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Local Content Achievement: A Quest For Sustainability of Oil and Gas Supporting Industry

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LOCAL CONTENT ACHIEVEMENT: A QUEST FOR SUSTAINABILITY OF OIL AND GAS SUPPORTING INDUSTRY

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Abstract

Achievement of Local Content Level or *Tingkat Komponen Dalam Negeri* (hereinafter referred to as "TKDN") in the procurement of goods and services in Indonesia upstream oil and gas sector consistently exceeds 50% since 2011, reaching average TKDN of 59% during past seven years (2011-2017) with its peak at 68% in 2015 despite the slump of oil prices.

Indonesia upstream oil and gas sector has been grooming the supporting industry since the first Production Sharing Contract was signed in 1966. Until today protective policy is still extensively implemented – even with a greater magnitude. The obligation of the procurement process to prioritize domestic products has led to impressive TKDN achievements.

TKDN is widely used as an indicator to measure the level of success of domestic industrial development. However, despite high TKDN, a phenomenon called "denationalization" of industry (i.e. ownerships of domestic manufactures or fabricators are taken over by their overseas principals, or sold to other overseas entities) has been brought to serious attention since a few years back. This phenomenon coupled with the strengthening of foreign currency values – especially the US Dollar – recently has led to the issue of the sustainability of the domestic industry in various public discussions.

This study is conducted to answer two key questions; does high TKDN achievement really reflect success level of industry, and, is the protective policy in a right path in reaching ultimate goal of industrial development in Indonesia – i.e. domestic industry that is independent, resilient and sustainable. The study also elaborates challenges and expectations for the supporting industry in facing future trend and technology in the oil and gas operations, as well as how to build a strong domestic industry that may contribute to reduce foreign exchange flight to overseas.

Keywords: Local Content, TKDN, upstream oil and gas, supporting industry, infant industry, protective policy, denationalization, national capacity building, resilient, sustainability.

1. Introduction

Since a few years back, especially within suppy chain management (SCM) society it is often heard that ownership of a domestic manufacure or fabricator was taken over by its overseas principal or sold to other foreign entities, and end up with none or very small portion of national ownership. Selling and buying (or farm in and farm out) is actually common in business, but transfer of ownership to foreign entities

was quite regretted by many people, morever the industry has been groomed and raised by upstream oil and gas sector with variuos kinds of protection. To some people, the transfer of ownership is considered as a "denationalization" of industry.

On the other hand, annual achievements of TKDN in the procurement of goods and services in upstream oil and gas sector have shown impressive figures. In the past eight years since 2011, annual percentages of TKDN are in a range of 54-63% − consistently above 50%.

Denationalization phenomena on one side and impressive achievements of TKDN on the other side have raised two questions, i.e. (i) is high TKDN achievement reflecting success of industrial development in Indonesia, and (ii) is domestic industry, particularly the industry that is engaged in the supply of goods and services for upstream oil and gas operations, quite sustainable.

With the weakening of the Rupiah value against foreign currencies − especially US Dollar − lately, the Government has called for maximizing the use of domestic content and inhouse resources. The domestic industry is expected to continue to grow and does not import more goods, and is even expected to increase exports to overseas.

The objectives of this study are, (i) to answer two key questions above, and (ii) to suggest an opinion on how to develop a more resilient domestic industry that may contribute to minimizing foreign exchange flight to overseas.

The main data that will be used in this study are TKDN commitments from 2011 to 2018-August as written in Purchase Orders or Contracts.

2. Reference Overview

2.1 Industrialization, Protection and Infant Industry Argument

Many countries, especially developing countries, started to develop their domestic industries with the main objective is to substitute import products, i.e. a series of efforts to make their own commodities – usually manufactured products – which were originally imported by diverting import demand to domestic sources of production and supply. This industrialization strategy is called import substitution strategy.

One of the main mechanisms in the import substitution strategy is the implementation of tariffs (in the form of import taxes and import duties) or quotas (limiting the amount or volume of imported products for a certain period) to certain import products. Subsequent to the implementation of tariff barrier, domestic industry is built to produce goods that are commonly imported. This is usually carried out through cooperation with foreign entities that are encouraged to build industries in the country concerned, protected by a protective barrier in the form of tariffs. In addition, they are also given incentives such as tax relief, as well as various other investment facilities and stimuli.

Suranovic (2005) suggested that according to "infant industry argument" the protection is needed for small industries that are just growing, especially in less developed countries. The newly built industry does not have sufficient capacity to compete frontally with established industries from developed countries since the industry in developed countries have been in their business for a long time, have access to the global market, efficient, able to sell

products with a competitive price in the international market, but still able to generate adequate profits.

With the implementation of import tariffs on imported products and "allowable" higher selling prices on domestic products, domestic consumers basically subsidize domestic producers. But in the long run, proponents of infant industry protection say that each party will benefit once domestic producers reach economies of scale and are able to be efficient. Domestic production will then be able to serve both the domestic market and overseas markets. Then all parties, namely consumers, producers and employees will benefit. The tariff will be abolished, and the government will obtain income tax from the established domestic producers in exchange for the abolished import tariffs.

So, the long-term strategic goal of the protection policy according to infant industry argument is that domestic industry is able to be independent, strengthen its own capabilities, and be able to escape from the shackles of dependence on imported resources. At its peak, such as in South Korea and Taiwan, their domestic producers are not only able to meet the needs of the domestic market without tariffs, but also successfully enter the international markets.

For developing countries, the import substitution industrialization strategy is seen as the main condition that must be met before they begin implementing the industrialization strategy for export promotion. For this reason and several other reasons (for example, the desire to be more independent in the manufacturing industry, or just to implement tariffs to increase state revenues), many governments of third world countries are interested and adopt the import substitution industrialization strategy.

Many people are of the opinion that the infant industry argument was the same as that applied by the United States and Germany in the beginning of their industrial development which then enabled their industry to grow rapidly in the 20th century. Both countries implemented high import tariffs during their industrial revolution period. The application of this tariff helped in protecting their industry against competition with the United Kingdom which was already a mature industrialized country. This protection policy might indeed be a prerequisite that could stimulate economic growth in the United States and Germany.

2.2 How TKDN Protects Domestic Industry

Actually there are quite a number of regulations that contain definition of Local Content or Domestic Component. One of which and which is used as a reference in the upstream oil and gas sector is Regulation of the Minister of Energy and Mineral Resources No. 15 of 2013 ("Permen ESDM No. 15/2013") concerning the Use of Domestic Products in Upstream Oil and Gas Business Activities. Some important points from this Ministerial Regulation are as follows:

- Domestic Products are Goods and/or Services including design and engineering that are produced or carried out by companies that invest and produce in Indonesia, which in the process of production or processing allows the use of imported raw materials/components.
- Domestic Component Level (TKDN) is the amount of the domestic components in Goods, Services, and a combination of Goods and Services expressed in percentages.
- Domestic Producers are business entities or individuals whose business activities

are established under Indonesian Law and produce Domestic Products.

- Domestic Product Appreciation Book (hereinafter referred to as "APDN Book") is a book containing list of Goods, list of Services providers, and list of capabilities of domestic producers.
- Domestic Components of Goods are the use of raw materials, design and engineering which contain elements of manufacturing, fabrication, assembly and final completion of work originating from and carried out domestically.
- Domestic Components of Services are the use of services up to the final delivery by utilizing workers including experts, working tools including software, and supporting facilities originating from and carried out domestically.
- Every Oil and Gas Contractor, Domestic Manufacturer, and Goods/Services Provider who conducts procurement process of Goods/Services in Oil and Gas Upstream Business Activities must use, maximize, and empower the Goods, services and capabilities of domestic design and engineering that meet the amount, quality, time of delivery and price in accordance with the provisions in the procurement of Goods/Services.
- TKDN of Goods is calculated based on the comparison between the price of finished Goods minus the price of foreign components on the total price of finished Goods. The price of finished Goods as referred to is the production costs incurred to produce Goods.
- TKDN of Services is calculated based on the comparison between the overall service price minus the price of the foreign Services to the price of the overall Services. The price of the overall Services as referred to is the cost incurred to produce Services calculated at the site.
- TKDN of combined Goods and Services is a comparison between the overall price of domestic components of Goods plus the overall price of domestic Services components to the overall price of Goods and Services. The entire price of Goods and Services as referred to is the cost incurred to produce a combination of Goods and Services calculated at the site.

It should be highlighted here, that according to the above Ministerial Regulation, the prices of local components and imported components are calculated at the place of work, not calculated based on the bid price. So profit, taxes, company overhead, delivery cost and other costs beyond the finished product are not included in TKDN calculation. In a simple arithmetic formula, TKDN in percentage can be written as,

$$\text{TKDN (\%)} = \frac{\text{Domestic component cost}}{\text{Total cost to make product}} \text{ x } 100\% \quad ...(1)$$

In Permen ESDM No. 15/2013, Goods are categorized into 14 items and Services are categorized into 11 items – totalling to 25 categories of Goods and Services. As an incentive for TKDN achievement and domestic ownership, the Domestic Company obtains two kinds of price preferences, i.e. Price Preference Based on TKDN and Price Preference Based on Company Status, as stipulated in Chapter III of the Ministrial Regulation:

- Price preference is given if TKDN of Goods reaches greater than or equal to 25%, or the promise/commitment to achieve TKDN of Services reaches greater than or equal to 30%.
- With respect to Domestic Goods, a Price Preference based on TKDN is given with a maximum of 15%, calculated proportionally based on the achievement of TKDN adjusted to the roadmap of TKDN Targets. Price Preference due to TKDN in Domestic Goods:

$$P_b = \frac{\text{TKDN}}{\text{Target of TKDN}} \text{ x } 15\% \quad ...(2)$$

TKDN targets for all 25 categories of Goods and Services are listed in Appendix I of Permen ESDM No. 15/2013 (see Table 1).

- With respect to Domestic Services, Price Preferences based on TKDN are not more than 7.5%, calculated proportionally based on TKDN commitment that is adjusted to the roadmap of TKDN Targets. Price Preference due TKDN in Domestic Services:

$$P_j = \frac{\text{TKDN}}{\text{Target of TKDN}} \text{ x } 7.5\% \quad ...(3)$$

- For Domestic Producers with Domestic Company status, if achievement of TKDN greater than or equal to 25%, an additional Price Preference of 2.5% maximum is also given.

The procurement of goods and services for upstream oil and gas contractors or *Kontraktor Kontrak Kerja Sama* (hereinafter referred to as "KKKS") is regulated in PTK 007 Book Two Revision 4.

In tender process, the winner is not determined by the lowest bid price, but based on the so called lowest Bid Evaluation Price ("HEP"). HEP is the adjustment or normalization of bid price value, calculated based on TKDN and ownership status of the company. The results of the HEP do not change the bid price, only used to determine the winner ranking. HEP in the goods tender is as follows:

$$HE_{\text{TKDN Barang}} = \left[\frac{100\%}{100\%+ P_b}\right] \text{x KBB} \quad ...(4)$$

$$HE_{PSP} = \left[HE_{\text{TKDN Barang}} + \text{KBP}\right] \text{x } \left(\frac{100\%}{100\%+ \text{PSP}}\right) \quad ...(5)$$

$$\text{HEP} = HE_{PSP} + \text{KNB} \quad ...(6)$$

Where, KBB = Cost component of Goods; KBP = Supporting cost component; KNB = Non cost component; P_b = Price Preference of Goods due to TKDN (max 15%); PSP = Price Preference based on company status.

While HEP for Services tender is,

$$HE_{\text{TKDN Barang}} = \left[\frac{100\%}{100\%+ P_b}\right] \text{x KBB} \quad ...(7)$$

$$HE_{\text{TKDN Jasa}} = \left[\frac{100\%}{100\%+ P_j}\right] \text{x KBJ} \quad ...(8)$$

$$HE_{PSP} = \left[HE_{\text{TKDN Barang}} + HE_{\text{TKDN Jasa}}\right] \text{x } \left(\frac{100\%}{100\%+ \text{PSP}_j}\right) \quad ...(9)$$

$$\text{HEP} = HE_{PSP} + \text{KNB} \quad ...(10)$$

Where, KBB = Cost component of Goods; KBJ = Cost component of Services; KNB = Non cost component; P_j = Price Preference of Services due to TKDN (max 7.5%); PSP = Price Preference based on company status.

Based on the HEP formula above, it can be seen that the prices of domestic goods and services are "allowed" higher by maximum 15% and 7.5% respectively, plus another 2.5% due to domestic company status, compared to the price of imported products. This is the mechanism of how TKDN protects domestic products, i.e. through the Price Preference.

In addition to Price Preferences based on TKDN and ownership status of the company, there is also a preference in the form of 15% Price Preference based on ownership of the main equipment (for drilling rig and ship tenders) and additional price preference due to the difference in TKDN percentage that exceeds the TKDN target. For details, see the Guidelines for

Tender Process No. EDR-0167/2017 issued by SKK Migas.

2.3 Flashback of Protection Policy in Production Sharing Contract

The alignment of the upstream oil and gas sector to the national industry has actually been a long time. In accordance with the spirit of the Production Sharing Contract (PSC), the management is in the hands of the Government (Partowidagdo, 2009); and therefore with this principle, the country (c.q. Government) has freedom and flexibility to intervene in various national agenda, including and not limited to the requirement of oil and gas contractors to prioritize the use of domestic goods and services. These reflect the country's sovereignty in the PSC.

Since first generation of PSC, the contract has contained a clause prioritizing the use of domestic products. An article in Section V of the PSC states, "Contractor shall give preference to such good and services which are produced in Indonesia or rendered by Indonesian nationals; provided such goods and services are offered at equally advantageous conditions with regards to quality, price, and availability at the time and in quantities required." This policy has a positive impact on the development of other domestic industrial sectors outside oil and gas.

Figure 1 shows a historical flashback of protection policy in the procurement process – especially PSC-Cost Recovery type. When the supervisory and controlling institution for upstream oil and gas business activities was still under PERTAMINA (according to Law No. 8 of 1971) under the name *Badan Pembinaan Pengusahaan Kontraktor Asing* ("BPPKA"), in 1988 the oil and gas contractors were required to implement Presidential Decree No. 29 of 1984 concerning the Implementation of the State Revenue and Expenditure Budget ("APBN") which was further regulated by PERTAMINA-BPPKA with Bulletin Procedure 077 October 1988. Then in 1995 the oil and gas contractors had to follow Keppres No. 16 of 1994, which was further regulated by PERTAMINA-BPPKA with Bulletin Procedure 077 Revision-1 (Machmud, 2000).

In the transition period before the enactment of Law No. 22 of 2001, the institution that oversaw and controlled the upstream oil and gas business activities was *Manajemen Production Sharing* (MPS) − still under PERTAMINA. The process of procuring goods/services for upstream oil and gas companies (PERTAMINA, PSC, JOB, TAC) was regulated by the Decree of PERTAMINA's President Director No. 077 of 2000 which was valid for the period 2000-2004.

After BPMIGAS was formed in 2002 (split from PERTAMINA as mandated by Law No. 22 of 2001), in 2004 BPMIGAS issued *Pedoman Tata Kerja* ("PTK") 007 as the Guidelines for the procurement of goods and services for upsptream oil and gas contractors. Under SKK Migas, PTK 007 Book Two is currently Revision 4 version.

Starting from the Presidential Decree until the PTK 007, the spirit to protect domestic products is essentially the same, i.e. prioritizing the use of domestic products. Imports are allowed but under strict terms, one of which is if domestic production capacity is not sufficient to meet the volume needed by the oil and gas contractors.

An article in Chapter X of the PSC also mentions that equipment purchased by contractors for oil and gas operational purposes is owned by the State (in the case of imports, when landing at the Indonesian importation port). The KKKS that adheres

to the PSC-Cost Recovery type basically receives an incentive in the form of exemption from import duties and import taxes.

To control the importation of goods carried out by KKKS, two policies called Master List and APDN Book are deployed. Master List is a document that contains a plan for the need for goods to be imported and will be used for petroleum operations. If there are already domestic products listed in APDN book, in the sense that the products can be produced in Indonesia, then import of similar products is not allowed and the master list will not be approved. What if a KKKS violates the APDN Book and insists on importing goods without master list? The sanction is simple, all costs incurred from the purchase of imported goods will not be cost recoverable.

2.4 National Capacity Building

The upstream oil and gas sector still plays a major role as an economic engine in national economic growth, and is still a main source of revenue in the state's revenue and expenditure budget (APBN). Law No. 30 of 2007 concerning Energy and Presidential Regulation No. 22 of 2017 concerning General Plan for National Energi (RUEN) have mandated that oil and gas should be managed as national development capital – not merely treated as a commodity to generate state revenue. In other words, managing oil and gas has to be beyond revenue.

In managing the upstream oil and gas industry, the concept that has been implemented so far and what has been observed since 2009, is the so-called National Capacity Building (NCB) – see Figure 2. If previously the upstream oil and gas sector was only to generate state revenue and energy supply, in recent years managing upstream oil and gas sector was directed to strengthening and empowering national capacity of all elements or stakeholders involved in the upstream oil and gas industry. This form of NCB includes:

- increased empowerment of oil and gas supporting industry;
- cooperation with and empowerment of local universities, research institutions, and State's Owned Enterprises (BUMN);
- strengthening economy within the communities surrounding oil and gas field acitivities;
- strengthening local human resource capabilities;
- strengthening national oil company; and
- prioritizing allocation of oil and gas production for domestic consumption.

In the end, the ultimate goal of oil and gas management is to create energy security and become an engine of economic growth.

In 2015 SKK Migas conducted a study on multiplier effect resulting from the expenditure of upstream oil and gas industry. The main results of the study are, that in every expenditure of Rp1 billion by KKKS will produce:

- economic output of Rp1.6 billion;
- Rp700 million of GDP incremental;
- an additional household income of Rp200 million; and
- increasing employment opportunities for 10 people.

In the planning stage, the implementation of this national capacity policy is tightly controlled when KKKS proposes a Plan of Development (POD), work program & budget (WP&B), AFE, manpower placement plan, community development plan, CSR, and procurement plans. Monitoring of national capacity realization is conducted when the plans are being or have been executed. So pre, current and post audits are all applied to ensure national

capacity policy is implemented by KKKS. TKDN is used as the success indicator of national capacity policy in the utilization of domestic products.

Some provisions in PTK 007 Book Two Revision 04 Chapter IV concerning national capacity building:

- KKKS, Goods/Services Providers, and Subcontractors are obliged to use domestic goods/services as stated in the APDN Book issued by General Directorate of Oil and Gas, Inventory List of Domestic Production of Goods/Services issued by the Ministry of Industry, and Approved Manufacture List (AML) as stipulated by SKK Migas.
- In the planning stage of the procurement of goods or services, including the Front End Engineering Design (FEED), the determination of the specifications shall use the Indonesia National Standard (SNI) for goods that have been in mandatory list by the authorities concerned.

Based on the various explanations above, it can be summarized that the protective barriers for domestic products in the upstream oil and gas sector are APDN Book, Inventory Lists from the Ministry of Industry, Approved Manufacture List from SKK Migas, Master List, TKDN, ownership status of company, ownership status of main equipment, and Price Preferences.

3. TKDN Data and Analysis

Figure 3 shows the TKDN commitment data in the procurement of goods and services in the upstream oil and gas sector from 2011 to 2018-August. The data was taken from 2011 because previously the calculation of TKDN was still based on the bid price. We call it "commitment" because the TKDN data here is the commitment of vendors to reach TKDN at a certain level according to what they promise and as stated in the contracts or purchase orders.

In line with the slump of oil prices in 2014, there has been a significant decline in the annual value of procurement of goods and services. The average realization of annual procurement values in the 2015-2017 period was only US$7.91 billion, or only 47% of the annual procurement value in 2014 (US$17.34 billion). This is due to:

- delays in a number of projects and activities due to the slump of oil prices, KKKS are more focused on activities that in the short term can maintain their production levels;
- efficiency and optimization carried out by the KKKS, including procurement and supply chain strategies (reduced volume and complexity);
- innovation and improvisation in technology which lead to lower cost;
- lower cost index that follows the trend of oil prices; and
- passion for investment that has not been recovered as in 2013-2014.

When juxtaposed with the annual ICP movement, it appears that TKDN is not affected or not directly correlated with the fluctuation of oil prices. Even in 2015, when ICP and world oil prices were at their lowest point in the period of 2011-2018, TKDN was at its highest level. TKDN levels in the 2015-2018 period are even higher than the TKDN in 2014. This shows that many KKKS postponed high-cost projects which normally contain more imported components and put more priority to activities of low level technology that can be supplied by domestic vendors. TKDN does not either positively correlate with the value of procurement. It could be a large TKDN but the small value of procurement, and vice versa.

Annual TKDN levels in the 2011 to 2018-August period are consistently above 50%, on average 60% in the last eight years. TKDN achievement in the upstream oil and gas industry is indeed very impressive. Compared to other energy industries such as steam power plants, for example, which in mid-2017 reached an average 32% out of target 40% (CNN Indonesia, 19 June 2017), TKDN achievements in the upstream oil and gas industry are adrift quite far above. Power industry was taken as a comparison here since both power and oil & gas industries have similar characteristics, i.e. capital intensive, technology based, and long term investment.

Although the achievements of aggregate TKDN are very impressive, however, if grouped into Goods and Services, it demonstrates that TKDN achievements are always dominated by Services. In the period 2011-2017, the average TKDN of Services reached 71%, while TKDN of Goods only reached 35% – only half of TKDN of Services (see Figure 4). It means 65% of cost of Goods is import component. This shows that the oil and gas supporting industry in Indonesia still relies on the ability "to assemble" rather than "to produce" goods. Most oil and gas supporting industry players are only engaged in the downstream production facilities.

To see whether each commodity/category of goods and services has reached the TKDN target in a given year, we will compare the respective TKDN commitments to TKDN targets in Appendix I of Permen ESDM No. 15/2013. Short-term target is 2013-2016, medium-term is 2017-2020, and long-term is 2021-2025. There is a step up in the TKDN targets from 2016 to 2017, therefore we will compare the commitment versus TKDN targets of each commodity/category in 2016 and 2017 based on the TKDN data compiled by SKK Migas through SI-PRS system.

Figure 5 shows comparison of TKDN commitments and TKDN targets for 2016. Of the 14 Goods commodities, only three reached the TKDN target, namely OCTG Low Grade, Fuel, and Goods-Others. While of the 11 Services categories, only one did not reach the TKDN target, namely EPCI-Onshore. Of all 25 categories, 13 have reached their 2016 TKDN targets.

Figure 6 shows comparison of TKDN commitments and TKDN targets for 2017. Of the 14 Goods commodities, only three reached the TKDN target, namely Spiral Welded Pipe, ERW Pipe, and Pumping Unit. While of the 11 Service categories, only three achieved the TKDN target, namely Survey Seismic and G&G Study, Ships & Sea Transportation, and Others. Of all 25 categories, only six that could reach their 2017 TKDN targets.

Increasing the targets of TKDN causes fewer categories that can reach the targets. This indicates the lacking of the development of supporting industry towards upstream production facilities.

TKDN targets in Permen ESDM No. 15/2013 need to be revisited to adjust to the current conditions of industrial development progress. TKDN targets for a certain category of goods/services should be based on which additional stages and which additional cost components in the production process that can be carried out domestically.

4. Discussion

4.1 Some Notes on Protection and Infant Industry Argument

The long-term strategic goal of the protective policy is that the domestic

industry can be independent by controlling and having ownership of the production facilities from upstream to downstream and can escape from dependence on imported resources. However, this strategic goal has not been achieved because, first, most technology-based industrial plants in Indonesia start from building downstream production facilities. The results of the profits obtained are not immediately invested by industry players to build production facilities on the upstream side. They use the results of their profits to build other plants (different products) and even different business sectors that often also get protection, but their newly production facilities are also only downstream. Industrial development in Indonesia is trapped in the pattern of conglomeration that does not have an emphasis on certain core competencies. As a result, many manufacturers have never increased their TKDN levels because they do not have integrated production facilities. Industrial development in Indonesia is more "growing sideways" rather than "growing uspstream". Figure 7 shows what generally happens in industrial development in Indonesia.

As a result of growing sideways, the Indonesian industry is highly dependent on imports of technology, finance and input materials from industrially developed countries. This high dependence on imported technology is considered as one of hidden factors as well as being a major cause of failure of various industrial and economic systems in Indonesia. Dependence on imported technology is also, consciously or unconsciously, a major cause that makes Indonesia continuously dependent on foreign debt (Sasmojo, 2004).

Secondly, it is observed so far that TKDN certificates tend to be only for administrative purposes, especially for winning the tenders; not really used as a stimulation to improve the ability and capacity of the oil and gas supporting industry, especially developing towards the usptream production facilities, while in fact the soul of technology is producing goods, not services.

The companies involved in the protected sectors − both state-owned and private-owned companies − turned out to abuse all the protection and facilities provided by the government. Because they feel comfortable under the protection that frees them from the pressure of global competition, their mode of business operation becomes inefficient and not competitive (Todaro, 2000). The protective policy tends to make the supporting industry not having real competitiveness. The nuance as a "trader" is more dominant than as "industrialist".

Third, Todaro further stated that, in many cases, the biggest beneficiaries of protective policies are principals from abroad who are used to be the suppliers of raw materials and technology. They are the ones who benefit more from the protective policy. Why? Because they know that there are protection and price preferences. They can set a higher price for the raw materials and technology they supply to the host country. As a result, many of domestic industry players received insufficient profit margins to make furthter investements when they have to compete their pricess in the market and, therefore, industrial development towards upstream facilities is hampered.

Indeed, the implementation of various existing policies is not sufficient enough to spur our industry to build upstream production facilities. Moreover, industry players are currently under financial pressure with the flow of cheap product

attacks from abroad, especially products from China. Having already bound to the articles of free trade agreements such as AFTA and WTO, it is not easy to implement radical protection policies in Indonesia. The best momentum to take advantage of the benefits of this protection was actually when Indonesia has not been tied to the free trade agreements. At that time, just before the second half of the 1990s, the implementation of protection still made it possible for industry players to obtain greater profit margins compared to current conditions, and the market situation was not as saturated as it is today. But unfortunately the results of the profits in the past were generally not invested to build upstream production facilities.

Actually protective policies towards domestic industry are common in various parts of the world, even though in different ways. The direct way is the issuance of a regulation from the government. Indirect ways are, for example, through strengthening association, training, subsidies, and standardization of domestic products.

Fourth, investment policies are not well targeted, for instance a new investor is allowed to build downstream production facilities similar to existing whose market segment of the product is already saturated and even the existing facities are already over capacity. This is not wise because the government should direct the capital (both foreign and domestic) to be invested in the upstream of the production process, or invest in building facilities that can produce intermediate inputs for existing industry; not invest in the downstream production facilities that Indonesia already has. We take the example of seamless steel pipe industry. We already have the most upstream steel industry like Krakatau Steel; while our domestic seamless steel pipe industry currently only has the capability of heat treatment and end finishing processes. So the investors should be directed by government to build facilities that can produce raw materials for seamless steel pipes, namely seamless green pipes.

4.2 Denationalization Phenomenon

In the past few years, there have been frequent reports on domestic manufacturers or fabricators in which part or all of their ownership are sold to their principals from abroad, so that the status of the company has changed from a domestic to a national private company. Generally, in the beginning the principal acts at the supplier of raw materials and technology to the domestic manufacturer.

Actually selling and buying ownership of a company is something normal in business. As happened to us everyday, when we need money or additional capital, one way that can be done is to sell assets that we have. But it is unfortunate when there is a domestic manufacturer that has been receiving protection facilities from the Government, after it grew large enough and had a significant market share in the domestic market, suddenly sold to foreign parties. Moreover, oil and gas supporting industry that has received various forms of protection and preference.

Given the recent setbacks, including the sale of domestic manufacturers or fabricators by domestic owners to foreign parties, or the increasingly reduced portion of domestic control over resources in an industry, this shows that our domestic industry does not yet have resilience, many parties are of the opinion that this phenomenon is a “denationalization” of domestic industry.

With the transfer of domestic industry ownership to foreign parties, the consequences are, among others:

- Foreign exchange earned from sales will run abroad. This may be one component that causes a reduction in the position of foreign exchange reserves.
- Access to technology (infoware, humanware, technoware, orgaware) will still be controlled by foreign parties, so that Indonesia will have difficulty or will never master the "soul" of the technology.
- Usually the foreign owners will reorganize the company. National workers are usually only placed at working levels up to first and middle line management. While the upper management line and various other strategic positions will be occupied by foreign people. This will slow down the process of technology transfer.
- Value added to the nation is minimum. Indonesia is only used as a basis for global investors to produce and market their products.
- In the long run, it will be much longer for Indonesia to build industrial independence, resilience and sustainability.

4.3 Domestic Industry Facing PSC-Gross Split Era

With the enactment of Permen ESDM No. 08/2017 dated January 13, 2017 concerning Gross Split Production Sharing Contract followed by its revision, Permen ESDM No. 52/2017 dated August 29, 2017, the Production Sharing Contract (PSC) with the Gross Split scheme has been applied for upstream oil and gas business activities in Indonesia. Based on this Ministerial Regulation, all new contracts, both new exploration work areas and new contracts ex termination, must follow this Gross Split scheme.The essence of this scheme is that the revenue sharing between the Government and the Contractor (KKKS) will no longer be deducted by operating cost (known as Cost Recovery) but directly splitted at front with certain percentages. There are three types of splits: base split, variable split, and progressive split.

Even though the process of procuring goods and services in the PSC Cost Recovery scheme is tightly regulated and supervised, but in return basically KKKS does not get any kind of reward in the form of financial, other than obtaining a certificate of appreciation for those who achieve high TKDN levels. Unlike PSC Cost Recovery, in Permen ESDM No. 08/2017 and its revision No. 52/2017, KKKS Gross Split has the right to get a direct incentive in the form of additional split based on TKDN achievement. So TKDN is one of variable split components. The additional split is adjusted to the levels of achievement of the TKDN percentages as shown in Table 2.

With the additional split based on TKDN, it is supposed to stimulate KKKS to the maximum as possible using domestic products. But on the other hand, KKKS must also be efficient, cost effective, and faster because cost recovery is no longer an issue. Procurement of goods and services in PSC Gross Split is solely carried out by KKKS themselves, no longer regulated by guidelines such as the current PTK 007. Regulations are looser, both parties (sellers and buyers) have more flexibility; the stringent part is on post-audit because it involves the settlement of the Government and KKKS entitlements. Herein lies the dynamics of supply-demand in the Gross Split era, namely how KKKS will balance four factors: TKDN, cost, entitlement, and time.

The opportunity for the domestic industry players to increase their market share in the Gross Split era is more open. Industry players and KKKS will have more freedom an dflexibility to conduct business-to-business partnership. The competitive advantage of QCDS (Quality, Cost, Delivery, Services) owned by the domestic industry will be the main consideration for KKKS in carrying out the partnership. Mergers and acquisitions (M&A) within the supporting industry players may frequently happen in the Gross Split era. Another possibility is that there will be a growing number of consortiums among the industry players to work on oil and gas projects. In addition to M&A and consortiums within the supporting industry, it is possible that oil and gas companies will chip in to supporting industry, and even it is possible for the supporting industry players to farm in an oil and gas working area.

It is also expected that in the Gross Split era there will be more turnkey projects, or works that are similar to project management package. Basically dealing with one vendor will be much easier than dealing with many vendors, especially new projects that require interfaces with existing facilities. In the contrary, industry players who cannot take advantage of opportunities and do not have a strong foothold, their business will be threatened shut down.

For KKKS who has business groups (subsidiaries, sister companies) engaged in the upstream oil and gas supporting industry, the Gross Split scheme can be an opportunity to establish a vertical integration as well as creating a more effective and more efficient integrated supply chain. Vertical integration is done by utilizing maximum as possible the product produced by the business groups. PERTAMINA, for example, is very likely to establish vertical integration because it has business groups engaged in various categories of oil and gas supporting products such as seismic survey, downhole services, drilling, fabrication, transportation, fuel, lubricants, accommodation, and even hospitals. It is also possible for a business group like Pertamina to perform vertical expansion by developing a new business unit or acquiring another company for a commodity that previously did not exist within its business groups.

The challenges that will arise are (i) attacks from imported products that are cheaper although TKDN and company ownership price preferences have been taken into account; (ii) oil and gas contractors whose parent companies or their affiliates abroad have global agreements with international vendors; (iii) oil and gas contractors who carry out covert missions to market products from their country of origin; (iv) trade off against TKDN, i.e. if the maximum split has been achieved, the rest will be bought from their affiliated overseas companies; (v) if it is considered more profitable to use products from overseas (especially in terms of prices) compared to TKDN variable splits in spite of paying import duties and import taxes; and (vi) on the supply-demand side, there can also be violations of fair business competition if there are rampant practices that lead to monopoly, oligopoly, monopsony, and oligopsony.

4.4 Future Trends of Oil and Gas Technology in Indonesia

Oil and gas exploration and production activities in Indonesia are spread from the western region to eastern part of Indonesia, although not on all islands and oceans. Majority of oil and gas fields in the western region are already old, many of them have

been producing since before 1970. The current upstream oil and gas activities are increasingly leading towards the eastern region, deeper sea water, even in the frontier areas of the Exclusive Economic Zone (ZEE). This causes exploration and production activities become more capital intensive, risk intensive and technology intensive. Unlike the beginning of the development of the upstream oil and gas industry in the western region of Indonesia, the eastern region has far more challenges.

Indonesia's future upstream oil and gas technology will be dominated by offshore construction, EOR (especially in Western Indonesia), gas processing and transportation, mini refinery and and mini LNG, as well as unconventional oil and gas exploration and production (CBM, tight oil, tight gas).

5. Conclusions and Suggestions

5.1 Conclusions

Based on analysis and discussion above, it can be concluded:

1. The alignment of the upstream oil and gas industry against domestic products has been running for more than 50 years (since the signing of the first PSC). Therefore, the supporting industry can no longer be categorized as "infant industry".
2. The oil and gas supporting industry in Indonesia still relies on the ability to "assemble". This is in line with the phenomenon that domestic industry is developed more sideways than towards the upstream production facilities.
3. The fact that there is still a high level of dependence on imported resources indicates that the protective policies applied so far have not yet been able to reach ultimate goal of industrialization.
4. The TKDN certificates have not been able to stimulate the domestic industry to build upstream production facilities.
5. Development of domestic industry towards upstream production facilities and increasing Indonesian content in the industrial resources will help minimize foreign exchange flight to overseas.
6. PSC-Gross Split can provide opportunities for domestic industry players to expand their market share, but it can also be a threat for the industry players who do not have a strong business foothold.

5.2 Suggestions

The National Capacity Policy should not only aim to maximize the achievement of TKDN, but more important is to maximize the added value gained by Indonesia, especially in the form of mastering technology, so that in the long run Indonesia can escape from dependence on imported resources in industry.

TKDN Targets in Permen ESDM No. 15/2013 should be reviewed so that they truly reflect which stages of the upstream production facilities along with their cost structures that will be built in a certain period of time.

Strategies to build industrial sustainability (see Figure 8):

- Products are competitive in terms of QCDS.
- Developing the industry towards the upstream production facilities.
- Investors (both domestic and foreign) are directed to invest in intermediary products or more upstream products in the production process.
- Increasing Indonesia Content in the resources that drive the industry (human resource, technology, finance, capital,

ownership) in order to reduce import resources.
- Building R&D orientation.
- Diversify market to other segments as well as export markets.
- Conducive regulations that enable the domestic industry to sustainably grow.

Industrial development in Indonesia must be directed towards "made BY Indonesia" rather than just "made IN Indonesia". The more upstream the production process that can be carried out domestically, the more reduction in import cost component. Whereas in terms of the resources that drive the industry, the more resources that are controlled and owned by Indonesians, the smaller the possibility of foreign exchange flows abroad. This is how the domestic industry plays a vital role in national foreign exchange reserves.

For sure the Indonesian people want to have a sustainable domestic industry. A strong domestic industry is an economic driving force and adds to pride and confidence in the global arena. In addition, industrial success also reflects the level of mastering science and technology.

Readiness of domestic supporting industry is needed to meet future trends of technology so that the domestic market share will not be dominated by overseas vendors who are more well prepared in terms of technology.

This study is still a helicopter view. It is expected that there will be another more robust and comprehensive study on how to build a sustainable domestic oil and gas supporting industry by involving various variables and stakeholders.

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Figure 1. History of Domestic Product Protection in The Upstream Oil & Gas Procurement

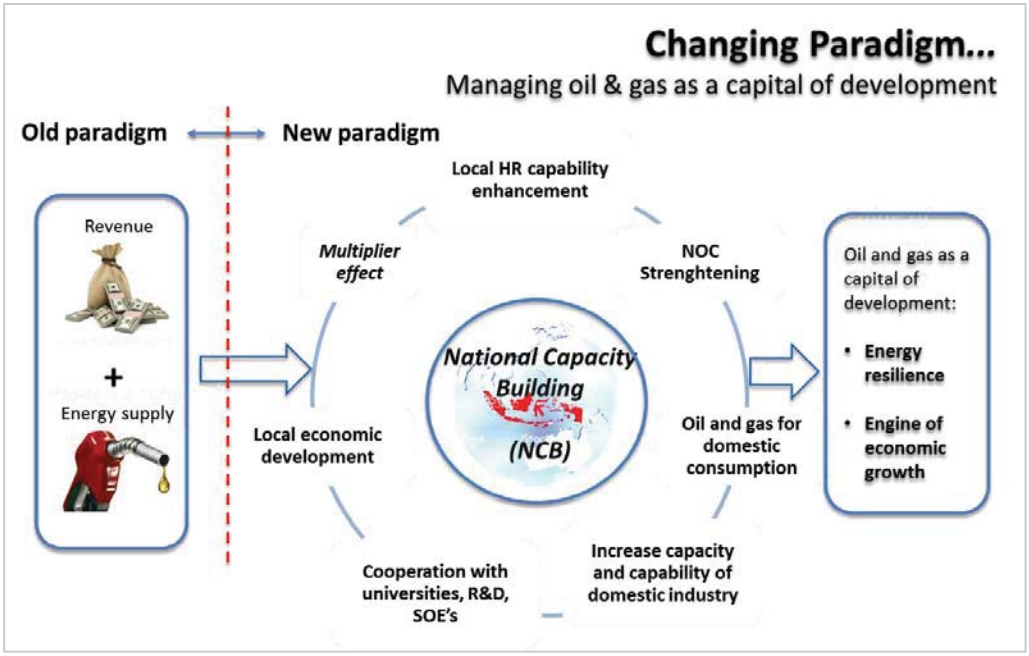
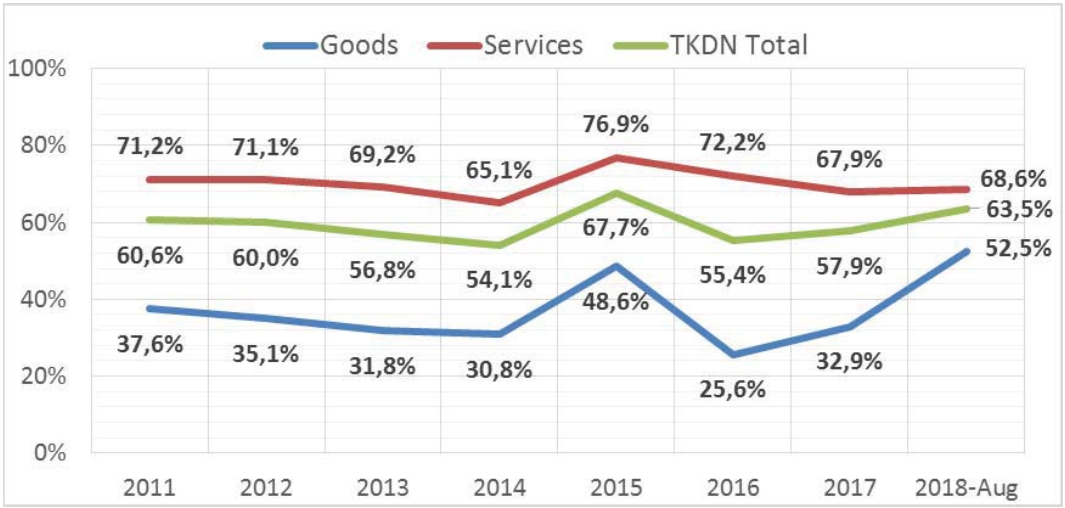


Figure 2. National Capacity Building

	2011	2012	2013	2014	2015	2016	2017	2018-Aug
Services	8109	11531	9304	11807	5319	6496	3999	1899
Goods	3706	5082	4616	5548	2590	3699	1627	896
TKDN (%)	61	60	57	54	68	55	61	63
ICP (US$/barrel)	111	112	105	96	48	40	51,2	69,4

)18-August data is temporary figure.

Figure 3. Procurement Value and TKDN Commitment
(Source: SKK Migas Report, Sept. 2018)



*2018-August data is temporary figure.

Figure 4. TKDN of Goods and Services
(Source: SKK Migas Report, Sept. 2018)

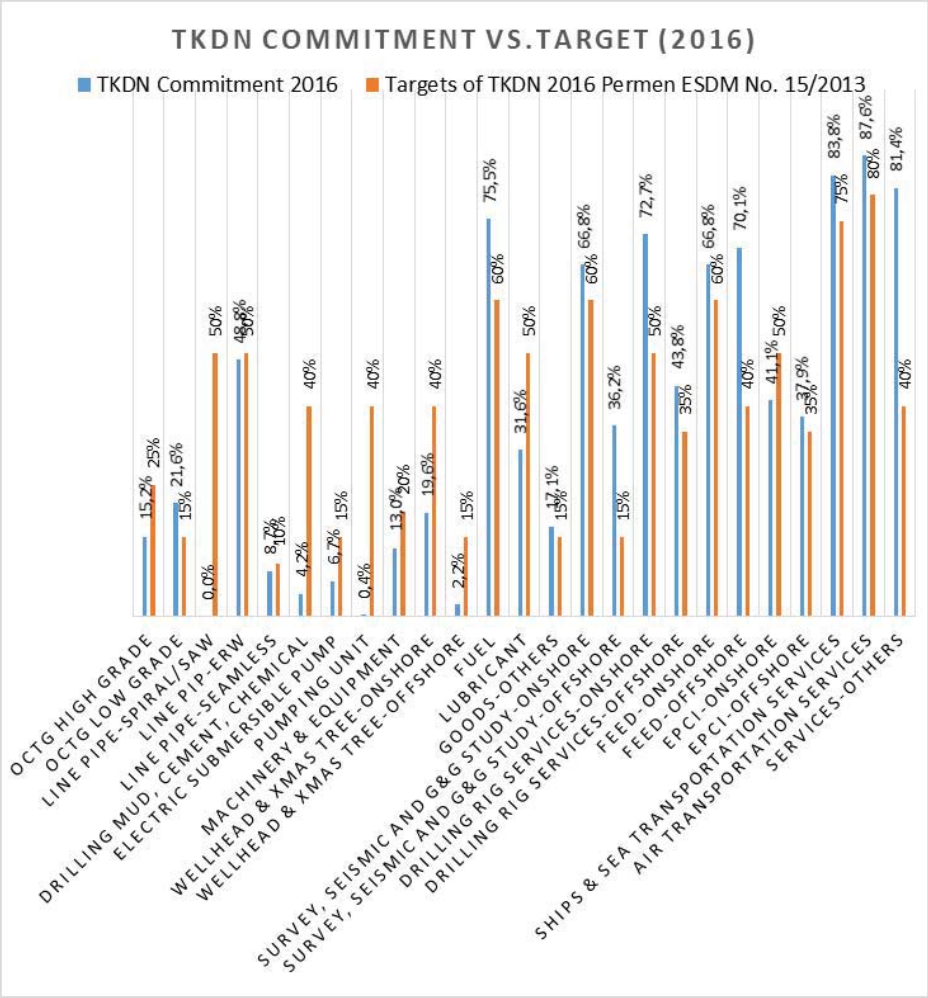


Figure 5. TKDN 2016 − Commitment vs. Targets of Each Category of Goods and Services (Source: SKK Migas Report, 2016)

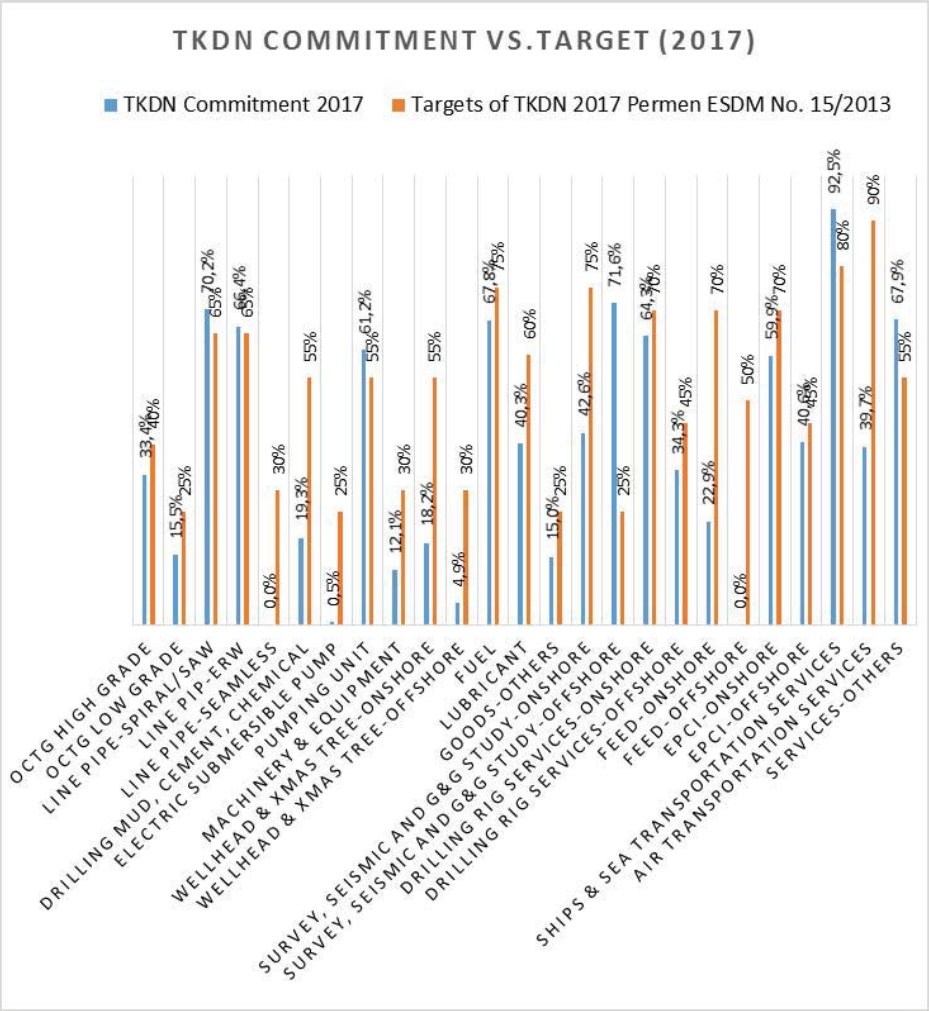


Figure 6. TKDN 2017 − Commitment vs.Targets of Each Category of Goods and Services (Source: SKK Migas Report, 2017)

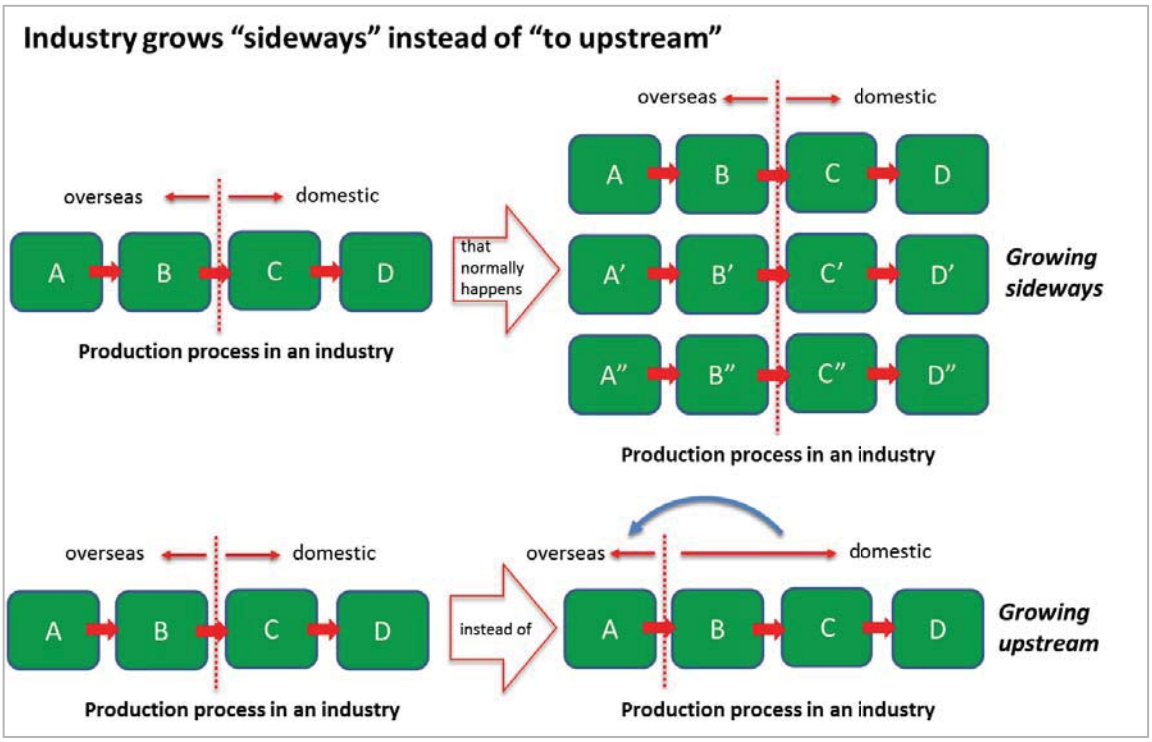


Figure 7. Growing Sideways versus Growing Upstream

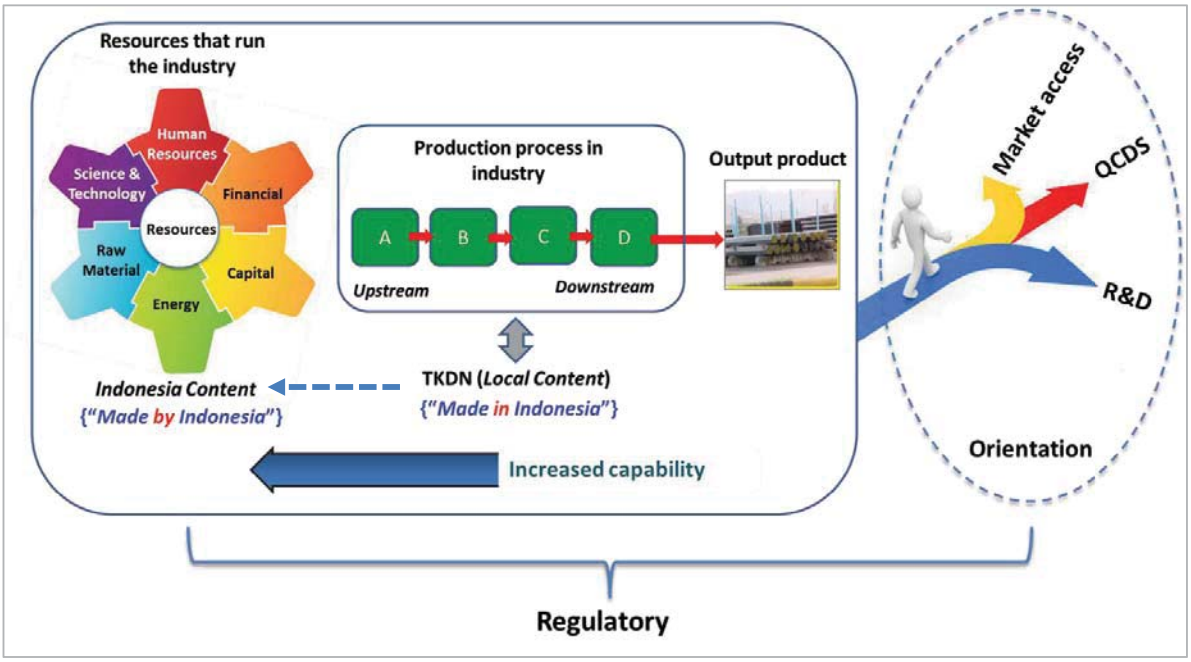


Figure 8. "Made IN Indonesia" versus "Made BY Indonesia"

Table 1. List of Categories and TKDN Targets
(Source: Permen ESDM No. 15/2013 Appendix I)

No.	COMMODITY / CATEGORY	TARGET OF TKDN (%)		
		Short term (2013 – 2016)	Medium term (2017 - 2020)	Long term (2021 - 2025)
Goods				
1.	OCTG (Casing and Tubing)			
	a. High Grade	25	40	55
	b. Low Grade	15	25	40
2.	Line Pipe			
	a. Spiral Welded	50	65	80
	b. ERW	50	65	80
	c. Seamless	10	30	50
3.	Drilling Mud, Cement, Chemicals	40	55	70
4.	Electrical Submersible Pump	15	25	35
5.	Pumping Unit	40	55	70
6.	Machinery & Equipment	20	30	40
7.	Wellhead and X-mas tree			
	a. Onshore	40	55	70
	b. Offshore	15	30	40
8.	Fuel (oil based)	60	75	95
9.	Lubricant	50	60	70
10.	Goods-Others	15	25	40
Services				
1.	Survey, Seismic, G&G Study			
	a. Onshore	60	75	90
	b. Offshore	15	25	35
2.	Drilling Rig Services			
	a. Onshore	50	70	90
	b. Offshore	35	45	55
3.	Front End Engineering Design (FEED)			
	a. Onshore	60	70	80
	b. Offshore	40	50	60
4.	Engineering Procurement Construction Installation (EPCI)			
	a. Onshore	50	70	90
	b. Offshore	35	45	55
5.	Sea Transportation Services	75	80	85
6.	Air Transportation Services	80	90	95
7.	Services-Others	40	55	75

Table 2. TKDN Variable Split in PSC-Gross Split
(Source: Permen ESDM No. 52/2017)

TKDN Achievement	Additional Split
$70\% \leq TKDN \leq 100\%$	4%
$50\% \leq TKDN < 70\%$	3%
$30\% \leq TKDN < 50\%$	2%
$TKDN < 30\%$	0%