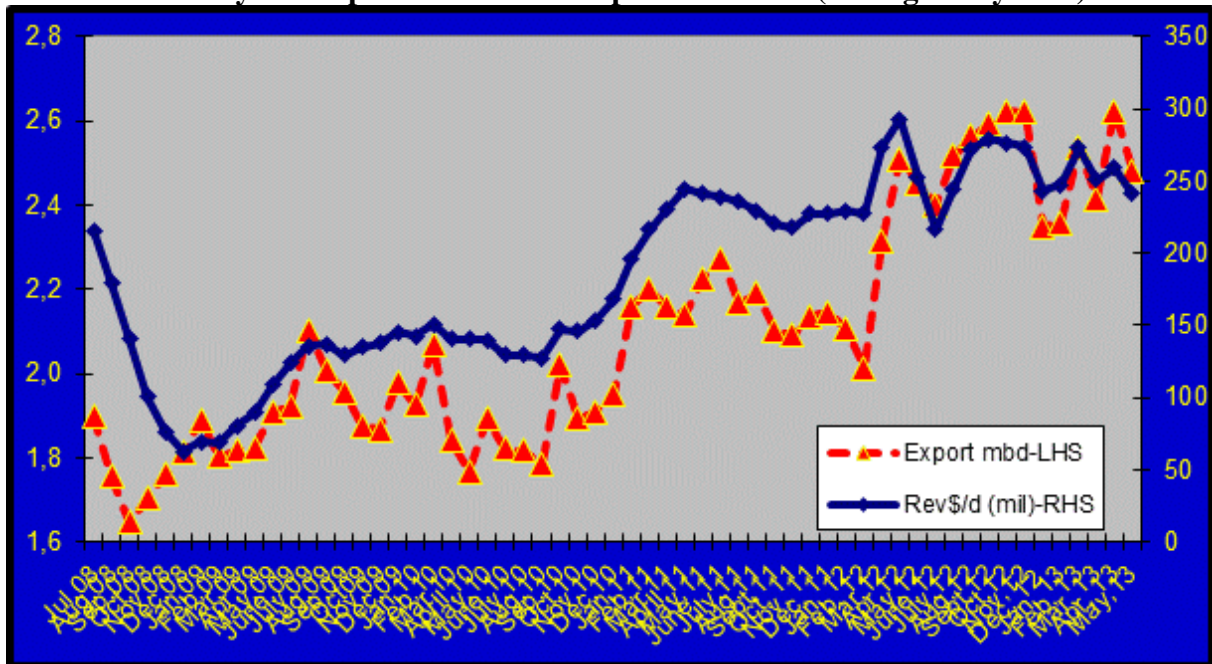
Over the period covered by INES, the revenue to the government generated by these expenditures is expected to amount to approximately \$6 trillion. Accordingly, INES calls for prudent use of the created wealth.

#### **IV-The Needed Coping Strategies and Transparency Requirement**

Between end June 2008 and end May 2013 Iraq exported 3762.7 million barrels generating \$332.8 billion of gross export revenues, or \$316.1 billion of net/ dispensable export revenues. Average export price fluctuated between a low \$34.57/b in December 2008 and a high \$117.9947b in March 2012. Variation in export revenues reflects both the volatility in international oil price and the fluctuation in volume of exports due mainly to weather conditions in Arabian Gulf, the sabotage affecting Kirkuk-Ceyhan pipeline and infrastructural constraints.

The following chart exhibits monthly exports in average million barrel per day-mbd on the Left Hand Side-LHS and export revenues per day in million USD\$ on the Right Hand Side-RHS for the period from July 2008 to May 2013 (both months included).

**Chart Nr.4**  
**Monthly Oil Exports and Gross Export Revenues (average daily base)**



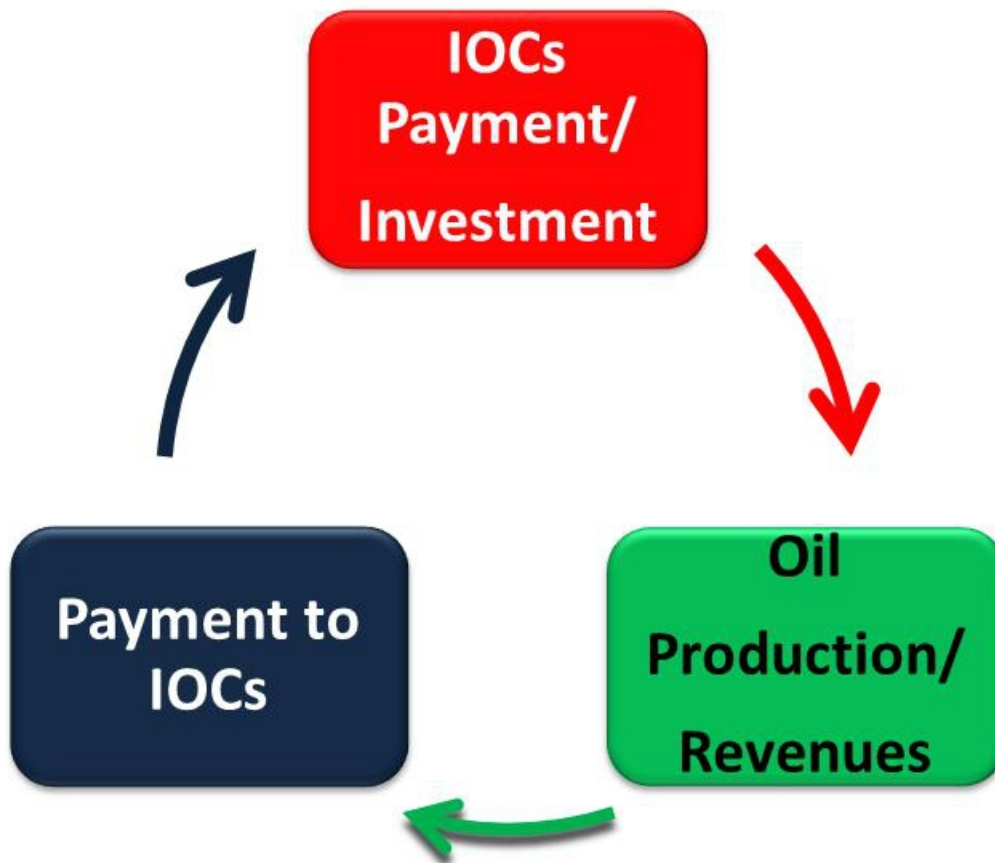
Source and note for Chart Nr.4: Author’s compilation based on official statistics from the Ministry of Oil, Iraq. The calculation was done on daily base to eliminate the effect of number of days in the calendar months.

With INES production scenario of 9 mbd or even 6 mbd this would generate very significant influx of petroleum export revenues and this could present the country with the challenges of properly managing such inflow of revenues.

Accordingly, Iraq might face four very different situations/scenarios: Honeymoon, Delicate Balance, Risky and Nightmare depending on the state of the world economy and global energy balance. This calls upon the Iraqi high decision makers to begin immediately formulating proactive “Multiple Coping Strategies-MCS” to prepare for the eventualities of these four possible situations. MCS proposal and framework go beyond upstream petroleum sub-sector but it is absolutely necessary to ensure and emphasis the required harmonisation of energy strategy with national development planes and related planning at national level. Accordingly, a conceptual analytical framework was proposed for an on-going institutional arrangement entrusted with identifying the characteristics and dynamics of each situation; discuss viable policy options to manage and mitigates related consequences and suggest required institutional, legal and good governance frameworks to insure proper management of the generated oil revenues.

Transparency is a fundamental component of the above mentioned governance structure. For this purpose the following “Transparency of Value Cycle-TVC” was suggested to cover the actual flows of resources and revenues focusing on three important interconnected clusters: payments and investment by IOCs; increase in production and revenues for the country; payment by the country to the IOCs for cost recovery and remuneration fees, and finally after the IOCs pay the due taxes, the share of the State partner and other payments the IOCs reinvest the remaining amounts in the field and so goes the cycle.

**Chart Nr. 5:  
Transparency of Value Cycle-  
Resource & Revenue Flows in Iraq's Upstream Petroleum**



And since each of the Iraqi LTSCs extends well over 20 years duration the TVC becomes important annual component of transparency reporting that requires constant monitoring and verification by well-established and competent Iraqi entity. For Iraq and other developing countries TVC is useful framework to ensure real, accurate and comprehensive transparency in the upstream petroleum.

#### **V- Concluding Remarks**

- There are no credible evidence supporting meaningful and economically effective horizontal and vertical diversification. Hence no serious sustainable development achievements were accomplished during the last ten years. This reflects weakness in policy formulation to address the absorptive capacity gaps and limitations. The continuation of such a situation could cause fast depletion of natural resources and thus compromise the welfare of future generations;
- The coordination and harmonization of petroleum production and upstream development with the national development plan appears to be very thin. The formulation of INES and the revision/ termination of current NDP 2010-14 and the formulation of the new NDP 2013-17 should address this important linkage between INES and NDP;

- Encouraging private investors in refining capacity remains a priority but this should not be an excuse for non-action by the government to execute its plan for the selected refineries;
- Considering the expected increase in petroleum export and generated revenues it is very urgent to formulate and put in place comprehensive coping strategies to manage such influx of revenues and create the necessary institutional capacities with good governance and comprehensive transparency.