

Bulking Installations in Malaysia: Their Issues and Challenges Relating to the Palm Oil Industry

Ali Zulhusni Ali Nordin*
and Aimi Shahirah Mohd
Fadzil*

ABSTRACT

Bulking installations are facilities for the storage of crude and refined palm oils in port tanks until they are ready to be piped directly into the tankers which berth at nearby jetties in the port. This study covers six regions, namely, the southern region, central region, northern region, east coast region as well as Sabah and Sarawak. The purpose of the article is to provide information regarding the export trends of bulking installation facilities in Malaysia. The method used in the study is face-to-face interviews and a survey to determine the issues and challenges faced by the various bulking installation facilities. The major issues and challenges faced during the handling of transshipment cargo were determined from all the interviews and field visits undertaken, especially in the northern region. It was found that different issues and challenges were faced by the operators of bulking installation facilities in the different regions.

Keywords: bulking installation facilities, palm oil logistics, palm oil.

INTRODUCTION

Business operations in the globalisation era seem to have a total absence of boundaries. Producers sell their products almost anywhere in the world through the adoption of advanced technologies in logistics and transportation. Among the different means of transport, ocean shipping stands out as the most energy-efficient mode of

long-distance transport for large quantities of goods (Rodrigue *et al.*, 2006). This factor is also reflected in the decision of palm oil producers in choosing the method to export their products.

The largest volume of traded vegetable oil is that of palm oil, which accounts for about 59.4% of all exports, while the second largest is soyabean oil, followed by sunflower oil. If palm kernel oil is taken into account, the total

* Malaysian Palm Oil Board,
6 Persiaran Institusi,
Bandar Baru Bangi,
43000 Kajang, Selangor, Malaysia.
E-mail: alizulhimi@mpob.gov.my

exports of palm products stands at an astonishingly 64% share of total oils exported.

Currently, Indonesia and Malaysia are the two largest palm oil producers and exporters. Malaysia exported 17.30 million tonnes of palm oil in 2014, while Indonesia exported 22.08 million tonnes (MPOB, 2014). Towards this end, both ports and bulking facilities are among the most important infrastructure in maintaining effective export linkages for the Malaysian palm oil industry in world trade (Choo and Mohamad, 2009).

Bulk cargo is defined as unsegregated mass commodities, including, without limitation, items such as petroleum products, coal and bulk salt, which are carried in loose form and which are customarily loaded and unloaded by pumping, shovelling, scooping or other similar means (Massachusetts Department of Revenue, 2009). In addition, the American Association of Port Authorities (2010) considers bulk cargo to be loose cargo (dry or liquid) that is loaded (shovelled, scooped, forked, mechanically conveyed or pumped) in volume directly into a ship's hold; examples are grain, coal and oil.

The facilities to accommodate the commodities categorised under liquid bulking and dry bulking are different due to the differences of their natural form. Liquid forms of bulk cargo are measured by weight or volume (primarily in tonnes). Commodities like crude oil, gasoline and miscellaneous chemicals are common liquid bulk cargoes (Port of Long Beach, 2010). Almost all palm products such as crude palm oil (CPO), crude palm kernel oil (CPKO), refined, bleached and deodorised (RBD) palm oil, and refined, bleached, deodorised and hydrogenated (RBDH) palm kernel olein are

exported through liquid bulking facilities.

Meanwhile, dry bulk is defined as minerals or grains stored in loose piles moving without mark or count. Examples are potash, industrial sand, wheat, soyabean and peanut/groundnut (American Association of Port Authorities, 2010). The most common palm product that is exported in the form of dry bulk is palm kernel cake which is used as animal feed.

This means that in the palm oil marketing business, both liquid and dry bulk cargo terminals are required at the port to facilitate exports. However, both of the biggest products of the industry, *i.e.* CPO and CPKO, need to be stored in liquid tanks before they can be exported. Thus, the need for bulking installation is all the more important compared with dry bulk facilities. Almost 80% of all the palm products are exported in bulk compared with the non-bulk export method.

Storage tanks are essential at the bulking installation complex. They are rented out at certain rental rates. In Malaysia, there are two types of rental charges, *i.e.* long-term rate and spot rate. Long-term rates in turn comprise two types of charges: the facilities are leased out at a specific capacity of the bulking installation facilities. The client will then be guaranteed of available tank space as per agreed space, as well as having to pay a certain amount of monthly charge.

As for the spot rate, the clients are not required to pay monthly charges on the capacity that they wish to load into the tank facilities. However, they have no guarantee of the availability of storage capacity at the bulking installations. Another fee is the throughput charge that will be imposed when the products are loaded into the tank facilities. This charge applies to both long-term and spot rates. The difference is

that throughput charges for the spot rate will be higher than for the long-term rate.

Currently, there are 38 bulking installations in Malaysia catering for the storage of all palm oil products, with a total combined capacity of 1.7 million tonnes. These bulking installations received and handled 12.8 million tonnes of all types of palm products in 2014 (MPOB, 2014). This translates to the 2014 turnover for oils in the bulking installations at 7.7 times annually. In the perspective of bulking installation owners, tank operators prefer a higher turnover for their tanks rather than the tanks being used as a storage place for a long period of time. Therefore, a study is needed to further understand the nature of the business relating to palm oil bulking installation facilities.

The objective of the study is to provide information regarding the export trends from bulking installation tank facilities in Malaysia. The information will help to increase the efficiency in handling palm products exported through these bulking facilities. The study also explored the issues and challenges faced by the Malaysian bulking installation facilities.

METHODOLOGY

Face-to-face interviews and survey-based methodology were used in the study to determine the issues and challenges faced by the various bulking installation facilities. A sample questionnaire was discussed with the operators of the bulking installation facilities to obtain information on port rental charges and issues faced by them.

Six regions were covered in the face-to-face interviews: southern region (Johor), central region (Klang), northern region (Butterworth), east coast region (Kuantan) as well as Sabah (Lahad

Datu, Sandakan, Tawau, Kunak) and Sarawak (Bintulu).

Information on the draft of each port was collected. The draft of a ship is the vertical distance between the waterline and the bottom of the hull (keel), with the thickness of the hull included. Draft determines the minimum depth of water through which a ship or boat can safely navigate.

RESULTS AND DISCUSSION

The results of the face-to-face interviews revealed various issues and challenges faced by the port bulking installations facilities. Surprisingly, the bulking installation facilities of each region faced different issues and problems.

The distribution of the port bulking installation facilities (Figure 1) are as follows:

Regions in Peninsular Malaysia:

- Northern (Dermaga Air Dalam in Pulau Pinang)
- Central (Northport, Westport, Southport in Klang)
- Southern (Pasir Gudang)
- East coast (Kuantan)

Regions in East Malaysia:

- Sabah (Lahad Datu, Sandakan, Tawau, Kunak)
- Sarawak (Bintulu, Kuching)

Northern Region

There are five operators of the bulking installation facilities in the northern region, which are



Source: MPOB (2014).

Figure 1. Distribution of bulking installation facilities in Malaysia.

located at the port of Butterworth. The authorised installed capacity in the region is 141 390 t. There are three bays available in the Butterworth Port that provide berth area for the vegetable oil barges/vessels to load and unload their cargo; these are Tanker Pier (8 Meter Draft), W1 (10 m draft) and W2 (10 m draft) (Figures 2 and 3).

The issues that were raised by the operators of the bulking installation facilities in the northern region relate to permission from the relevant authorities for transshipment cargo handling. Transshipment is the shipment of goods or containers to an intermediate destination, and thence to yet another destination. Without permission for transshipment, the bulking installation facilities cannot fully utilise their facilities. The development of new refineries and kernel crushers was considered stagnant in the northern region, mainly due to the lack of land available for future development. Even for the bulking installation facilities, they were all operating above the sea level (Figure 3). This has resulted in higher maintenance costs for all these bulking installation facilities in the

Butterworth Port. They also faced a higher possibility of contamination by seawater if there was a leak in their pipeline facilities.

Central Region

In the central region, there are altogether 12 operators of the bulking installation facilities. However, they are located in three different ports, namely: Northport (Figure 4), Southport (Figure 5) and Westport (Figure 6). The authorised installed capacity in the region is 341 330 t. There are two bays available in Southport that provide berth area for the vegetable oil barges/vessels to load and unload their cargo, namely, Wharf No. 1 (8.5 m draft) and Wharf No. 2 (8.5 m draft).

Among all the issues, the main one that needs urgent attention is that concerning Southport. Both the survey and face-to-face interviews showed that bulking installation facilities operators in Southport were concerned about the future of their facilities.

Southport bulking installation facilities can be considered as one of the oldest in Malaysia. These facilities have been serving clients



Source: Google Earth (5 August 2015).

Figure 2. Satellite picture of bulking installation facilities in Butterworth Port, Pulau Pinang.



Figure 3. Bulking installation facilities in Butterworth Port, Pulau Pinang.



Source: Google Earth (5 August 2015).

Figure 4. Satellite picture of bulking installation facilities in Northport, Klang, Selangor.

since 1960. A problem of siltation at the jetty terminal has resulted in lower draft. As a consequence, it is now impossible for bigger ships to berth at the jetty with low draft. This will reduce the competitiveness of the bulking installation facilities at Southport in terms of efficiency in handling cargo and also the longer time taken to discharge the oil. The longer time is due to the fact that a large shipment needs to be loaded into several smaller vessels to gain access to the port, and the corresponding transportation costs may increase when such a system is applied.

The biggest concern raised by the operators of bulking installation facilities in Southport is the plan by the Port Klang Authorities to convert the area into a commercial centre. If the plan is approved and executed, it will affect the capacities for handling oil in Port Klang as Southport alone has 150 000 t of tank capacity.

Southern Region

In the southern region of Malaysia, almost 100% of the bulking installation facilities are located in Pasir Gudang, Johor (Figure 7). This port is also home to Felda Johore Bulkers Sdn Bhd (FJB), Johor, the largest vegetable oil bulking installation facilities in the world in terms of maximum capacity.

The interview with the bulking facilities operators in the southern region revealed that the main challenge they faced is competition from the East Malaysia regions. On average, the capacities of the tanks are underutilised. Restrictions set by the port authority and also federal government intervention that prohibits the bulking installation facilities from accommodating the transshipment of oil from overseas further restrict their scope of business. The study also found that



Figure 5. Satellite picture of bulking installation facilities in Westport, Klang, Selangor.



Source: Google Earth (5 August 2015).

Figure 6. Satellite picture of bulking installation facilities in Southport, Klang, Selangor.



Source: Google Earth (5 August 2015).

Figure 7. Satellite picture of bulking installation facilities in Pasir Gudang Port, Johor.

there has been a drastic decrease in the amount of oleochemicals handled by the bulking installation facilities in the southern region.

East Coast Region

In the east coast region, there are three operators of the bulking installation facilities, which are located in the port of Kuantan (Figure 8). The authorised installed capacity in this region is 225 130 t. There is only one bay available in Kuantan Port that provides berth area for vegetable oil barges/vessels to load and unload their cargo, namely, Palm Oil Berth No.3 (11.3 m draft).

The face-to-face interviews with operators of the Kuantan Port bulking installation facilities revealed two issues pertaining to the region. The high cost of heating oil arising from there being no direct LNG pipeline provided by the port authority is the main issue raised by the bulking installation facilities operators. This makes the cost of heating the tank is higher as they have to use industrial-grade heavy oil as feedstock for the boiler. Another issue raised by the operators is the short-term of the land lease (21 years) that hinder the facilities from further expansion of their fixed assets.

Sabah Region

The Sabah region is one of the regions that has bulking installation facilities operating in more than two ports. There are altogether four ports that offer bulking installation facilities, namely, at Lahad Datu, Sandakan, Tawau and Kunak.

The total number of bulking installation facilities operating in Sabah is eight with a total authorised installed capacity of 309 943 t. The port of Kunak offers the best berth jetty for palm oil. There are three bays available in this port that provides berth



Source: Google Earth (5 August 2015).

Figure 8. Satellite picture of bulking installation facilities in Kuantan Port, Pahang.

area for the vegetable oil barges/vessels to load and unload their cargo. These are Dermaga 1 (18 m draft), Dermaga 2 (18 m draft) and Dermaga 3 (10 m draft).

The face-to-face interviews with the operators of the various port bulking installation facilities in Sabah revealed four issues pertaining to the region. The first issue relates to the low draft situation at the jetty at Tawau and Lahad Datu (less than 10 m). Lower draft prevents bigger ships from berthing at the jetty. This reduces the competitiveness of the bulking installation facilities in Sabah in terms of efficiency in handling cargo and also the longer time taken to discharge the oil.

The second issue is that the Sandakan Port area has low draft at the port entrance bay (7.1 m only) while the jetty has a 12-m draft. In this case, the vessel that can only load a small quantity of oil at the port to make sure that it has a safe draft level to navigate safely out from the jetty.

The third issue is at the Tawau Port. The bulking installation facilities operator in Tawau complained that there are not

enough berth bays at the jetty. This results in delays in the oil shipment, thus decreasing the efficiency of the port to export palm oil products.

The fourth issue is a problem of oil siphoning in Sabah. This is a problem that has still not been resolved, while the hijacking of oil tankers is among the concerns raised by the installation owners.

Sarawak Region

In the Sarawak region, there are two ports that have bulking installation facilities, namely, in Kuching and Bintulu. The authorised installed capacity in the region is 115 100 t. In Bintulu, the average draft level available for barges/vessels to berth is 14 m.

The face-to-face interview with operators of the port bulking installation facilities in Bintulu revealed one major issue pertaining to the region. In Bintulu, the distance between the bulking installation facilities and the nearest refinery is nearly 1.5 km. The refinery claimed that this is considered the longest pipeline in Malaysia. The negative effect

on the refinery is that such a long pipeline to the tank facilities results in higher maintenance, cleaning and also handling costs.

AVERAGE PORT CHARGES

Based on data from the questionnaires distributed to the operators of the bulking installation facilities, different types of oil are charged a different rate. The average port charges in Malaysia are shown in *Table 1*.

Other charges include the following:

- custom attendance charges at RM 50 per shift (8 hr/shift) during import and export;
- tank cleaning, if needed, at RM 1/t multiplied by tank size;
- pumping to/from ships after five days; for each day's delay, heating charges at RM 500 per day;
- heating charges at RM 3/t; and
- pipeline charges at RM 3/t.

Different regions may have higher or lower charges. The charges stated *Table 1* are averages of the charges in all the regions in Malaysia.

CONCLUSION

From all the interviews and field visits undertaken, the one common issue confronted by the bulking installation facilities in all regions is that of handling transshipment cargo. Almost all the operators of the bulking installation facilities had requested that the federal government allow the operator to handle transshipment cargo, which can be another source of revenue to these operators, and also to counter the issue of underutilisation of tanks faced by the bulking installation facilities in the southern, central and northern regions. The study

TABLE 1. MALAYSIA AVERAGE PORT CHARGES

Type of oil	Long-term rate (RM)		Spot rate (RM)
	Tank rental (per month)	Throughput (per tonne)	Throughput (per tonne)
Crude palm oil	4.25	7.2	12.55
Processed palm oil	4.4	6.87	11.25
Crude palm kernel oil	3.75	5.64	10.75
Processed palm kernel oil	4.5	6.2	13.33
Palm fatty acids distillate	6	17.42	24.38
Glycerine	10.67	19.00	35.33

also found that the operator of each bulking installation in the different regions faced different issues from one another. However, most of the issues fall outside the jurisdiction of MPOB to intervene, such as the tenure of land lease tenure and dredging of the port.

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