

Rethinking Oil and Gas Industry: An Institutional Economics Analysis

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Introduction

Oil and gas production have been part of Indonesia's economic activity for more than a century, starting in 1883 with the discovery of a gas field in North Sumatra, and then more in South Sumatra and Kalimantan. Indonesia is richly endowed with primary energy resources that include 60 potential hydrocarbon sedimentary basins spreading from Sabang to Papua. The activity of oil and gas industry covers the exploration and production of oil and gas on 38 basins, in spite of 22 basins has not been explored. Oil reserve in Indonesia is about 7.76 MMSTB (in year 2010), in which gas reserve is about 157 TSCF (in year 2010). The majority of oil production in Indonesia is derived from old wells.

However, as oil and gas development has stalled, state revenue has declined and the oil and gas industry has experienced a dramatic backtracking. Therefore, a sound regulation is a key concern of oil and gas industries, their consumers, citizens and governments alike. The study attempts to, *first*, evaluate the regulatory framework created by the laws of 2001 in terms of economic efficiency considerations; and *second*, determine what still needs to be done to improve the current situation.

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Oil and Gas Development: A Historical Background

Oil and gas continue to be the leading export sector, decreasing to \$34.6 37.9 billion in 2012 from \$37.9 billion in 2011¹. However, despite being an exporter of crude oil, Indonesia is now a net importer of oil. At the same time, Indonesia also imports crude oil due to the technical inability of some refineries to process domestic oil crudes. The crude oil imports fluctuate, taking into account the level of oil price at a given point in time. Unlike crude oil, gas production has been increasing in the recent past and Indonesia is a net exporter of natural gas. Indonesia, the only Asian member of the Organization of Petroleum Exporting Countries (OPEC) and the only member outside of the Middle East, is the only OPEC member that is a net oil importer. Its fuel production has declined over the years, owing to aging oil fields and lack of investment in new equipment. Indonesia remained the world's leading exporter of LNG, with 18.8 percent of the world market allowing it to remain a net exporter when both oil and gas are considered.

Table 1. Oil Production Asia-Pacific

(Crude and non conventional oil, natural gas liquids. In thousand barrels per day)

	1995	2000	2005	2008	2009	2010
Australia	580	802	545	551	553	515
China	2,986	3,253	3,628	3,801	3,891	4,103
India	784	770	771	791	797	865
Indonesia	1,565	1,459	1,084	1,000	981	975
Malaysia	776	711	794	754	740	716

Source: Eni S.p.A., *World Oil and Gas Review*, 2011

One highly specific feature of the oil and gas sector is that exploration and development of mineral resources must take place where the resources are located. Ventures in this sector are of a high risk nature in the physical, commercial, and political sense as it is difficult to determine in advance the existence, extent and quality of mineral reserves as well as production costs and the future price in the world market.

¹ Center for Data and Information on Energy and Mineral Resources, *Handbook of Energy and Economic Statistics of Indonesia* (Jakarta: 2011).

Profitability is not assured, and the fact that the resource is finite requires the continual acquisition of new deposits. Since virtually all mineral ownership regimes are based on state sovereignty companies may have to concern themselves with government policies and regulations in more detail than they would in other sectors. The government decides whether resources can be privately owned or whether they are state property. If they are state owned the development can be conducted by a state company or it can be contracted to a private firm. Most countries grant development rights to private companies through a process of either negotiation or bidding.

The most common combination of agents in mineral development is a host government that represents a developing country with one or more mineral resources and a multinational company from a developed country. It is not surprising that the objectives of the two frequently clash. The main aim of the multinational firm is profit maximization whereas the government of the host country is mainly interested in maximizing its revenue. Since the objectives of firm and government do not necessarily coincide and indeed may diverge substantially it is all the more important that they identify the likely sources of future conflicts and write a contract that is as comprehensive as possible. This divergence of objectives is frequently manifested in a lack of trust between the contractual partners. The relationship worsens if the government changes existing legislation and applies the new rules to contracts agreed under the old regime.

Considerable time may elapse between investment in the mineral industry and the realization of profits. Investment is therefore long-term. The relative bargaining positions of the two parties change throughout the stages of the project. The government may find it difficult to gain access to risk capital. It may also lack the expertise needed for resource exploration and development. Furthermore, governments may be unwilling to take the risks of such problem. The foreign company is assumed to have the upper hand in the pre-exploration phase. At this stage, geological information is often negligible. Hence, investment is made with risk capital. The firm is not only able to provide this kind of capital but also the necessary expertise. In the case of successful exploration the government's bargaining position strengthens. If the initial contract was for the exploration phase only, the host country can

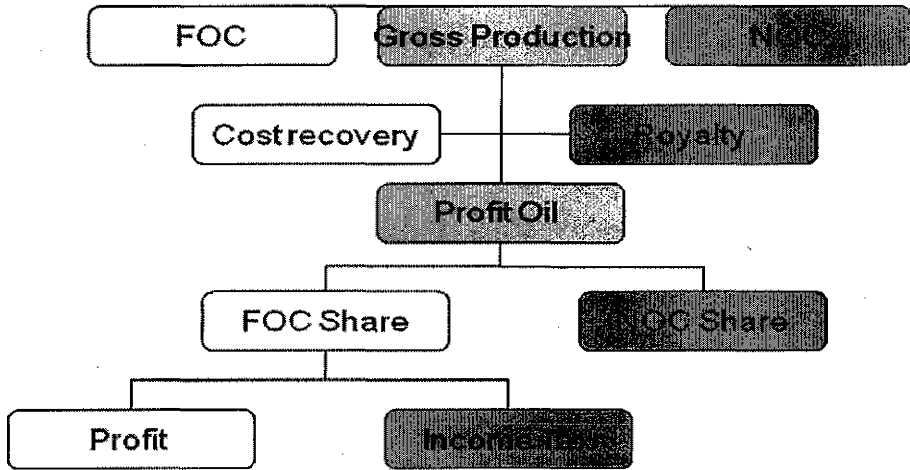
now invite competing bids for exploitation or proceed with the project without foreign participation. Generally speaking, it can be assumed that an increase in geological and marketing knowledge improves the government's hand. However, this happens only *ex post*. With regard to existing contracts it thus raises the question of whether there exists an opportunity for renegotiation on the basis of this newly acquired information. Moreover, one would expect to see the additional data reflected in subsequent contracts.

Mineral development is a long-term investment whose benefits can only be reaped some time well into the future. It forms, or should form, part of an overall economic strategy. The host country's objectives can be distinguished into three categories which are sovereignty, economic growth, and environment (or quality of life). Some of the sub-objectives are the optimal use of mineral resources, earning foreign exchange, satisfying domestic demand especially with regard to setting up an industrial sector, minimizing adverse effects of mineral exploitation on the environment, fostering both direct and indirect employment, accumulating expertise and so forth. These goals can only be achieved within the framework of an explicit mineral policy. Sovereignty over national resources might be the overriding objective, yet there are different ways of exploiting a nation's resources. Between the two extremes of pure state and pure private development one can frequently observe a combination of the two.

Oil and Gas Contracts in Indonesia: The Production-Sharing Agreements

Production Sharing Agreements (PSA) come in a variety of styles. Figure 3.1 shows the most basic form. There are two parties to the contract: a foreign oil company (FOC) and a government representative that can be a head of state, a ministry or a national oil company (NOC). The latter is the more common case.

Figure 3.1: The Basic Feature of a PSA



On the side of the foreign contractors, there are frequently joint ventures or consortia rather than an individual firm. However, the number of FOCs involved has no impact on the structure of the contract. As far as the PSA is concerned, the members of a consortium or a joint venture are treated as one partner. The FOC operates the oilfield although many contracts provide for an option that allows the NOC to participate directly in the development process. Once oil is produced, the FOC may have to pay royalty levied on gross production to the government.² Royalty constitutes an immediate cash flow to the government if it has to be paid in cash. If it is an in-kind payment, it provides a cost-free source of crude oil for the domestic market or for export. In the case of cash payment, it is crucial how the value of output is determined.

Assume the PSA stipulates a posted price and on delivery the posted price is higher than the spot (or market) price; this is an advantage for the government.³ On the other hand, a posted price below the spot price benefits the foreign firm. Either way, royalty is guaranteed

² Zhiguo Gao, *International Petroleum Contract: Current Trends and New Directions* (London: Graham & Trotman, 1994), 60-203.

³ See more details in Daniel Johnston, *International Petroleum Fiscal Regimes and Production Sharing Contract* (Tulsa: Pennwell, 1994), 23-89.

minimum revenue flow from the FOC to the government regardless of the profitability of the project. This implies that the lower the profitability the higher is the adverse impact of the royalty on the FOC. If the royalty payment is deductible from income tax liabilities, the government's overall revenue will be reduced. Hence, the government is better off if it treats royalties as expenses.⁴

As a second step, the operator can recover some of its costs at a pre-specified percentage of production, the so-called cost oil. Most contracts have a cost-oil limit of say 50 percent of production although contracts with unlimited cost recovery are also in existence. The level of cost recovery often varies according to the special characteristics of the field. Marginal deposits for example may need higher cost-oil ceilings in order to guarantee the expected return on a company's investment. If the cost oil is not sufficient to cover operating costs plus depreciation, depletion, amortization and, where applicable, investment credits and interest the balance will be carried forward and recovered in the following period. The more generous the cost recovery limit is the longer it takes for the government to realize its take. The remainder of production, the profit oil, is then split between NOC and FOC at an agreed rate, say 60/40. If we assume that no royalty has to be paid and cost oil is 50 percent, the profit oil split will be calculated on the basis of the remaining 50 percent of gross production. Thus, the NOC would receive 60 percent out of 50 percent of production, and the FOC is entitled to 40 percent out of 50 percent of total output. The latter then has to pay income tax on its share of profit oil? In many instances tax is paid by the NOC on behalf of the FOC, or the government forfeits its right to tax altogether.

PSA Development in Indonesia

In the mid 1960s the Indonesian government introduced production-sharing agreements in response to increasing criticism and hostility towards the existing concession system. The oil is owned by the state which brings in a foreign company to explore and, in case of commercial discovery, develop the resource. The FOC operates at its sole risk and expense, and receives a specified share of production as re-

⁴ Ibid.

ward. Thus, the main difference to concessions is the ownership of the mineral resource. Whereas under concessions all crude oil produced belongs to the FOC, under PSAs it is owned by the host government, and the share of production allocated to the FOC can be regarded as payment or compensation for the risk taken and services rendered. PSAs spread from Indonesia to countries such as Egypt, Libya, Algeria and other oil producers in Africa, Asia, the Middle East, and South and Central America. They have become increasingly popular in the Former Soviet Union (FSU) and especially in the Caspian region.

When Indonesia gained independence from the Netherlands nationalistic feelings were running high. Foreign firms operating under the concession system became the target of increasing hostility. Their concessions were regarded as being far too generous to the foreign companies at the expense of the country. The government responded by freezing all new concessions. The ensuing stagnation in oil development was a disadvantage for both Indonesia and the foreign oil companies. The latter lost access to their investment and to good quality crude deposits, while the country forfeited a large part of its potential revenue. The government wanted to develop and control its oil resources but had neither the necessary finance nor the technology and know-how. In order to readdress the situation new legislation was passed. At first the old concessions were converted into contracts of work. This, however, was considered by many Indonesians as old wine in new bottles. The issue was finally resolved through the introduction of production-sharing agreements. PSAs were deemed acceptable because the government was able to uphold the national ownership of its resources while the foreign company had no equity share in the venture, and the NOC had full managerial control. A state company was established for this purpose.

The main features of this new contract form distinguish it clearly from concessions. As the name implies, production not profit is shared under a PSA. The contractor bears the pre-production risk, and can recover its costs up to a specified limit of annual production (cost oil). The remaining output is shared between FOC and NOC at a pre-agreed production split in favour of the state company (profit oil). The title to any equipment purchased by the contractor passed to the NOC upon entry into Indonesia. The FOC was under a domestic market ob-

ligation which meant it had to sell part of its profit oil to the NOC at a contractually agreed price. Given that this was usually a heavily discounted market price this practice arguably decreased the FOC's profit-oil share. PSAs were awarded for a total duration of 30 years with six to ten years for exploration.

The major oil companies were initially not very keen on PSAs. They were reluctant to invest capital into a venture which they were not allowed to own or even to manage. There was also concern about setting a precedent that might affect their operations elsewhere. Thus, the first foreign firms to enter into PSAs were independent oil companies. They were more willing to compromise on the contract terms that had been turned down by the majors as they considered this an opportunity to break the dominance of the big FOCs, and gain access to good quality crude. In addition they were eager to enter into overseas production in order to increase supply for their refineries. The majors, worried about losing too much territory to the independents, finally bit the bullet and accepted PSA terms.

The earliest PSAs were approved in 1960. However, the first significant contract was signed in 1966 with a US consortium known as IIAPCO. These first generation PSAs allowed for up to 40 percent of exploration and operation costs to be recovered each year. The profit-oil split was 65/35 in favour of the NOC. Profit oil provided guaranteed revenue regardless of the profitability of the project or the market price. The FOC had to sell 25 percent of its profit oil to the NOC under the DMO. This was done at 15 percent of market price, and increased the country's take of annual production from 39 to approximately 46 percent. The government owned all production inclusive of crude stored at the export terminals. It had the ability to deny export. There was no royalty and no taxation.

In 1976 the second generation PSA came into operation. Cost oil had already been altered in 1974 to the extent that difficult areas had no cost recovery limit. The profit-oil split was changed to 85/ 15, FOCs now had to pay tax, and the DMO was reimbursed at full market price for the first five years of production. The new conditions applied also to contracts signed under previous PSA terms. The first generation PSAs provided for tax payments to be made by the NOC to the government.

- The third generation PSAs, introduced in 1988, showed increased flexibility. They were legislated at a time of declining oil prices, increasing production costs, and tightened international competition for scarce risk capital. As a consequence Indonesia now offered a more favourable production share for companies exploring marginal fields. The main innovation was the so-called first tranche petroleum (FTP). With FTP the first 20 percent of production is split between NOC and FOC at the same rate as profit oil. The NOC is thus guaranteed a minimum share of output, and even when cost oil is unlimited costs can now only be recovered from 80 rather than 100 percent of output. In this sense FTP works as a cap on cost recovery. Furthermore, the third generation contracts introduced improved incentives for marginal fields in the form of changed profit-oil shares, and for new fields in the form of higher prices for oil sold under the DMO. Profit oil for conventional oilfields was set at 80/20 and for marginal fields at 75/25.

The latter was revised in 1994 to 65/35. In addition, the 1992 'new package' presented changes to gas contracts, with the FOCs profit oil being increased from 70/30 to 65/35 for conventional fields and 60/40 for marginal deposits. Gas contracts have no ceiling on cost recovery as a consequence of which the government has no guaranteed minimum revenue. This concession was deemed necessary in order to induce firms to incur high capital costs needed to start up gas development. Different terms were offered for offshore development at depths of more than 1,500m with profit shares at 70/30 for oil and 55/45 for gas. The amendments were intended as incentives for exploration and production in high risk and remote areas with the aim to maintain production for the next 25 years and delay net oil imports until at least 2010. Since 2008, a fifth generation has been introduced. While after tax equity split is negotiable, the latest model limits item available for cost recovery and offer robust provision in other areas such as investment credit.

Under pre-2002 contracts, contractors and government were both entitle to take FTP (First Tranche Petroleum) and received each year a quantity of petroleum equal to 20% of the production before any deduction for recovery of operating cost and handling production. For the later generation, the FTP of 20% or 15% of production is considered to be a component of equity oil. Cost recovery and any investment

credit in the current year is therefore limited to maximum of 80 to 85 percent of production.

Oil and Gas Contracts in Indonesia: Some Critical Analyses

An Institutional Perspective

Indonesia made a significant change in mineral policy with the introduction of a new law 2001 concerning oil and gas. The law changed many things, but in the context of this paper only a few changes are relevant. In general the new law was meant to give the Indonesian oil and gas sector a strong push by introducing liberalization in the downstream market and by rebalancing the export/domestic market focus in oil and gas policy. With respect to the upstream segment of the market, the law meant to improve the quality of the institutional environment for potential investors in exploration, development and production of oil and gas fields.

To facilitate the upstream public-private cooperation, Indonesia, almost from the beginning, applied the so-called production sharing contract (PSC) allowing the private party full cost recovery in exploitation of the oil and gas field, but at the same time guaranteeing the state revenue. The 2001 law meant to improve the transparency and quality of the procedures for obtaining PSCs by private companies. One of the problems to be solved was the double role of the organization Pertamina in the bidding process. Before the new law Pertamina acted both as gas company and as the organization responsible for the PSCs. This double role lead to corruption and inefficiency⁵.

The new law transformed Pertamina into a profit oriented limited liability company and transmitted the contractual responsibilities to two new public organizations called Ditjen Migas and BP Migas, which now share the responsibility for managing the oil and gas sector in Indonesia. However, the new law did little to improve the institutional environment for investors. In some respects it even worsened the conditions since investors were confronted with new barriers. The new law turned out not to be a *Lex Specialis* like the previous law, which pre-

⁵ Nico Schulte-Nordholt, "Corruption and Legitimacy in Indonesia: an Exploration" in Heleen Bekker and Nico Schulte-Nordholt (Eds.), *Corruption and Legitimacy*, (Amsterdam: Siswo Publication, 1994), 65-93.

sented investors with many diffuse and badly defined competencies and contradictory requests and obligations of public organizations.

The 2001 law extended the number of public organizations investors had to deal with, in particular in other sectors and jurisdictions than the oil and gas sector. The organizations all have their own, often quite contradictory, requirements which are not coordinated at the governmental level. This has complicated the procedure for a PSC and the procedure takes more time under the 2001 law than before. Another related institutional problem is the quality of geological data available for potential investors in Indonesia. These data are produced by governmental organizations and are the core information for potential investors in the bidding process of a PSC. In general the quality of these data is rather poor and most of the time only available as hard copy. Under certain conditions investors are allowed to collect the seismic data in cooperation with the governmental agency, which gives the investor the privilege to have the right to match the "winning" bid in the bidding process. This option is called direct offer bidding.

However, the Indonesian government lacking the money for state of the art seismographic research and has yet to invest in improvement of data quality because of extra costs involved. One of the consequences of poor data quality was demonstrated in 2010 when only 3 of the 14 offered working acreages were successfully tendered. In total 36 companies bought the tender package with the unreliable data, but only three companies continued the bidding for a contract. An institutional problem that emerged after introduction of the 2001 law is caused by the so-called Domestic Market Obligation (DMO). DMO requires producers to offer 25% of their oil and gas production to the domestic market, since Indonesia wants to develop the domestic oil and gas market in conjunction with export. However, DMO is basically a paper based legal obligation with hardly any workable procedures for producers.

The executing agency BP Migas controls upstream activities and manages oil and gas contractors of behalf of government. Under Law 22/2001 (article 44 and 45) all of Pertamina's rights and obligations arising from the existing cooperation contracts were transfer to BP Migas. Nevertheless, as oil and gas development has stalled, state revenue has declined and industry has experienced a dramatic backtracking. This is now tempered by the dissolution of BP Migas on Nov. 13, 2012 by the

Constitutional Court. The Court has ruled that the articles governing BPMigas run counter to the Constitution and have no binding legal force.

After being enacted eleven years ago, the Government is now in the process of drafting a new oil and gas law to replace the existing Law No. 22 of 2001 regarding Oil and Natural Gas. Among others, the new draft oil and gas law is initiated to affirm the division of governmental authorities, to shift pure liberalization to nationalist liberalization, and to affirm the application of the *lex specialist* principle embedded in cooperation contracts.

Among the proposed changes intended in the draft, a new governmental body is planned to be established by law, called the Development Body, to enter into cooperation contracts with business entities and/or Permanent Establishments in replacement of BP Migas. The existence of the Development Body will in some sense reduce the role of BP Migas as the implementing body.

The draft oil and gas law will also create a domestic market obligation and possibly price controls. While the existing Oil and Gas Law stipulates that such domestic pricing shall be left to market mechanisms, the government with the approval of the House of Representatives will have to authority to regulate oil and natural gas prices that are marketed domestically, a minimum 25% domestic market obligation is also planned to be applied and sales of state owned oil and gas shall be carried out by the Development Body.

On paper, recent reforms clearly aim for liberalization of oil and gas industry and the ultimate target is deregulation in the long run. Hence, Indonesia needs to follow the necessary steps to create the conditions for deregulation starting from restructuring, followed by enhancement of competition where possible and (effective) regulation where unavoidable; and finally introducing deregulation in the long term when the market is ready to do so.

Actually, regulation is now unavoidably inefficient. The inherent sources of inefficiency in regulation are various. For instance, regulated prices may deviate from costs unless economic and non-economic objectives are clearly separated. Also, regulation is itself an expensive activity and easily spreads from economics into politics, if not properly managed. There are also other more fundamental problems inherent

in any regulatory situation; namely, information asymmetries, commitment issues, the possibility of regulatory capture and/or failure. Despite the fact that there are no easy escapes from all these problems, in industries with natural monopoly characteristics, the extension of competition requires regulation in order to be effective. So, the most important problem to address in any reform process is to choose the right structure for the industry that will limit the need for naturally inefficient regulation. The main idea may be put forward as follows: the most important feature of regulation should be that there should be as little of it as possible, which involves the identifying the precise sources of market failure in industries and targeting regulation specifically on these areas.

Based on these theoretical underpinnings, the current Indonesia regulatory framework may be evaluated as follows. As mentioned before, the new regime has been established by the government, namely KKKS (Temporary Work Unit of Upstream Oil and Gas – the Development Body). First of all, The body should keep it mind that regulation is unavoidably inefficient and therefore it should be confined to the core natural monopoly of the network minimizing the extent of regulatory inefficiency. The body also needs to realize that regulation in essence is a kind of incentive mechanism design, which needs to reflect the consensus among all related parties such as consumers, firms, politicians, academicians and so on. Therefore, the body should take all necessary steps to create a platform in which everyone related with the industry may express their ideas with a view to reaching such a consensus.

The effectiveness of regulation depends critically upon the information available to the regulator since a regulator can condition its policy only on what it knows. However, in practice, the state of unbalanced or “asymmetric” information between regulator and firm(s) benefits the regulated at the expense of not only the regulator but also actual and potential competitors and customers. Therefore, this so-called “asymmetric information problem” is at the heart of the economics of regulation

Another issue relates what is called regulatory commitment. The body must ensure that it is committed to the ultimate aim of economic efficiency by taking all necessary measures. To do so, first of all, all decisions and procedures applied by the body should be transparent,

which entails that, while making a decision, the body is required to include the reason(s) for that specific decision in detail into the final form of decision that is revealed to the public. The body should also realize that without transparency in the regulatory process it is impossible to ensure regulatory commitment and, therefore, to realize economic efficiency. Moreover a body of precedent should be created to ensure consistence in regulatory practice. If the body rejects transparent procedures, it may lose the public credibility, on which its success and acceptance so crucially depend. The second measure to guarantee regulatory commitment should be in the form of creation of effective appeal procedures for the firms, consumers or any other related parties against their decisions. In Indonesia, there is a need for establishment of a specialist regulatory appeal body with suitable expertise in regulatory issues. The appeals against the decisions of BP Migas should be in the first instance to this appeal body that acts with similar discretion and flexibility to that of the development body. Furthermore, the relation between the body and the contractors should be based on what is called "regulatory contract" to further guarantee regulatory commitment. Current practice of provision of licenses whose terms are unilaterally determined (and also may be altered) by KKKS undermines the regulatory commitment, let alone reinforcing it. If a contractor/firm considers that license terms so crucial to its future profit level may easily be changed by the body at any time, it is almost impossible to provide it with incentives to act properly. Finally, to prevent any confusion and opportunistic behavior by contractors, the specialist regulator in Indonesia (that is, the Development Body or KKKS) should be clearly determined by a protocol to be signed between these two institutions.

The other major issue in Indonesia regulatory framework is the question of how to prevent regulatory capture and regulatory failure. To prevent regulatory capture by the industry it regulates, the body should not only encourage but also take concrete measures (if necessary) to set up and institutionalize consumer concern to enable active consumer participation in the regulatory process. But while doing so, it should pay due attention not to push regulation into social, and away from economic, matters; and ensure that consumer representatives' attention is confined to economic matters and does not spread over political or non-economic ones.

Regulatory capture by government is also a threat to regulatory process especially in Indonesia where government traditionally has strong powers. To prevent this, ministerial and other political influences must be constrained as far as possible to roles that do not allow them to influence regulatory decisions. That is, the body should be independent while making decisions concerning the markets it regulates. However, this does not mean unaccountability. The development body, like any other public body in Indonesia, must be held accountable for its actions and be subject to adequate controls. In short, the body should take appropriate steps not to be captured either by oil and gas industry or its employees or by politicians or by other particular interests, or by self-interest at all costs.

As for regulatory failure, the body should make a clear distinction between its responsibilities concerning economic and non-economic regulation; and should delegate the latter to appropriate bodies as soon as possible. Otherwise, its discretion is sooner or later jeopardized by unwise extensions of non-economic regulation. Also, the body should always keep in mind that a regulatory system which has objectives that either in principle or in practice differ from that of economic efficiency spells regulatory failure from an economic perspective.

The final critical issue in Indonesia regulatory framework is about the quality of the persons in the position of regulators (that is, the staff of the body). It is important for the credibility of the body that not only its staff are highly qualified, which requires strict merit selection and performance management. The body should seek to recruit a high level of expertise and pay very close attention to establish a merit based personnel system.

An Economic Perspective

A major concern is that investments in exploration are on the same low level for many years now. A result of the investments not increasingly sufficiently is that finding and proving of new gas reserves does not grow either. A cause of the lagging investments in exploration are the investment risks, with investment costs not being recovered when no gas is found. The natural and geographical conditions of Indonesia are considered as a serious drawback in this regard, because they make investors hesitant.

Investments need some form of compensation or risk alleviation for the relatively expensive geographical conditions of the Indonesian mineral fields. Currently this financial compensation is not available, simply because the Indonesia does not have the capital, even though the country's unproven mineral reserves are assumed to be quite voluminous.

The majority of Indonesia's oil and gas output is extracted under the production sharing contract with private contractors. The most common type of contract used in Indonesia oil and gas upstream is Production Sharing Contract (PSC), in which government and private sector agree to take the split of the production measure based on PSC percentage agreement. Moreover, Enhanced Oil Recovery (EOR), Technical Assistance (TAC), and Joint Operation contracts also apply in this sector. In 2012, PSCs accounted for 87 percent of production, Pertamina with 9 percent of production, and the remaining distributed across the other contract types.

The revenue from oil and gas contract is divided between government and contractor through several steps. The first share of the revenue comes through cost oil, or the first tranche petroleum (FTP) in the terminology of Indonesian contracts, which is 20 percent of gross revenue divided between the government and contractor. The second share incurred after the gross revenue is deducted with the FTP and cost recovery known as equity to be split (ETB), or profit oil, which is also divided between the government and contractor. Government typically receives 73.2 percent for the FTP and ETB plus the tax and fee from contractor. The contractor receives the remaining share less the contractor taxes and the other obligations to the government.

Revenue from oil and gas flows into the budget as tax and non-tax revenue. In 2012, government revenue from oil and gas tax and non-tax revenue accounted for one-fifth of total revenue. Around 5 percent of total revenue comes from oil and gas tax, and 14 percent comes from oil and gas non-tax revenue. Non-tax oil and gas revenue represent the largest share in total natural resources revenues, accounting for 90 percent of the total amount. Non-tax oil revenue itself is about three times higher than the non-tax gas revenue in 2012. The gap between non-tax oil and gas revenue is widening, with the increase in oil price such as in 2012, when non-tax oil revenue was almost four times as large as gas revenue.

The Indonesian investment climate is however considered as too risky for many potential investors. Indonesia is facing a real challenge here, since about 20% of the country's budget depends on revenues from the oil and gas sector. If oil and gas production stagnates or decreases in the coming decades the country will lose substantial income thereby limiting the country's potential for economic development. Stagnating oil and gas production will also hinder further development of the domestic oil and gas market and this too will affect the country's development potential.

Main Findings and Conclusion

Although the discretion of the body is limited in terms of the policy suggestions under this heading; the body still must take appropriate steps to supervise, encourage and facilitate the realization of these suggestions that are crucial for the outcome of the reforms. The government is advised not to intervene in body's decisions concerning economic regulation of oil and gas industry.

The government ought to appoint the members of the body's board based on strict merit norms. The consequences of political appointments to body may turn out to be destructive for the future of the country as a whole. Also, when all restructuring are completed, the mineral sector and other related interests should be represented in the body as well, which requires that some members of the body should be selected by these interest groups. The government may also establish a specialist regulatory appeal body with suitable expertise in regulatory issues.

In general, the Indonesian mineral sector, institutional environment needs a high level of professionalism since all companies active in the upstream segment are large global oil companies. Indonesia has introduced economic reforms including competition policies, de-monopolitisation, commercialization and privatization. Such economic reforms have given rise to a new regulatory requirements and regulatory reform in oil and gas industry.

Despite relatively good legislative framework, the current regulatory policy in Indonesia towards the oil and gas industry in practice seems to be far from ideal. The reforms are mainly in the form of "text-book reforms", meaning that they are simply copied from regulation

literature with some modifications but in practice the crucial underlying economic logic behind them is not taken into account either by KKKS or by the Indonesian government. It should not be forgotten that every new structure entails new understanding of the issues. However; in Indonesia case, new reform has been tried to be implemented within previous degenerated bureaucratic understanding, which is simply impossible. As long as the vital decisions regarding the future of oil and gas industry have been taken in the depths of some government departments, including those of the body; it is definitely impossible to create a fully functioning market and the result may turn out to be a disaster for the country as a whole. On the other hand, the oil and gas industry is a complex one; and the creation of a market for energy, where none previously existed, is no easy task. Not surprisingly, there will be problems but most of them will disappear with the growth of more effective competition provided that necessary change in understanding mentioned above is materialized.

If reforms are practiced by taking into account their underlying economic logic, there is no reason not to believe that the domestic and foreign investors will be greatly interested in entering a market with excellent growth potential, like Indonesia energy market. Also, one should not blame the bureaucrats in the Indonesian oil and gas industry industry, its unions, and others for trying to protect what they see as their interests by persuading the government to retain previous structure as much as possible. But it will be a catastrophe for the country as a whole if they are successful in doing so as the way would be open for continued government manipulation of these public corporations.

As no meaningful restructuring has developed so far, a significant amount of work still lies ahead. It should not be forgotten that the true test of regulatory success comes in the form of whether a structure in which contractors, suppliers, customers and other actors in the market can all freely negotiate, each taking their own view of the prices, risks, opportunities and threats that a competitive market offers is created or not.