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MALAYSIA EQUITY



Platform Supply Vessel ship specially designed to supply offshore oil platforms drilling mud, pulverized cement, diesel fuel, potable and non-potable water, and chemicals used in the drilling process comprise

THE OSV INDUSTRY IN MALAYSIA

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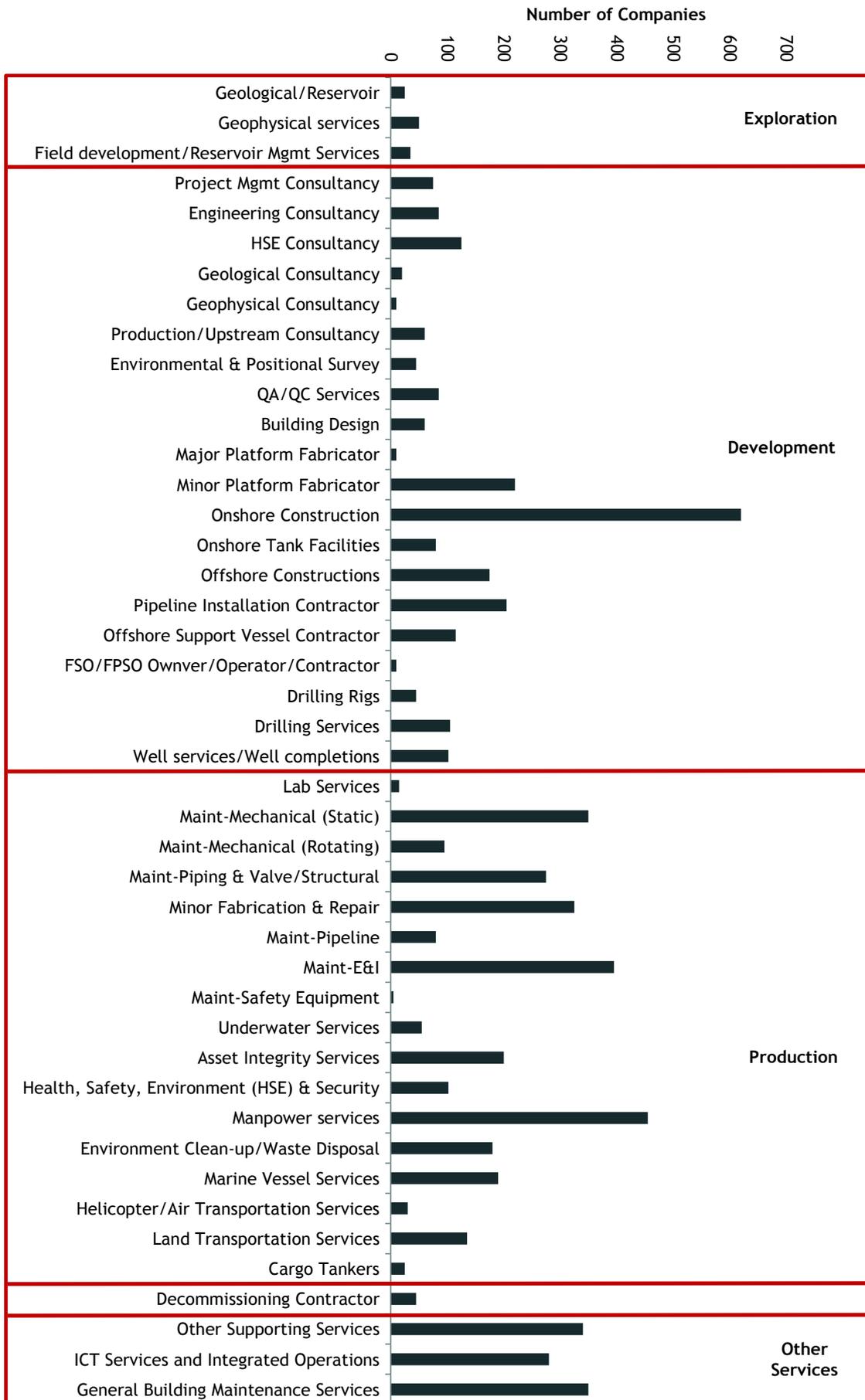
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THE OSV INDUSTRY IN MALAYSIA

- Offshore support vessels (OSV) are the workhorses for the thousands of men and women risking their lives in the high seas daily in search for the black gold. OSVs provide crew and cargo transportation, lifting services and accommodation services. OSVs are required in all offshore activities, from the exploration phase, development phase, production stages and lastly, for the decommissioning of the oilfield.
- Although OSVs play a pivotal role in the upstream oil and gas service industry, only approximately 2% of the total oil and gas related companies in Malaysia are involved in the OSV business. In addition, only approximately 15% of an oil producer's planned capital expenditure is allocated to the chartering of marine vessels and its associated works.
- This sub-segment of the value chain is not without its issues and hurdles. Financing the purchase of OSV (especially mid-to-high range) is not an easy undertaking due to the cost and the risk nature of the job. Financiers most often would require ready contracts to support the repayment of financing taken for the purchase of the vessel.
- Clients on the other hand, would require proof of an existing vessel with track record before awarding any contracts. In addition operators and vessel owners are required to upgrade and to retire old vessels due to age restrictions imposed by clients - this requires major funding for capital expenditure.
- Due to the average OSV age in South East Asia being approximately 11.2 years old, Malaysian OSV operators are in a better position to compete with regional operators as the average Malaysian OSV is only 6.4 years old. In addition to age competitiveness, Malaysia has been actively venturing into deeper waters, requiring vessels which are stronger and can withstand the punishing environments of deepwater oil and gas exploration.
- Moving forward, vessels with greater deepwater capabilities will be needed. Oil price is a motivator for the sector as well. High oil price encourages oil producers to increase capital expenditure allocation. For OSVs, this provides more opportunities for long term chartering jobs with higher charter rates.
- To keep up with the rapid demand for OSVs in our local waters, local vessel operators have expressed concerns over shortages in skilled OSV crewmen. At the moment, operators have resorted to foreign workers, employing foreign captains, crewmen and deckhands in order to bridge the shortfall in human resources.
- However, the crux of the matter is that even these foreigners are not properly certified and are not properly trained for the specific roles onboard these vessels. As a result, the industry is continuously experiencing lost time injuries (LTI). LTIs are of course detrimental to the well-being of the crew and would also cause financial strains on the service providers and project owners due to increased insurance premiums, loss of revenue, loss of personnel and reputational damages. 

Chart 1: Oil and Gas ecosystem in Malaysia as at end August 2013



Source: Malaysian Petroleum Resources Corporation

A. THE NEED FOR OFFSHORE SUPPORT VESSELS

I. OFFSHORE SUPPORT VESSELS

- Offshore support vessels, or more commonly referred to by its abbreviation OSV, is a category of vessels designed for specific job functions for offshore oil and gas campaigns. However, there is also some confusion or overlapping in the usage of the term, as the term OSV is commonly used to refer to both 'offshore supply vessels' and 'offshore support vessels'. The aim of all OSVs remains - to provide supporting and ancillary services to offshore oil and gas developments. There are many types of OSV assets currently in operation around the world. However, they can be broadly categorized into three main categories, namely anchor handlers, supply vessels and construction support vessels. Anchor handlers include anchor handling tug and supply vessels (AHTS) and anchor handling tugs (AHT) which are designed to tow oil rigs between different locations, to lift rig anchors and also to assist in the supply of campaign necessities such as oil, drilling fluids, drilling muds, spare parts etc. Supply vessels on the other hand, are designed to conduct less complex duties, primarily to undertake supply runs. Apart from ferrying supplies, supply vessels also transport personnel between different locations. Vessels under this category include platform supply vessels (PSV), straight supply vessels (SSV) and fast crew boats. The third category is the construction vessels which include pipe-laying barges/boats, derrick-lay barges/boats and heavy lifts. Most of the vessels classified in this category are designed for sub-surface complex works.

II. EXPLORATION AND PRODUCTION CYCLE

- The need for OSVs.** There are typically four main stages in the life cycle of an oil and gas field. The entire cycle can exceed over 20 years for a field with sizable reserves. The first phase is the exploration phase - to search for hydrocarbon deposits. The second phase is the development phase - to ready the field for long term oil and gas extraction and transportation. The third phase involves production and the final phase is the decommissioning or abandonment phase. The chart below depicts the typical life cycle of a field and the potential use of various OSVs.

Table 1: Life cycle of a typical oilfield

| | Exploration | Development | Production | Decommissioning & Abandonment |
|-----------------|---|---|--|---|
| Duration | 1-3 years | 2-5 years | >20 years | After depletion |
| OSV deployment* | AHTS, AHT, PSV, SSV, Fast Crew Boats, Seismic vessels | AHTS, AHT, PSV, SSV, Diving Support Vessels (DSV), Heavylifts, Accommodation barges/vessels, Pipe-lay vessels | AHTS, AHT, PSV, SSV, Fast Crew Boats, Accommodation barges/vessels | AHTS, AHT, PSV, SSV, DSV, Accommodation vessels, Heavylifts |

Source: MIDF Research

*The lists of OSV assets are non-exhaustive as different fields have different niche requirements.

III. OPERATING ENVIRONMENT IN MALAYSIA

- Malaysia is a conducive market for OSV operators as offshore activities remain upbeat and is expected to continue to remain so in the foreseeable future. This is largely due to the strong support pledged by Petroliam Nasional Berhad (PETRONAS) in committing approximately RM60b a year towards capital expenditure in the oil and gas industry. In 2013, over RM12b worth of OSV contracts (both chartering and sale) were awarded to locally listed OSV operators (year-to-date, RM690m OSV related contracts were awarded). In addition, the local cabotage laws serve to protect local OSV operators as PETRONAS will prioritize Malaysian flagged vessel over foreign vessels.

IV. RIG MARKET AS THE LEADING INDICATOR OF OSV MARKET

Table 2: Contracted rigs globally

| Contracted Rigs | 6/2014 | 5/2014 | 4/2014 | 3/2014 | 2/2014 | 1/2014 |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| Drillships | 95 | 94 | 89 | 89 | 88 | 87 |
| Drillships <4000' WD | 8 | 6 | 6 | 6 | 6 | 6 |
| Drillships 4000'+ WD | 87 | 88 | 83 | 83 | 82 | 81 |
| Semi-Submersibles | 170 | 174 | 178 | 178 | 178 | 181 |
| SemiSub <1500' WD | 10 | 10 | 11 | 11 | 10 | 10 |
| SemiSub 1500'+ WD | 61 | 65 | 68 | 67 | 67 | 68 |
| SemiSub 4000'+ WD | 99 | 99 | 99 | 100 | 101 | 103 |
| Jackups | 401 | 416 | 414 | 417 | 414 | 415 |
| Independent Cantilever (IC) | 365 | 380 | 375 | 378 | 376 | 375 |
| Jackup IC <250' WD | 40 | 40 | 39 | 39 | 40 | 40 |
| Jackup IC 250' WD | 49 | 51 | 50 | 52 | 53 | 55 |
| Jackup IC 300' WD | 103 | 111 | 108 | 112 | 112 | 111 |
| Jackup IC 300'+ WD | 173 | 178 | 178 | 175 | 171 | 169 |
| Independent Spud (IS) | 15 | 15 | 15 | 15 | 16 | 16 |
| Jackup IS <250' WD | 6 | 6 | 6 | 6 | 6 | 6 |
| Jackup IS 250' WD | 6 | 6 | 6 | 6 | 7 | 7 |
| Jackup IS 300' WD | 2 | 2 | 2 | 2 | 2 | 2 |
| Jackup IS 300'+ WD | 1 | 1 | 1 | 1 | 1 | 1 |
| Mat Cantilever (MC) | 13 | 13 | 16 | 15 | 13 | 15 |
| Jackup MC <200' WD | 2 | 2 | 2 | 2 | 2 | 3 |
| Jackup MC 200'+ WD | 11 | 11 | 14 | 13 | 11 | 12 |
| Mat Supported (MS) | 8 | 8 | 8 | 9 | 9 | 9 |
| Jackup MS <200' WD | 2 | 2 | 2 | 2 | 2 | 2 |
| Jackup MS 200'+ WD | 6 | 6 | 6 | 7 | 7 | 7 |
| Other | 165 | 166 | 165 | 167 | 165 | 171 |
| Tender | 23 | 23 | 24 | 25 | 23 | 25 |
| Platform Rig | 142 | 143 | 141 | 142 | 142 | 146 |

Source: Riglogix, Bloomberg industries, MIDF Research

- Rig utilisation rates are often used as a barometer for the OSV market. As more rigs are deployed and as rigs are utilized longer, the need for OSV often increases as more supply runs are made and more offshore servicing needs to be done. Moving forward for the next couple of years, the OSV market is expected to be buoyant underpinned by positive growth in newbuild floaters and jackups.

Table 3: Newbuilds for floaters, jackups and tenders

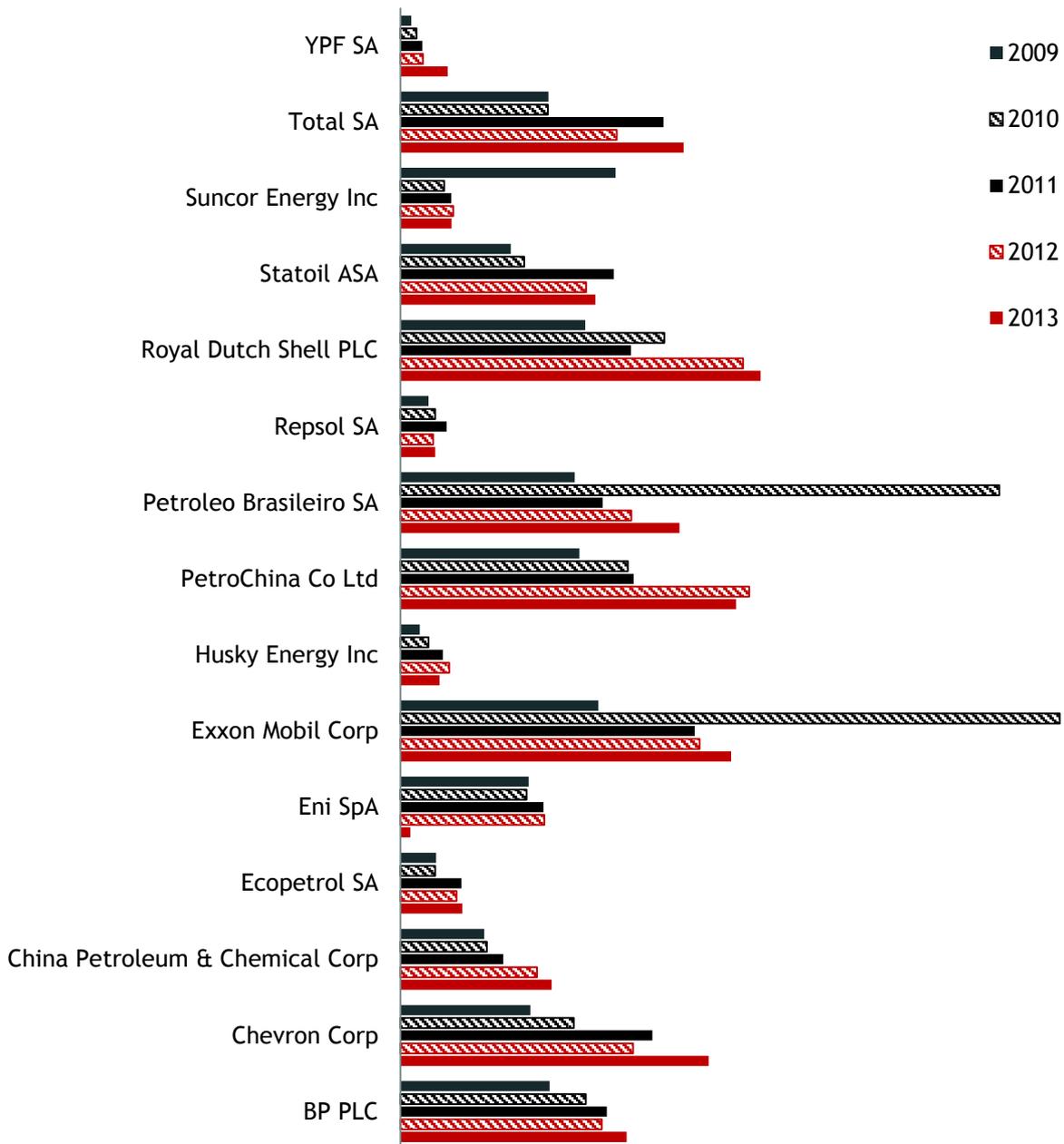
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Total |
|---------------------------------|------|------|------|------|------|------|------|-------|
| Floaters | 16 | 28 | 24 | 12 | 7 | 5 | 1 | 93 |
| Atwood Oceanics | 1 | 2 | | | | | | 3 |
| Beacon Holdings Group Ltd. | | | 1 | | | | | 1 |
| Caspian Drilling | | | 1 | | | | | 1 |
| China Oilfield Services Ltd. | 1 | | 1 | | | | | 2 |
| Diamond Offshore | 1 | 1 | 1 | | | | | 3 |
| Dolphin Drilling | | 1 | | | | | | 1 |
| ENSCO | 1 | 2 | | | | | | 3 |
| ESSA Servicos de Perfuracao | | 2 | | | | | | 2 |
| Etesco | | | 1 | 1 | 1 | 1 | 1 | 5 |
| Frigstad Offshore | | 1 | 1 | | | | | 2 |
| Keppel Fels | | | 1 | | | | | 1 |
| Landmark Drilling | | | 1 | | | | | 1 |
| Maersk Drilling | 2 | | | | | | | 2 |
| Noble Drilling | 1 | | | | | | | 1 |
| North Atlantic Drilling Ltd. | | 1 | | | | | | 1 |
| North Sea Rigs AS | | 1 | | | | | | 1 |
| Ocean Rig Asa | | 1 | 1 | 2 | | | | 4 |
| Odebrecht Oil & Gas | | | 1 | 1 | 1 | 2 | | 5 |
| Odfjell | | | 1 | 1 | 1 | | | 3 |
| Pacific Drilling | 1 | 1 | | | | | | 2 |
| Petroserv SA | | | 1 | | 1 | | | 2 |
| Primepoint Drilling PTE Ltd. | | | | 2 | | | | 2 |
| Queiroz Galvalo Oleo e Gas S.A. | | 1 | 1 | | 1 | 1 | | 4 |
| Rowan | 2 | 1 | | | | | | 3 |
| Seadrill Ltd | 3 | 6 | 1 | 1 | | 1 | | 12 |
| Sete Brasil S.A. | | 2 | 3 | 2 | 1 | | | 8 |
| Songa Offshore | 2 | 2 | | | | | | 4 |
| Songa-Opus JV | 1 | 1 | 1 | 1 | | | | 4 |
| Stena Drilling | | | 2 | | | | | 2 |
| Transocean Ltd. | | 1 | 4 | 1 | 1 | | | 7 |
| Vantage Drilling | | 1 | | | | | | 1 |
| Jackups | 25 | 59 | 31 | 7 | | | | 122 |
| Tenders | 1 | 1 | | | | | | 2 |

Source: Riglogix, Bloomberg industries, MIDF Research

V. CAPEX BY GLOBAL OIL MAJORS

- Typically, in an oilfield development, only around 15% of the capital expenditure is allocated to the chartering of marine vessels and its associated works. The large portion is allocated towards the construction and installation of offshore assets such as rigs and wells. As such, capex from international oil major is also another indicator for the OSV market. The graph below shows the planned capex by the international oil majors. Most international oil companies have been increasing capex allocation over the past five years.

Chart 2: Exploration and Production expenditure by major international oil companies



Source: Bloomberg

B. COMMON TYPES OF OSVs

I. ACCOMMODATION WORK BARGE



- Purpose** : Serves as transportation and accommodation for personnel and materials to and from worksites
- Accommodation** : Approx. 300 to 500 men
- Campaigns** : Installation, maintenance, construction engineering, recovery & salvaging, operations, hook-up & commissioning

II. ACCOMMODATION WORK BOAT



- Purpose** : Serves as transportation (self propelling) and accommodation for personnel and materials to and from worksites
- Accommodation** : Approx. 200 men
- Campaigns** : Installation, maintenance, construction engineering, recovery & salvaging, operations, hook-up & commissioning

III. ANCHOR HANDLING TUG/TOWING AND SUPPLY (AHTS)



- Purpose** : Used to handle anchors for oil rigs, towing and anchoring. AHTS can also serve as an emergency rescue vessel and for recovery purposes. In addition, AHTS can be used for transporting supplies to and from offshore drilling rigs.
- Bollard pull (BP)** : 40-250 tonnes
- Campaigns** : Installation, maintenance, construction engineering, recovery & salvaging, operations, hook-up & commissioning

IV. ANCHOR HANDLING TUG (AHT)



- Purpose** : Used to handle anchors for oil rigs, towing and anchoring
- Bollard pull (BP)** : Approx. 40 tonnes
- Campaigns** : Installation, maintenance, construction engineering, recovery & salvaging, operations, hook-up & commissioning

V. DIVING SUPPORT VESSEL (DSV)



- Purpose** : Used as a floating base for diving missions and sub-surface jobs
- Capabilities** : Typically accommodate up to 18 divers with DP2 or DP3 capabilities. Operating depth up to 300m but some with heavy lifts can support deep water jobs up to 3000m
- Campaigns** : Installation, maintenance, construction engineering, recovery & salvaging operations

VI. CREW BOAT (ALSO KNOWN AS FAST CREW BOATS AND FAST SUPPLY VESSELS)



- Purpose** : Transportation of supplies and personnel to worksite
- Speed** : Typically between 25-35 knots
- Personnel** : 12-150 men
- Campaigns** : Installation, maintenance, construction engineering, recovery & salvaging operations

VII. HEAVY LIFT BARGE



- Purpose : Generally used for transporting and handling heavy items which are too large for conventional transporters
- Cargo tonnage : 1 to >2000 tonnes
- Campaigns : Installation, construction engineering, recovery & salvaging operations, demolition

VIII. DERRICK LAY VESSEL



- Purpose : Used for pipe-laying activities, either rigid or flexible pipes.
- Operating depth : Up to 10,000ft
- Campaigns : Pipe installation, construction engineering

IX. PLATFORM SUPPLY VESSEL (PSV)



- Purpose : Specially designed to transport goods and personnel to and from offshore oil platforms.
- Dynamic positioning : Modern fleets are equipped with DP1 or DP2
- Crew : Up to 20 men
- Campaigns : Drilling, exploration & production, projects, maintenance

X. STRAIGHT SUPPLY VESSEL (SSV)



Purpose : Used for transportation of dry bulk cargo and also fluids to offshore installation. Can also be used to provide emergency rescue and evacuation support for offshore facilities, rigs and platforms. It also acts as a reserve radio station and provide on scene coordination

Campaigns : Drilling, exploration & production, projects, maintenance

XI. SEISMIC SURVEY VESSEL



Purpose : Used for seismic purposes in the high seas - mainly with the intention of locating hydrocarbon deposits. The equipment onboard is specifically designed to pinpoint the best location to drill for oil.

Campaigns : Drilling, exploration & production

C. CHALLENGES IN THE OSV INDUSTRY

I. FINANCING

- Bank's reluctance - 'catch-22 situation'. Projects in the O&G industry tend to be large in value. Clients/awarders often require a certain amount of financial guarantee or asset financing available before awarding the contract. On the other hand, financial institutions would require proof of a letter of award or a letter of intent before they are comfortable granting credit facilities to the company. As such, smaller OSV companies typically find it very difficult to participate in tendering for contracts or to be vendors for international oil companies.
- "Chicken and egg" situation. Banks often require solid track record such as project execution success rates, company earnings, cash flow, asset base etc to qualify for favourable financing rates. However, this proves disadvantageous to small companies as they often would not have good track record to qualify. Without financing, they would then not be allowed to participate in a job bid.

II. FLAGGING ISSUES

- Flag of convenience. It is common practice in the shipping industry to register a vessel in a sovereign state, different from that of the ship's owner - this is known as open registry. Among the reasons for doing so are to reduce cost of operations, reduce registry cost and to circumvent regulations in the ship owner's country. As of 2009, almost 40% of the entire world's fleet (in terms of tonnage) is registered under the Panama, Liberia and Marshall Islands flags. However, in an event that the ship is involved in a maritime case, the laws of the flag state will be adhered to.
- Criticisms involving open registry. Flags of convenience system has its shortcomings. Substandard regulations are often a pivotal reason why vessel financiers are reluctant to finance certain ships. In addition, the system enables vessel owners to be legally anonymous and difficult to prosecute in civil and criminal actions. Poor safety standards, use for terrorism, smuggling and concealed ownership and poor environmental safety awareness are often cited as problems associated with open registry system. As such, local banks are sometimes wary of financing vessels which are registered to country of different origins as they might not have sufficient legal control of the vessel in an event of a default. This would further complicate vessel owners and charterers seeking vessel financing.
- Petronas procurement policies. Oil and gas companies that are looking at exploring and producing oil and gas in Malaysia have to enter into a production sharing contract (PSC) with Petronas. Among the many requirements stipulated by Petronas, these oil and gas companies are required to maximize local Malaysian participation in terms of local human resource, facilities, raw materials and general services. As such, to achieve this national objective, oil and gas companies are required to own or to charter Malaysian registered ships under the Malaysian Shipping Ordinance 1952. However, awards will only be given to foreign registered companies only if there are no Malaysian flag vessels which are able to render the required services.

III. SAFETY ISSUES

- Risky. Operating OSVs in the high seas is a very risky job as it involves millions of Ringgit and precious human lives. OSV operations get particularly risky during periods of rough sea movements, handling and movement of heavy equipment and the movement of personnel from one platform to another. Due to the fact that OSV operations rely heavily on safety issues, work stoppages are uncommon during periods deemed to be risky such as rough seas, adverse weathers and unsafe working procedure. Work stoppages will negatively affect vessel utilization rates and would delay project completion. It is estimated that for every \$1 loss incurred directly from unforeseen circumstances (profit margin compression, penalties, loss of contract), the indirect cost is \$4 which is typically not covered by the insurance.
- Safety is pivotal. As many of the OSV operators in Malaysia are small medium enterprises, it is arguable that these SMEs do not have the financial muscle to ensure safety at the highest level, unlike larger listed operators. The argument within the OSV industry now is that SMEs tend to operate at lower cost in order to increase their chances of securing contracts from oil and gas operators. This is a blight to other larger OSV operators which generally are more incentivized to prepare larger budgets for safety. This could be achieved via training and retraining of crew, better safety equipment, safer vessels, more sophisticated onboard safety equipment etc.
- Controversial suggestions from larger OSV operators. Larger OSV operators have displayed their displeasure on the practice of awarding OSV contracts to operators with the lowest competitive bidder (technically acceptable standard). They are arguing that OSV operators that submit low bids often do so by compromising on safety practices. In addition, some OSV operators are suggesting that oil companies ensure an optimum number of OSV operators (vendors) in Malaysia in order to achieve sustainable growth. These OSV operators opine that a fewer number of OSV operators would eliminate industry cannibalization (depressing charter rates) which would affect company profitability. This idea mimics fabrication yard licenses which are only given to six approved yards which are licensed to fabricate major structures for PETRONAS.
- Overworking assets. OSV operators have expressed concerns with some clients whom are utilizing lesser vessels in their fields in a bid to reduce operation costs. This has led to vessels and crewmen being overworked and utilization of the vessels stretched. Insufficient downtime is allocated for proper vessel schedule maintenance which can affect the performance and safety of a vessel.

IV. AGE OF VESSELS EMPLOYED

- Age a pivotal deciding factor. With safety a key focus within the industry, project owners and clients are seeking younger fleet of vessels to deploy at their fields. For example, PETRONAS prefers vessels (which are largely available in Malaysian waters) to be less than 15 years old and to be Malaysian flagged. Exceptions are given to niche vessels which cannot be procured within the age threshold and place of registry. Hence, Malaysian OSV owners and operators are always on the clock to ensure that their fleet is well maintained and that old vessels are consistently replaced or upgraded to meet tight regulations imposed by clients. An example of an extensive fleet renewal program was carried out by Bumi Armada Bhd in 2006, called the 'Steel on Water 1' programme which involved 20 newbuild OSVs. The programme aims to renew its older, lower-end and lower-tonnage vessels. In May 2012, the company then embarked on the 'Steel on Water 2' programme to focus on greener, leaner fleet to comply with clients' requirement on utilizing more energy efficient vessels.

Table 4: Notable Malaysian-based OSV operators

| Company | Total | AHT/ AHTS | Workbarge/ Workboat | Others (ie. crewboats, PSV, SSV etc) | Avg age (years) | Avg AHT/ AHTS power (bhp) | Avg crewboats, SSV, PSV etc power (bhp) |
|-----------------------------|-------|--------------|------------------------|---|-----------------------|------------------------------------|--|
| Perdana Petroleum | 15 | 8 | 7 | - | 6.6 | 9,635 | - |
| Perisai Petroleum Teknologi | 9 | 5 | 1 | 3 | 9.2 | 7,796 | 3,670 |
| Jasa Merin | 18 | 16 | - | 2 | 4 | 7,026 | 4,640 |
| Bumi Armada | 45 | 19 | 1 | 25 | 6.5 | 5,116 | 3,300 |
| Alam Maritim | 46 | 20 | 6 | 20 | 7 | 6,950 | 1,520 |
| ICON Offshore | 29 | 24 | - | 5 | 5 | 5,271 | 2,020 |

Source: Company website, MIDFR

- The race for younger fleet. We are already seeing the trend to own a younger fleet of vessels and to have more technologically advanced vessels. At the minimum, most OSVs now have class 1 dynamic positioning (DP1) systems, although most are already equipped with DP2. Smaller OSV companies are finding it increasingly tough to compete with larger OSV operators who have younger and more advanced fleets.

V. DEEPWATER CAPABILITY

- Most Malaysia flagged/owned vessels are more suited to shallow water fields. From the table above, we note that almost all (except Perdana Petroleum) Malaysian OSV operators own AHT/AHTS with an average brake horsepower of less than 8,000bhp. This makes these vessels uncompetitive as the more dominant vessels now have power in excess of 10,000bhp with strong winch power greater than 250 tonnes. In addition, as Malaysia moves towards deeper and harsher fields, the OSVs utilized would require larger workspace and hulls (more cargo space, workspace and crew capacity), faster speeds, stronger winches for larger anchors retrieval and deployment.

D. Key catalysts for the Malaysian OSV industry

I. AGING FLEET

- The average OSV age in South East Asia is approximately 11.2 years old. In comparison with its regional peers, Malaysian OSVs have an average age of only 6.4 years old - The owner of the youngest fleet is Jasa Merin while the owner with the oldest fleet is Perisai Petroleum. This provides sufficient avenue and opportunity to local OSV operators as the vessel age is well below the maximum age ceiling set by PETRONAS (which happens to be a key client for most local OSV operators) and a younger fleet would allow local OSV operators to have a competitive edge over other regional players.

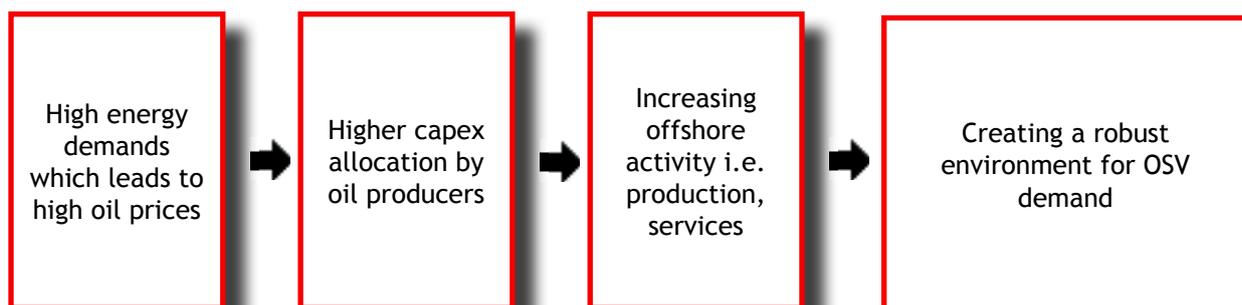
II. DEEPWATER REQUIREMENTS - EQUIPMENT

- As PETRONAS has reiterated many times over the past many years, Malaysia needs to move into deeper waters in search for fresh oil deposits to sustain the country's oil production levels. In 2013 and early in 2014, the average Malaysian crude oil production is below 600kbpd. To increase it to levels above 600kbpd like what we saw during the past decade, new fields need to be worked on besides conducting enhance oil recoveries and mop-up efforts on existing shallow water fields. As such, deep water fields such as the Gumusut-Kakap field (expected 135kbpd), Kikeh field (120kbpd) and Malikai field (60kbpd) were developed. This provides an opportunity for local OSV companies to upgrade its fleet to larger capacity and more powerful vessels to cater for deepwater ventures. Although certain business decisions would not be profitable such as investing in powerful deepwater vessels (limited demand in Malaysia), local companies could form alliances with international OSV operators to circumvent the cabotage policy and to meet demands for such high powered vessels. A recent example would be Tanjung Offshore's proposal to acquire OSVs from a few regional parties including the largest global OSV operator Bourbon S.A. In the sale and purchase agreement, Tanjung Offshore would have access to Bourbon S.A's fleet of 485 OSVs. This will definitely put Tanjung Offshore in a competitive position to meet high powered specialized vessels which other local operator do not currently own.

III. SUSTAINED OIL PRICES

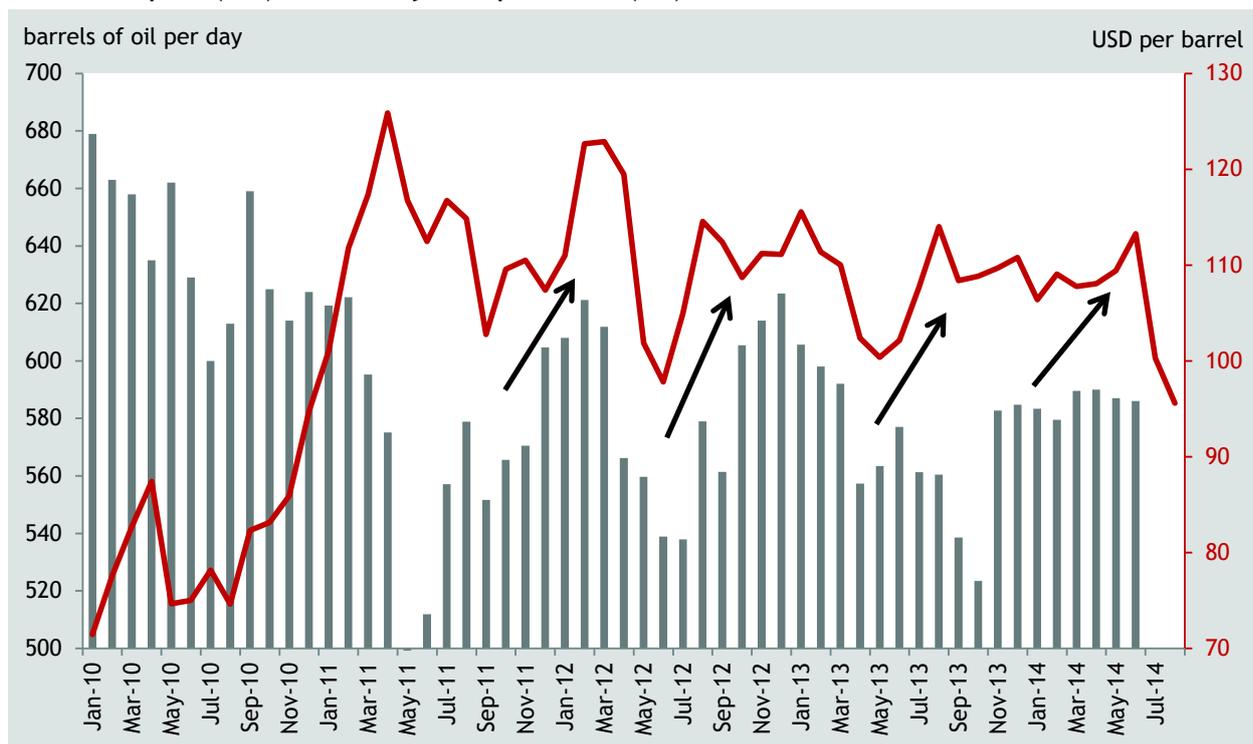
- Rise in oil price is another catalyst for the demand of OSVs. As oil prices rise, and is expected to continue to do so in the foreseeable future, oil producers would be more incentivize to allocate higher capital expenditure to increase production capacity. This would include the utilization of more OSVs. As of time of writing, in 2014, the West Texas Intermediate reached a high of USD107.26pb compared with the year's opening price of USD98.12pb. This represents an increase of over 9%. The year-to-date average price is USD100.79pb, compared with 2013's average of USD98.02pb.

Figure 1: Connection between OSV and oil prices



Source: MIDFR

Chart 3: Oil price (line) versus Malaysia oil production (bar)



Source: Bank Negara Malaysia, Bloomberg

Table 5: SEA Vessel Operator Overview

| Company | No. of AHTS and PSV/SSV | Total Avg Age | Total Market Share | AHTS | | | | | PSV/SSV | | | |
|--------------|-------------------------|---------------|--------------------|-------------|--------------|---------|---------|----------------|--------------|---------|---------|--|
| | | | | No. of AHTS | Market share | Avg BHP | Avg Age | No. of PSV/SSV | Market share | Avg DWT | Avg Age | |
| Ezra | 28 | 6.3 | 5% | 24 | 8% | 8,435 | 6.6 | 4 | 2% | 2,600 | 4.3 | |
| ICON | 25 | 4.9 | 5% | 20 | 6% | 5,443 | 4.6 | 5 | 2% | 2,020 | 6.2 | |
| Alam Maritim | 22 | 6.7 | 4% | 13 | 4% | 4,746 | 5.6 | 9 | 4% | 751 | 8.5 | |
| Jasa Merin | 18 | 4.6 | 4% | 15 | 5% | 7,521 | 4.0 | 3 | 1% | 1,610 | 7.5 | |
| Bumi Armada | 17 | 8.1 | 3% | 7 | 2% | 6,649 | 9.8 | 10 | 5% | 1,876 | 6.9 | |
| Gulf Marin | 16 | 10.4 | 3% | 12 | 4% | 8,935 | 8.3 | 4 | 2% | 2,214 | 16.5 | |
| Jaya | 13 | 3.5 | 3% | 11 | 4% | 6,835 | 4.0 | 2 | 1% | 5,344 | 0.5 | |
| POSH | 10 | 2.3 | 2% | 9 | 3% | 12,916 | 2.5 | 1 | 0% | 3,200 | 0.5 | |
| CHO | 9 | 8.1 | 2% | 9 | 3% | 8,268 | 8.1 | | | | | |
| Perdana | 8 | 5.1 | 2% | 8 | 3% | 9,635 | 5.1 | | | | | |
| Miclyn | 5 | 3.4 | 1% | 3 | 1% | 7,297 | 5.0 | 2 | 1% | 2,000 | 1 | |
| P. Radiance | 3 | 1.5 | 1% | 3 | 1% | 6,166 | 1.5 | | | | | |
| Perisai | 2 | 9.5 | 0% | 2 | 1% | 11,000 | 9.5 | | | | | |
| Others | 336 | 13.9 | 66% | 172 | 56% | 6,458 | 8.6 | 164 | 80% | 1,511 | 19 | |
| Industry | 512 | 11.2 | 100% | 308 | 100% | 6,999 | 7.3 | 204 | 100% | 1,595 | 17 | |

Source: Infield systems, MIDFR

E. HUMAN CAPITAL IN THE MALAYSIAN OSV INDUSTRY

I. CHALLENGES

- Human capital in the OSV industry has proven to be one of the key challenges faced by both operators and clients. As the nature of work aboard these vessels requires certain skills and technical know-hows, coupled with a certain number of years of experience, operators are finding it increasingly difficult to obtain qualified key personnel in working on board these vessels. Currently, operators are increasingly utilizing the services of many foreign workers, ship captains and crewmen to fill in the gaps not taken-up by locals. Malaysia has a workforce of over ten million, out of which the top 30% are professionals while the rest are operational workers. Out of these, approximately three to four million workers are foreigners. Malaysia is currently ranked 11th among 170 countries which has the highest number of foreign workers. On a yearly basis, this has caused Malaysia to pay more than USD6.5b in wages, which represents capital outflow from the country.
- One of the pivotal reasons, as concurred by many OSV operators on the employment of foreign captains is the lack of experience by local captains. However, having said that, there are not many foreign captains who have specific skillsets in piloting OSVs, and in particular the different types of OSVs. PETRONAS, being the client, also has certain requirements indicating that captains and crew members working on its platforms to possess certain number of years of experience. As of now, there is no standardized form of qualification or recognition for workers in the OSV industry. In addition, due to the lack of proper qualifications and training, many common accidents which happen offshore could be avoided if OSV workers are properly trained and certified.
- The aim moving forward is to reduce the number of foreigners employed in this segment and to train more local skilled-workers. Our Deputy Minister of International Trade and Industry, Datuk Mukhriz Tun Mahathir stressed that Malaysia needs to continue producing more skilled workers in the oil and gas sector. The honourable Minister noted that training and development is important in the oil and gas sector as the country would need more than 40,000 skilled workers by 2015.

II. HUMAN CAPITAL DEVELOPMENT INITIATIVES UNDERTAKEN BY GOVERNMENT AGENCIES

- The Department of Skills Development (Jabatan Pembangunan Kemahiran), under the Ministry of Human Resources, has taken upon itself the herculean task of developing a nationwide standard called the National Occupational Skills Standard (NOSS) for Offshore Support Vessels Operations. At this point in time, there are no standardized skills training standards for OSV operations in Malaysia. With the development of this standard, training centers can be established (as initiated by Icon Offshore Berhad) providing training, certification, assessments and on-going improvement courses. This standard will also enable employers (OSV operators) and clients (PETRONAS, ExxonMobil, Shell, etc) to assess and evaluate crewmen, to prepare in-depth job descriptions, to assist in career development and planning and also to standardize wages. With this national standard in place, skilled workers who have substantial years of working experience can also be certified under the 'Recognition of Prior Achievement' standard which bridges gaps in competency. This will significantly boost the employability of a skilled workers. This national standard aims to encourage more locals to be certified for the OSV industry which would help reduce the number of foreign nationals in this industry.

Table 6: Competency levels under NOSS

| Levels | Definition of levels |
|---------|--|
| Level 1 | Competent in performing a range of varied work activities, most of which are routine and predictable |
| Level 2 | Competent in performing a significant range of varied work activities, performed in a variety of context. Some of the activity are non-routine and required individual responsibility and autonomy |
| Level 3 | Competent in performing a broad range of varied work activities, performed in a variety of context, most of which are complex and non-routine. There is considerable responsibility and autonomy and control or guidance of others is often required |
| Level 4 | Competent in performing a broad range of complex technical or professional work activities performed in a wide variety of context and with a substantial degree of personnel responsibility and autonomy. Responsible for the work of others and allocation of resources is often present |
| Level 5 | Competent in applying a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of context. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources feature strongly, as do personal accountabilities for analysis and diagnosis, design, planning, execution and evaluation |

Source: Jabatan Pembangunan Kemahiran

Table 7: Proposed Occupational Structure for Offshore Support Vessel Operations

| | | |
|--------------|------------------------------------|---------------|
| Sector | Oil and Gas | |
| Sub-sector | Offshore Support Services | |
| Level / Area | Offshore Support Vessel operations | |
| Level 5 | Master | |
| Level 4 | Chief Mate | |
| Level 3 | Junior Officer & Engineer | Petty Officer |
| Level 2 | Able bodied seaman (AB) | |
| Level 1 | -nil- | |

Source: Jabatan Pembangunan Kemahiran

- Apart from national standardized certification, there are Government agencies which have allocated funds and grants catered for training and development initiatives of skilled workers. These Government agencies are:
 - Perbadanan Tabung Pembangunan Kemahiran (PTPK). Set up under the purview of the Ministry of Human Resources, PTPK aims to provide skills training loans to school-leavers, public and private skills training institutes registered with PTPK. For individual applicants, PTPK provides loans ranging from RM2,500 to RM24,000 and for employers, PTPK provides loans ranging from RM750 to RM24,000.
 - Human Resource Development Fund (HRDF). Another fund administered under Pembangunan Sumber Manusia Bhd (PSMB), an agency under the Ministry of Human Resources is the HRDF which serves to promote and stimulate manpower training. Employers registered and/or incorporated in Malaysia who have registered with PSMB and pay the Human Resource Development (HRD) levy immediately upon registration are eligible to apply for training grants (financial assistance) to defray all or a major portion of the “allowable costs” of training their employees. Training must be in the area of direct benefit to their business operations.

III. OTHER INITIATIVES BY GOVERNMENT AGENCIES

- Various agencies have been very aggressive in trying to promote the Malaysian maritime industry. This industry includes ship owners, ship managers, port owners, port operators, seafarers and shippers. The aim of these initiatives and incentives given is to enhance Malaysia’s competitiveness against established maritime countries such as Singapore and South Korea.
- Labuan Financial Services Authority (Labuan FSA). Labuan Financial Services Authority (Labuan FSA) was established on 15 February 1996 under the Labuan Financial Services Authority Act 1996. Labuan FSA is the statutory body responsible for the development and administration of the Labuan International Business and Financial Centre (Labuan IBFC). Labuan FSA was established with the following objectives: (i) to promote and develop Labuan as an international center for business and financial services; (ii) to develop national objectives, policies and priorities for the orderly development and administration of the international business and financial services in Labuan; and (iii) to act as the central regulatory, supervisory and enforcement authority of the international business and financial services industry in Labuan.
- Malaysia International Ship Registry (MISR). Under the Labuan IBFC, the MISR is a body set up for the registering of international ships. The MISR has been established to encourage individual and foreign shipping companies to register their ships in Malaysia without having to comply with the requirement of Malaysian majority shareholder. Under the ship registry, foreigners are allowed to hold 100% equity in line with the government’s effort to encourage foreign investments in the country. With the registration of international ships, it would help to increase the ships registry capacity and to be able to handle the country’s transportation trade. The port of registry for Malaysia International Ship (MIS) is Labuan. The eligibility of a ship to be registered as a MIS is in Table 8.
- Other agencies such as the Malaysian Investment Development Authority (MIDA) and the Economic Planning Unit (EPU) are also very supportive in the effort of developing Malaysia’s OSV industry. For example, extracted from MIDA’s website - it is stated that the income of a shipping company derived from the operation of Malaysian ships is 70% exempted from tax from Year of Assessment 2012. This incentive only applies to residents. A “Malaysian Ship” is defined as a sea-going ship registered under

Table 8: Eligibility for registration in MISR

| | |
|--------------------------|---|
| Ship owner eligibility | <ul style="list-style-type: none"> • Company is incorporated in Malaysia; • An office of the corporation is established in Malaysia; and • The majority of the shareholding, including voting shares, of the corporation are not held by Malaysian citizens. |
| Ship manager eligibility | <ul style="list-style-type: none"> • A Malaysian citizen having his permanent residence in Malaysia; or • A company incorporated in Malaysia and having its principal place of business in Malaysia. |

Source: Labuan FSA

the Merchant Shipping Ordinance 1952 (Amended), other than a ferry, barge, tugboat, supply vessel, crew boat, lighter, dredger, fishing boat or other similar vessels.

- In addition, MIDA noted that the income of any person derived from exercising an employment on board a “Malaysian Ship” is exempted from tax. Income received by non-residents from the rental of ISO containers to Malaysian shipping companies is also exempted from income tax.

Table 9: Incentives for shipping activities

| Shipowners | |
|--|--|
| Blanket tax exemption for revenues earned from shipping activities | Statutory income of shipping companies derived from transporting cargoes and passengers using sea-going Malaysian-flagged merchant ships are exempted from tax, as is any dividend paid out of such an account. In this respect, the Merchant Shipping Ordinance (MSO) 1952 defines “Malaysian ship” as a seagoing ship registered as such under other than ferry, barge, tug boat, supply vessel, crew boat, lighter, dredger, fishing boat or other similar vessels. |
| Exemption on import duty and surtax for ships | Provided to vessels above 4,000 Gross register tonnage (GRT). An import duty is imposed on Malaysian-registered ships above 26 GRT but less than 4,000 GRT. A 30% import duty was imposed on vessels less than 26 GRT, but this was reduced to 25% from October 1995. |
| Capital allowance on merchant ships | An initial first year capital allowance of 40% comprising an initial allowance of 20% and annual allowance of 20% and thereafter. |
| Accelerated depreciation on merchant ships | Accelerated depreciation on ships with an initial first year capital allowance of 20% and a further special allowance of 6-10%. |
| Creation of Shipping Fund | Managed by Bank Pembangunan, the fund is for local shipping companies to finance the purchase of vessels and as venture capital for equity participation in local shipping companies. |
| Seafarers | |
| Full tax exemption on seafarer’s wages | Income gained by any person derived from working onboard a Malaysian registered ship is exempted from tax. |

Source: Adapted from MASA (2011), EPU (2010), and MOF (2010)

- There is a research paper by the Maritime Institute of Malaysia (MIMA), written by Nazery Khalid, Margaret Ang and Elvia Cory Abu Hasan stating suggestions and recommendations to further improve the shipping sector in Malaysia. Their suggestions are summarized in Table 10.



Table 10: Proposed incentives for merchant shipping

| Current incentives | Recommendation | Justification |
|--|--|---|
| Malaysian companies operating national flag 'ships', as defined by MSO 1952, qualify for blanket tax exemption on income derived from approved activities using those ships under Section 54A of Income Tax Act. | Include tugboats, anchor handlers and various other types of OSVs under Section 54A of Income Tax Act. | Include tugboats, anchor handlers and various other types of OSVs under Section 54A of Income Tax Act. when such vessels were not in existence. |
| Not known if there are any incentives offered for human capital development in the shipping sector | Introduce tax deduction for companies supporting higher education, promoting human resource development and providing maritime education and training. | As ships and shipping operations get more sophisticated, there is a need to develop human capital in the industry which can match this. Only with skilled manpower can Malaysia's shipping industry move up the value chain and become internationally competitive. |
| Integrated tax incentives for shipping sector is not available | Introduce an integrated tax incentive plan which may include tax incentives in ship financing, ship management, training and development, shipbuilding and ship repairing, and offshore shipping for the merchant shipping sector. | Attractive and wholesome tax incentive package for all the sector players will lure them into participating and investing in Malaysia. |

Source: Maritime Institute of Malaysia (MIMA), MIDFR

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