11. Ports Serving Ethiopia

11.1 Djibouti Ports and Free Zone Authority (DPFZA) Ports

The Port of Djibouti is located at the southern entrance to the Red Sea, at the intersection of major international shipping lines connecting Asia, Africa and Europe. Djibouti port is a minimal deviation from the principal East-West trade route and provides a secure regional hub for transhipment and relay of goods. The port has handled more than 90 per cent of Ethiopia's maritime traffic since 1998, when Ethiopia ceased using the Eritrean ports of Assab and Massawa.

The port of Djibouti comprises the following facilities:

11.1.1 Société de Gestion du Terminal à conteneurs de Doraleh (SGTD)

The terminal was inaugurated in 2009 and, until 2023, had the capacity to handle Super Post Panamax container vessels (so vessels that have a capacity of 10,000-12,000 TEUs). In 2023, SGTD had four mega-max ship-to-shore (STS) gantry cranes installed, which allows SGTD to now handle the world's biggest container ships.

Figure 11.1: Aerial view of SGTD (prior to the installation of the mega-max STS Gantries)

The quay side productivity of the terminal is 34 TEU movements per hour per crane. SGTD has the capacity to handle 1.2 million TEU per year, has 1,050 meters of quay line, 8 Super Post Panamax quay cranes and 18 meters of draught.

Port Development Strategy

SGTD plans to increase the number of containers it handles both for Ethiopia and transhipped containers. As such SGTD has recently purchased four new mega-max ship-to-shore (STS) cranes from Liebherr. These cranes will operate alongside the current eight STS cranes already installed. The 4 mega-max STS cranes arrived in Djibouti in May 2023 and allows SGTD to handle the latest generation of container ships, which carry up to 23,000 TEUs. Prior to the instalment of the mega-

max STS gantries SGTD was able to handle ships up to Super Post Panamax size, carrying up to 15,000 TEUs and to handle up to 40 container vessels per month.

SGTD has also invested in an expansion of its container yard, increasing storage capacity by 20 per cent, from 1.6 million TEUs to 2.0 million TEUs per year which, together with the installation of the new mega-max STS gantry cranes, will allow SGTD to significantly increase the number of ships and containers it is able to handle per year.

Figure 11.2 and **Table 11.1** give volume statistics for SGTD. **Table 11.2** shows port performance indicators while **Table 11.3** gives Forecasts of container volumes for SGTD.

Figure 11.2: SGTD Throughput in number of TEUs (2009-2022)

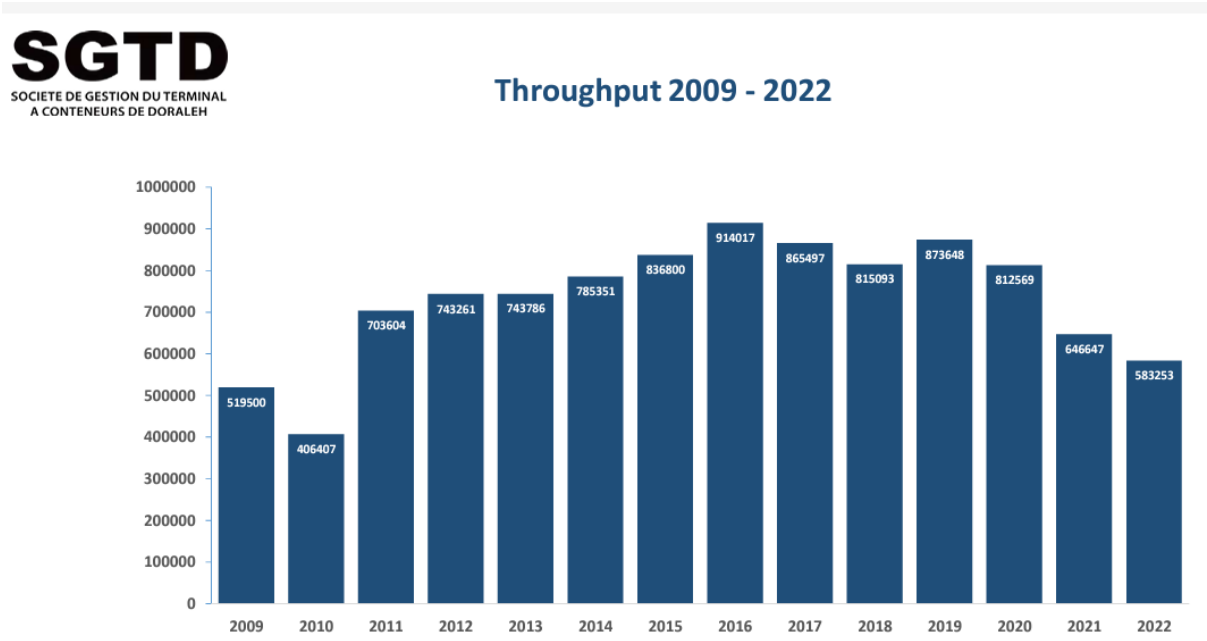


Table 11.1: Port Volumes – SGTD

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					

Table 11.2: Performance Indicators – SGTD

Vessel Type	Number of Arrivals (Year)	Median Waiting Time at Anchor	Median Waiting Time at Quay	Average Ship Size (GT)	Average Cargo Carrying Capacity (DWT)	Maximum Cargo Carrying Capacity (DWT)	Average Container Capacity
Container							

Table 11.3: Forecasts of container volumes for SGTD

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					

11.1.2 Doraleh Multipurpose Port (DMP)

Figure 11.3: Photo of Doraleh Multipurpose Port

Source: https://www.portdedjibouti.com/doraleh-multi-purpose-port/

Details of the Doraleh Multipurpose Port (DMP are as follows:

- Vessel Operations
  - 220.000 TEU of handling capacity
  - Ship unloading at 600 tons per hour
- Warehousing and Silos
  - 1 x 85,000 tons grain silo
  - 1 x 145, 000 tons fertiliser silo
  - 20,000 square metre warehouse space for bagged cargo
  - 32,000 square metre warehouse space for dry bulk cargo
- Port Infrastructure
  - 1200 meters of quay length
  - 15.3 m water depth
  - 690 hectares of total land area
  - 8.2 million tons annual capacity
  - 40 thousand vehicles slots
  - Can accommodate up to Cape-size vessels (100,000 DWT)
- Equipment
  - 12 quay cranes for general cargo

- 4 quay cranes of 50 Tons each for containers
- 2 RMG of 40 Tons each
- 7 reach stackers of 45 tons
- 8 grain bagging lines with a capacity of 300 tons/hour/line
- 6 fertiliser bagging lines with a capacity of 300 tons/hour/line
- 6 mobile bagging machines

Table 11.4 gives the port volume statistics for Doraleh Multipurpose Port while **Table 11.5** gives port performance statistics and 11.6 provides forecasts of container and bulk cargo volumes.

Table 11.4: Port Volumes – Doraleh Multipurpose Port

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					
General Cargo	Domestic	Tons					
	Transit	Tons					
Dry Bulk	Domestic	Tons					
	Transit	Tons					
Wet Bulk	Domestic	Tons					
	Transit	Tons					
Ro-Ro	Domestic	Tons					
	Transit	Tons					

Table 11.5: Performance Indicators – Doraleh Multipurpose Port

Vessel Type	Number of Arrivals (Year)	Median Waiting Time at Anchor	Median Waiting Time at Quay	Average Ship Size (GT)	Average Cargo Carrying Capacity (DWT)	Maximum Cargo Carrying Capacity (DWT)	Average Container Capacity
Container							
Dry Bulk							
Break Bulk							
Ro-Ro							
Liquid Bulk							

Table 11.6: Forecasts of container and bulk cargo volumes for Doraleh Multipurpose Port

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					
General Cargo	Domestic	Tons					
	Transit	Tons					
Dry Bulk	Domestic	Tons					
	Transit	Tons					
Wet Bulk	Domestic	Tons					
	Transit	Tons					
Ro-Ro	Domestic	Tons					
	Transit	Tons					

11.1.3 Tadjoura Port

The port was inaugurated in 2017 as a port to mainly handle potash exports originating in Tigray and Afar in northern Ethiopia and from Eritrea. The project was financed by the Arab Fund for Economic and Social Development and the Saudi Fund for Development. It has two linear quays of about 435 m length, with 12m draft. The port can accommodate general cargo vessels of up to 65,000 DWT. The port has a Ro-Ro terminal with a quay length of 190m and 12m draft. It has a 30ha handling area, including a state-of-the-art potash handling system that can handle up to 2,000 tonnes of potash per hour, and up to 4 million tons a year.

11.1.4 Damerjog Liquid Bulk Port

The structure of the Damerjog Liquid Bilk Port consists of an offshore jetty that is connected to onshore storage facilities. This will serve multiple end users, enabling them to load and unload a wide variety of products to and from inland storage facilities. The jetty is located around 3km from land, with a causeway that provides access for vehicles and pipeline services. It is designed for the berthing of two ships – one capable of accommodating vessels of up to 100,000 DWT and the second is for vessels between up to 30,000 DWT, with an annual throughput capacity of over thirteen million tons. A Moroccan, company, SOMAGEC, is doing the construction.

11.2 Société Djiboutienne de Gestion du Terminal Vraquier (SDTV)

SDTV sits on a 42-hectare site and has a quayside length of 390 metres comprising a dedicated grain berth (berth 15) of 200 metres and a dedicated fertiliser berth (berth 14) of 190 metres, both with a draft of 11.75 meters.

Each of the flat silos can accommodate up to four different products and/or different clients cargoes using removable concrete partition slabs. The operations process is monitored and set up by a central control room where operational data can be consulted at any time. CCTV scanning and surveillance hi-tech system is installed and attended 24 hours to safeguard client's commodities and company's facilities, property and staff.

SDTV is equipped with two shore pneumatic unloaders used to unload grain, each having an average capacity of 300 tons/hour and 8,000 tons/day. SDTV also has a Liebherr LHM 250 grab crane with a lifting capacity of 69 metric tons and operating a 21 metric tons per scoop, achieving 600 metric tons per hour and is used primarily for discharge of fertiliser.

SDTV has 12 fixed bagging lines, sub-divided to grain station 1 to 6, synchronised on direct ship discharge and silo option at nominal capacity of 60 metric tons per hour per line and 6,000 metric tons per day on average and fertiliser station 7 to 12, synchronised on direct ship discharge line and silo option at nominal capacity of 45 metric tons per hour per line and 4,000 metric tons per day on average.

SDTV also has mobile bagging gantries and Terminal 2 mobile bagging gantries are equipped with 3 bagging lines each releasing 20 bags of 50 kg per minute. Its unloads with 2 double hoisting rope Remote Controlled Grabs with tare of 7 tons on synchronised operation with vessel crane of SWL 25T for 8MT/cargo scoop. These units are for handling both grain and fertiliser. It can be used in SDTV berths or optional berth 13th upon Port authorization.

The fixed bagging station located rear grain silo is dedicated to grain silo bagging and stacking on trucks. It has three lines that each bag 60 MT/H per line and 3000 MT/Day on average. It serves as a backup solution which creates the advantage of using flatbed silo by handling multiple client cargoes under segregation whilst vessel operation undergoes independently.

Table 11.7 gives the port volume statistics for SDTV while Table 11.8 gives port performance statistics and 11.9 provides forecasts of container and bulk cargo volumes.

Table 11.7: Port Volumes – SDTV

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					
General Cargo	Domestic	Tons					
	Transit	Tons					
Dry Bulk	Domestic	Tons					
	Transit	Tons					

Table 11.8: Performance Indicators – SDTV

Vessel Type	Number of Arrivals (Year)	Median Waiting Time at Anchor	Median Waiting Time at Quay	Average Ship Size (GT)	Average Cargo Carrying Capacity (DWT)	Maximum Cargo Carrying Capacity (DWT)	Average Container Capacity
Container							
Dry Bulk							
Break Bulk							

Table 11.9: Forecasts of container and bulk cargo volumes for SDTV

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					
General Cargo	Domestic	Tons					
	Transit	Tons					
Dry Bulk	Domestic	Tons					
	Transit	Tons					

11.3 Horizon Oil Terminal

Horizon Djibouti Terminals Ltd is part of Horizon Terminals Limited which is wholly owned by Emirates National Oil Company of the United Arab Emirates. The terminal handles petroleum products, liquified petroleum gas, chemicals, and edible oils.

It has 31 tanks with a total capacity of 399,300 m^3 but the capacity of the depot to store fuel destined for Ethiopia is less than half of Horizon's capacity, at 170,250m^3 as follows:

- White diesel - 72,800m^3
- Jet A1/ Kerosene - 72,450m^3
- Gasoline - 10,000m^3
- Heavy black diesel - 10,000m^3
- Light Black diesel - 5,000m^3

Horizon has two berths, one able to accommodate ships of 80,000DWT, 18m draft, and 244m in length, and the other able to accommodate ships of 30,000 DWT, 10m draft and 180m in length. However, because the gasoline storage depot is limited to 10,000 m^3, ships of less than 30,000 to

40,000 metric tons can be used to supply fuel. This makes the use of Horizon more expensive than it could be if larger ships were used. In addition, it takes between 3.5 and 5 days to load 10,000 cubic meters of gasoline from the depot to road tankers, so unloading 40,000 cubic meters of fuel from a ship takes up to 15, meaning that the tanker will need to stay in port for up to 15 days, which increases the costs of demurrage.

The facility has 12 truck loading bays (top and bottom loading) for petroleum products and one LPG bulk truck loading bay. It has a pumping capacity of 2,000 tons/hour/line.

All fuel used by Ethiopia, including Jet-A1, diesel and petroleum, comes through Horizon Oil Terminal. At present there is no connection between Horizon Oil Terminal and the Doraleh Rail Terminal, which is less that one kilometre from the Oil Terminal. This means that all fuel that is imported by Ethiopia, and from Horizon oil Terminal, is imported by road.

Horizon Oil Terminal charges are as follows:

- For the first 1 million cubic metres of fuel - USD7.3/m^3
- From 1 - 1.5 million cubic metres of fuel - USD6.15/m^3
- From 1.5 - 2.0 million cubic metres of fuel - USD5.65/m^3
- More than 2 million cubic meters of fuel - USD5.00/ m^3

11.4 Berbera Port

Berbera port is located on the south coast of the Gulf of Aden approximately 250 kilometres east of Djibouti.

Figure 11.4: Image of Berbera Port

Source: https://www.dpworld.com/news/releases/dp-world-expands-offering-at-berbera/#:~:text=DP%20World%20plans%20to%20transform,more%20than%20140%20million%20people.

Berbera port was first built by Russians in 1968 and had a quay length of 320 metres. In 1985 the Americans added another 320 metres of quay to the existing quay. In 2016 the Government of Somaliland signed a 30-year concession for management and operation of the port with Dubai Ports World (DPW). The original shareholding agreement for the company managing the port was a joint venture, with DPW holding 51 per cent of the company's shares and the Government of Somaliland holding 30 per cent of the shares. The Government of Ethiopia was offered 19 per cent of the shares but, by 2022, because Ethiopia had not taken up the offer, the Government of Somaliland withdrew the offer. The current shareholding arrangement is with DPW holding 64 per cent of the shares of the management company, the Government of Somaliland holding 30 per cent and British International Investment (the renamed Commonwealth Development Corporation) holding the remaining 6 per cent.

Berbera port was previously administered by the Berbera Port Authority, which was a public institution directly accountable to the Government of Somaliland. However, with the DPW deal, Somaliland established the Somaliland Ports Authority by Presidential Decree, and the management of the Berbera Port was transferred to DP World.

Since taking over management of the port's operations in 2017, DP World has seen an increase in cargo volumes by 35 per cent and vessel productivity by 300 per cent. By implementing new digital systems, sustainable business practices and through its increased, trained staff complement, vessel waiting times have been significantly reduced.

DP World has completed the first phase of the Berbera container terminal, which includes a quay extension of 400m (which takes the port's container capacity from 100,000 to 500,000 per annum and its general cargo capacity from 1 million metric tons to 2 million metric tons); an increase in depth from 11m to 17m; and installation of 3 ship-to-shore gantry cranes.

DP World has committed to investing up to USD442 million to develop and expand Berbera port, with the first phase completed. Further work is already underway on expansion of the quay to 1000 metres which will increase capacity to two million TEUs, operated by 10 quay cranes.

Details of the Container Terminal are as follows:

- Vessel Operations
    - 24/7 vessel operations
    - Moves per hour: 50 – 75 moves
    - Draft of 17 meters
- Gate Operations
    - 2 X weighbridge, in and out
    - Configuration to allow out of gauge cargo
    - VBS (Vehicle appointment system)
    - Automated Gates and OCR is in project pipeline
- Reefer Services
    - No of reefer plugs: 336 (624)
    - Automated reefer monitoring
- CFS Stripping / Stuffing
    - Special yard area for import stripping
- Warehousing
    - Existing 2 x warehouses with area of ?? square meters each

- Port Infrastructure
    - Extension dedicated for containers with 400m additional quay, 17m draft. Capable of handling up to 400m LOA vessels, 8 high, 24 wide. The container terminal currently has 500,000 TEU capacity.
- Equipment
    - 3 x super post Panamax STS
    - 8 x RTG equipped with PDS and auto-steering
    - 26 x ITV
    - 3 x Mobile Harbor Cranes
    - 9 x Reach Stackers
    - 6 x Empty Container Handlers
    - 8 x forklifts

Table 11.10 gives the port volume statistics for Berbera port while **Table 11.11** gives port performance statistics.

Table 11.10: Port Volumes – Berbera Port

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					
General Cargo	Domestic	Tons					
	Transit	Tons					
Dry Bulk	Domestic	Tons					
	Transit	Tons					
Wet Bulk	Domestic	Tons					
	Transit	Tons					
Ro-Ro	Domestic	Tons					
	Transit	Tons					

Table 11.11: Performance Indicators – Berbera Port

Vessel Type	Number of Arrivals (Year)	Median Waiting Time at Anchor	Median Waiting Time at Quay	Average Ship Size (GT)	Average Cargo Carrying Capacity (DWT)	Maximum Cargo Carrying Capacity (DWT)	Average Container Capacity
Container							
Dry Bulk							
Break Bulk							
Ro-Ro							
Liquid Bulk							

Port Development Strategy

DP World plans to transform Berbera into an integrated maritime, logistics and industrial trade hub to serve the Horn of Africa. As part of this plan, and to add to the developments that have already taken place at the Berbera port, DP World has:

- recently opened the Berbera Economic Zone (BEZ), 15 km from the port along the Berbera to Wajaale road (Berbera Corridor) that connects to Ethiopia. BEZ offers the opportunity for

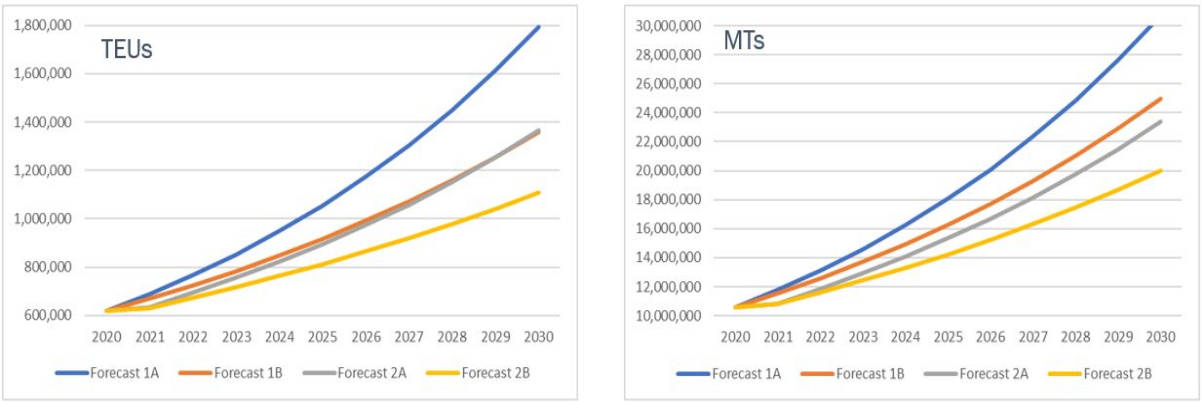
investors to build their own facilities (site and service), including commissioning BEZ to construct a custom-built facility, or to rent a pre-built warehouse; and

- started to develop a new edible oil terminal at Berbera port and has agreed to a long-term lease for the facility. The terminal will initially have a storage capacity of 18,000 tonnes, which will be expanded as demand grows. It will be able to service vessels with a draught of up to 16 metres, allowing Berbera port to handle bulk imports of edible oil so that edible oil can be imported in bulk and packaged locally. The lessor, Mzahim Investment LLC, a subsidiary of Essa Al Ghurair Investments (EGI) of the United Arab Emirates, will develop a local packaging plant in Berbera.

Forecasts

A study financed by UK Aid entitled "Refresh of the Berbera Corridor Diagnostic Study" of May 2022, prepared by Tripleline and Konung International estimates that, by 2030, Berbera port will be handling between 1.1m TEUs and 1.8m TEUs per annum and between 20m metric tons and 30.7m metric tons of non-containerised cargo, as shown in **Table 11.12** and **Figure 11.5.**

Figure 11.5: Forecasts of container, bulk cargo volumes and vehicles for Berbera port in 2030



Source: Refresh of the Berbera Corridor Diagnostic Study. May 2022.

Table 11.12: Forecasts of container, bulk cargo volumes and vehicles for Berbera port in 2030

Type		Unit	Forecast 1A	Forecast 1B	Forecast 2A	Forecast 2B
Containers	Imports	TEU	896,803	678,477	682,077	553,485
	Full Exports	TEU	258,809	258,809	196,841	196,841
	Empty Exports	TEU	637,995	419,668	485,236	356,644
Dry Bulk	Imports	Tons	11,692,218	8,845,753	8,892,692	7,216,148
	Exports	Tons	7,132,826	7,132,826	5,424,978	5,424,978
Wet Bulk	Imports	Tons	8,234,842	6,230,073	6,263,133	5,082,341
Break Bulk	Imports	Tons	3,442,783	2,604,639	2,618,460	2,124,800
Vehicles	Imports	Tons	223,032	168,735	169,630	137,650

Source: Refresh of the Berbera Corridor Diagnostic Study. May 2022.

11.5 Port Sudan

Port Sudan, established in 1910, occupies a strategic location in the centre of the west coast of the Red Sea about 1200 km northeast of Khartoum and about 260 km southwest of Jeddah in Saudi

Arabia. Port Sudan handles mainly general cargo, livestock, cement, containers, oil products, grains, pesticides and vehicles[31].

The Seaports Corporation (SPC) of Sudan, an independent state corporation, governs, constructs, and maintains the ports, harbours and lighthouses of Sudan.

Port Sudan is divided into four components:

- The North Port B quays include 12 berths of a total 1,866 metres long with alongside depths from 8.5m to 10.7m, handling primarily general cargo, edible oils, and molasses. The five berths that handle general cargo and molasses are 822 metres long with alongside depths from 8.5m to 10.7m. Four berths of 365.7 metres with alongside depth of 10.7m handle general cargo and edible oils.

Table 11.13 provides a summary of berths at the North Port

Table 11.13: Summary of Berths at the North Port

Berth Number	Length in Metres	Draft in Metres	Purpose
1-2-3-4-5	597.0	8.5	General cargo, molasses, bulk cement
5A	229.8	9.5	Molasses, cement, general cargo
6-7	365.7	10.7	Bulk cement, general cargo
8-9	365.7	10.7	Edible oils, general cargo
11	106.7	8.5	General cargo, bulk cement
12	201.8	8.5	General cargo, bulk cement

- The South Port has 6 berths, berth 15 for the handling of grains and general cargo and berths 13 through to 18 for containerised traffic.
- The Green Port consists of 4 berths with a total length of 1226 meters and a depth of 14.7 meters. It is equipped to handle dry bulk cargo and vessels of up to 50,000 DWT.
- The Alkhair (Dama Dama) oil terminal can accommodate tankers of up to 50,000 DWT with a draft of 14.6 meters.

The Port is designed and has the capacity to handle Panamax size bulk carriers. **Table 11.14** give the port volume statistics for Port Sudan and **Table 11.15** gives the port performance statistics.

Table 11.14: Port Volumes – Port Sudan

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					
General Cargo	Domestic	Tons					
	Transit	Tons					
Dry Bulk	Domestic	Tons					
	Transit	Tons					
Wet Bulk	Domestic	Tons					
	Transit	Tons					
Ro-Ro	Domestic	Tons					
	Transit	Tons					

Table 11.15: Performance Indicators – Port Sudan

[31] https://dlca.logcluster.org/21-sudan-port-port-sudan

Vessel Type	Number of Arrivals (Year)	Median Waiting Time at Anchor	Median Waiting Time at Quay	Average Ship Size (GT)	Average Cargo Carrying Capacity (DWT)	Maximum Cargo Carrying Capacity (DWT)	Average Container Capacity
Container							
Dry Bulk							
Break Bulk							
Ro-Ro							
Liquid Bulk							

11.6 Kenya Ports

11.6.1 Mombasa Port

Mombasa port is equipped to handle a wide range of cargoes including dry bulk such as grain, fertilisers, cement and soda ash and liquid bulk such as crude oil and oil products. This is in addition to bagged products (coffee, tea, sugar, etc), general break-bulk (iron and steel, timber), motor vehicles, machinery – and containerised cargo.

The port has a total of 19 deepwater berths. Six of these are for container ships, others include tanker berths, bulk and breakbulk cargo berths. Lighterage and Dhow berthing are also catered for.

Mombasa port is served by road and rail to inland destinations including the capital Nairobi, and the neighbouring states of Ethiopia, Uganda, Rwanda, Burundi, the eastern DRC, and South Sudan. The standard gauge railway links Mombasa with Nairobi at Embakasi.

Table 11.16 give the port volume statistics for Mombasa port and **Table 11.17** gives the port performance statistics.

Table 11.16: Port Volumes – Mombasa Port

Type		Unit	Year	Year	Year	Year	Year
Containers	Domestic	TEU					
	Transit	TEU					
	Transhipment	TEU					
General Cargo	Domestic	Tons					
	Transit	Tons					
Dry Bulk	Domestic	Tons					
	Transit	Tons					
Wet Bulk	Domestic	Tons					
	Transit	Tons					
Ro-Ro	Domestic	Tons					
	Transit	Tons					

Table 11.17: Performance Indicators – Mombasa Port

Vessel Type	Number of Arrivals (Year)	Median Waiting Time at Anchor	Median Waiting Time at Quay	Average Ship Size (GT)	Average Cargo Carrying Capacity (DWT)	Maximum Cargo Carrying Capacity (DWT)	Average Container Capacity
Container							
Dry Bulk							
Break Bulk							
Ro-Ro							
Liquid Bulk							

11.7 Lamu Port

Lamu Port is expected to consist of 32 berths when complete, will cost US$3.5 billion and be 400 ha (1,000 acres) in size. The port will be a deep-water port at 18 m depth. The first phase of the port includes 3 deep water berths with a capability of handling ships with a deadweight capacity of up to 100,000 tonnes.

A consortium of companies led by China Communications Construction Company (CCCC) won the bid for construction of the first three berths at Lamu port. Although Lamu port has been operational since 2021, it has only handled 22 vessels in 2 years[32].

11.8 Port Tariffs

Ports have a wide-ranging list of charges, some of which are bespoke for a port's requirements. To standardise tariffs, the ESCAP/UNDP port tariff model has been used to compare tariffs. The model organises tariffs into four service groups, i.e. navigation, berth, cargo operations and other business. The tariffs obtained were organised slightly differently (marine, terminal handling, stevedoring and storage). **Table 11.18** shows and describes the standard model on the left, and places the tariffs obtained for the four parts opposite their respective categories on the right of the table.

To properly compare the ports' charges, these should be applied to a typical vessel call which is the same across the ports. From the previous section of this chapter, a representative vessel that calls at all the ports would be a 2,000 TEU feeder. The expected dimensions of such a vessel would be approximately 25,000t DWT (dead-weight tonnage); 26,500t GRT (Gross Registered Tonnage); 75,000m^3 CBM (cubic metres); and 200m LOA (Length Overall). Note that this range of dimensions is required because the ports use different units of measurement to determine applicable charges. Such a vessel would require the assistance of one tugboat for berthing/unberthing.

The "call size" refers to the number of containers offloaded/loaded per call, which will usually be a portion of the total vessel capacity to cater for all the ports served on a route. A viable call size is at least 200 TEUs (i.e. offload 200 and onload 200), but the selected size for tariff comparison purposes is set higher at 500 TEUs.[33]

[32] https://www.the-star.co.ke/news/2023-06-05-new-cranes-to-boost-lamu-port-operations/

[33] E.g. see https://qa.www.spglobal.com/marketintelligence/en/mi/research-analysis/2017-review-port-call-sizes-continue-to-rise.html

Table 11.18: ESCAP/UNDP Model Port Tariff Structure

ESCAP/UNDP Model Port Tariff Structure						ESLSE-provided Tariffs	
Service Group	Component/ Type of service	Charging system				Category	Cost
		Basis	Units	Payer	Recipient		
Navi-gation	Port dues	Ship size	GRT	Liner	Port	Marine	Shelter/ Port Dues Per Call
	Pilotage	Ship size/ Time	GRT / Hours	Liner	Port/ Pilotage Ass.	Marine	Pilotage
	Tug services	Tug time/ Ship size	Number/ GRT	Liner	Port/ Tug owner	Marine	Towage / Tug
	Mooring/ unmooring	Ship size	GRT	Liner	Port	Marine	Mooring/ Unmoor.
	Ancillary services	Various	Various	Liner	Port		
						Marine	Anchorage Stay Dues
						Marine	Light Dues
Berth	Berth hire	Time of ship alongside/ Ship size	Hours/ GRT	Liner	Port	Marine	Berth Stay Dues
	Wharfage	Volume/ weight/ Cargo size	Tonnes/ TEU/ m^3	Consignee/nor	Port	Terminal Handling Charge	
	Ancillary services	Amount consumed	Various	Liner	Port		
Cargo Opera-tions	Stevedorage	Volume/ weight/ Cargo size	Tonnes/ TEU/ m^3	Liner	Service provider	Stevedoring	
	Wharf handling	Volume/ weight/ Cargo size	Tonnes/ TEU/ m^3	Consignee/nor	Service provider		
	Extra-movement	Volume/ weight/ Cargo size	Tonnes/ TEU/ m^3	Consignee/nor	Service provider		
	Special cargo handling	Volume/ weight/ Cargo size/ Type	Unit/ Types	Liner	Service provider		
	Storage	Time	Tonnes/ TEU/ m^3/ Days	Consignee/nor	Service provider	Storage	
	Packing/ unpacking	Volume/ weight/ Cargo size	Tonnes/ TEU/ m^3/ Unit type	Liner	Service provider		
	Equip./ service/ facility hire	Hours of use by item	Hours	Stevedore	Equip./ services owner		
Other							

Data on vessel waiting time and time in port are still awaited. For time at anchor outside the port, 2 days is assumed. Published data show that container vessel dwell times differ greatly, i.e. 0.89 days for Djibouti, 2.58 days for Kenya and 11.57 days for Sudan.[34] For comparison purposes, a middle value of 4 days berth dwell time is used.

Container dwell times would equally be quite different across the ports, and the ports provide for long duration storage in their tariffs. For comparison, a three-week (21 day) container dwell time is assumed for imports and one week (7 days) for exports.

Table 11.19 shows the results of applying the port tariffs as provided by ESLSE to the reference vessel call. The first two columns show the standard tariff nomenclature and the third column the ESLSE terms. The charges are either paid by the shipping liner or the cargo consignor/consignee. The charges are expressed in US Dollars, which is the tariff currency for all the ports except Port Sudan which quotes in Euros. The total port charges are substantially lower for Mombasa, with the other ports charging from about half to two thirds more.

Table 11.19: Calculated Charges for a Reference Vessel Call (USD/call)

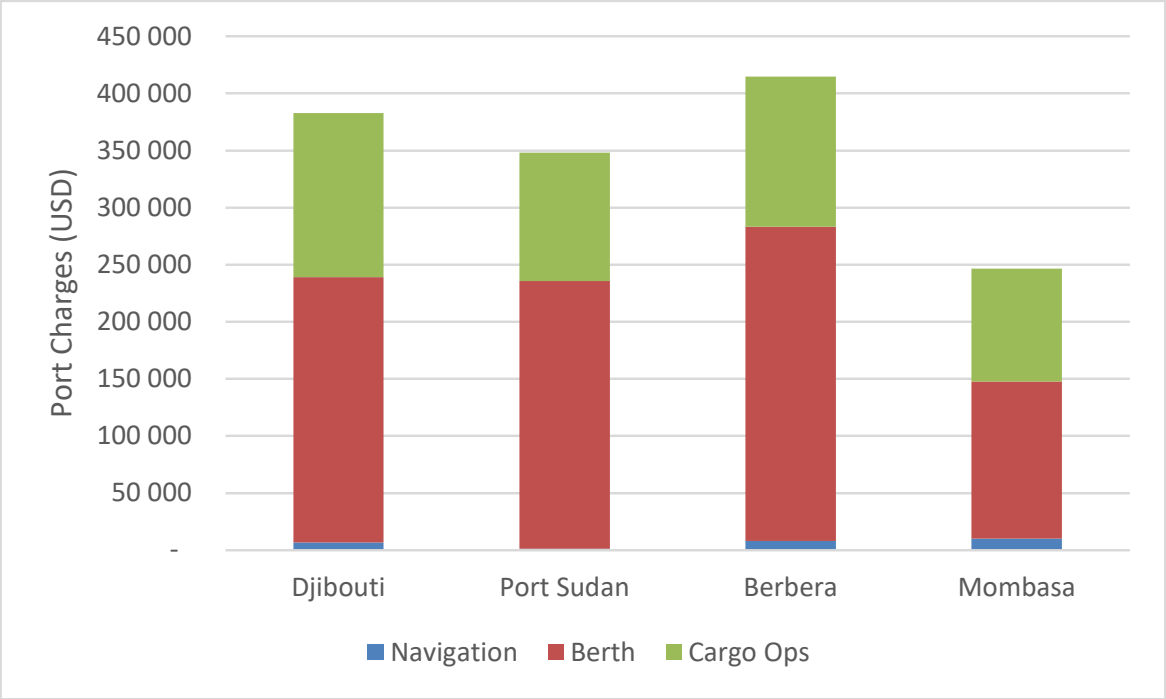
ESCAP/UNCTAD		ESLSE (ESL)	Paid By	Djibouti	Port Sudan	Berbera	Mombasa
Navigation	Port dues	Shelter/ Port Dues Per Call	Liner	783	-	3 180	4 320
	Pilotage	Pilotage	Liner	1 357	401	1 755	1 590
	Tug services	Towage / Tug	Liner	3 093	671	2 385	1 988
	Mooring/ Unmooring	Mooring/ Unmooring	Liner	564	-	350	875
	Ancillary	Anchorage Stay Dues	Liner	771	70	280	-
		Light Dues	Liner	-	-	-	1 458
Berth	Berth hire	Berth Stay Dues	Liner	3 668	18 977	2 400	4 992
	Wharfage	Terminal Handling Charge	Consignee	228 975	215 596	273 000	132 500
Cargo Operations	Stevedorage	Stevedoring	Liner	133 000	112 530	130 000	99 000
	Storage	Storage	Consignee	10 750	-	1 563	-
Sub-Total			Liner	143 237	132 649	140 350	114 221
Sub-Total			Consignee	239 725	215 596	274 563	132 500
Total				382 962	348 244	414 913	246 721
per TEU				383	348	415	247
Per TEU % above Mombasa				+55%	+41%	+68%	-

Note: The Wharfage/Terminal Handling Charge for Port Sudan is not available, and the value shown is the average for the other three ports

The distribution of values across the tariff categories provides an indication of the differences in tariff structures. The comparison is simplified by considering the aggregate charges categories, as presented in **Figure 11.6**. For the non-Mombasa ports, Berth charges represent about two thirds and Cargo Operations charges one third of total port charges. Relatively, navigation charges are negligible. At Mombasa, especially berth charges are lower, so that the Berth to Cargo ratio is 56% to 40%.

[34] Refer https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=170027

Figure 11.6: Port Charges per Service Group (USD/call)



Since the charges are dominated by the Wharfage/Terminal Handling and Stevedoring charges, it is useful to consider how these compare by port (refer **Table 11.20**). Here it can also be seen how imported containers are charged more than exports, reflecting that containerised import volumes dominate exports in these countries. Due to the clearing requirements imports also spend more time in-port than exports.

Table 11.20: Container Charges (USD/box)

Category	Shipment	Djibouti	Port Sudan	Berbera	Mombasa
Terminal Handling	TEU Import	322	N/A	370	155
	FEU Import	644	N/A	690	230
	TEU Export	136	N/A	176	110
	FEU Export	272	N/A	307	170
Stevedoring	TEU	133	110	130	99
	FEU	166	220	195	148

11.8.1 SGTD Port Tariffs

The latest ____ Port Tariff Book was issued on ___ and effective from ____. Some of the tariffs are given in **Table 11.21**:

Table 11.21: SGTD Port Tariffs

Service Type		Charge per Move (USD)	
		≤20 ft	>20 ft
Import/Export Normal Containers	Discharging/Loading Full		
	Discharging/Loading Empty		
	Full Transhipment		
	Empty Transhipment		
Hazardous Containers	Discharging/Loading Full		
Container Shifting	Shifting Empty Containers		
Terminal Handling Charges	Transit		

Reefer Charges			
Storage Normal Containers (Import, Export, Transit)		**Charge per TEU per Day of part thereof (USD)**	
First 8 Days			
From Day 9 till Day 14			
From Day 15 till Day 21			
From Day 22 till Day 28			
From Day 29 till Delivery			

11.8.2 Doraleh Multipurpose Port Tariffs

The latest Mombasa Port Tariff Book was issued on ___ and effective from ____. Some of the tariffs are given in Table 11.22:

Table 11.22: Mombasa Port Tariffs

Service Type		**Charge per Move (USD)**	
		≤20 ft	**>20 ft**
Import/Export Normal Containers	Discharging/Loading Full		
	Discharging/Loading Empty		
	Full Transhipment		
	Empty Transhipment		
Hazardous Containers	Discharging/Loading Full		
Container Shifting	Shifting Empty Containers		
Terminal Handling Charges	Transit		
Reefer Charges			
Storage Normal Containers (Import, Export, Transit)		**Charge per TEU per Day of part thereof (USD)**	
First 8 Days			
From Day 9 till Day 14			
From Day 15 till Day 21			
From Day 22 till Day 28			
From Day 29 till Delivery			

11.8.3 SDTV Port Tariffs

The latest Mombasa Port Tariff Book was issued on ___ and effective from ____. Some of the tariffs are given in **Table 11.23**:

Table 11.23: Mombasa Port Tariffs

Service Type		**Charge per Move (USD)**	
		≤20 ft	**>20 ft**
Import/Export Normal Containers	Discharging/Loading Full		
	Discharging/Loading Empty		
	Full Transhipment		
	Empty Transhipment		
Hazardous Containers	Discharging/Loading Full		
Container Shifting	Shifting Empty Containers		
Terminal Handling Charges	Transit		
Reefer Charges			
Storage Normal Containers (Import, Export, Transit)		**Charge per TEU per Day of part thereof (USD)**	
First 8 Days			
From Day 9 till Day 14			

From Day 15 till Day 21	
From Day 22 till Day 28	
From Day 29 till Delivery	

11.8.4 Horizon Port Tariffs

The latest Mombasa Port Tariff Book was issued on ___ and effective from ____. Some of the tariffs are given in **Table 11.24**:

Table 11.24: Mombasa Port Tariffs

Service Type		**Charge per Move (USD)**	
		≤20 ft	**>20 ft**
Import/Export Normal Containers	Discharging/Loading Full		
	Discharging/Loading Empty		
	Full Transhipment		
	Empty Transhipment		
Hazardous Containers	Discharging/Loading Full		
Container Shifting	Shifting Empty Containers		
Terminal Handling Charges	Transit		
Reefer Charges			
Storage Normal Containers (Import, Export, Transit)		**Charge per TEU per Day of part thereof (USD)**	
First 8 Days			
From Day 9 till Day 14			
From Day 15 till Day 21			
From Day 22 till Day 28			
From Day 29 till Delivery			

11.8.5 Berbera Port Tariffs

The latest Berbera Port Tariff Book was issued on 15th December 2022 and effective from 1st January 2023. Some of the tariffs are given in Table **11.25**:

Table 11.25: Berbera Port Tariffs

Service Type		**Charge per Move (USD)**	
		≤20 ft	**>20 ft**
Import/Export Normal Containers	Discharging/Loading Full	130	196
	Discharging/Loading Empty	80	120
	Full Transhipment	141	175
	Empty Transhipment	124	159
Hazardous Containers	Discharging/Loading Full	195	293
Container Shifting	Shifting Empty Containers	50	100
Terminal Handling Charges	Transit	630	635
Reefer Charges		65	130
Storage Normal Containers (Import, Export, Transit)		**Charge per TEU per Day of part thereof (USD)**	
First 8 Days		Free	
From Day 9 till Day 14		2	
From Day 15 till Day 21		5	
From Day 22 till Day 28		7.50	
From Day 29 till Delivery		10.50	

11.8.6 Mombasa Port Tariffs

The latest Mombasa Port Tariff Book was issued on ___ and effective from ____. Some of the tariffs are given in **Table 11.26**:

Table 11.26: Mombasa Port Tariffs

Service Type		**Charge per Move (USD)**	
		≤20 ft	**>20 ft**
Import/Export Normal Containers	Discharging/Loading Full		
	Discharging/Loading Empty		
	Full Transhipment		
	Empty Transhipment		
Hazardous Containers	Discharging/Loading Full		
Container Shifting	Shifting Empty Containers		
Terminal Handling Charges	Transit		
Reefer Charges			
Storage Normal Containers (Import, Export, Transit)		**Charge per TEU per Day of part thereof (USD)**	
First 8 Days			
From Day 9 till Day 14			
From Day 15 till Day 21			
From Day 22 till Day 28			
From Day 29 till Delivery			