

GLOBAL TANK STORAGE ASSETS

The Power of Market Intelligence

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[TANKTERMINALS.com](https://www.tankterminals.com)



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About us

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Chapter 1: In which region is capacity per terminal the highest?

1.0 Introduction

All over the world, independent tank storage companies support market players with storage of their liquid bulk products. These tank storage companies help companies that have downstream obligations with storing products, or support trading companies that are seizing (arbitrage) opportunities. They also support governments and oil companies with building their strategic reserves. Tank terminals have an important, if not a primary function, in the energy and chemical value chain.

1.1 Terminals per region

At the time of writing, the TankTerminals.com database consisted of 6,640 tank terminals across all geographical regions. These regions include Africa, Asia, Europe, Middle East, Oceania, North America, Central America and South America, and the number of tank terminals differ greatly according to geographical region. Table 1 shows the number of terminals per geographical region.

Table 1: terminals per region

Geographical region	#of terminals	#of tanks	Market share
Africa	441	5,845	4%
Asia	1,595	35,674	33%
Europe	1,435	34,435	19%
Middle East	196	3,832	6%
Oceania	124	1,919	0%
North America	2,031	35,647	31%
Central America	264	4,523	3%
South America	554	8,819	3%

As is indicated by Table 1, most terminals are located in North America (2,031), followed by Asia (1,595) and Europe (1,435). Regions with fewer terminals include South America (554), Africa (441), Central America (264), Middle East (196) and Oceania (124).

An analysis of tank storage capacity per region and per terminal shows some clear distinctions between regions and can be found in Table 2.

Table 2: capacity per region and per terminal

Geographical region	Total capacity	Market share	# tanks/terminal	av. Cap. / terminal (m ³)
Africa	55,0127	4%	4%	4%
Asia	437,323,779	33%	33%	33%
Europe	256,189,038	19%	19%	19%
Middle East	79,725,010	6%	6%	6%
Oceania	6,113,821	0%	0%	0%
North America	412,841,044	31%	31%	31%
Central America	39,164,978	3%	3%	3%
South America	35,192,311	3%	3%	3%

Table 2 shows that most storage capacity can currently be found in Asia (437,324 kcbm, 33% market share), followed by North America (412,841 kcbm, 31% market share) and Europe (256,489 kcbm, 19% market share). The top three regions have exchanged positions in some places since our last publication, though Asia still retains the highest amount of tank storage capacity.

1.2 Tanks per terminal and average capacity

When Table 1 and Table 2 are combined, the following graphs can be generated. Figure 1 shows tanks per terminal per region and Figure 2 shows the average capacity per region.

Figure 1 Tanks per Terminal

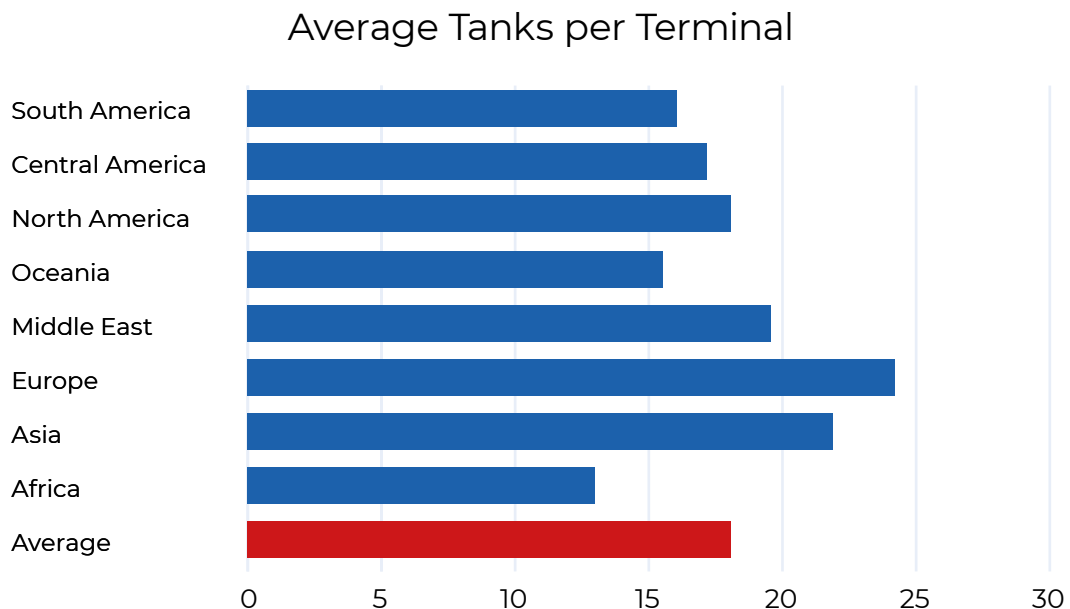


Figure 1 shows that Europe has the most tanks per terminal with 24 on average, followed by Asia with 22 tanks per terminal. The average number of tanks per terminal across all regions is 18 tanks. The Middle East has 20 tanks per site and Oceania has 15 tanks per terminal and are around the average size per site. Smaller terminal sites (below average) are located in the Americas and Africa.

Figure 2 Average capacity per region

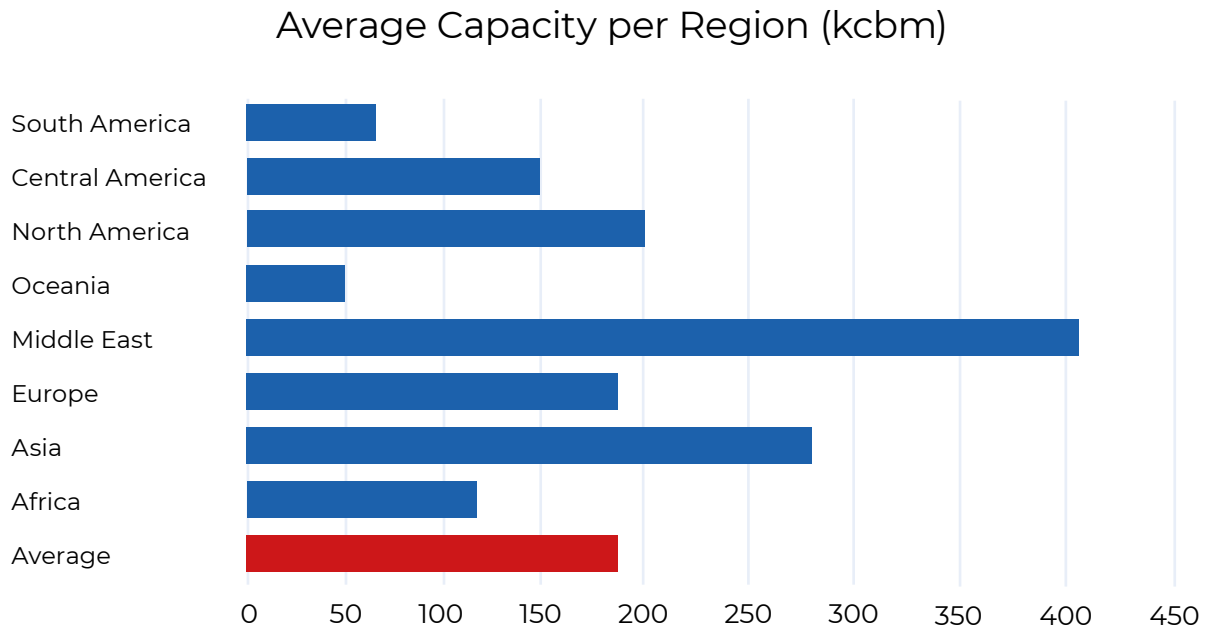


Figure 2 shows that the Middle East holds the most capacity per terminal, far above the average capacity of 180 kcbm. In the Middle East region, the average capacity per terminal is 406 kcbm. Asia ranks second with 274 kcbm and North America ranks third with 203 kcbm. The average capacity per terminal in Europe is 178 kcbm, followed by Central America (148 kcbm), Africa (124 kcbm), South America (63 kcbm) and Oceania (49 kcbm).

One significant factor behind this ranking, though not part of this analysis, is that tank terminals in the Middle Eastern and Asian regions are new compared to more mature tank terminal regions such as Europe and North America. Furthermore, and especially in the case of the Middle East, national governments have a stake in these assets. Also, product mix at terminals is different across regions. Together, both factors led to the development of assets with a larger average capacity.

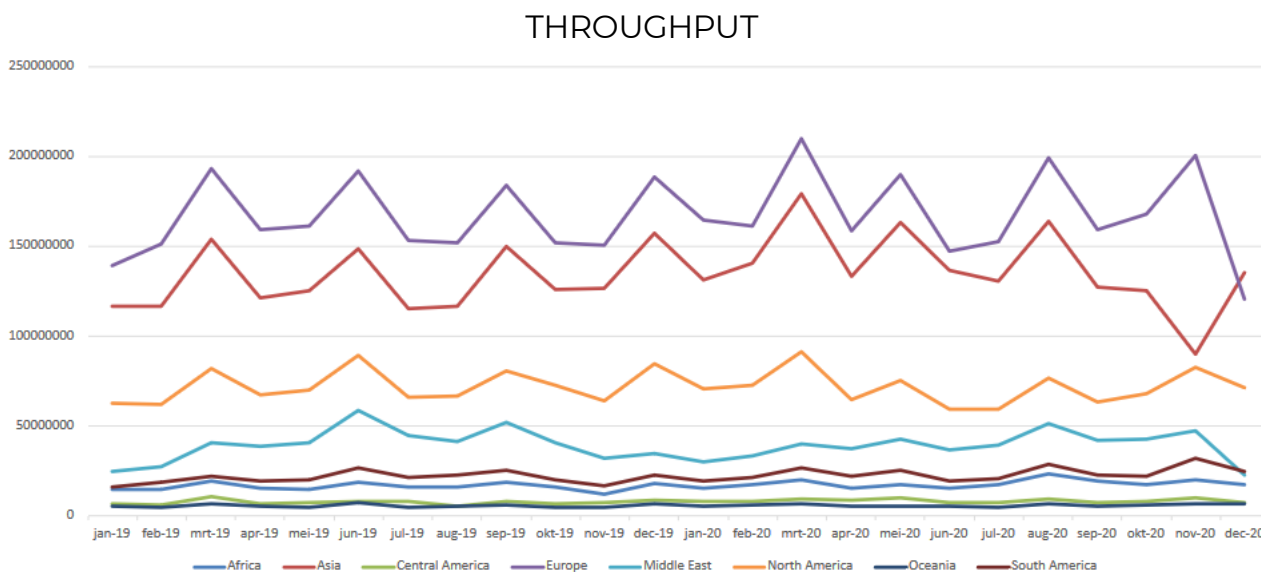
Chapter 2: Global Logistical Performance Benchmarks

2.0 Global Throughput

The following graphs and bar charts indicate global logistical performance benchmarks from January 2019 through the end of December 2020. What is striking is that despite the Covid-19 pandemic and the volatility in oil markets that ensued due to the pandemic in the spring of 2020, global logistical performance in the tank terminal sector remained relatively stable.

Throughput is the sum of the flow to and from a tank terminal. As shown in Figure 3, Europe, Asia and North America are the leading regions for throughput capacity. These regions are followed by the Middle East, South America, Africa, Central America and Oceania respectively. Australia is considered to be part of the Oceania region.

Figure 3 Global Throughput per month January 2019 – December 2020



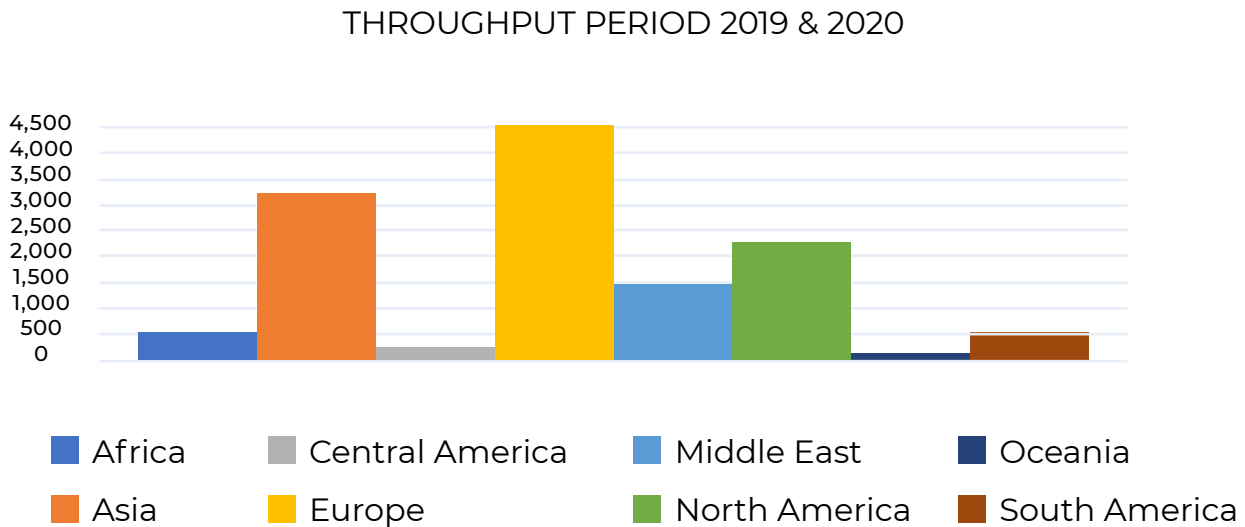
Globally and despite a slight dip in the spring of 2020, throughput recovered quickly in late May 2020 and remained stable throughout the entire period.

Throughput capacity stayed at normal levels according to historical trends for Europe, Asia and North America over the same period except for a drop in Asia that started in late August 2020 and continued to fall sharply until early November 2020. After that drop, Asia made a steep and strong recovery from early November 2020 that continued to rise through the end of 2020.

Throughput in the Middle East, South America, Africa, Central America and Oceania remained at steady levels throughout the same period. The Covid-19 had little effect to no effect on these regions which continued to show numbers commensurate with historical data.

Figure 4 shows throughput overall during the period of January 2019 through December 2020.

Figure 4 Global Throughput January 2019 – December 2020

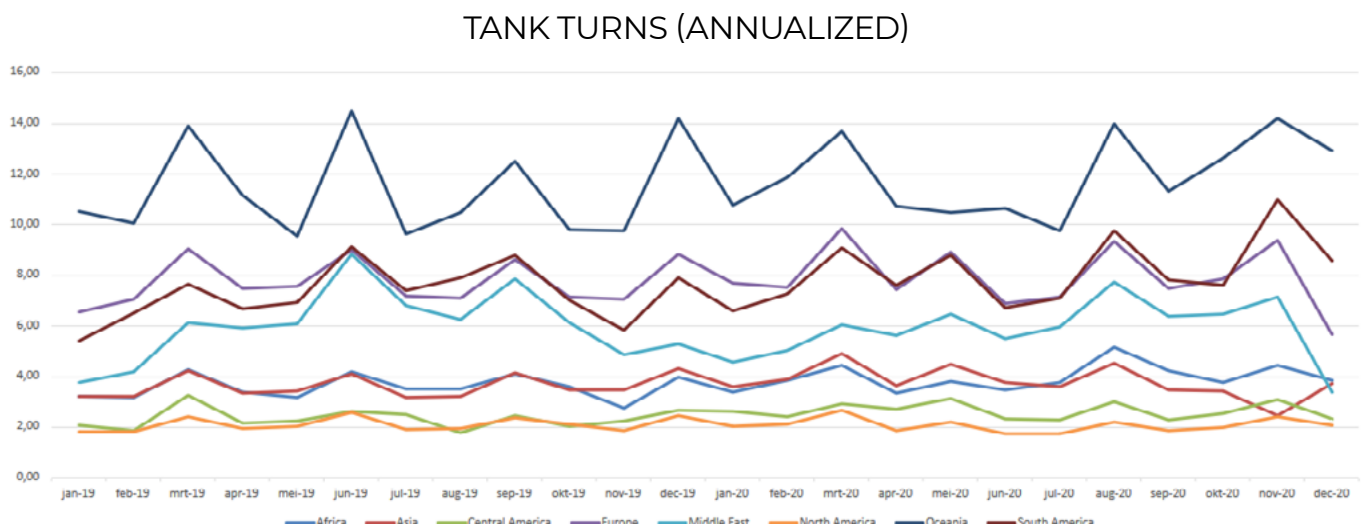


It should be noted that though North America’s throughput is shown to be the third largest in this data, in all likelihood, it is probably closer to numbers shown in Europe. In the North American region, a lot of push boat/tug -barge combinations are used. Our logistical performance calculations do not incorporate these barges as it is not possible to estimate the number of push barges that are used in such combinations. This has a notable effect on throughput levels and tank turns (see Figure 5 and 6). However, as is seen in Figures 7 and 8 where berth occupancy levels are indicated per region, berth occupancy in both Europe and North America are at comparable levels.

2.1 Tank Turns (annualized)

Tanks turns are the number of times a tank is filled and subsequently emptied. As a general rule, on average a tank is filled approx. 6 to 12 times a year. Twelve tank turns per year are considered to be a large number of turns. As an example, because Oceania has fewer tank terminals than other regions, it will show more tank turns to make up for the region’s lack of capacity compared to other regions. Figure 5 shows the number of turns per month between January 2019 and December 2020.

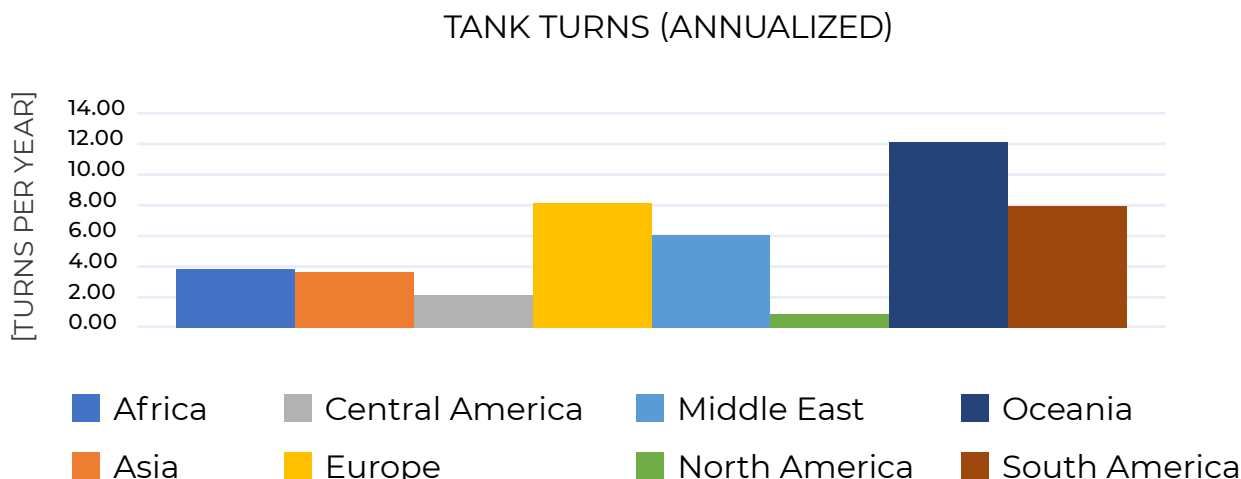
Figure 5 Global Tank Turns per month January 2019 – December 2020



As was shown in the throughput graph (Figure 3) and bar chart (Figure 4), tank turn levels were hardly affected by the Covid-19 crisis and the ensuing volatility in the oil markets. Just as with throughput, tank turns remained at levels commensurate with historical data which is a good indicator of the stability of this market and the diversification of the sector.

Figure 6 indicates global tank turn levels per region on an annual basis.

Figure 6 Global Tank turns according to region Annually



2.2 Berth Occupancy

The following graph and bar chart (Figure 7 and 8) indicate berth occupancy per region on a global scale over the period January 2019 through December 2020. Figure 7 examines the data on a monthly basis whereas Figure 8 indicates regionally berth occupancy over the two-year period 2019 through 2020.

Figure 7 Global Monthly Berth Occupancy January 2019 – December 2020

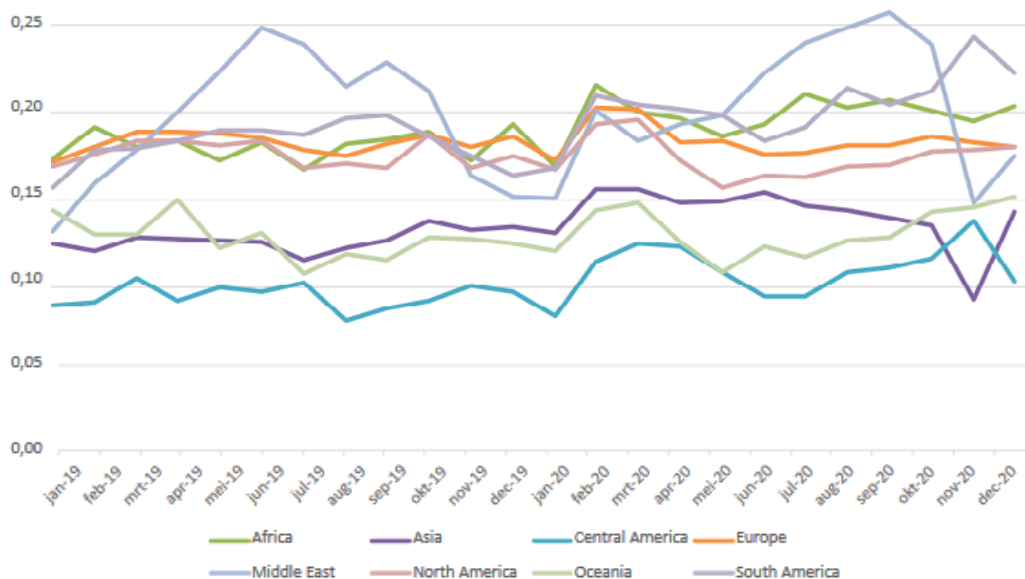
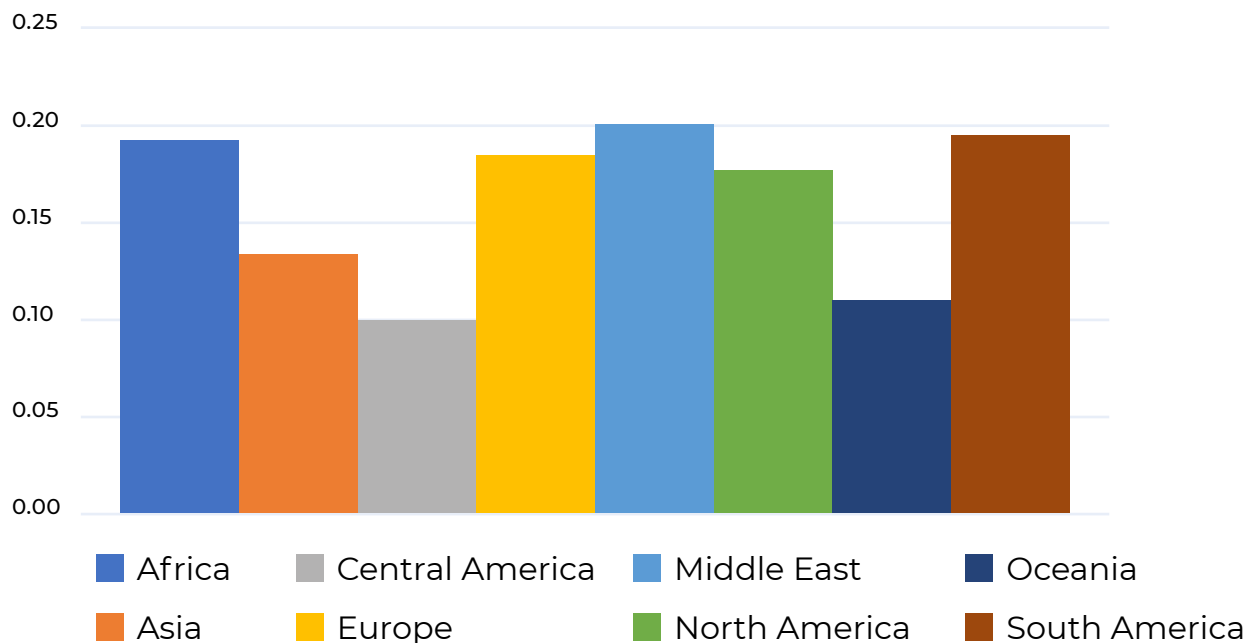


Figure 8 Global Berth Occupancy January 2019 – December 2020



As was mentioned in the description of Figures 3 and 4 where throughput is discussed, berth occupancy for both Europe and North America is at similar levels. During this period, only the Middle East demonstrated rather strong fluctuations in berth occupancy levels when viewed from a month-to-month basis. As was seen with throughput in late 2020, Asia showed a sharp drop in berth occupancy but was followed by an equally sharp recovery through the end of 2020.

Overall, regional berth occupancy was commensurate with historical data. Again, this is an indicator of the stability and diversification of the tank terminal market. Despite the volatility in the oil markets during the Covid-19 pandemic especially during the spring of 2020, the tank storage sector remained resilient and active with figures comparable to historical data from previous years.

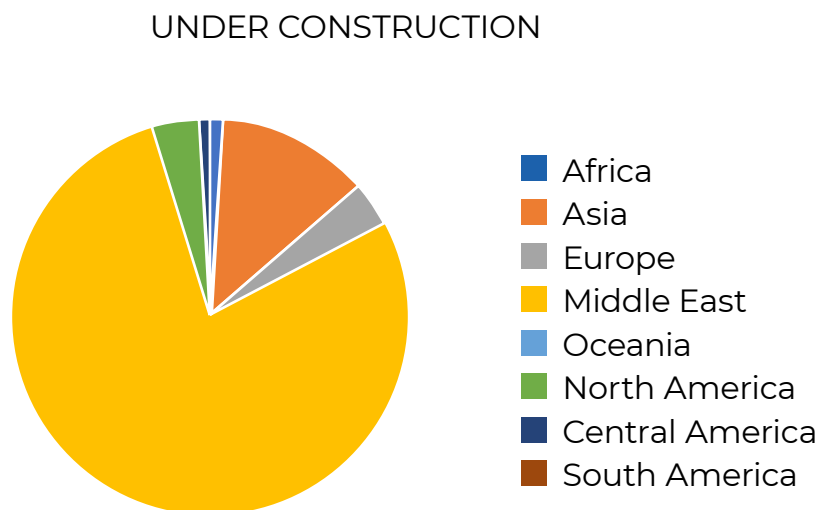
Chapter 3: In which region is the most capacity under construction and in expansion?

3.0 Terminals Under Construction

Figure 9 shows how terminal construction work is spread around the globe. These projects could either be greenfields or brownfields, but their construction is under way as of 2021. Most projects are in Asia (29), followed by Europe, North America and the Middle East (10) and Central America (5), Africa and South America (2) and Oceania (1). A total of 69 terminal projects are under construction globally, which equates to around 54.7Mcbm of storage capacity.

Most tank storage capacity is being constructed in the Middle East. This is around 42,665kcbm or 78% of the total capacity under construction. The Middle East is followed by Asia (6,637kcbm or 12%) and Europe (2,299kcbm or 4%). Other regions such as the Americas, Oceania and Africa have less capacity under construction, ranging between 0% and 3% of the global total. North America and Oceania have a more mature tank storage industry which does not drive investment while regions such as Africa and Central America have a complex investment environment.

Figure 9 Under Construction



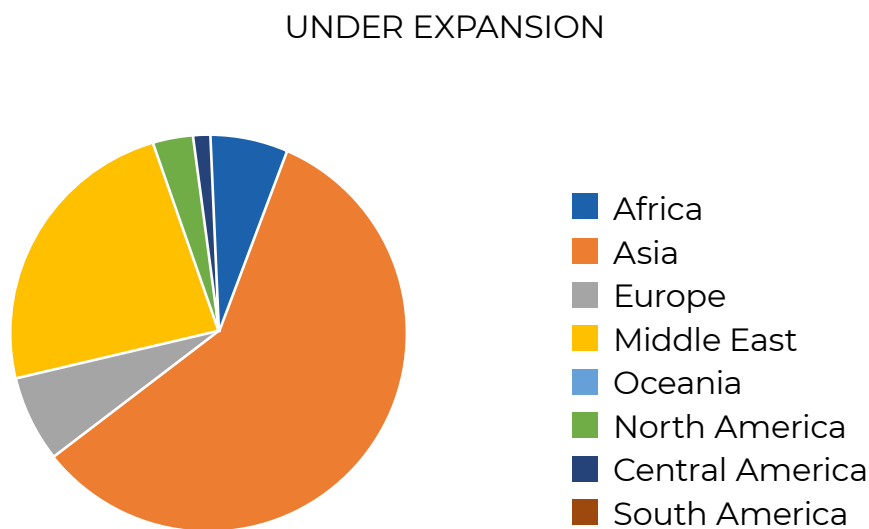
With respect to major projects in the Middle East, it is worth mentioning that ADNOC's 6,678kcbm underground storage in Fujairah (UAE) is expected to be operational in December 2022. The Liquefied Natural Gas Import Facility in Kuwait (1,800kcbm) and the Iranian Oil Co. Jask Terminal (1,590kcbm) complete the top 3 of the largest tank storage construction projects worldwide. A major project in Europe is the Hartel terminal in Rotterdam, which should become operational in Spring 2022 with a capacity of 1,300kcbm.

3.1 Terminals Under Expansion

Globally, there are 82 terminal expansion projects currently being realized. Most of these projects are taking place in Europe (26) while Asia and North America take second and third place with 17 and 16 projects respectively. Africa (9), South America (5), the Middle East (5), Central America (3) and Oceania (1) complete the list. If the projects are aggregated, a total of 29.8Mcbm is added to the existing capacity.

Figure 10 shows how the terminal expansion projects are distributed over the continents. Most tank storage expansions are taking place in Asia (17,546kcbm or 59% of the total) while the Middle East comes in second at 7,292kcbm (25%). Europe (2,037kcbm) and Africa (1,679kcbm) account for 7% and 6% respectively, while the Americas account for 4% (1,236kcbm) in total. Asia's market share of expansion projects underlines it as an upcoming and rapidly growing market.

Figure 10 Under Expansion



The 6 largest terminal expansion projects are all taking place in China, with newly created storage capacities ranging from 1,320kcbm to 5,080kcbm. In fact, 8 out of 10 of the largest projects are currently taking place in China. Nigeria and Iran complete the top 10 with their Petrolex Group Ibefun Tank Farm (1,200kcbm) and Qeshm Oil Investment Co. (525kcbm) respectively. The largest expansion projects in Europe are PERN Gdansk S.A. in Poland (325kcbm) followed by ITC Rubis Terminal Antwerp N.V. in Belgium (250kcbm).

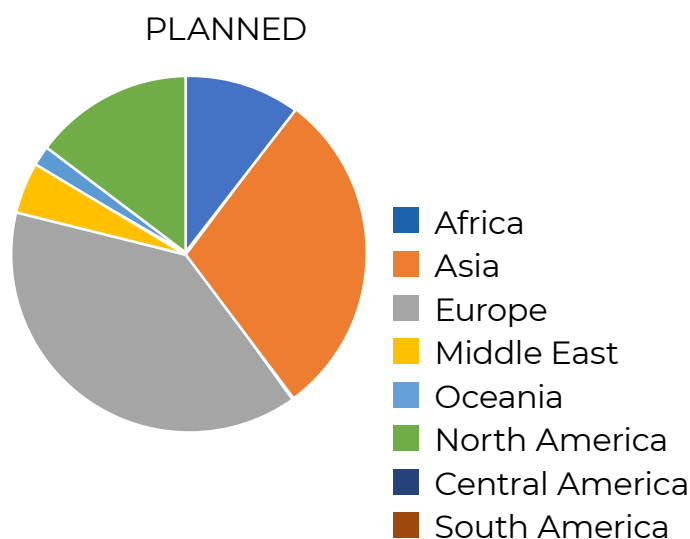
Chapter 4: Where are most storage investments planned?

4.0 Planned expansions

In total, there are 63 terminal projects that have announced storage capacity increases in the future. Most of them are located in Europe (24) and Asia (17). Africa and North America account for 8 and 5 projects respectively while the Middle East, South America, Oceania and Central America account for 4, 3, 1 and 1 projects respectively. In total, these projects are worth 15.3Mcbm of storage capacity.

In Figure 11 we can see that most of the planned expansions are located in Europe (5,985kcbm or 39%) and Asia (4,705kcbm or 31%). North America and Africa account for 2,229kcbm (15%) and 1,510kcbm (10%) respectively. The planned expansion projects in the Middle East are just a fraction of what is currently being realized in that region and totals up to 580kcbm or 4% of the world total. In Oceania, Central America and South America hardly any new capacity is planned.

Figure 11 Planned Expansions



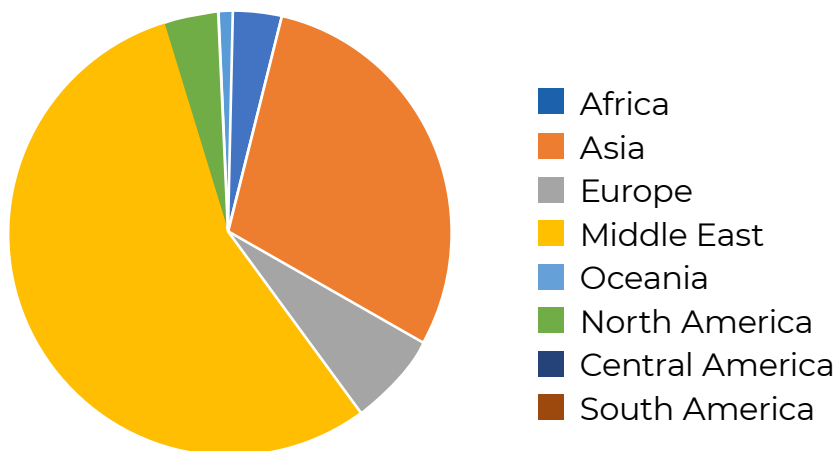
The two largest planned terminal expansion are accounted for by Indian Strategic Petroleum Reserves Ltd. in Bikaner and Chandikhol, totaling up to 5,600kcbm and 4,000kcbm. Both terminals are government-owned and focus on strategic storage. Large projects in Europe include Evolution Terminals in Vlissingen (619kcbm), as well as SEA-MOL Antwerp N.V. in Belgium (500kcbm) and Stade LNG Terminal and German LNG Terminal in Germany (both 480kcbm).

4.1 Conclusion

When we add up all capacity projects that are under construction, under expansion or planned, we see that the main growth area is in the Middle East, which will practically double its storage capacity. Expected capacity growth in this region is 46,327kcbm, although much of this is in the planned stage (80%). Other relatively fast-growing tank storage areas are Asia (27,979kcbm) and Europe (9,720kcbm). In Asia, some 70% is in the planned stage, while in Europe some 60% is in the planned stage. In these regions, additions are already underway and therefore more concrete. Globally, some 96Mcbm will be added.

Figure 12 Total additions

TOTAL ADDITIONS




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