Fundamental petroleum fiscal considerations

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Business relationships between international oil companies (IOCs) and governments are among the most dynamic in the world. There is a heated debate – currently particularly intense in Mexico and India – over a fundamental feature of global agreements. On one side are those who believe basic 'profits-based' structures – found in the world's production-sharing contracts (PSCs) and royalty/tax systems (R/Ts) – are the best. Others, however, propose a structure based simply on the division of production, or of revenues (revenue-sharing contracts or RSCs).

The overriding concern behind this initiative is a lack of faith in the accounting for costs, and the spectre of cost overruns, goldplating, or even cheating. In India the positions have been formalized and explicitly articulated by two committees: the Rangarajan Committee and the Kelkar Committee. The impetus for this debate stems from controversies associated with the KG-D6 gas development, and the way PSCs and cost-recovery mechanisms function.

1 A revenue-sharing system can be somewhat easier administratively, while not necessarily eliminating oversight requirements.
2 Revenue-based systems discourage investment.
3 RSCs are extremely regressive. Successful precedents do not exist.
4 Over the past five decades, revenue-based systems have become, for all practical purposes, extinct, as contracts and systems have evolved and improved.
5 Over 90 per cent of governments with existing petroleum operations use profit-based systems. (Exclusions are: big OPEC producers, most of Russia and until recently Mexico.)
6 The KG-D6 controversy is multidimensional and complex but one aspect relates to unsubstantiated claims of goldplating. Bullish industry-wide cost increases in the early 2000s strongly influenced KG-D6 development costs. All parties were disappointed with the results.
7 The current focus of attention is misplaced and needs to be properly framed. It is not a systemic problem.

Revenue-sharing ('Peruvian model')

The model proposed by the Rangarajan Committee typically splits

Rangarajan Committee	Kelkar Committee
Proposed changing fiscal regime to simpler revenue-sharing system.	Contests proposed changes. No need to move away from PSCs which they say are more investor-friendly.
Government to share in revenue as soon as production starts.	Contractor should recover all costs before sharing profits with the government.
Cost-recovery mechanism is disincentive to cost reduction and at root of problems with current fiscal regime.	No incentive exists for investors to goldplate, spend excessive sums, or curtail production.
Revenue-sharing systems require much less oversight.	Current audits should not include oversight of performance or efficiency.

gross production or revenues between the government and the IOC, which is expected to recover costs and earn a profit out of its gross production share. Such systems, in their purest form, eliminate the need for audits or the oversight required in typical profits-based systems (PSCs and R/Ts).

Regressiveness of RSCs. A large royalty-equivalent is required to achieve a government take comparable with that traditionally received by India. For example, government take worldwide is roughly 70 per cent or more (undiscounted) while in India a typical figure is nearer 80 per cent. For India to obtain roughly the same revenue share in a relatively profitable environment, a royalty of around 60 per cent (i.e. full-cycle costs as a percentage of gross revenues around 25 per cent) will be required in a royalty-equivalent scheme. However, as profitability increases (with this royalty level) government take declines significantly, approaching 60 per cent.

Inefficiency. Progressive fiscal elements are needed to offset the regressive effect of 'royalties'. Such elements must 'adjust' to variations in profitability (inevitably a function of costs, prices, and timing). The RSC's objective is to avoid dealing with 'costs'. Therefore, a 'proxy' for profitability is required – global experience with 'proxies' (such as production-based systems and price-based windfall profits-based systems) has been unfavourable. India would effectively be ignoring over 50 years of contract evolution.

Disincentive to high cost or marginal projects. Given a 60 per cent royalty (or the equivalent as created by a RSC-structured government share) and a less profitable field (where costs as a percentage of gross revenues approach 40 per cent), government take approaches 100 per cent. IOC incentive to invest disappears long before that point.

Cost recovery rate reduced. If the government has a share of production 'off-the-top', the investor's cost recovery rate is reduced dramatically.

Early abandonment. The economic limit in its strictest sense occurs when operating costs equal one minus the royalty rate. With a royalty of 60 per cent, a field becomes uneconomic when costs as a percentage of gross revenues are 40 per cent; any incentive to invest further begins to disappear long before that point. From a project perspective, economic profits of nearly 40 per cent of gross revenues would still remain, but these profits are (by definition) inaccessible to the IOC. Thus, the economic limit is not a true economic limit (in the project sense) but one artificially manufactured by the fiscal structure. Peru abandoned this approach years ago as did, Algeria, and Trinidad & Tobago in the mid-1970s.

Profits-based systems have a solid foundation

Most governments rely heavily on profits-based rent extraction mechanisms.

In most of these categories it is important to be able to monitor, oversee, audit, and trust the expenditures that are claimed as:

- netback costs (for determination of royalty),
- cost recovery (for PSCs and service agreements), and
- tax deductions.

Government revenues from petroleum operations	
	%
Signature and other bonuses	1–2
Royalties	15–18
Profits-based mechanisms	70–80
Government participation	7–10
Other	1–2

Profits-based systems align the interests of all parties

Oil companies have a strong incentive to keep costs down in order to maximize profits – in maximizing their profits they typically also maximize government profits.

The value of benefits for each party can be measured. The 'savings index' is a direct measure of a company's incentive to reduce costs. From an undiscounted point of view, a simple calculation shows how much a company keeps if it saves US$1.00. Only the profits-based fiscal elements affect this statistic.

The example below has two profits-based mechanisms: a 50 per cent government profit oil share and a 30 per cent income tax. A dollar saved means there will be an extra dollar's-worth of profit oil:

US$1.00	Profit oil
– 0.50	Government share
0.50	IOC share of profit oil
– 0.15	Income tax (30%)
35¢	IOC cash flow

Here, the 'savings index' is 35 per cent. For every dollar saved the IOC benefits by an increase in profits of 35¢ and the government 65¢. A 35 per cent index is a healthy incentive for a company to keep costs down. All parties benefit, but the government benefits more.

The same outcome would have resulted from a R/T system with two layers of tax (50 per cent and 30 per cent in series).

Similarly, added costs affect all parties, in similar proportions. An added US$1.00 of expenditure reduces profit (ultimately divided 65/35 per cent in favour of the government). Furthermore, when the time value of money is factored-in the contractor's incentive is often magnified. With a typical system the incentive goes from 35¢ on-the-dollar (or 35 per cent) to upwards of 50 per cent (discounted at 10 per cent).

A company could gain substantially from cheating. If a company could recover costs that were actually not spent (over-invoicing), or otherwise dishonestly inflated, this could provide a windfall equalling 65 cents on the dollar (65 per cent). Such behaviour is extremely risky, difficult to conceal, and the penalties are severe. Governments have numerous means and opportunities to oversee, monitor, verify, and exercise control over costs.

The realities of goldplating

The claim of 'goldplating' (where a company spends more than it otherwise would because the over-expenditure enhances its profitability – the savings index is negative) is a central issue in India. However, inflammatory claims of goldplating are usually false, grossly exaggerated, or apply to problems other than true goldplating. There is almost always an incentive to 'cheat' (over-invoicing or improperly procuring goods and services through an affiliate – manipulating the transfer price), but these actions are different from 'inflating costs' (true goldplating). These kinds of potential fraud are not unique to PSCs or R/T systems, nor are they unique to the petroleum industry.

Over-invoicing. A form of cheating technically unrelated to goldplating. For an operator to over-invoice, it must either delude its partners or involve them. It is difficult to hide from auditors, and the risks are great.

Transfer pricing. A legitimate concern regarding the acquisition of goods and services and for oil or gas sales. However, most governments have specific laws and regulations and contract provisions that deal with non-arms-length purchases or sales. Also, procurement laws and regulations or PSC provisions establish a procurement framework for avoiding transfer pricing; this type of activity can be disclosed by an audit.

Cost recovery mechanisms. These are virtually universal and do not inherently encourage goldplating. PSCs do not encourage goldplating; R/Ts are not dramatically different from PSCs from a mathematical/financial point of view. With R/Ts, companies can 'take deductions' (consisting of operating costs and depreciation of capital costs) in order to calculate taxable income. Deductions for tax calculation purposes are thus essentially the same as 'recovering costs' in a PSC prior to dividing profit oil. Any claims of inefficiency associated with cost recovery could thus apply to nearly any system.

'Strategic goldplating'. The type of operation typically recognized as goldplating – where a system is designed so inefficiently there is an incentive to goldplate from day one, during development planning. This is rare in newer contract designs, but some instances in the past were fostered by some early R-factor-based systems or ROR-based sliding scales promoted by the World Bank.

Low savings indices. These can attract claims of goldplating. The old standard contract for oil in Indonesia had a savings index of only 15 per cent. Some analysts believed there was insufficient incentive to control costs but companies worked hard to do so within those contracts. (With present value discounting the incentive was magnified.)

'THE CLAIM OF "GOLDPLATING" … IS A CENTRAL ISSUE IN INDIA.'

Uplifts, or investment allowances. The incentives most commonly associated with claims of goldplating. For example, a company may spend US$100 million on capital expenditure and the government/contract may allow an uplift or allowance of 20 per cent. This means that the company could recover or deduct US$120 million (for cost-recovery or tax calculation purposes). This appears to create a clear potential for goldplating, however:

1 When an uplift or allowance flows through cost recovery, the profit oil of which the IOC gets a share is reduced.
2 They are 'taxable'.
3 There could be considerable time lag between expenditure and recovery.
4 There is no guarantee that sufficient production or expected oil prices will justify the risk of added (goldplated) expenditures.

These factors eliminate most or all incentive to goldplate in this way unless the allowance is particularly large, in which case they should be evaluated in light of the above considerations.

Goldplating risks. The unexpected risk associated with strategic goldplating. A company engaged in goldplating could experience far greater financial exposure due to deliberate overspending and unexpected cost inflation. This could magnify catastrophically if production rates or oil prices do not meet expectations.

Opportunistic goldplating

This form of goldplating occurs with some of the older 'stair-step' R-factor or ROR scales. As a company approached a 'trigger point' (where taxes or government share of profit oil increased) added expenditure could be beneficial. By manipulating costs or production prior to a 'triggering' event (pushing it into the future) company NPV could be improved at government's expense. However, modern designs have removed old 'stair-step' structures – using smoother formula-based (interpolated) sliding scales instead; shortening accounting periods has also been helpful. Both strategic and opportunistic goldplating can be a risk with the more dramatic stair-step sliding scales, but such problems were recognized from the late 1980s and early 1990s.

'… "R FACTORS" OR RATE-OF-RETURN (ROR) MECHANISMS ARE NOW USED TO CREATE A PROGRESSIVE FISCAL SYSTEM.'

Adjustment factors (R-factor and ROR systems) uplifts

The later-generation 'R factors' or rate-of-return (ROR) mechanisms are now used to create a progressive fiscal system. An 'R-factor' is generally a formula based on the ratio ('R') of the IOC's accumulated receipts divided by accumulated expenditures (usually both capex and opex). Thus, typical R-factors are a measure of 'payout'. When an R-factor equals one, payout (the point at which the IOC has recouped all costs and expenses) is represented. R-factors therefore 'adjust' fiscal elements such as profit oil share percentages or a tax rate (and therefore the government 'take') according to the IOC's 'payout status'. Similarly, ROR systems 'adjust' on the basis of the internal rate of return. The Indian investment multiple (IM) is a variation on the 'R-factor' theme. India also has ROR-based PSCs.

In many respects, and for good reason, these systems are considered superior to alternative 'adjustment factors' such as:

- production-based sliding scales,
- price-based mechanisms,
- technical factors such as crude gravity or gas composition, or
- combinations of these.

Unfortunately, R-factor and ROR designs can allow goldplating. However, it is not fair to claim that all such systems have this flaw.

The most reasonable and legitimate place to seek an example of goldplating associated with these elements is with some R-factor or ROR-based systems based on early designs, where the triggered tax rates are high and the threshold rates of return are also set high, leading to an incentive to spend more.

An R-factor-based system could use similar scales, but rather than ROR thresholds, R-factors such as <1, 1–2, 2–3, and >3 would be used. Some early designs (such as the stair-step scale) could provide both strategic and opportunistic goldplating incentives. Some of the most notorious systems were those with rate-of-return features with large tax differences between tranches, such as some old contracts in West Africa which had huge differences – up to a 40 per cent profit oil differential between the share under the first tranche and the next (i.e. from 0 per cent to 40 per cent). Opportunistic goldplating is nearly eliminated with a smooth curve (interpolating between points).

ROR systems

A new kind of sliding-scale formula, based on the IOC internal rate of return (ROR) from a project, was introduced in the 1970s. Systems using this approach are often referred to as an 'ROR system' or 'ROR contract'. Adjustment mechanisms based on this approach are sometimes referred to as 'resource rent taxes' (RRTs). Approximately 10–15 per cent of countries use an ROR feature in their fiscal system or PSC. Many (particularly African) countries using this formula were associated with the 1980s World Bank-financed petroleum promotion initiative; new contracts and petroleum legislation were developed as part of this in 40 countries – particularly non-producing, developing countries. A central feature of these ROR formulas is that the rate-of-return is actually received by the IOC.

The theory and logic behind rate-of-return systems was solid and well-intentioned. Adjustment mechanisms were essentially based on *true* measures of profitability (not a proxy such as production rates). The advantage of a ROR system over an R-factor is that it takes into account the time value of money. The relative quality and efficiency of these systems depends on 'rates', trigger point thresholds, and effective tax increases.

Summary

Around 95 per cent of governments use fiscal systems based on division of profits, regardless of whether or not they use R/Ts or PSCs. Revenue-sharing

Stair-step scale		*Interpolated scale*	
IOC ROR	Government share Profit Oil	IOC ROR	Government share Profit Oil
<10%	20%	<10%	20%
10–20%	40% 1st trigger	10–30%	Interpolated
20–30%	60%	>30%	80%

systems have been tried and abandoned. If designed properly, the advantages of progressive mechanisms (like R-factors and ROR mechanisms) outweigh the risks, which can be significantly mitigated with more modern designs. When oil prices increased five-fold from 2002 through 2010, government take percentages in most countries fell because most systems were regressive, especially with respect to oil prices. The exceptions to this generality were systems with R-factors or ROR features, together with a few systems which included specific mechanisms designed for variations in product prices (such mechanisms are often called 'windfall profit taxes').

Governments and IOCs continually learn from the unintended consequences of new, untested contract provisions. Because of this, true goldplating is rare; even where it once had the potential to exist, most problems have been, or are being, 'designed out'. Most countries believe they are better off with existing, fairly highly evolved, industry best practices, rather than trying to establish a new framework based on what is essentially a failed system. The revenue-sharing foundation is weak.

This article is a summary of 'Fundamental Petroleum Fiscal Considerations', Oxford Energy Comment, February 2015. Please refer to the Comment for the full version.