TRANSPORT GLOBAL PRACTICE

Port Development and Competition in East and Southern Africa:
Prospects and challenges

Volume 2: Country and Port Fact Sheets and Projections

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Abbreviations and Acronyms

AAA	Autonomous Administrative Authority (Djibouti)
AMP	Alternative Maritime Power
AMS	Automated Manifest System
ANAM	Agence Nationale des Affaires Maritimes (Maritime Affairs Comoros)
ANPI	Agence National pour la Promotion des Investissements (Investment Promotion Agency Comoros)
APC	Autorité Portuaire de Comoros (Comoros Ports Authority)
APMF	Agence Portuaire Maritime er Fluviale (Maritime and River Port Authority of Madagascar)
AU	African Union
BCP	Border Crossing Point
BLT	Beira Logistics Terminals
BOT	Build Operate Transfer
BPA	Berbera Port Authority
CAGR	Compound Annual Growth Rate
CCCC	China Communications Construction Company
CCECC	China Civil Engineering Construction Corporation
CCTTFA	Central Corridor Transit Transport Facilitation Agency
CD	Chart Datum
CdM	Cornelder de Moçambique
CDN	Corredor de Desenvolvimento do Norte (Northern Corridor Development Authority)
CFM	Portos e Caminhos de Ferro de Moçambique (Ports and Railways of Mozambique)
CFS	Container Freight Station
CHCL	Cargo Handling Corporation Ltd. (Mauritius)
CHEC	China Harbour Engineering Company
CMHI	China Merchants Holdings International
CMPH	China Merchants Port Holdings
CMTP	Comprehensive Maritime Transport Policy (South Africa)
CO_2	Carbon Dioxide
COMAMA	Compagnie de Manutention de Mahjanga (Stevedoring Company of Mahajanga)
COMESA	Common Market for Eastern and Southern Africa
CRBC	China Road and Bridge Corporation
CRG	China Railway Group
CSA	Control Self Assessments
CSCEC	China State Construction Engineering Corporation
CTO	Container Terminal Operator
CTS	Container Stacking Yard
DBFM	Design, Build, Finance, Maintain
DBOOT	Design Build Own Operate Transfer
DCT	Durban Container Terminal
DDID	Djibouti Damerjog Industrial Development
DEA	Data Envelopment Analysis
DFID	Department for International Development (UK)
DICT	Djibouti International Container Terminal
DIFTZ	Djibouti International Free Trade Zone
DMP	Doraleh Multipurpose Port
DPFZA	Djibouti Ports & Free Zones Authority
DPW	Dubai Ports World
DRA	Djibouti Roads Authority
DRC	Democratic Republic Congo
DSMGP	Dar es Salaam Maritime Gateway Project
DWT	Deadweight Tonnage
EAC	East African Community
ECD	External Communications Division (Mauritius)

EDBM	Economic Development Board of Madagascar
EIRR	Economic Internal Rate of Return
ENPV	Economic Net Present Value
ESA	East and Southern Africa
ESLSE	Ethiopian Shipping & Logistics Services Enterprise
EU	European Union
FYDP	Five-Year Development Plan
GBHL	Grain Bulk Handlers Ltd (Port of Mombasa)
GCSY	General Cargo Storage Yard
GDP	Gross Domestic Product
GHIH	Great Horn Investment Holding (Djibouti)
GRT	Gross Registered Tonnage
GT	Gross Tonnage
GTO	Global Terminal Operator
HIC	High Income Countries
HP	Horsepower
HPH	Hutchison Port Holdings
ICD	Inland Container Depot
ICM	Integrated Coastal Management
ICT	Information Communication Technology
ICTSI	International Container Terminal Services Inc (Toamasina)
IGAD	Intergovernmental Authority on Development
ILO	International Labor Organization
IMF	International Monetary Fund
IMO	International Maritime Organization
INAHINA	National Institute of Hydrography and Navigation (Mozambique)
INAMAR	Instituto Nacional de Marinha (Mozambique)
INTP	Integrated National Transport Policy (Kenya)
IOC	Indian Ocean Commission
IRBM	Integrated River Basin Management
IRR	Internal Rate of Return
ISO	International Organization for Standardization
ISPS	International Ship and Port Facility Security
IWRM	Integrated Water Resources Management
IT	Information Technology
JICA	Japan International Co-operation Agency
KMA	Kenya Maritime Authority
KOT	Kipevu Oil Terminal
KPA	Kenya Ports Authority
LAPSSET	Lamu Port and Lamu-Southern Sudan-Ethiopia Transport
LCDA	LAPSSET Corridor Development Authority
LMIC	Low-Medium Income Countries
LNG	Liquified Natural Gas
LOA	Length Overall
LPG	Liquified Petroleum Gas
LSBCI	Liner Shipping Bilateral Connectivity Index
LSCI	Liner Shipping Connectivity Index
MCLI	Maputo Corridor Logistics Initiative
MCT	Mauritius Container Terminal
MHC	Mobile Harbor Crane
MICTSL	Madagascar International Container Terminal Services Ltd
MPA	Mauritius Port Authority
MPDC	Maputo Port Development Company
MPT	Mauritius Multipurpose Terminal
NATMAP	National Transport Master Plan (South Africa)
NCTA	Northern Corridor Transit Agreement
NCTTA	Northern Corridor Transit and Transport Agreement
NCTTCA	Northern Corridor Transit and Transport Coordination Authority
NDP	National Development Plan

NIP	National Infrastructure Plan (Transnet – South Africa)
NPDP	National Physical Development Plan (Mauritius)
NPV	Net Present Value
PA	Port Authority
PAID	Port Autonome International de Djibouti (International Port of Djibouti)
PCS	Port Community System
PdN	Portos do Norte (Ports of the North), Nacala
PDSA	Port de Djibouti S.A.
PFMA	Public Finance Management Act (South Africa)
PMAESA	Port Management Association of Eastern and Southern Africa
PPIAF	Public Private Infrastructure Advisory Facility
PPP	Public Private Partnership
PRSA	Ports Regulator of South Africa
PSP	Private Sector Participation
P/TOS	Port/ Terminal Operations System
RGZ	Revolutionary Government of Zanzibar
RMGC	Rail-mounted Gantry Crane
RS	Reach stacker
RTG	Rubber-tired Gantry Crane
SADC	Southern African Development Community
SAMSA	South African Maritime Safety Authority
SCA2D	Stratégie de Croissance Accélérée de Développement Durable
SCP	Sociètè Comorienne des Ports (Comoros Port Authority)
SEMS	Société d'Entreprises Multi-Services (Multi-Services Company)
SEPT	Société d'Exploitation du Port de Toamasina (Toamasina Port Operating Company)
SGR	Standard Gauge Railway
SMMC	Société de Manutention des Marchandises Conventionnelles (General Cargo Handling Company)
SOE	State Owned Enterprise
SOLAS	International Convention for the Safety of Life at Sea
SOT	Shimanzi Oil Terminal
SPAT	Société du Port à Gestion Autonome de Toamasina (Autonomous Port Authority of Toamasina)
SPM	Single Point Mooring
SPV	Special Purpose Vehicle
SSA	Sub-Saharan Africa
SSATP	Sub-Saharan Africa Transport Policy Program
STS	Ship-to-Shore
SUMATRA	Surface and Marine Transport Regulatory Authority (Tanzania)
TAZARA	Tanzania Zambia Railway
TEMPI	Transnet eTheKwini Municipality Planning Initiative
TEU	Twenty-foot Equivalent Unit
TFR	Transnet Freight Rail
TICTS	Tanzania International Container Terminal Services
TMEA	TradeMark East Africa
TNPA	Transnet National Ports Authority
TPA	Tanzania Ports Authority
TPL	Transnet Pipelines
TPT	Transnet Port Terminals
TRL	Tanzania Railway Ltd.
UAE	United Arab Emirates
ULCC	Ultra-Large Container Carrier
ULCS	Ultra Large Container Ship
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
US$	United States Dollar
ZMA	Zanzibar Maritime Authority
ZPC	Zanzibar Ports Corporation

Djibouti: Djibouti is located at the entrance of the Red Sea, north of Ethiopia and south of Eritrea. With just 900,000 inhabitants, it is one of the smallest countries in the eastern and southern part of Africa. In 2016, Djibouti's GDP accumulated to US$1.6 billion (The World Bank, 2017b).

1. Ports sector institutions

The Djibouti Ports and Free Zones Authority (DPFZA) is the governing authority for all port activities in Djibouti and, as such, sets the rules, directives, and principles for all current and future ports (DPFZA, 2017). DPFZA has a role as an asset management company for all port assets in the country through its 100 percent subsidiary Great Horn Investment Holding (GHIH). The DPFZA is responsible for the day-to-day management of the Free Zone in which the port is located: managing concession agreements with the various operators involved, including DP World, the former concessionaire of the Doraleh container terminal, and Port of Djibouti SA, concessionaire of the multi-purpose port, and ensuring compliance and for performing audits of the companies operating within the Free Zone (DPFZA, 2017).

The Ministry of Economy and Finance is responsible in the field of PPPs through the PPP Unit. The PPP Unit reports directly to the Ministry and is responsible for evaluating the technical, economic, financial and environmental feasibility of any PPP project. Thus, any private operator with the intention of becoming involved in Djibouti's ports – assuming the Government of Djibouti's preferred structure of major port operators is indeed a PPP – will have to coordinate with the Ministry of Economy and Finance.

Port Autonome International de Djibouti (PAID) was originally established as a public company, managing and regulating the Port of Djibouti, but in 2012 was transformed into a private company with shares, called Port de Djibouti S.A. (PDSA), with 23.5 percent of shares held by China Merchants Holdings International and the remaining shares owned by DPFZA. The Doraleh Multipurpose Port is operated by a 100 percent subsidiary of PDSA, called DMPSA. In the recent port projects that were developed, DPFZA is the regulator, while the management of the ports is done at a port level. The Doraleh Container Terminal was developed by DP World under a concession agreement in which they had a 33 percent share, but was recently nationalized by the Government, after a dispute.

DPFZA has substantial financial and regulatory autonomy to develop ports and related infrastructure in the country. DPFZA provides limited public information on its formal (written) development plans and policy. There is a limited role for the Ministry of Transport in the ports sector. The ministry is more involved in the road and rail development through its subsidiaries.

Key shortcomings of Djibouti's port sector institutions are:

- There is very limited policymaking at national level. The DPFZA reports directly and only to the Office of the President of Djibouti.
- There is no clear monitoring structure regarding the DPFZA. The only body with a clear mandate to monitor the DPFZA is the Office of the President.

There is a need to improve the policymaking at the national level to ensure that DPFZA's development plans are part of national government planning and policy, and to implement an independent monitoring body that can verify, audit and check DPFZA's functioning, from the perspective of tariff setting, concession agreements and environmental/safety measures.

2. Policy framework

At a national level, the country's primary transport and logistics policy objectives are outlined in a Government-commissioned World Bank paper (The World Bank, 2013). Port of Djibouti SA and

the DPFZA both have published documents on their respective expansion plans. Both documents date to the 2010-2012 period and are thus in need of an update. Other shortcomings of the port sector policy framework are:

- There is no clear national government policy on transport or ports. All existing policy documents are published by the autonomous DPFZA and PDSA (subsidiary of DPFZA). The national government policy and planning function on the transport sector has been fully allocated to these independent entities. There is no ministerial responsibility over the port sector or a national ports policy.
- There are no government policy documents or up to date policy documents published by external organizations. All policy documents for the ports sector are drafted by DPFZA and PDSA. It is regarded a shortcoming that the currently available policy documents are not developed by the Djibouti government, or by external organizations under supervision of the government. It is recommended that Djibouti involves ministries in the development of policy documents.
- There is no clear chain of command or collaboration between national and local policymakers. All policy development is guided by DPFZA and PDSA, and these entities do not have to collaborate with or report to other government entities as they fall under the direct supervision of the President.
- None of the development plans that were presented provide information on the sustainable development of the ports toward their surroundings. With the large port development plans that are currently envisaged, this is regarded a major drawback of Djibouti's port policy and it is recommended that DPFZA include environmental standards in its port development plans.
- There are no clear guidelines on the type, size or nature of private sector investments in the nation's ports and port sector, nor have any criteria been specified. Port PPPs are developed on a case-by-case basis and there is no clear line of reasoning why a certain structure is selected for a specific project. The formalization of the PPP process and the implementation of PPP policies are regarded as must-haves for the sustainable development of PPPs in Djibouti.
- Although there are privately operated terminals in the Port of Djibouti, there are no specific PPP laws. However, concession laws in a variety of sectors do contain contractual arrangements typically found in PPPs. The Government of Djibouti is planning on reforming its legal framework in line with international best practices. These reforms include outlining a PPP policy and facilitating the creation of a PPP Unit (The World Bank, 2015a).

In the Djibouti Development Plan for Infrastructure 2012-2017 that was drafted in cooperation between DPFZA and the Djibouti Government, substantial investments in the port sector were proposed. A total of six ports needed to be developed and/or finalized: Doraleh Container Terminal, Djibouti Multipurpose Port, Horizon Oil Terminal, Ghoubet Salt Port, Tadjourah Potash Port, and Damerjog Livestock Port.

The short-term actions relating to the development of Djibouti's port sector include:

- Re-evaluate the financial risks associated with reconstructing the Djibouti – Ethiopia railway due to a low expected rate of cargoes transferrable from truck to rail;
- Solicit advice from sector experts when entering into large scale investment agreements;
- Establish a standing committee to manage the Djibouti – Addis corridor; and,
- Support Djibouti Customs' transition to ASYCUDA World.

Medium-term actions include the development of an all-encompassing transport master plan covering road, rail, maritime, and air transport.

3. Legal and regulatory framework

Djibouti's legal and regulatory framework consists of a small number of all-encompassing laws supported by a larger number of Presidential Decrees. On top of that, Djibouti's framework is guided by international policy guidelines. At an international level, Djibouti's legal and regulatory framework for the ports sector is guided by the IMO conventions, including those relating to maritime safety and security and the safety at sea as well as pollution prevention and control. At a regional level, the African Union (AU)'s Maritime Charter and the Common Market for Eastern and Southern Africa (COMESA) treaty guide Djibouti's framework. The Intergovernmental Authority on Development (IGAD) does not state any specific policy objectives or guidelines. At a national level, Djibouti's legal and regulatory framework for the ports sector is guided by the Maritime Transport Act, the Djibouti Port Reform Act, and various Acts relating to the Port of Djibouti Free Zone. There is no additional layer of local legislation affecting the Port of Djibouti.

International Maritime Conventions: According to the IMO, Djibouti has ratified all major international conventions with the exception of SOLAS [1] Protocols 78, 88, and 96; STCW-F Convention 95; MARPOL Protocol 97; Ballast Water Management Convention; and Hong Kong Convention.

Maritime Transport Act: The main, all-encompassing legislative document in Djibouti's port sector is Law No. 083 of 2000, the Maritime Transport Act. The Act concerns all commercial undertakings relating to vessels or the cargo shipped by said vessels in the maritime domain of Djibouti. Specifically, the Act defines the responsibilities of shipping lines and ship owners, freight forwarders, cargo handlers, pilotage services and towage services. The Act also stipulates that pilotage is a public service and that towage is to be performed by national tug boats only, unless Djibouti does not possess the appropriate tug boats.

Djibouti Free Zone: The Djibouti Free Zone Authority was established by Law No. 098 of 2002. The Authority is given the mandate to manage all matters pertaining to the Free Zone, including the administration of the Free Zone; implementation of all laws relating to the Free Zone; licensing of operators within the Free Zone; monitoring and regulating of Free Zone operators; and managing and coordinating of the interaction between the public and private operators within the Free Zone.

Djibouti Port Reform Act: Law No. 196 of 2012, also known as the Djibouti Port Reform Act, transforms the state-owned *Port Autonome Internationale de Djibouti* to the public limited company, "Port of Djibouti SA". The Port of Djibouti SA assumes the role previously held by PAID, namely the management and exploitation of the Port of Djibouti.

Djibouti Ports and Free Zone Act: Law No. 063 of 2015 establishes the DPFZA. The DPFZA transfers the authority of all port-related affairs to the DPFZA. The DPFZA reports directly to the Office of the President. The main implications of this Act are that all activities previously described in the Maritime Transport Act fall under the responsibility of the DPFZA, including the authority to concede such activities to third parties; and that the DPFZA is mandated to, among other things, administer the Djibouti Ports and Free Zone and implement all laws relating to the Djibouti Ports and Free Zone.

PPP Act: Djibouti's PPP Act is established by Law No. 186 of 2017. This follows the Executive Decision No. 045 of 2016 to establish a Committee on the creation of a national legal and regulatory framework of 2016. This was done with the assistance of the World Bank and the French Development Agency and under the guidance of the Public Private Infrastructure Advisory Facility (PPIAF). The PPP Act describes the guidelines for all PPPs conducted in Djibouti and the corresponding opportunities regarding the division of responsibilities between the public sector, acting as the Conceding Authority, and the private operator, acting as the Partner.

[1] The International Convention for the Safety of Life at Sea (SOLAS) is an international maritime treaty which sets minimum safety standards in the construction, equipment and operation of merchant ships.

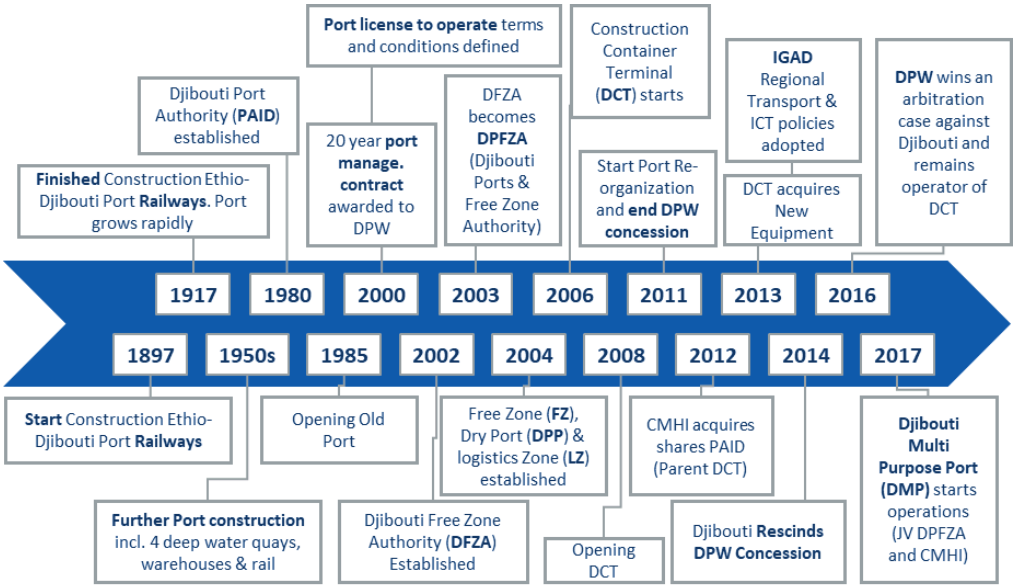
The PPP Act establishes a **PPP Unit**. The PPP Unit is attached to the Ministry of Economy and Finance. Moreover, the PPP Unit is involved in each PPP project, regardless of the Conceding Authority. The PPP Unit's mission in this role is to:

- Monitor and evaluate the need to update the existing legal and regulatory framework;
- Recommend any adjustments to the legal and regulatory framework required for the PPP project to the Minister and assist the Government in formulating a national PPP Policy;
- Assist Conceding Authorities in the preparation and implementation of PPPs;
- Promote PPP projects in Djibouti;
- Establish French and English PPP contracts of various types; and,
- Help to augment Djibouti's PPP capacities.

The PPP Act establishes a national **PPP Fund**. The PPP Fund is attached to the PPP Unit and is to finance prefeasibility studies for PPP projects under the consideration of the PPP Unit. These studies may be of a technical, financial and/or legal nature.

The PPP Act establishes a **PPP Regulatory Committee**. The Committee is granted the status of *Autorité Administrative Autonome* (AAA, Autonomous Administrative Authority) and is attached to the Office of the President. The Committee is tasked with regulating and monitoring the implementation of PPP projects.

Figure 1: Evolution of the Legal and Regulatory Framework in Djibouti



The main shortcoming of the existing legal and regulatory framework is the absence of any formal legislation on the protection of the environment and the requirements for safety and security related matters in the port. None of the legal documents that were presented provide information on the sustainable, safe, and secure development of ports toward their surroundings. With the large port development plans that are currently envisaged, this is regarded a major drawback of Djibouti's legal and regulatory framework and it is recommended that DPFZA, PDSA or other government bodies include environmental, safety, and security standards in the legal and regulatory framework for the ports sector. Finally, the existing legislation does not

clearly specify the role and regulations of the DPFZA, while that is the major body involved in the port developments in Djibouti. Even though DPFZA based on its mandate is under the direct jurisdiction of the President, it is regarded important that its formal role as port developer for the country is included in the country's legal documentation.

Port tariffs

The most recent tariffs were published by the Port of Djibouti SA in 2017. All tariffs are charged based on the preferred structures. The only notable errors in the tariff book are the following:

- The fixed fees charged per volume class for pilotage, towage, and mooring services overcharge small vessels and undercharge large vessels. Not only does this represent a potentially foregone financial gain, it also does not adhere to the principle of activity-based costing. Large vessels require more resources (more tug boats, more personnel for mooring) and should be charged accordingly.
- The port tariff book does not charge the port's users for light dues.

4. Port description

The Port of Djibouti is the main port of the country, and is situated in the south of Djibouti, close to the border with Somalia. The Port of Djibouti is located at the southern entrance to the Red Sea, at a minimal deviation from the principal East-West shipping route; it is well situated as a regional hub for transshipment. Since 1998, the port has handled most of landlocked Ethiopia's maritime traffic. Serving Ethiopia gives the Port of Djibouti a vast hinterland, as Ethiopia is the second-most populated country of Africa, with 92 million inhabitants. The port also focuses on providing transshipment activities for containers destined for eastern and southern Africa. Approximately 85 percent of the total throughput in the Port of Djibouti comprises cargo destined for or coming from Ethiopia. With a throughput of 1.0 million TEU in 2016, the Port recorded the second highest TEU throughput of all East African ports, supplanted only by Durban. As the country itself is relatively small, the port serves primarily as a transit port to Ethiopia. Furthermore, due to its favorable location near the East-West shipping route, the port has developed as regional transshipment hub.

The second port located within Djibouti is the Port of Tadjourah, which focuses on exporting potash from mines in northern Ethiopia. Two additional ports are currently being developed: Damerjog, focused on livestock exports, and Ghoubet, dedicated to the exports of salt from Lake Assal (Port de Djibouti, 2017).

Table 1: Performance Indicators - Port of Djibouti

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	1.00	12.00	1.00	7.00	1.00
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	681	3,983			
Port area productivity	ton/ha			67,845		
Container dwell time	days	7.37	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	0.75	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	4.04	4.62	n/a	5.0	1.48

Source: MTBS, DPFZA

Port of Djibouti - Djibouti

Table 2: Berth Characteristics – Port of Djibouti

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
No 01 – 02	Port of Djibouti Container Terminal	Port De Djibouti SA	400	9.5 – 12.5	Containers and general cargo	16.9	2x STS (50t)	
No 03 – 05	Port of Djibouti	Port De Djibouti SA	125	3.6 – 7.2	Small coastal vessels, general cargo	6.4	1x floating crane (80t) ; 2x MHC (18t/40t)	OS (0.7ha) WH (1ha) CS (0.2ha)
No 06 – 08	Port of Djibouti	Port De Djibouti SA	417	7.8 – 9.3	General cargo	3.3		
No 09	Port of Djibouti	Port De Djibouti SA	69	10.0	Navy and government vessels	0.7		
No 10 – 12	Port of Djibouti	Port De Djibouti SA	30 – 95	10.9 – 12.0	Multipurpose	31.0		
No 13	Port of Djibouti	Port De Djibouti SA	210	9.5	Multipurpose and some cruise	3.6		
No 14 – 15	Port of Djibouti	Port De Djibouti SA	397	12.0	Bulk including grain/fertilizer	4.2		WH (40,000t) Grain silos (30,000t) Fertilizer silos (40,000t)
Ro-Ro	Port of Djibouti Container Terminal	Port De Djibouti SA	-	12.5	Ro-Ro	4.5		
No 01 – 03	Doraleh Container Terminal	Doraleh Container Terminal SA (DP World)	1,050	18.0	Containers	60.1	8x STS (50t single-lift/65t twin-lift)	OS (5.6ha)
No 01 – 02	Horizon Terminal	Horizon Djibouti Terminal Ltd.	56 – 71	10.0 – 18.0	Clean products, aviation fuel, diesel, gasoil, fuel oil, LPG, chemicals, molasses, and vegetable oils	31.5		
No 01 – 06	Doraleh Multi-Purpose Port	Doraleh Multi-Purpose Port SA	1,200	16.0 – 18.0	Multipurpose	135.0	4x STS (50t) 12x MHC (35t)	WH (3.5ha) Bulk storage (250,000t) GC area (35ha) Vehicle slots (40,000 units) CTS (200,000 TEU)

Source: IHS Fairplay, 2017

Table 3: Throughput and Capacity - Port of Djibouti

Type	Unit	Throughput (2016)	Capacity	Utilization
Djibouti Port				
Containers	TEU	73,152	400,000	18.29 percent
Dry Bulks	ton	4,294,530	8,000,000	53.68 percent
General Cargo	ton	2,021,940	4,000,000	50.55 percent
Vehicles	ton	208,269	200,000	104.13 percent
Doraleh Container Terminal				
Containers	TEU	914,017	1,600,000	57.13 percent
Doraleh Multi-Purpose Port				
Multi-purpose	ton	n/a	8,779,000	n/a
Horizon Terminal				
Liquid Bulk	ton	3,767,214	4,800,000	78.48 percent

Source: DPFZA; DMP; DPW; Port de Djibouti

Table 4: Port Volumes - Detailed - Port of Djibouti

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	61,171	65,364	75,546	87,513	102,988
	Transit	TEU	346,634	370,394	428,091	495,909	583,600
	Transshipment	TEU	383,646	358,973	352,427	325,959	300,581
	Subtotal	**TEU**	**791,451**	**794,731**	**856,064**	**909,381**	**987,169**
General Cargo	Domestic	ton	244,942	226,727	237,623	308,528	303,291
	Transit	ton	1,388,007	1,284,788	1,346,531	1,748,323	1,718,649
	Subtotal	**ton**	**1,632,949**	**1,511,515**	**1,584,154**	**2,056,850**	**2,021,940**
Dry Bulk	Domestic	ton	356,769	363,255	379,123	435,670	644,180
	Transit	ton	2,021,693	2,058,448	2,148,364	2,468,796	3,650,351
	Subtotal	**ton**	**2,378,462**	**2,421,703**	**2,527,487**	**2,904,466**	**4,294,530**
Liquid Bulk	Domestic	ton	380,883	411,598	373,744	671,220	545,360
	Transit	ton	2,367,881	2,558,827	3,518,173	3,146,725	3,221,854
	Subtotal	**ton**	**2,748,764**	**2,970,425**	**3,891,917**	**3,817,945**	**3,767,214**
Ro-Ro	Domestic	ton	29,120	29,918	24,717	32,375	31,240
	Transit	ton	165,014	169,533	140,066	183,458	177,029
	Subtotal	**ton**	**194,134**	**199,451**	**164,783**	**215,833**	**208,269**

Source: Port de Djibouti

Volume forecast

Transit Shares: Djibouti's hinterland includes the countries Djibouti and Ethiopia. In 2016, roughly 85 percent of the total volumes handled by the Port of Djibouti (excluding transshipment) originated from or were destined for Ethiopia, with just 15 percent of the volumes designated for the country of Djibouti itself (Global Construction Review, 2017). Given that Djibouti is highly dependent on handling Ethiopian cargo, the port is focused on strengthening economic ties with its neighboring country. The construction of a new 756-km electrified railway connecting the Port of Djibouti to Ethiopia's capital Addis Ababa is an example of this (Mail & Guardian Africa, 2016). The port also serves as transshipment hub for containers destined for eastern and southern Africa. In 2016, 32.0 percent of the Port of Djibouti's container volumes were transshipment containers which represent approximately 2.9 million ton.

Hinterland Volume Shares: As the main Port of Djibouti, the port did not face competition from other ports for cargo destined for the country itself. The volume of transit cargo to Ethiopia which was handled by the Port of Djibouti (85 percent of the domestic cargo handled by the Port of Djibouti) represented 95 percent of the volumes of Ethiopia. The remaining five percent of Ethiopian volume was handled by Port Sudan.

Future Competitive Environment: With the new 30-year concession assigned to DPW in the Port of Berbera, Somaliland's Foreign Minister has welcomed Ethiopian businesses to import and export via the Port of Berbera, naming the advantages of the new facilities in the port, the similar distances of Berbera and Djibouti to Addis Ababa, and the road connecting Berbera to Addis Ababa. It was also stated that the Port of Berbera was expected to be capable of handling Ethiopian cargo as of May 2018 (Tesfa News, 2016). However, given that the construction for the new berth has not yet started, it is assumed that the Ethiopian volumes will not flow through Berbera until the new berth is operational. In addition, given its favorable location to southern Ethiopia, it is expected that the Port of Lamu will capture some Ethiopian volumes once constructed. Overall, it is assumed that Djibouti's share of Ethiopian cargo will decline about ten to fifteen percentage points in total over five years, starting 2021. This accounts for containers, dry bulks, and general cargo. Liquid bulk and vehicle shares are not expected to decline as Ethiopia is not expected to shift these cargo types from the Port of Djibouti to the Port of Berbera or Lamu.

Volume Projections: The volumes handled by Djibouti are expected to increase from 20.2 million tons in 2016 to 109.0 million tons in 2050. Containerized cargo is expected to be the largest cargo type in 2050 with 47.1 percent of total volumes, followed by dry bulk with 28.8 percent, and liquid bulk with 17.3 percent. Dry bulk exports are not expected to be significant, with potential potash exports from Ethiopia handled by the new Port of Tadjourah and salt exports from Lake Assal handled by the new Port of Ghoubet. Liquid bulk volumes are estimated to increase to 18.8 million ton in 2050, with the ratio of imports to exports being 100 to 0. In 2050, approximately 165,000 vehicles will be imported to the port's hinterland. Total volumes are expected to increase with a compounded annual growth rate of 7.5 percent in 2016-2030, 4.1 percent in 2030-2040, and 2.8 percent in 2040-2050.

Figure 2: Base Case Volume Projections - Port of Djibouti

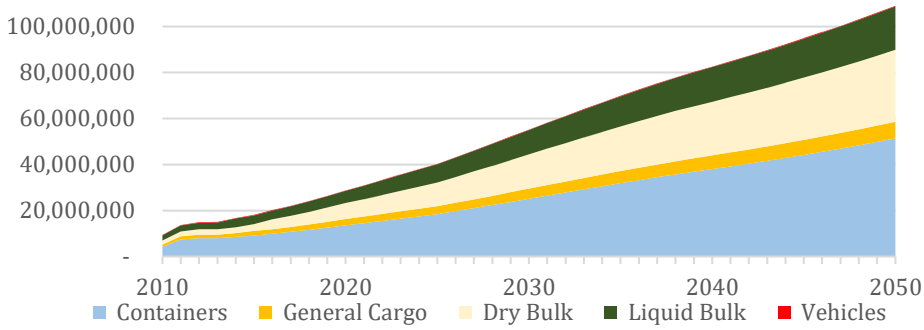


Table 5: Demand projections – Port of Djibouti

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	10,692	11,590	12,566	13,603	14,518	15,493	16,479	17,470	18,457	25,119	31,901	38,045	44,208	51,363
General Cargo	2,187	2,363	2,549	2,740	2,885	3,034	3,178	3,314	3,442	4,380	5,229	5,907	6,523	7,202
Dry Bulk	4,855	5,476	6,162	6,891	7,545	8,242	8,944	9,643	10,332	14,890	19,452	23,348	27,057	31,346
Liquid Bulk	4,131	4,524	4,948	5,389	5,856	6,358	6,873	7,400	7,934	10,623	13,104	15,082	16,862	18,846
Vehicles	129	133	136	139	144	151	157	157	158	176	192	202	229	248
Total	**21,993**	**24,086**	**26,361**	**28,763**	**30,948**	**33,278**	**35,630**	**37,984**	**40,323**	**55,189**	**69,879**	**82,583**	**94,879**	**109,006**

The MS Shift Case assumes that the Port of Berbera and the Port of Lamu each take a 15 percent stake in Ethiopia's domestic demand, decreasing the share of Ethiopian traffic via Djibouti to 70 percent. This scenario is based on the potential rail and road development from the Port of Berbera to Ethiopia's capital, the involvement of Dubai Ports World (DPW) in the Port of Berbera, and the development of the Port of Lamu. The cases are depicted in the graphs shown below.

Figure 3: Demand Forecast – Containers

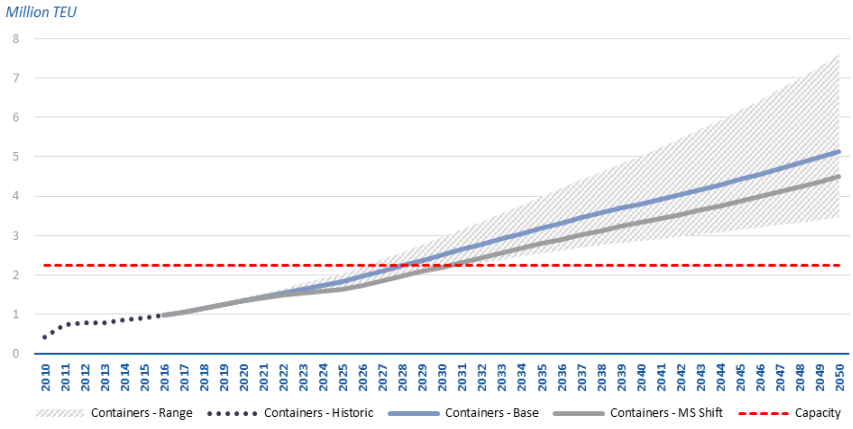
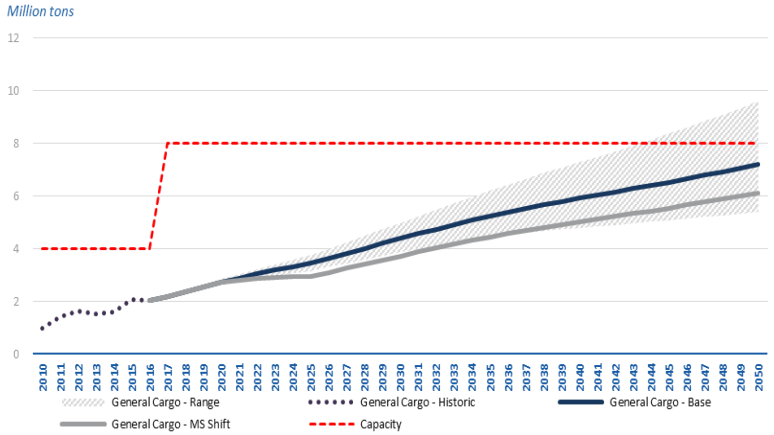


Figure 4: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Key Observations:

- **Port functions:** The Port of Djibouti provides modern port functions with substantial cargo volumes. Due to the importance of Ethiopia as a hinterland market for Djibouti, the port functions provided mainly aim at cargoes destined to and from Ethiopia. This is also the main reason for the logistics depots, warehouses and free zone areas provided in vicinity of the port.
- **Relationship between port and stakeholders:** The relationship between the port and its stakeholders can be regarded as good. There is cooperation with the city council on the development of the port (although not formalized). DPFZA tries to involve shipping lines in the terminal projects to have buy-in on the development plans and to guarantee cargo flows. There is strong involvement of DPFZA through its subsidiaries PDSA and GHIH in a shareholding position in all terminals in the port.
- **Development Strategy of the Port**: The development strategy of the port is largely based on the autonomy of DPFZA as the single entity to make development plans. There is limited involvement of ministries or other government entities as DPFZA is under direct responsibility of the president. Based on this, there is limited publicly available data like master plans or strategic development plans. The Djibouti Development Plan for Infrastructure 2012–2017 that guides the developments is an internal document that is not shared outside the DPFZA organisation. Except for the Addis-Djibouti railway, DPFZA is to a limited extent involved in the development of hinterland connections. This could be strongly improved based on the status of the road network to and from the port.
- **Degree of vertical integration**: There is a strong degree of vertical integration of the chain in the Port of Djibouti. DPFZA made substantial investments in IT and systems such as a port community system and terminal operating systems. Logistics services are provided through a network of container depots and ICDs in Djibouti and in Ethiopia. The logistics services for hinterland transport are largely in control of a single entity: Ethiopian state-owned ESLSE can be regarded as a 4PL that uses different service providers in Djibouti and asset-based Ethiopian trucking companies to provide their services to Ethiopian importers and exporters.
- **Degree of horizontal integration**: The degree of horizontal integration of the Djibouti ports sector is relatively high as compared to other ports in the region. There is presence of an international operator that is also present in other regional ports (DPW). The port authority PDSA is a nation-wide port authority that is also responsible for developments of other ports in the country. The logistics services providers in the port are also active in other ports in the region.

Proposed Key Actions:

- **Continue port development based on formalized planning**: the level of logistics services and terminal operations are currently at benchmark levels in the region.
- **Ensure a competitive approach towards Ethiopian cargoes**: with the development of modern port facilities in Port Sudan (Sudan), Berbera (Somalia) and Lamu (Kenya), the competitive position of Djibouti for Ethiopian cargoes is under pressure. For Djibouti to remain competitive for Ethiopian cargoes, it is important that it provides the required port facilities, hinterland connections, and services.
- **Develop a stakeholder forum**: a formalized stakeholder forum or port charter can ensure involvement of the port's stakeholders (public and private) in the development plans and create understanding of which developments are needed and why this is the case.
- **Ensure a modal-shift**: the new railway line that links Djibouti to Ethiopia has the potential to transport substantial flows of cargoes and enable a modal-shift from road to rail.
- **Improve the port's road connections**, in particular, the road links to Ethiopia.

Port-city interface

The population of Djibouti city shows a strong growth pattern with a CAGR of 3.83 percent between 2000 and 2017. The International Monetary Fund (IMF) expects Djibouti (the country) to have a stable growth pattern of about 2.8 percent per year up to 2022 (International Monetary Fund, 2017).

For each expansion in the Port of Djibouti, DPFZA presents an Impact Assessment Study, Financial and Technical evaluation report to the relevant government entities. There is strong cooperation between DPFZA and Djibouti's municipality. Congestion issues in the city from the old container port were resolved by shifting operations outside the port to Doraleh Multipurpose Port (DMP) and Doraleh Container Terminal (DCT). The original idea was to redevelop the old port and expand it, but through cooperation with the city council it was decided to move the port outside the city to reduce congestion and the environmental impact of the port on the city. The future Djibouti Business District in the old port area is being planned by DPFZA in cooperation with the municipality.

The most recent development in the Port of Djibouti concerns the new DMP, which was developed and financed jointly by the DPFZA and China Merchant Holding International (CMHI). DMP was developed to relieve the congestion in the old port and enable the development of the Djibouti Business District in the city center, and Phase 1 opened in 2013. In addition, the DPFZA announced multiple other development plans, including the development of a Free Trade Zone located south of the DMP. Furthermore, the newly constructed railway connecting the Port of Djibouti with Ethiopia is completed, but the connectivity to the berths needs to be completed.

Port Development Stage: Port Generation

The Port of Djibouti surpassed the first development stage in the evolution of a port, as it already accommodates all types of specialized vessels for containers, liquid bulk, dry bulk, and general cargo. The new port areas are characterized by their functional separation with dedicated terminals at new (greenfield) sites. The port and city are increasingly separated, and there are plans to retreat the port activities from the waterfront in the Djibouti Old Port by developing a Business District, including urban renewal. The Djibouti port development stage can be categorized as a third-generation logistics node port.

Key Observations:

- Djibouti is tackling port–city issues arising from the old port, by reclaiming new land for the DMP and DCT and shifting operations outside the port.
- DPFZA and the city council is planning the development of the Djibouti Business District in the old port area. This comprehensive urban renewal plan is similar to previously conducted developments such as the Kop van Zuid port area in Rotterdam, London's Canary Wharf and Docklands, and the South Street Seaport in New York.
- Currently, 97 percent of the volumes handled by the Port of Djibouti either leave or arrive to the port via truck. This contributes to congestion problems in the city of Djibouti. The new 756-km electrified Standard Gauge Railway (SGR) from Djibouti to Addis Ababa is expected to begin operations by early 2018, cutting the transport time from Djibouti to Addis Ababa from 7 days to just 10 hours. This is regarded as the best possible incentive to promote the use of rail vis-à-vis road.
- Based on the interviews conducted during the site visit, there seems to be limited involvement of Djibouti's municipality in the port developments of DPFZA.
- The DPFZA free zones are well developed and provide attractive incentive schemes for industrial and commercial firms including: 100 percent foreign ownership permitted, free repatriation of capital and profits, exemption of corporate tax, and exemption of income tax.

Key Recommendations:

- With the new Standard-Gauge Railway (SGR) to Ethiopia, the DPFZA should focus on stimulating a modal shift from road to rail. Following the example of the Port of Rotterdam, authorities can implement compulsory modal shift agreements in the concession contracts of its terminal operators.
- The Djibouti Road Authority should attract funding for widening and upgrading the quality of the road corridor to Addis Ababa given the current poor quality of the road.
- There are limited environmental measures taken to reduce the negative externalities for the adjacent city. Policy measures which could be implemented by the DPFZA are:
  - Variable port fees to incentivise the use of less polluting vessels
  - Regulate truck emissions through truck retirement programmes; or
  - Install facilities to cater for the cold ironing of vessels calling the Port of Djibouti.
- To limit congestion in the city, DPFZA can impose Terminal Appointment Systems; promote off-peak operating hours; and assure proper transport documentation before gate arrival.
- Implement a specific committee or forum in which port-related stakeholders meet with local community stakeholders to discuss port–city issues like the local Ports Consultative Committee in South Africa.
- Establish a professional training institute to build up core capabilities and competencies by creating a pool of port academicians and port experts.

Somalia: Somalia is located in the Horn of Africa and is bordered by Ethiopia to the west, Djibouti to the northwest, the Gulf of Aden to the north, the Indian Ocean to the east, and Kenya to the southwest. Somalia's economy is characterized by relatively low GPD levels: in 2016 Somalia's GDP was US$6.2 billion and its GDP per capita just US$450, making it one of the poorest countries in the world (The World Bank, 2017b). Somalia has the longest coastline in Africa with 3,300 km and is close to the Suez Canal, through which many of the East–West trade vessels move.

1. Ports sector institutions

Due to the unstable political situation in Somalia, the relevant authorities in the port sector are scattered. Berbera is located in the self-declared state of Somaliland, Bosaso in the autonomous state of Puntland, and Mogadishu and Kismayo in the Federal Republic itself. The port authority in Berbera is the Berbera Port Authority (BPA), which presently falls directly under the responsibility of the presidency. BPA is a parastatal body and has an autonomous status where the management and operation of the port are concerned. Consequently, the BPA is free to order or execute works to the port infrastructure, to procure services for its own needs, and to hire and fire its employees. Resembling the Somaliland clan culture, the BPA is intertwined with the local clan structures as well, though this is not formally structured. In decisions that have a strategic impact, the local clan's opinion is heavily weighed. The port authority of the Port of Mogadishu is the Mogadishu Port Authority. However, in 2013 the Somali government signed an agreement with Al Bayrak, a Turkish Company, to manage and develop the Port of Mogadishu for a period of 20 years. The smaller ports of Bosaso and Kismayo are administered by local port authorities.

Other public-sector entities that are relevant to the ports sector include Ministry of Planning & Development and the Ministry of Finance. The Ministry of Planning & Development leads, facilitates, and coordinates national vision and development and produces plans and policies. The Ministry of Finance is to provide for proper budgetary and expenditure management of government financial resources. For the ports sector, the ministry's role is mainly related to managing government expenditures and coordinating the bilateral and multilateral development financing that is used frequently in port projects.

Berbera Port Authority and the Government of Somaliland have signed a 30-year concession for management and operation of the port with Dubai Ports World (DPW). DPW will set up a joint venture with 65 percent control together with the government of Somaliland to manage and invest in the Port of Berbera. The outcome of the negotiations or main outcomes of the agreements, were not publicly disclosed. Therefore, the impact of the deal, specifically related to the timing of additional capacity and operational configuration of the port, is unknown.

After DPW's takeover of operations it is to be expected that at least on the operational performance of the port, substantial improvement will be made. Further, depending on the exact contract terms and fulfilling of Somaliland Government and DPW requirements resulting from those terms, potentially the port capacity (from an infrastructure perspective) could also be expanded.

The institutional setting of Port of Berbera can be best characterized as a 'landlord port'. The BPA is responsible for the port management, while DPW is responsible for the port operations (the loading and unloading of ships, the handling and storage of the cargoes, the procurement and maintenance of the cargo handling equipment). Other private sector parties are only involved in the 'private' port labor pool (dock workers, stevedoring) and in the activities of the transport and trading agencies.

The BPA is headed by the General Manager, who bears the overall responsibility for the BPA. The organization consists of 9 operational departments and can be characterized as a centrally governed, 'flat' organization; the span of control of the General Manager is quite wide. This directive management structure and culture drives on the professionalism of the General Manager (and his deputies), which presents a strong dependency on the availability and performance of (a few) individuals, which can be assessed to be an organizational risk. Such risk can be partly mitigated by a strong administrative management system; the system currently in place is basic with an emphasis on 'micro levels'.

Other shortcomings of the port sector institutions are as follows:

- There is no independent regulator or auditor in the ports sector that ensures compliancy of the port activities with the jurisdiction, carries out independent monitoring, and regulates the private sector's involvement in the port.
- There is no specific ministry for the port and transport sectors that can draft policies, laws, and represent Somaliland in bilateral agreements. Preferably, a Ministry of Transport, or Ministry of Infrastructure shall be responsible for this.

To improve the functioning of the ports sector in Somaliland, it is thus necessary to implement an independent monitoring body that can verify, audit, and check the functioning of the ports sector, from the perspective of tariff setting, concession agreements, and environmental/safety measures; and to improve the policymaking at the national government level to ensure that the development plans for the Port of Berbera are part of national government planning and policy.

2. Policy framework

The policymaking framework in the port sector in Somaliland de facto consists of a single policymaking level — the national level policymaking. At a regional level, Somalia's port policy is formally guided by the AU and IGAD as regional organizations. The AU, however, does not recognize Somaliland as an independent country. Further, based on Somaliland's special legal status as an unrecognized self-declared state, it has declared that it rejects the regional IGAD agreements, as these agreements assume a unitized Somalian state instead of a separation between Somaliland and Somalia (Garowe Online, 2016). Therefore, the main objectives within IGAD's transport policy are not formally adhered to by Somaliland or the Port of Berbera.

At a national level, policy is developed by the Ministry of National Planning and Development. Somaliland's national policy documents are the 30-year National Vision (Somaliland Ministry of National Planning and Development, 2011a) and the National Development Plan I, which reaches from 2012 to 2016 (Somaliland Ministry of National Planning and Development, 2011b) and II, which reaches from 2017 to 2021 (Somaliland Ministry of National Planning and Development, 2017). In addition, the Somaliland's Ministry of Trade and Investment provides an investment guide to Somaliland (Somaliland Ministry of Trade and Investment, 2013).

In the 30-year National Vision, Somaliland has formulated a road map for its long-term development based on five pillars: economic, infrastructure, governance, social, and environmental. The infrastructure pillar focuses on the development of the transport sector, but mostly lists investments in the road network and not in the government's policy for the ports sector. The *National Development Plan I (NDP I) 2012–2016*, was the first development plan under the National Vision document. The total investment requirements under NDP I add up to US$1.2 billion, of which US$18.6 million is allocated to the development of Berbera Port. However, within the Somaliland *National Development Plan II (NDP II) 2017–2021*, there is much less attention to the development of the ports sector in the country, reflecting the signing of the concession agreement. According to NDP II, the investments will provide an immediate boost to growth, and the port's increased capacity and the potential Berbera free economic zone should encourage further investment and trade in future years. The main additional development plans stated in the NDP II

as compared to NDP I concern the development of a Berbera Free Zone adjacent to the port and development of maritime security policies, laws, and institutions.

By 2021, Somaliland will have maritime security policies, laws, and institutions in place and can assert control and sovereignty over its maritime domain through the following interventions:

- Devise a comprehensive National Maritime Policy and prepare a strategic plan to implement policy
- Establish National Maritime Security Coordination Committee
- Establish Somaliland Maritime Authority
- Pass and enforce a new Maritime code and appropriate maritime legislation to deal with maritime security threats
- Strengthen cooperation and collaboration with international and multilateral maritime forums
- Ensure adequate security for all Somaliland ports (Berbera Port in particular)
- Improve and develop Maritime Domain-related Infrastructure and facilities (e.g. Maritime University)
- Recruit and train suitably qualified maritime sector staff
- Establishment of a Somaliland Ports Authority to replace the current Berbera Port Authority will also create an opportunity to develop and connect all of Somaliland's ports in the future.

Somaliland's Ministry of Trade and Investments provides an investment guide to Somaliland that provides additional policy statements regarding the development of the ports sector as one of the country's priority sub-sectors (Somaliland Ministry of Trade and Investment, 2013). The priority sub-sectors of infrastructure include: roads, housing, education, health, telecommunications, information communication technology (ICT) and ports which are necessary to promote the above mentioned important sectors like agriculture, fishery, livestock, and energy.

With regard to ports, the objectives of the government in this document relate to the expansion of port facilities; establishment of a container terminal; development of a free-trade zone; dredging to accommodate large vessels, and acquisition of adequate port handling equipment. Further, the government is committed to creating the enabling environment for the operation of national and international firms that would implement its major development projects through performance-based contracting.

At a local level, policy for the Port of Berbera is drafted by the BPA, the main public entity responsible for the Port of Berbera. However, BPA has not published a formal port master plan, port strategy document, or local port policy document. The BPA therefore does not develop itself or the port according to specific policy or strategy documentation, but merely focuses on the day-to-day operations. Therefore, it is not possible to assess the local-level policy in Somaliland's ports sector. Key shortcomings of the overall port sector policy framework that concerns Berbera are as follows:

- There is an overall lack of an integrated policy for Somaliland's port sector from the government's perspective, since the current NDP documents only present high-level interventions for the sector. The BPA has not published any policy documents on its account, and the only available policy documents on the Port of Berbera were developed using donor funding.
- There is no dedicated entity involved in policymaking for the ports sector. The Ministry of National Planning and Development presents broad policy goals, but there is lack of detailed policy documentation by the BPA or other entities that are more closely involved in the sector.
- There is a lack of environmental principles included in the policy goals. With the large port development plan for Berbera that is currently envisaged under the concession agreement, this is regarded a major weakness of Somaliland's port policy. It is recommended that BPA includes environmental standards in any port development plans.

- The legal and regulatory framework for the structure of power in the ports sector is not clear from the current policy documents. The policymaking process and the decision-making process toward implementation of policy is currently not clear from the documents. The BPA used to be the key entity involved in the ports sector, with limited involvement of other government entities. With the DPW agreement, this is likely to change.
- There is a lack of financing principles included in the policy goals. It is unclear how the Government of Somaliland or its underlying entities (Ministry of Planning, BPA) aim to finance the proposed port investment plans that are listed in the policy documents. One recent study on the development of Berbera port which sought to allocate funding options to different port development projects and based on the Somaliland Government's financing capacity, concluded that most of the investments required either substantial donor funding or private sector funding through PPPs (MTBS, 2017).
- As there is no clear PPP policy for Somaliland, there is a strong risk that private entities exploit the country's assets and/or do not invest up to the level that is promised.
- There are no criteria for investment decisions specified in the NDP I and NDP II documents. It is unclear how investment decisions are validated by the government and how a decision on whether to invest or not is made. A clear guideline with minimum requirements for government investments is regarded a necessity to ensure value for money for the government.
- There is a lack of principles for the development of legislation based on the policy documents. The NDP I document presents the principles for future policy development, whereas NDP II presents the need to establish a Somaliland Ports Authority. No detailed principles are presented on how this should be done or by which governmental bodies.

3. Legal and regulatory framework

Although the Somaliland region ("Somaliland") enjoys political and economic autonomy from Somalia, it has not been recognized as an independent country. Therefore, the legal and regulatory framework for the Port of Berbera is scattered, as it is based on a combination of multiple different types of legal systems (Somaliland Law, 2017a). The legal and regulatory framework relevant to the port sector in Somaliland consists of multiple treaties, acts, rules, regulations, guidelines, and agreements:

- At an international level, Somaliland's legal and regulatory framework for the ports sector is guided by the IMO conventions that are largely focused on maritime safety and security, the prevention of pollution and related matters, and less on specific port sector policies or operational implications.
- At a regional level, Somaliland's legal and regulatory framework for the ports sector is guided by the African Union (AU) Maritime Charter and the IGAD establishment agreement. However, the lack of international recognition from the AU and IGAD means Somaliland currently does not formally adhere to the legal and regulatory framework drafted by these entities.
- At a national level, Somaliland's legal and regulatory framework for the ports sector is guided by multiple relevant documents: Maritime Law, Public Procurement Act, and Public Finance Management and Accountability Act. The Berbera Port Authority has not published a port act, and there is no maritime authority or maritime authority act available.
- There are no formal legal and regulatory documents available at the local level (Port of Berbera).

Somaliland considers itself bound by the United Nations Convention on the Law of the Sea, which was signed by the Somali Democratic Republic on 10 December 1982 and ratified under Law No. 14 of 9 February 1989. The formal notification of ratification was made to the United Nations (UN) on 24 July 1989.

The Somali Republic has also acceded to the following other maritime related conventions:

- International Convention on Load Lines 1966: acceded to by the Somali Republic on 30 March 1967 and ratified on 21 July 1968.
- Convention on the Intergovernmental Maritime Consultative Organisation (now the IMO): joined in 1978—ratified under Law No. 9 of 4 March 1978.
- Convention on the Code of Conduct for Liner Conferences: ratified under Law No 7 of 20 January 1988.

The instruments of ratification were approved in 1989 for the following two conventions but we can trace no record of notification to the IMO: Law No. 71 of 1 November 1989 ratifying the International Convention for the Prevention of Pollution from Ships 1973 (MARPOL), and Law No. 72 of 1 November 1989 ratifying the International Convention for the Safety of Life at Sea (SOLAS) 1974 and the 1978 Protocol.

Somaliland's Maritime Law is dated January 1989 (Somaliland Ministry of Commerce, 1989) and is mainly focused on maritime activities (navigation and shipping). The following comments assume that the Somalia Maritime Law applies in Somaliland. Some of the most relevant articles in the law are therefore summarized here:

- Article 11 of the law defines the concept of *maritime demesne*; the article states that ports are maritime demesne and provides that the maritime administration regulates the use of the maritime demesne and exercises policing on the same. However, because there is no formal maritime administration in Somaliland, this article should be therefore interpreted as stating that in Somaliland, the State has exclusive power over ports such as the Port of Berbera.
- Article 17 of the law enables the Government to grant to an investor, or the SPV of an investor, the right to occupy and use all or part of the Port of Berbera, for operating any service.
- Article 18 of the law states that the concessionaire must pay a rent regarding the occupation and use of the public utilities. The amount of the rent is established by the concession agreement, which means that it should be a negotiated amount. Article 18 does not provide for any other fees such as concession fees but does not exclude the existence of the same, since the rent is not deemed being the exclusive payment due by the concessionaire.
- Article 25 of the law states the responsibilities of the harbor master in the Somaliland context: *the Harbor Master regulates and superintends the entry and leaving, shifting anchorage, and mooring of vessels, use of buoys in ports, loading, unloading and storing of goods, imparking and lading of passengers, operations of the maritime lighthouse and signaling service, fire and measures against fire, taking any step in connection with security and police of port and adjacent areas, with the power of ordering the mooring, unmooring and any other maneuver of vessels within the port.*
- Article 33 deals with port services and provides for the possibility of operations by the private sector.

Somaliland published new Public Finance Laws in 2017, namely: Public Finances & Management Law; Customs Law; and Inland Revenue Law and the State Auditor General Law. The fifth law, the Public Procurement Law is still in parliament (Somaliland Law, 2017b).

According to a review of the Somalian legal setting (The World Bank & Berbera Port Taskforce, 2015), the existing regulatory business framework in Somaliland is uncertain (survival for an undetermined interim period of foreign laws, mainly Somalian laws) and in various aspects not yet tested. It may be considered in various aspects as "under construction" and is uncertain since from time to time the former Somalia laws and regulations applying as "interim" laws and regulations (Article 130(5) of the Constitution) may be replaced with Somaliland laws and regulations, which might differ from Somalia laws and regulations.

The PPP framework governing Somalia's port sector can be regarded as weak. The Public Procurement and Concessions Law (2014) has been enacted by the Parliament and is yet to be assented to by the President (The World Bank, 2015b). Investors cannot rely on any well-known, experienced and predictable regulatory framework to secure their investments, even if such regulatory business framework (i) does not prohibit the establishment of a PPP/ Private Sector Participation (PSP) scenario for the Port of Berbera and (ii) provides, at least at the constitutional level, for standards and principles for protection of private interests. Thus, the regulatory framework does not provide for the degree of certainty a private investor is expecting, in order to secure its investment and appraise any acceptable and affordable sharing of risks between the public sector and the private sector.

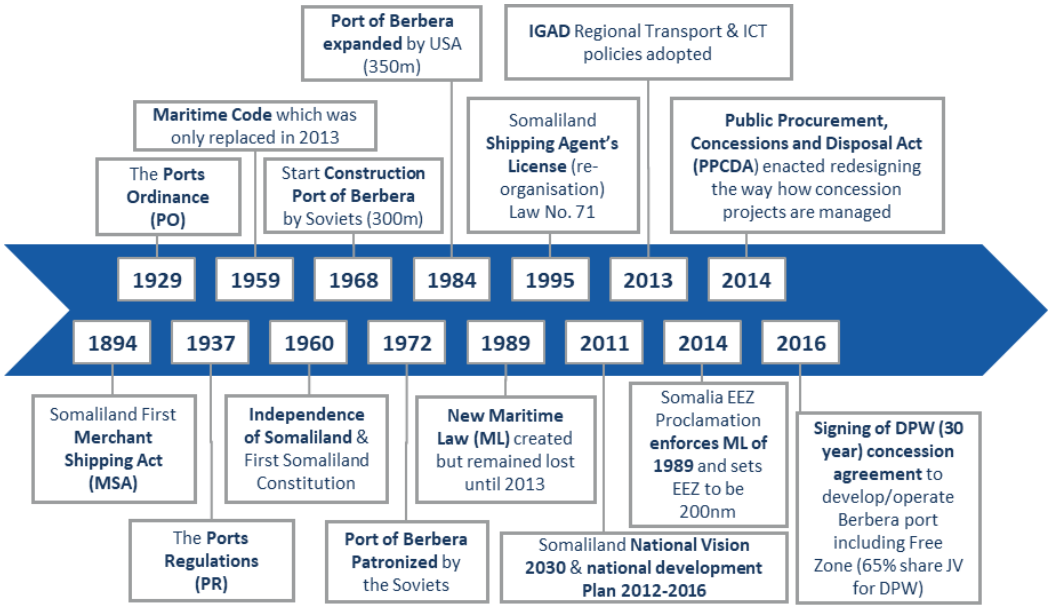
The main shortcomings of Somaliland's port sector legal and regulatory framework relate to the fact that Somaliland has not been recognized as an independent country. Therefore, the legal and regulatory framework for the Port of Berbera is scattered, as it is based on a combination of multiple different types of legal systems. There is a lack of multiple types of legal and regulatory documents that are regarded as must-haves for a proper legal and regulatory framework, such as a ports or port authority act that designates a port authority role to specific entities; a clear PPP act or PPP regulations that provide the possible PPP structures; and a maritime authority act that designates a regulatory and monitoring role to a maritime authority in Somaliland. There are no financing principles for port regulatory bodies stated in existing legal documents.

The legal and regulatory framework is outdated and therefore does not use the current government policy as a basis. This results in a mismatch between government policy and the legal and regulatory framework. If the recommendation in the previous shortcoming is considered, the mismatch between policy and the legal and regulatory framework will also be resolved.

The lack of international recognition for Somaliland means that it is difficult for the region to adhere to regional agreements. There is no clear and rapid solution for this issue, as this relates directly to whether Somaliland is recognized or not. This fully depends on the international community.

The possibilities to develop and implement port PPPs under the current legal and regulatory framework are unclear. There is no formal legal and regulatory framework that depicts the possibilities to implement port PPPs. This is regarded as a major shortcoming, as it is impossible to judge the structure and possibilities for private sector involvement in the port.

Figure 5: Evolution of the Legal and Regulatory Framework in Somalia



Port tariffs

Berbera port tariffs are defined in *Berbera Port Tariffs* published by the BPA (Berbera Port Authority, 2015). It is, however, unclear if these tariffs are currently still charged, as the DPW agreement is understood to enable DPW to set all tariffs except for the marine services (pilotage, towage, mooring). Based on the BPA tariff book, it can be concluded that the current port tariff structure in Berbera is largely in order, except:

- The berthing dues are currently not charged per time unit, but per vessel call
- Mooring dues are currently independent of the size of the vessel
- There are no (published) storage tariffs for cargoes
- There are no (published) gate handling fees.

4. Port description

Somalia has four main ports: Berbera, Bosaso, Mogadishu, and Kismayo. The ports in Somalia mainly focus on imports of containers, general cargo, and dry bulks (foodstuff). Exports concern livestock and seafood. The Port of Berbera plans to develop itself as a second gateway to Ethiopia, competing for Ethiopian cargo flows with Djibouti and Lamu, once constructed.

The Port of Berbera is strategically located in the north-western region of Somalia, on the Gulf of Aden. The Berbera Port Authority (BPA) and the Somaliland Government have been in discussions with private partners regarding a large-scale infrastructure development project expanding the Port of Berbera and constructing roads ("The Berbera Corridor") that would connect the port with Ethiopia. This project is a high priority for Berbera, which would derive substantial revenue, as well as for Ethiopia, which seeks improved access to the port to meet its domestic requirements.

Table 6: Performance Indicators - Port of Berbera

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	3.11	7.30	4.79	5.75	2.64
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	423		4,793		
Port area productivity	ton/ha			98,764		
Container dwell time	days	-	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	n/a	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	3.87	3.10	n/a	4.02	2.68

Source: MTBS, BPA

Port of Berbera - Somalia

Table 7: Berth Characteristics – Port of Berbera

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
SPM	Berbera Oil Terminal	Berbera Oil Group	SPM	8.5	Liquid bulk	11.7	SPM	
Commercial Quay	Multipurpose Terminal	DP World and Port of Berbera Authority	650	9.8	Container, Ro-Ro, break bulk, livestock and general cargo	18.6	Bulk cargo handling facilities are available including bagging machines.	OS (6ha) WH (0.5ha)

Source: IHS Fairplay, 2017

Table 8: Throughput and Capacity - Port of Berbera

Type	Unit	Throughput (2016)	Capacity	Utilization
Berbera Port				
Containers	TEU	91,572	130,000	70.44 percent
Multi-purpose	ton	1,859,056	3,000,000	61.97 percent
Berbera Oil Terminal				
Liquid Bulk	ton	217,759	300,000*	72.59 percent

Source: Berbera Port Authority *estimated

Table 9: Port Volumes - Detailed - Port of Berbera

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	35,906	37,740	52,520	73,038	91,572
	Transit	TEU	-	-	-	-	-
	Transshipment	TEU	-	-	-	-	-
	Subtotal	**TEU**	**35,906**	**37,740**	**52,520**	**73,038**	**91,572**
General Cargo	Domestic	ton	442,932	393,765	450,198	394,094	404,303
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**442,932**	**393,765**	**450,198**	**394,094**	**404,303**
Dry Bulk	Domestic	ton	701,970	678,622	700,015	1,019,994	1,435,500
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**701,970**	**678,622**	**700,015**	**1,019,994**	**1,435,500**
Liquid Bulk	Domestic	ton	93,367	101,991	152,157	232,883	217,759
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**93,367**	**101,991**	**152,157**	**232,883**	**217,759**
Ro-Ro	Domestic	ton	11,365	15,077	18,291	24,232	19,253
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**11,365**	**15,077**	**18,291**	**24,232**	**19,253**

Source: Berbera Port Authority

Volume forecast

Transit Shares: Berbera's hinterland historically includes only Somaliland, the northern part of Somalia. With Somalia being divided in Somaliland in the north, Puntland in the Northeast, and Somalia in the South, each autonomous state has its own seaport serving its hinterland. The Port of Berbera serves Somaliland, the Port of Bosaso serves Puntland, and the Port of Mogadishu serves Somalia. In 2016, all port volumes handled by Berbera originated from Somaliland, with no cargo being handled for its neighboring countries Djibouti or Ethiopia. There are no relevant transshipment activities taking place in the Port of Berbera.

Hinterland Volume Shares: Due to the unstable political situation and the declaration of Somaliland, Puntland, and Somalia as autonomous states, the Port of Berbera did not face any competition from the Port of Bosaso or the Port of Mogadishu for cargo destined for Somaliland. As such, the cargo volumes which were handled by the Port of Berbera represent 100 percent of the country of Somaliland's volume demand. The Port of Bosaso handled the volume demand of Puntland, whereas the Port of Mogadishu handled most of cargo originating and destined for Somalia.

Future Competitive Environment: DPW has signed a 30-year concession with the BPA for the management and development of a multi-purpose terminal in the Port of Berbera. In addition to this port development project, the Government of Somaliland is negotiating with the private sector to develop the Berbera Corridor, a large-scale road- and rail construction project aimed at connecting the port with Ethiopia. With both the Port of Djibouti and the Port of Berbera located close to the Ethiopian market, it is assumed that the majority of Ethiopian traffic, whether container, dry bulk, and/or general cargo activities, will be divided between the two ports, with southern Ethiopian cargo being handled by the Port of Lamu once it becomes operational. Ethiopian vehicles and liquid bulk volumes are divided over the Port of Djibouti and the Port of Lamu.

Volume Projections: The volumes handled in the Port of Berbera are expected to increase from 3.0 million ton in 2016 to 18.1 million ton in 2050. With approximately 47.1 percent of the volumes handled by the Port of Berbera in 2050, dry bulks are predicted to be the largest cargo type, followed by containers with 39.4 percent and general cargo with 9.3 percent. Containerized cargo is split equally between imports and exports, whereas dry bulks are expected to consist entirely of imports. General cargo exports represent about 90 percent of total volumes in 2050, with livestock being the primary export commodity. With just 10,000 tons (about 7,000 vehicle units) in 2050, vehicles represent the smallest cargo type. As there is not export of crude oil, liquid bulk volumes are not a significant import commodity either in 2050, representing just 0.8 million ton in 2050. Total volumes are expected to increase with a compounded annual growth rate of 8.7 percent in 2016-2030, 3.8 percent in 2030-2040, and 2.7 percent in 2040-2050. The large difference in these growth rates is because Berbera is expected to capture 7.5 percent of the Ethiopian container, dry bulk, and general cargo volumes between 2021 and 2025.

Figure 6: Base Case Volume Projections – Port of Berbera

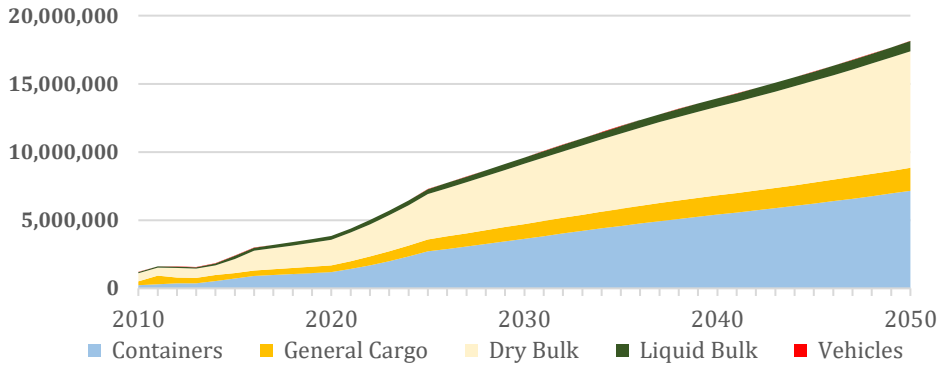


Table 10: Demand projections – Port of Berbera

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	980	1,048	1,120	1,197	1,429	1,695	1,995	2,332	2,706	3,640	4,580	5,407	6,218	7,150
General Cargo	427	450	473	498	563	635	712	796	885	1,081	1,260	1,407	1,543	1,693
Dry Bulk	1,536	1,643	1,756	1,876	2,104	2,363	2,650	2,968	3,316	4,417	5,522	6,498	7,455	8,551
Liquid Bulk	232	247	262	279	296	313	331	349	367	457	541	610	675	746
Vehicles	2	2	2	2	2	9	9	9	9	9	9	9	10	10
Total	**3,176**	**3,389**	**3,614**	**3,852**	**4,393**	**5,015**	**5,698**	**6,453**	**7,282**	**9,603**	**11,912**	**13,932**	**15,901**	**18,149**

The MS Shift Case assumes that the Port of Berbera takes a 15 percent stake in Ethiopia's domestic demand, representing an increase of 7.5 percent in Ethiopia. This scenario is based on the potential rail-and-road development from the Port of Berbera to Ethiopia's capital, and the involvement of DPW in the Port of Berbera.

Figure 7: Demand Forecast – Containers

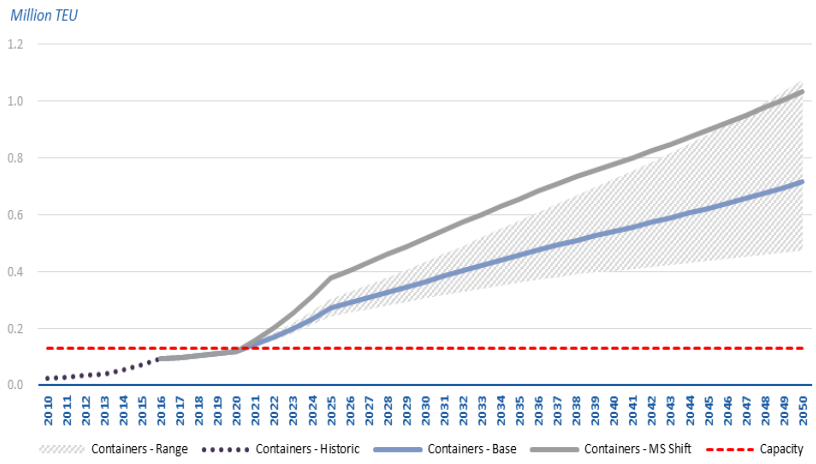
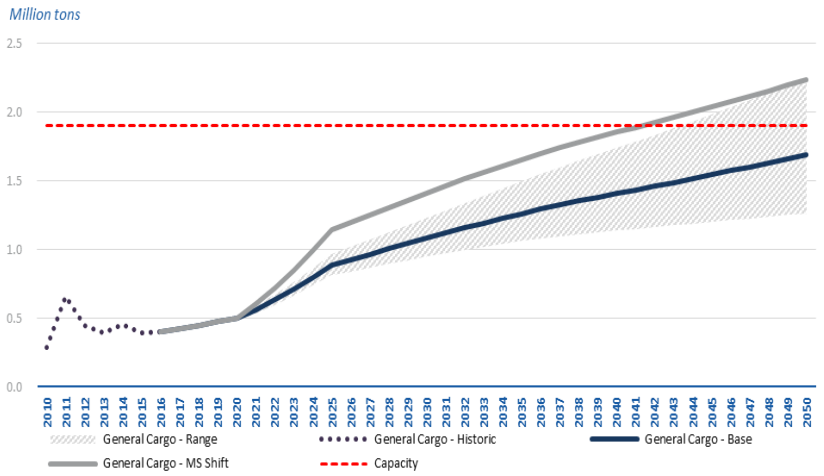


Figure 8: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Key Observations:

- **Port functions:** the Port of Berbera is currently limited in terms of its size, cargo flows, and services offered. The port has been managed by DPW since 2016 under the concession agreement with the Somaliland government. The concession agreement is expected to improve the competitive position of the port itself. The status of the port's hinterland connections (Berbera corridor) and the logistics services provided (the trucking sector) are currently the main issues for the port.
- **Relationship between port and stakeholders:** the relationship between the port and its stakeholders is limited. There is little to no communication between the port, the municipality, and other stakeholders on the development of the port. The large number of development agencies working on the port brought dialogue between the port and its stakeholders on a case-by-case basis.
- **Development Strategy of the Port:** the development strategy of the port used to be largely based on the autonomy of the BPA as the single entity to develop the port. There was little involvement of other government entities and there were no formal strategic development plans for the port available. With the involvement of DPW in the port, it is expected that this will change, and there will be more strategic planning where port users are involved. This can also enable the involvement of the port in developing hinterland connections.
- **Degree of vertical integration:** so far, there is almost no degree of vertical integration in the port. Again, this is expected to change with the involvement of DPW, but under BPA operations, there were hardly any systems used in the port, and the level of logistics services was low.
- **Degree of horizontal integration:** the degree of horizontal integration in the Port of Berbera is relatively low. Apart from the presence of an international operator, present in other ports (DPW), there is little horizontal integration.

Proposed Key Actions:

- **Ensure competitive port facilities and operations**: for the pure port-related aspects, such as the available draft, quay length, equipment, and operations, it is expected that the current DPW concession agreement will have a substantial impact. Under the agreement, a US$442 million investment program is launched with the intention of constructing a 400-metre quay wall in combination with a 250,000m^2 container yard and an adjacent free trade zone.
- **Ensure competitive logistics services**: to provide competitive logistics services, an investment program in the transport sector is a must-have. The truck fleet is outdated, and there are no IT systems used in the transport sector. It is advised that the Berbera Transporters Association is involved in the development of logistics services, as this is the entity that currently coordinates transport from the port to the hinterland, and vice-versa.
- **Engage in formal port master-planning**: planning of the port was always done in isolation by the BPA. This planning function shall be improved, and the development of a Berbera port and logistics master plan that includes involvement of port stakeholders is regarded a necessity.
- **Develop formalized interaction with stakeholders** to ensure involvement of the port's stakeholders (public and private) in the development plans.
- **Improve the Berbera Corridor (institutional):** the role of Berbera as a transport node for Ethiopian cargoes is suffering from the lack of formal procedures on trade between the two countries, as was also investigated by MTBS under a separate study (MTBS, 2017). Projects on the development of formal trade procedures, improving Somaliland Customs and reducing non-tariff-barriers shall be carried out to resolve these issues.

Port–city interface

In the past decades, there was little involvement of the Berbera municipality in port-related matters. The clan culture in the Somaliland region means that the governance structures are mostly informal. The Port of Berbera's importance for the regional economy is substantial, with over 50 percent of the Somaliland government budgets coming from the port and custom revenues made in the port; and the port is an important financier of the region and community. There is no factual port or city governance structure in place, and this is largely based on informal agreements and traditions.

Port Development Stage: Port Generation

The Port of Berbera is a relatively small and primitive port without any state-of-the-art handling equipment such as gantry cranes or mobile harbor cranes used for (un)loading of container cargo. The port accommodates many small regional boats, such as dhows, that trade goods during their stay at the port. The port shows growth, and receives general cargo and container vessels. However, these are geared vessels that handle the goods with cranes that are attached to the vessel.

All in all, the port can be considered a first-generation port that is expected to move to a second or third generation port as soon as substantial port developments take place. The population in Berbera shows a strong growth pattern, with a CAGR of about 5 percent between 2005 and 2014.

Key Recommendations:

- The BPA needs to develop a long-term master plan for the Port of Berbera in addition to the development plans of DPW.
- The BPA and municipality of Berbera should engage in more frequent and structured dialogue to discuss port–city issues.
- Should port volumes grow significantly in Berbera, the port needs to improve the hinterland transport infrastructure to accommodate for these increasing volumes. This could include the construction of railway connections to domestic markets and transit markets.

Kenya: Kenya lies to the north of Tanzania and south of Ethiopia and Somalia on the East Africa coast. Its total population was approximately 47.2 million in 2016. Total GDP in constant 2010 US$ was US$55.3 billion in 2016, making it the third largest economy in ESA after South Africa and Sudan (The World Bank, 2017b).

1. Port sector institutions

The Kenya Ports Authority (KPA) is mandated to maintain, operate, improve, and regulate all sea and inland waterway ports in Kenya. Currently, the KPA is the main operator in the Port of Mombasa, where it acts mostly as a public service port that operates some of the main terminals. It is KPA's objective to evolve into a landlord port authority, overseeing specialist terminal operators. Phase I of the new Kipevu Container Terminal has been commissioned, but a specialist operator has not yet been contracted. The private operators in the port currently are Grain & Bulk Handlers Ltd (GBHL) for cereal imports, Base Titanium that handles titanium exports, and Tata Chemicals Magadi that handles exports of soda ash.

KPA also manages three Inland Container Depots in Nairobi, Kisumu, and Eldoret, and has three liaison offices in Kampala, Kigali, and Bujumbura to cater for transit countries. Furthermore, the KPA is now also responsible for managing the port at Kisumu on Lake Victoria—following the ending of the concession with Rift Valley Railways. The LAPSSET Corridor Development Authority (LCDA) is by presidential order responsible for the development of the Lamu Port and connecting corridor. After the project is developed, the KPA will assume the role of landlord port authority in Lamu.

Other public-sector entities relevant for the port sector are the Ministry of Transport (MoT), Kenya Maritime Authority (KMA), and the Ministry of Finance (MoF). The MoT formulates transport policy to guide the development of the sector, develops the regulatory framework to ensure harmony and compliance with international standards, and supervises transport service delivery. The MoT oversees delivery of services by institutions in the sector through relevant legislation, policy direction, and performance monitoring and evaluation. In the port sector, this role is performed by the Shipping and Maritime Technical Department based at the MoT. Furthermore, the MoT ensures development of the regulatory framework, which is enforced through the KMA. KMA was established in 2004 with the mandate to regulate, coordinate, and oversee activities in the maritime industry for maximum socio-economic benefits in line with national standards and international conventions. A relevant development to KMA's mandate and activities is the Kenya Government's decision on private sectors involvement in the operations of Mombasa Port based on Merchant Shipping Act Section 16 (1). There is a clear need to update and revise national commercial maritime legislation to complement the activities of KMA, considering developments in the international maritime sector where collaboration between shipping lines and terminal operators becomes common practice.

The main responsibilities of the MoF that directly impact the ports sector relate to its role in managing government expenditures and coordinating the bilateral and multilateral development financing that is used frequently in port projects. Main shortcomings based on the assessment of Kenya's port sector institutions are:

- KPA has considerable responsibility over the country's port sector, and currently fulfills numerous functions that a modern landlord is not expected to undertake (e.g. all port operators' functions and internal auditing practices).
- The KPA's financial autonomy is limited based on the KPA Act: the KPA needs approval from the Ministry of Transport and the Ministry of Finance for any capital work exceeding 5.0 million Kenyan Shilling (around US$50,000).
- The KPA's policymaking autonomy is limited based on the KPA act: the MoT can guide the KPA's policymaking to a large extent.

To improve the functioning of the ports sector in Kenya, it is thus necessary to ensure that the non-landlord functions of the KPA are designated to other entities (e.g. port operations concessioned to specialist terminal operators) and to ensure that the KPA's financial autonomy as a landlord port is at par with what can be expected of such a role: the current US$50,000 maximum on capital works is regarded to be too low. It is also necessary to balance the policymaking responsibilities between the KPA and the MoT through the Ports Act, such as by implementing a statement that delegates the policymaking to KPA and the Minister.

2. Policy framework

At a regional level, Kenya's (trans)port policy is guided by COMESA, the East African Community (EAC), IGAD, and Port Management Association of Eastern and Southern Africa (PMAESA). At a national level, transport policy is developed by the MoT, through a clear national transport policy document that serves as the basis for the ports policy in the country. Within this document, Kenya's maritime policy, including that of the ports sector, is described. Furthermore, specific sections of the national port policy are developed by the ports authority KPA (e.g. green port policy and port safety policy). At a local level, the KPA is responsible for transforming policy into development plans for the specific ports in the country. The KPA Act mandates the KPA to manage and operate all seaports along the Kenyan coastline. An exception to this concerns the Port of Lamu, which is governed by the LAPSSET Corridor Development Authority following a presidential order. However, KPA in its policy and planning documents also mentions the developments in Lamu to be part of its mandate.

Kenya's national transport policy is documented in the 2009 *Integrated National Transport Policy: Moving a Working Nation* report. Within this report, the Government of Kenya's mission and objectives for the maritime transport sector are listed. These include, among others, the development of the maritime transport sector in support of the economy in general and Kenya's international trade; development of the Port of Mombasa as a main gateway to Kenya and the hinterland serving the Great Lakes region; development of the Port of Lamu as an alternative commercial port with developing links to Sudan, Ethiopia and Somalia; and promotion of PPPs in maritime transport operations and infrastructure development.

Kenya established its PPP Act in 2013. Under this act, the PPP Committee was created, which oversees all PPP projects. In addition, the PPP Unit was created to serve as the secretariat and technical arm of the PPP Committee (PPP Unit Kenya, 2017).

With Mombasa being the main seaport of the country, the national ports policy and ports planning have historically focused on Mombasa. KPA's policymaking and master planning practices have therefore largely been separated between 'Mombasa' and 'other ports.' Based on this separation, there is a national master plan document for all ports except Mombasa (Kenya Ports Authority, 2012a). On the other hand, there are multiple planning and policy reports available related to the development of Mombasa port itself (JICA, 2015a), (Kenya Ports Authority, 2015).

One of the consequences of this division between Mombasa and the other ports is that policy development for the Port of Lamu has been scattered. Policy documents for Lamu port are being published by the Ministry of Transport, KPA and LCDA. Lamu is set to become a major new port, and therefore does not fall within the traditional structure of policymaking. This division between the KPA focusing on Mombasa versus the KPA focusing on a broader role as a national ports authority is represented clearly in the Development Plan of Mombasa Port document. This document also presents—contrary to what its title suggests—development plans for the Port of Lamu, Lake Victoria Ports, and smaller seaports. Even though Mombasa has historically been the main seaport of Kenya, the current KPA planning and policy practices shall have a country-wide focus that also considers the development of other seaports in line with the Integrated National Transport Policy.

Kenya's National Transport Policy and KPA's port master plans reflect the following objectives:

- **Economic growth**: the importance of maritime sector and port development as a driver and enabler of economic growth is marked in the National Transport Policy as follows: "maritime transport continues to play a pivotal role in the development of the national economy." The Development Plan for Mombasa Port states that: "modernization of Mombasa Port is a key factor in accelerating regional economic growth."
- **Regional connectivity:** with Kenya's role as the main point of entry/exit for the Northern Corridor countries, the regional connectivity component is highlighted in all policy documents. The National Transport Policy states that "the Port of Mombasa shall be developed as a main gateway to Kenya and the hinterland" and "the Port of Lamu shall be developed as an alternative commercial port with emphasis on developing links to Sudan, Ethiopia, and Somalia." The Development Plan of Mombasa Port states that the port serves a wide hinterland, thus Hinterland Connectivity is critical for success of regional trade. The Mombasa Port Master Plan states that "Efficiency and cost competitiveness of the Port and Corridor are critical for the economies of the countries."
- **Fair competition and ease the flow of goods:** the 'easing the flow of goods' component is highlighted in the regional connectivity statements presented above, where emphasis on the efficient hinterland connections is clearly marked.
- **Safety and security:** the safe and secure development of ports is mentioned in all policy documents, as in the National Transport Policy: "enhance the legal framework within which to ensure safety and security [...] of the sea and inland waters." One of the strategy definitions of the Mombasa Port Master Plan is "to ensure the maritime safety and security" and the Mombasa Port Development Plan states that "services must be offered that focus on safety."
- **Environment:** the importance of sustainable port development is highlighted in all policy documents, for example, in Mombasa's Port Master Plan strategy definitions: "preserve and improve the natural environment in/out of the port."

Key shortcomings of Kenya's port sector policy framework are as follows:

- There are different policy mandates for two major ports: Based on the field visits, it is understood that KPA in practice is responsible for the development of the port at Lamu, and that LCDA is responsible for the entire corridor project. However, in the policy mandates and documents there is a clear contradiction between the two. It is regarded as essential that this mismatch is resolved, as it could lead to future issues on the development of the port when the policy mandate differs from the actual mandates.
- There is a lack of an integrated policy for major seaports and smaller seaports. The current policy documents make a clear distinction between the major (Mombasa) and smaller seaports. Because of this, the policy development for the Port of Lamu has been scattered. Policy documents for Lamu port are being published by the Ministry of Transport, KPA and LCDA. Lamu is set to become a major new port, and therefore does not fall within the traditional structure of policymaking. This division between the KPA focusing on Mombasa versus the KPA focusing on a broader role as a national ports authority is represented clearly in the Development Plan of Mombasa Port document. This document also presents—contrary to what its title suggests—development plans for the Port of Lamu, Lake Victoria Ports, and smaller seaports. Even though Mombasa has historically been the main seaport of Kenya, the current KPA planning and policy practices shall have a country-wide focus that also considers the development of other seaports in line with the Integrated National Transport Policy.
- Policy goals that are set in the National Transport Policy document are not bound to a timeframe and remain general statements (e.g. Government of Kenya shall expedite plans to construct a new port at Lamu). This shall be resolved for policymakers to be accountable and responsible for their plans and cannot

make broad statements that are either achieved or not.

- It is unclear how the KPA or the Government aim to finance the proposed port investment plans that are listed in the National Transport Policy document. By allocating the investments either to the central government, to the KPA, to donor funding, or to the private sector through PPPs, the Government of Kenya will get a clear view on the investment needs and responsibilities.
- Some outdated policy and planning documents are in need of an update: National Transport Policy (Ministry of Transport of Kenya, 2009), KPA Master Planning for Ports (Kenya Ports Authority, 2012a).
- There is a clear contradiction between policy statements and policy implementation on PPPs. PPPs in the port sector are implemented on a limited basis, and KPA announces in its handbook (Kenya Ports Authority, 2017b) that it is not moving to a landlord status, and emphasis is placed on improving KPA's own capabilities (that is, operating terminals by itself). It is recommended that the KPA presents a single vision that is clear on its future as a landlord port/public services port.

On a National level, the Integrated National Transport Policy (INTP) serves as a policy document to consolidate, enhance, and sustain the competitive position of Kenya in the regional transport system, by identifying several challenges inhibiting the transport sector from performing its role with respect to national, regional, and international economies. The current version, which dates to 2009, is currently under review by the Ministry. The new version is developed with an increased focus on lake ports, developing several smaller Kenyan ports like Shimoni, infrastructure investments required for increased coastal shipping, and expanding Kenya's container transshipment potential.

The policy roles for the Lamu Port development are as follows:

- The Ministry of Transport, Infrastructure, Housing, and Urban Development, through its State Department of Transport, has a directive role. That is, it develops the envisioned national port development plan and oversees the general direction and focus of the port development plan.
- The KPA is the authority in charge of implementing this chosen and set port development plan of the Ministry of Transport. It is the authority that must assure the national port development plan is transformed into actual and realistic development projects, which consequently need to be implemented and realized within the set timeframe.
- The LCDA acts as coordinating agency, and is the 'project team' in charge of coordinating the development of a specific project. The LCDA thus has no official implementation authority, which resides with the KPA.

There is a clear contradiction between the historical policymaking and planning in the Port of Mombasa and the Port of Lamu, according to the Ministry of Transport. Mombasa is a classic example of the port driving economic activity in a region, which subsequently drives the construction of residential areas, shops, and other commercial activity. The frequently seen issue with this is that expansion of the port capacity is often limited by the presence of the city surrounding the port. In addition, the roads in the city have not been designed for the increase in road utilization associated with the increase in port capacity, resulting in congestion in the city and the port.

Lamu is on the other side of the port planning spectrum—the planning is done 'by the book,' keeping in mind potential future port capacity, adequate hinterland transport infrastructure now and in the case of potential port capacity enhancements, sufficient residential areas, etc.

3. Legal and regulatory framework

At an international level, Kenya's legal and regulatory framework for the ports sector is guided by the IMO conventions that are largely focused on maritime safety and security, the

prevention of pollution and related matters, and less on specific port sector policies or operational implications. At a regional level, Kenya's legal and regulatory framework for the ports sector is guided by the AU's Maritime Charter, the COMESA treaty, the EAC treaty, and the IGAD establishment agreement. Further, Kenya is a member of the Northern Corridor Transit and Transport Agreement (NCTTA) in which it cooperates with South Sudan, Uganda, Rwanda, Burundi and the DRC on the facilitation of transit trade to the landlocked countries. At a national level, Kenya's legal and regulatory framework for the ports sector is guided by multiple relevant documents, of which the main relevant concerns are: the Kenya Ports Authority Act, the PPP Act, and PPP Regulations (jointly: PPP Legislation), the Merchant Shipping Act, and the Kenyan Maritime Authority Act. At a local level, the KPA and the Mombasa port community have developed a legal and regulatory document that aims to realize the full trade potential of the Mombasa Port Corridor: the Mombasa Port Community Charter.

Kenya adheres to all the International Maritime Conventions as published by the IMO, except for the following conventions (Kenya Maritime Authority, 2017): (i) the International Convention on Civil Liability for Oil Pollution Damage, 1969 (CLC Convention, 69); and (ii) the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution damage, 1971 (FUND Convention, 71). The lack of adherence to these conventions has earlier lead to only limited compensation in a case where oil spills occurred off the coast of Mombasa (Daily Nation Kenya, 2005).

The Northern Corridor is the main transport route connecting the Port of Mombasa to Kenya and the landlocked countries in the hinterland (South Sudan, Uganda, Rwanda, Burundi, and eastern DRC). The NCTTA (NCTTA, 2007) is an agreement between the Northern Corridor countries with the goal to promote an efficient, cost-effective and reliable transit transport system. The precursor of the NCTTA, the Northern Corridor Transit Agreement (NCTA), signed in 1985, came into force in 1986. DRC became party to the agreement in 1987. The objectives of the agreement are to: ensure freedom of transit among the member states; safeguard right to access to/from the sea for landlocked countries; develop and integrate the regional transport facilities and services; and facilitate inter-state and transit trade. Except for South Sudan, all NCTTA members are also parties to the COMESA treaty.

Article 4 of the NCTTA presents the obligations of the member countries. The article states that in order to achieve the objectives of the NCTTA, member countries shall, among others: "cooperate in investment planning, development of transport and transit facilities and equipment. … to encourage the private sector to participate to the financing of the construction and maintenance of transport infrastructure and facilities."

Article 8 relating to the functions of the Council of Ministers, an organ of the Northern Corridor Co-ordination Authority states that one of the functions of the Council is: "joint resources mobilization and the allocation of funds for regional projects under the Northern Corridor transport system aimed at improving conditions of interstate traffic and of transit within the territories of contracting parties."

Article 12 deals with the Port of Mombasa and other port facilities, and states that: "The Government of the Republic of Kenya undertakes to provide or shall make provision for third parties to provide maritime port facilities to the contracting parties at Mombasa or any other convenient location for traffic using the Northern Corridor … The Government of Kenya shall, in addition ensure that the Port of Mombasa and any other port designated for traffic using the Northern Corridor remains a competitive maritime port facility."

Next to the articles in the agreement, 11 protocols are attached as annexes, of which Protocol 1, 'Maritime Port Facilities' focuses on the aspects relevant for the Kenyan ports.

The KPA is a State Corporation established under the Kenya Ports Authority Act (No. 2) of January 1978. The title of the KPA Act indicates: "An Act of Parliament to provide for the establishment of an Authority to be known as the Kenya Ports Authority, for the transfer to the Authority of the undertakings, within Kenya, of the East African Harbours Corporation, for the functions of the Authority and for purposes connected therewith." This reference relates to the East African Railways and Harbours Corporation formed in 1948 by

merging the railways and harbors of both Kenya and Uganda, and which no longer exists. KPA is responsible for administering the Port of Mombasa as well as maintenance, operation, improvement, and regulation of all sea ports listed in Schedule 2 to the KPA Act: Funzi, Kilifi, Kiunga, Lamu, Malindi, Mtwapa, Shimoni and Vanga on the mainland coast of Kenya. Several principal issues are observed in the current KPA Act:

- Based on the current KPA Act, the KPA is responsible for the development of new ports, and shall also maintain, operate, improve, and regulate all ports. However, based on a Presidential Order (Gazette Supplement No. 51, Legal Notice No. 58, 2013), LCDA is the policy, implementation, operational coordination, and technical oversight organ for the Corridor Project.
- The KPA Act does not directly enable a landlord port model. The functions of KPA listed under Section 12 of the KPA Act, most notably the operating of the ports, to carry on the business of stevedore and to act as warehousemen, do not correspond as core functions of a landlord port authority. However, the KPA can enter into agreements to outsource any of its services, which means that the landlord model is indirectly possible under the act.
- The KPA Act provides responsibilities toward the KPA that are not part of a usual port authority mandate, such as: the operation of trains and road transport, the development of power plants, and the provision of houses for its employees.
- The Act provides KPA a substantial amount of freedom and autonomy: KPA can enter into any agreement with any person or company, and it can also hold shares or acquire any corporation under the act.

Kenya PPP Act and PPP Regulations

Kenya's PPP Legislation is based on a step-wise development of acts and regulations. The first piece of legislation dealing with Pubic Private Partnership in Kenya is documented in subsidiary legislation from by the Minister of Finance in Section 140 of the Public Procurement and Disposal Act, 2005. Section 140 provides that the Minister shall make regulations for the better carrying out of the provisions of the Public Procurement and Disposal Act. Accordingly, the Public Procurement and Disposal (Public Private Partnership) Act, 2009 (the "PPP Regulations, 2009") was adopted. In November 2011, the Government of Kenya released its PPP policy. This policy outlined steps for the Government to implement a comprehensive framework for PPP development. As such it included the restructuring of the existing PPP Committee and the PPP Secretariat as well as developing a procurement process for PPPs. The policy was formalized in law with the passing on 14th January 2013 of the Public Private Partnership Act (the "PPP Act, 2013"). Section 73 of the PPP Act, 2013 provides that any regulations in force before the commencement of the Act and applicable to PPP were deemed revoked. "PPP Regulations, 2009" was thus revoked. The PPP Act, 2013 was then followed by the Public Private Partnership Regulations, 2014 (the "PPP Regulations, 2014").

The PPP Legislation can be regarded as complete and offers a valid legal ground for the design and implementation of a PPP arrangement for port projects in the country. However, for the PPP legislation to become fully operational, PPP guidelines and PPP toolkits, as mentioned in the PPP legislation, should be adopted. These are currently only available in draft versions via the PPP Unit's website. According to the PPP Act 2013 (part XII, second schedule), the relevant arrangements for the port sector, based on international norms, concern concessions, build-operate-transfer, or rehabilitate-operate-transfer agreements.

The Kenyan Merchant Shipping Act has been drafted based on the UK Merchant Shipping Act, which regulates shipping and vessels in many common-law countries. The structure and the provisions of the Kenyan Merchant Shipping Act are therefore common to the structure and provisions of other similar Merchant Shipping Acts in the region, such as Tanzania or South Africa. The Act regulates vessels, shipping, seafarers, safety of life and navigation, carriage of bulk cargoes and dangerous goods, maritime security, and dedicated institutions. The Act does not regulate ports in either their construction or operation.

Section 16(1) of the Merchant Shipping Act is indirectly relevant to Kenya's port sector. It

states: "No owner of a ship or person providing the service of a shipping line shall, either directly or indirectly, provide in the maritime industry the service of crewing agencies, pilotage, clearing and forwarding agent, port facility operator, shipping agent, terminal operator, container freight station, quay side service provider, general ship contractor, haulage, empty container depots, ship chandler or such other service as the Minister may appoint under section 2." According to this restriction, shipping service providers cannot, directly or indirectly, be engaged in terminal operation services. "Directly or indirectly" is not defined by law, so that the true limit of the restriction cannot be easily determined. The following interpretations are made:

- Direct link: regards all terminal operators that are partly owned by a shipping line or ship owner (the share of ownership has no influence on the general interpretation of the act) and are excluded;
- Indirect link: regards all terminal operators that have joint-venture/joint shareholding companies (even with another purpose than maritime transport logistics) together with shipping line or ship owner (the share of ownership has no influence on the general interpretation of the act), and are listed as a joint stock company whereof some of the shares are owned by a shipping line or any type of company which also owns shares of a shipping line.

Based on the ambiguity of section 16(1) of the act, a Global Terminal Operator started a court case in 2015 against the KPA to contest the decision making for the operator search in the newest Mombasa container terminal. In an order rendered by Justice George Odunga on May 20, 2015 it was ruled that 16(1) of the Merchant Shipping Act was not valid and resulted in unlawful discrimination. Following this court case and other issues slowing down the tender procedure, the Kenyan Transport Cabinet and the KPA Board terminated the concessioning process in February 2016 and granted the operations of the terminal to the KPA. This means that the status and interpretation of Section 16 (1) is unclear as the section exists, has not been declared unconstitutional, and is part of the Kenyan legislation KPA should comply with.

Kenya's PPP Act was adopted in line with Kenya's National development program "Vision 2030," which is currently implemented in Kenya. This plan aims to transform Kenya into a middle-income country, particularly through the realization of key projects that require important funding, which, in practice, cannot be fully supported by the Government of Kenya. The PPP Act creates a framework that makes "Vision 2030" projects more attractive for private investors. The framework consists of the following key concepts:

- Three new organizations are established: the PPP Committee, which is responsible for monitoring projects and preparing guidelines; the PPP Unit, which serves as the secretariat and technical arm of the Committee; and PPP Nodes, established by each contracting public authority.
- Before entering into a PPP agreement, the concerned public entity will assess the advantages of using a PPP, developing the facility, or providing the service itself.
- Important steps must be followed for every project: feasibility studies; prequalification; call for tenders, and disclosure of the benefits of the project through electronic media.
- Every PPP should comply with three key principles:
  1) Value for money
  2) Affordability for the contracting government entity and the end users
  3) Appropriate transfer of risks to the private party.
- The winning bidder will establish a project company, in which a public entity can be a minority shareholder.
- The private sector can initiate and suggest an investment in a project or the development of an activity to the Government.
- PPP agreements shall be governed by the laws of Kenya; any conflicting provisions shall be invalid. Any dispute arising out of PPP agreements shall be resolved in accordance with the laws of Kenya.

The KMA is a statutory authority established under the Kenya Maritime Act (KMA Act) with the mandate to regulate, coordinate, and oversee Maritime affairs in Kenya. Like the Merchant Shipping Act, the KMA Act does not formally regulate ports in their development or operation. The main relevance for the ports sector from the KMA Act is prescribed in Section 5 (1) which dictates that the KMA has, among other things, the duty to: administer and enforce the provisions of the Merchant Shipping Act, 2009 (No. 4 of 2009) and any other legislation relating to the maritime sector for the time in force; co-ordinate the implementation of policies relating to maritime affairs, and promote the integration of such policies into the national development plan; and advise government on legislative and other measures necessary for the implementation of relevant international conventions, treaties, and agreements to which Kenya is a party.

Based on the first clause, it can be interpreted that the KMA has a direct impact on Kenya's ports sector, being the authority that shall administer and enforce the provisions of an act that in recent years had a major impact on the concessioning of a 550,000 TEU container terminal. The other clauses in the act provide additional power to the KMA regarding the ports sector, as the KMA can co-ordinate in the implementation of policies for the maritime sector (which includes the ports sector) and can advise the government on the legal and regulatory framework regarding international agreements in the sector.

The KMA Act and Merchant Shipping Fees Regulation specifies clearly how the KMA shall derive its funds, namely through funds appropriated by Parliament and through fees as approved by the Minister of Transport. These fees are specified in the Merchant Shipping Fees Regulation.

The Mombasa Port Community Charter (Mombasa Port Community Charter, 2014) was signed in 2014 as a joint development by private- and public-sector entities that aims to "facilitate trade through the Mombasa Port Corridor for national and regional economic growth and prosperity." The charter not only concerns a policy document, but also presents clear obligations and guiding principles (such as regulations) for all signatories. From this perspective, the document can be classified as a legal document to which all signatories are bound.

Overall, Kenya's port sector legal and regulatory framework has the following shortcomings:

- There are different legal and regulatory mandates for two major ports: according to the KPA Act, the KPA is fully responsible to maintain, operate, improve, and regulate all seaports in the country, but the development of the Lamu Port is allocated to the LAPSSET Corridor Development Authority under Gazette Supplement No. 51, Legal Notice No. 58, 2003. Based on the field visits, it is understood that KPA in practice is responsible for the development of the port at Lamu and that LCDA is responsible for the entire corridor project. However, in the legal documents there is a clear contradiction between the two. It is regarded essential that this mismatch is resolved, as it could lead to future issues on the jurisdiction in the development of the port when the legal mandate differs from the actual mandates.
- The possibilities to develop and implement port PPPs under the current legal and regulatory framework are unclear:
    - The KPA Act provides possibilities to outsource port activities.
    - The PPP Legislation (PPP Act and Regulations) offers a valid legal ground for the design and the implementation of a PPP arrangement.
    - The Merchant Shipping Act states that shipping services providers cannot, directly or indirectly, be engaged in terminal operation services.
    - The KPA in its handbook states that it is not willing to move to a landlord port status.

It is important that the above-mentioned contradictions in the legal and regulatory framework and the legal issues regarding the privatization of port operations are resolved, especially as the KPA is currently in the process of developing the Port of Lamu, where it plans to engage with private sector operators.

For Port of Lamu, the role of LCDA is to enable the development, but KPA is by law responsible for managing and operating the port, and also leads the implementation and ensures that funding is available. In practice this leads to the following situation:

- The Ministry of Transport, Infrastructure, Housing, and Urban Development, through its State Department of Transport, has a directive role. That is, they develop the envisioned national port development plan and oversee the general direction and focus of the port development plan.
- The KPA oversees implementation of the port development plan of the Ministry of Transport.
- The LCDA acts as coordinating agency and can be seen as the 'project team' in charge of coordinating the development of a specific project. The LCDA thus has no official implementation authority, which resides with the KPA.

LCDA's mandate is directly linked to the national transport policy and the national transport master plans that are available. It is LCDA's strong opinion that the Lamu port project shall be developed as a PPP, and there is a strong need for assistance from experienced organizations in implementing PPPs.

For the Port of Mombasa, a PPP on their newly-built Second Container Terminal, CT2, was envisioned. However, several legal issues related to section 16 of the Ports Act prevented the implementation of a PPP on CT2. As the quay was already constructed, delaying operations to implement a PPP was not desirable, after which KPA took up the role of operator. In KPA's recently published Annual Report, it stated that KPA's role as container terminal operator (CTO) is unlikely to change in the near future. The Ministry of Transport confirmed this statement during the meeting, despite their acknowledging the benefits of implementing PPPs in such projects, and their referring to PPPs as "industry best practice in the global port sector."

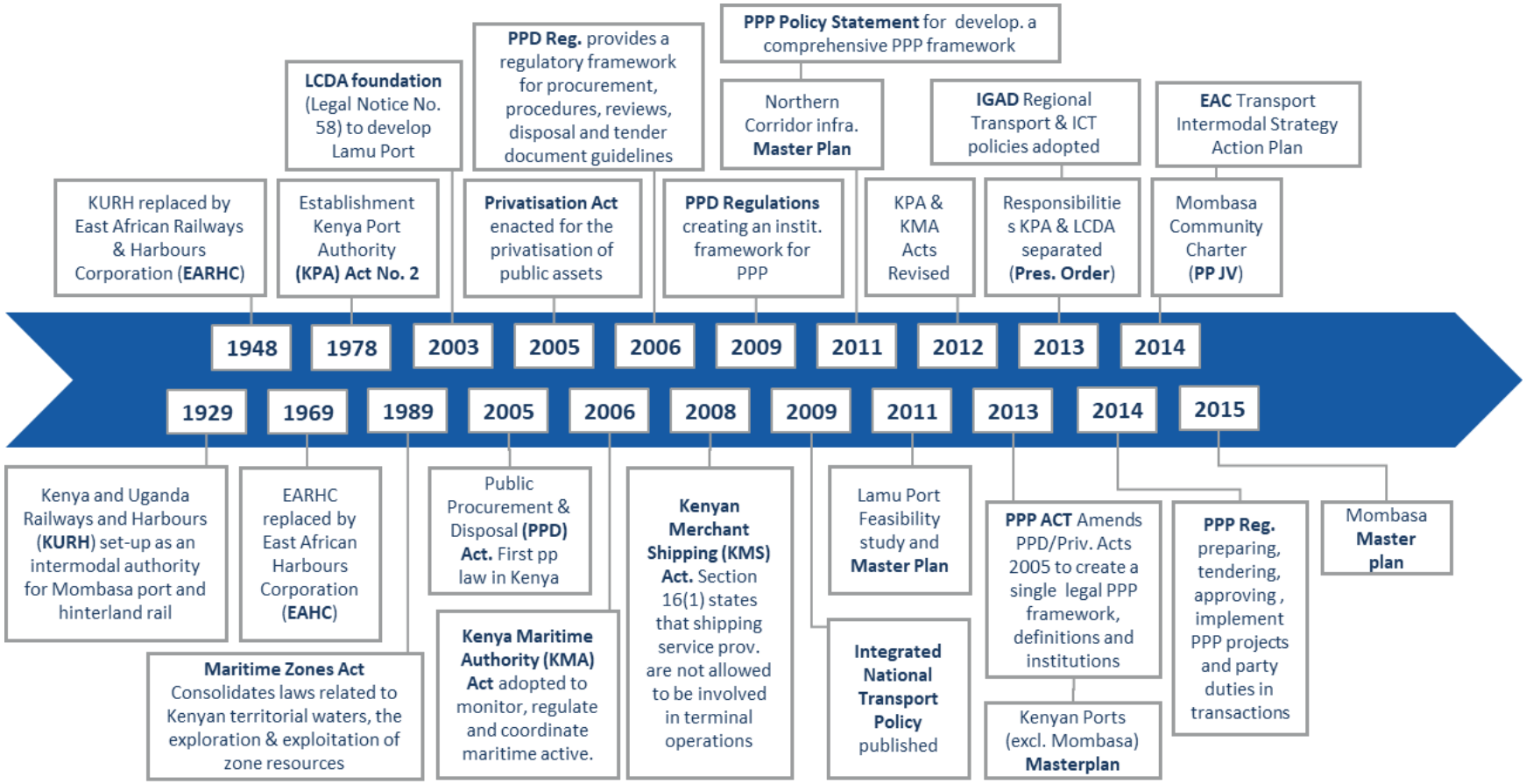
A potential issue with implementing PPPs in Kenya is politically motivated, as it is considered politically sensitive in Kenya to use the "taxpayers' money" to make investments in brownfield port projects, after which operations, and potential positive financial returns, are handed over to an international terminal operator. Through correctly structured concession contracts, publicly incurred investment risks can be properly rewarded. Kenya might be reluctant toward this, as there might be some PPPs in the past that did not assure proper allocation of risks and rewards between the public and private party. Private involvement in greenfield port projects does, however, not seem to be a problem.

Port tariffs

The single publicly available source that is available on Mombasa's port tariffs is the Kenya Ports Authority Tariff (Kenya Ports Authority, 2012b). Since the KPA is the main entity responsible as a port authority, terminal operator, and provider of marine services in the Port of Mombasa, the KPA Tariff is largely complete in terms of the tariffs it considers. The main tariffs that are currently lacking are handling tariffs of the privately-operated terminals in the port (such as the Grain Bulk Handlers Ltd bulk import facility).

The current port tariff structure in Mombasa is in order: all tariffs are charged based on the preferred structures. The only notable error in the tariff books is that the current minimum light due fee is equal to the minimum port due fee.

Figure 9: Evolution of the Legal and Regulatory Framework in Kenya



4. Port description

Mombasa is Kenya's main port, located in the southern part of the country. It acts as a gateway port to Kenya and its hinterland, comprising Uganda, Northern Tanzania, and the DRC. Using a regular feeder system, the port is connected to Mogadishu, Dar es Salaam, and transshipment hubs such as Djibouti, Durban, and Salalah. The port is home to two container terminals: The Mombasa Container Terminal and the newly constructed Kipevu Container Terminal, which was commissioned in April 2016 and has a yearly handling capacity of 550,000 TEU in Phase I.

Table 11: Performance Indicators - Port of Mombasa

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	2.70	5.54	3.82	6.93	1.58
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	469		8,738		
Port area productivity	ton/ha			129,933		
Container dwell time	days	3.30	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	4.38	4.38	4.38	4.38	4.38
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	3.27	4.13	n/a	4.31	3.96

Source: MTBS, KPA

The Port of Lamu is Kenya's new greenfield port project located north of Kenya. It is part of the LAPSSET Corridor Project, aimed at enhancing Kenya's position as a gateway and transport hub to the East African region, and facilitating trade and regional economic integration with Ethiopia, South Sudan, Rwanda, and the DRC. The LAPSSET Corridor entails the development of 32 deep sea berths. Three berths are currently under construction by the Government of Kenya, with the remaining berths to be concessioned to the private sector. Construction of the first berth is expected to be completed in 2018, while the other two berths are to be completed by December 2020. The three berths will consist of one container berth, one bulk berth, and one general cargo berth. Total investments for the first three berths amount to US$480 million. The LCDA is currently in the process of starting the tender process for the first three berths, which might include the construction and operations of berths 4 to 6 as well. The three berths are expected to be accompanied by an additional 29 deep sea berths, depending on whether volumes materialize in the future (LAPSSET, 2017).

Figure 10: Port of Lamu – Construction Phase

Table 12: Berth Characteristics – Port of Mombasa

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
1 - 10	Kilindini Harbor	Kenya Ports Authority	1,634	9.7	Multi-purpose (general cargo, containers, passengers, Ro-Ro, grains, and fertilizer)	32.7	8x MHC 10x RS	WH (10ha) Grain/fertiliser silos (60,000t) Cement silos (18,000t)
11 - 14	Port Rietz	Kenya Ports Authority	721	9.4-9.7	Multi-purpose (general cargo, containers, Ro-Ro, and conventional cargoes)	13.7		
16 - 19	Mombasa Container Terminal	Kenya Ports Authority	839	10.3	Containers	25.6	10x STS (45t-60t) 3x MHC 22x RTG 2x RMGC 16x RS	CTS (13ha)
20	Second Container Terminal	Kenya Ports Authority	210	11.0	Containers	17.9	2x STS 2x MHC 11x RTG 6x RMGC	CTS (3.3ha)
21	Second Container Terminal	Kenya Ports Authority	350	15.0	Containers	20.8		CTS (11.8ha)
KOT	Kipevu Oil Terminal	Kenya Ports Authority	106	13.3	Crude oil, fuel oil, jet fuel, mogas and bunkers	27.0		
SOT	Shimanzi Oil Terminal	Kenya Ports Authority	70	11.3	Vegetable oils, LPG and petroleum products	73.2		
1 - 3	Mbarki Wharf	Kenya Ports Authority	315	10.4	Cement, bulk vegetable oil, coal, clinker molasses, petroleum products and molasses	2.0		

Source: IHS Fairplay, 2017

Table 13: Throughput and Capacity - Port of Mombasa

Type	Unit	Throughput (2016)	Capacity	Utilization
Mombasa Port				
Dry Bulk	ton	7,053,000	8,000,000*	88.16 percent
General Cargo	ton	1,821,411	2,000,000*	91.07 percent
Vehicles	ton	146,589	500,000*	29.32 percent
Container Terminals				
Mombasa Container Terminal	TEU	763,960	1,100,000	69.45 percent
Kipevu Container Terminal (Phase I)	TEU	327,411	550,000	59.53 percent
Liquid Bulk Terminals				
Kipevu Oil Terminal	ton	3,864,000	6,000,000*	64.40 percent
Shimanzi Oil Terminal	ton	3,864,000	6,000,000*	64.40 percent

Source: Kenya Ports Authority *estimated

Table 14: Port Volumes - Detailed - Port of Mombasa

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	636,185	626,433	678,830	737,553	744,627
	Transit	TEU	255,211	251,298	272,318	295,875	298,713
	Transshipment	TEU	12,067	16,269	60,854	42,690	48,031
	Subtotal	**TEU**	**903,463**	**894,000**	**1,012,002**	**1,076,118**	**1,091,371**
General Cargo	Domestic	ton	909,675	1,176,618	1,214,150	1,456,118	1,299,933
	Transit	ton	364,923	472,009	487,066	584,133	521,478
	Subtotal	**ton**	**1,274,598**	**1,648,628**	**1,701,216**	**2,040,251**	**1,821,411**
Dry Bulk	Domestic	ton	3,509,241	3,552,776	4,034,521	4,944,483	5,033,695
	Transit	ton	1,407,759	1,425,224	1,618,479	1,983,517	2,019,305
	Subtotal	**ton**	**4,917,000**	**4,978,000**	**5,653,000**	**6,928,000**	**7,053,000**
Liquid Bulk	Domestic	ton	4,870,972	4,736,797	5,165,015	5,189,994	5,515,439
	Transit	ton	1,954,028	1,900,203	2,071,985	2,082,006	2,212,561
	Subtotal	**ton**	**6,825,000**	**6,637,000**	**7,237,000**	**7,272,000**	**7,728,000**
Ro-Ro	Domestic	ton	128,752	146,573	168,992	153,979	104,620
	Transit	ton	51,650	58,799	67,792	61,770	41,969
	Subtotal	**ton**	**180,402**	**205,373**	**236,784**	**215,750**	**146,589**

Source: Kenya Ports Authority

<u>*Volume forecasts*</u>

Port of Mombasa

Transit Shares: Mombasa is a gateway and exit port for a vast hinterland in East Africa that includes Kenya, Uganda, South Sudan, The Democratic Republic of Congo, Rwanda, Burundi, and Northern Tanzania. Somalia, and Ethiopia have historically shipped small volumes via Mombasa, though these are negligible. In terms of cargo (excluding transshipment volumes) destined and originating from the port's hinterland, the largest share of volumes passing through the Port of Mombasa is the domestic share of Kenya, with 71.3 percent of import and export volumes in 2016. Uganda represented the largest transit country, accounting for approximately 23.5 percent of Mombasa's cargo in 2016. The second-largest transit partner in 2016 was South Sudan, with 2.2 percent of port volumes in 2016, followed by the DRC with 1.4 percent, Rwanda with 0.7 percent,

Tanzania with 0.7 percent, and Burundi with 0.1 percent (Kenya Ports Authority, 2017b). The share of transshipment cargo is not illustrated in the figure above. In 2016, 3.3 percent of the container volume in Mombasa was transshipment, representing approximately 0.4 million ton.

Hinterland Volume Shares: Mombasa handled all cargo in Kenya in 2016. In addition, the cargo volumes handled by the Port of Mombasa for Uganda and South Sudan represented 99 percent and 90 percent of the countries' volumes, respectively. For South Sudan, this excludes liquid bulk, as this is historically transported via Port Sudan. The smaller states Rwanda and Burundi shipped most of their cargo via the Port of Dar es Salaam, with just 30 percent and 5 percent of their respective domestic volumes passing through the Port of Mombasa (Evidence on Demand, 2015). In 2016, Mombasa handled approximately 7.1 percent of the DRC's volumes, based on the assumption that approximately 28.6 percent of the DRC is served by East African ports, with Mombasa handling 25 percent, Dar es Salaam 50 percent, and Durban 25 percent (JICA, 2015b). The Port of Mombasa handled 1 percent of the Tanzanian country volumes, though these volumes are limited to the northern areas of Tanzania around Arusha and Moshi (Evidence on Demand, 2015).

Future Competitive Environment: The most relevant competitors for Mombasa are the Port of Dar es Salaam and the new greenfield Port of Lamu, 250 km north of the Port of Mombasa. Especially in Mombasa's northern hinterland, where country volumes passing through the Port of Mombasa are ranging between 80 and 100 percent, the competition from the Port of Lamu is expected to influence throughput in Mombasa. Once the Port of Lamu has opened all three berths in late 2020, the expectation is that 10 percent of Kenya's trade will shift from the Port of Mombasa to the Port of Lamu. This market-share shift includes a ramp-up period of 5 years, 2021–2025. In addition, Mombasa's market shares in South Sudan and Uganda are expected to decrease from 90 percent to 80 percent and 99 percent to 79 percent, respectively, between 2021 and 2025. In the port's southern hinterland, port volumes are not expected to shift significantly between the Port of Mombasa and the Port of Dar es Salaam, remaining at similar levels as depicted in 2016.

Volume Projections: The volumes handled in Mombasa are expected to increase from 27.7 million tons in 2016 to 133.9 million tons in 2050. Containerized cargo is expected to be the largest cargo type in 2050, with 41.0 percent of total volumes, followed by dry bulk with 28.9 percent, and liquid bulk with 23.8 percent. The large increase and importance of dry bulk in the Port of Mombasa originates mainly from a doubling in clinker imports and the start of titanium exports to Japan, the United States, and Europe from the Port of Mombasa (Reuters, 2014). Liquid bulk volumes are estimated to increase to 31.8 million tons in 2050, with imports representing approximately 98.4 percent of all liquid bulk volumes. In 2050, approximately 250,000 vehicles are imported for the port's hinterland. Total volumes are expected to increase with a CAGR of 6.7 percent in the period 2016–2030, 4.0 percent in the period 2030–2040, and 2.8 percent in the period 2040–2050.

Figure 11: Base Case Volume Projections - Port of Mombasa

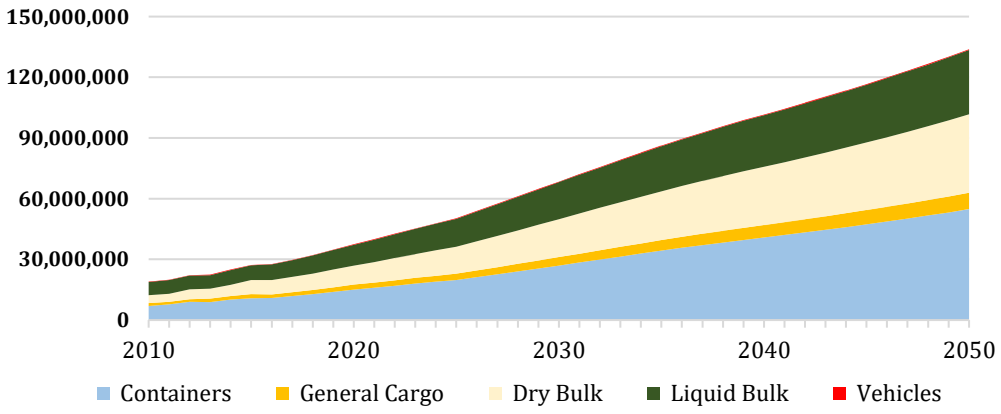


Table 15: Demand projections – Port of Mombasa

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	11,933	12,843	13,901	15,107	16,016	17,014	17,996	18,949	19,864	26,949	34,288	40,829	47,318	54,830
General Cargo	1,910	2,051	2,214	2,399	2,535	2,681	2,824	2,961	3,091	4,171	5,215	6,139	7,052	8,103
Dry Bulk	7,454	8,132	8,925	9,435	10,172	10,977	11,764	12,524	13,243	18,753	24,124	28,831	33,412	38,710
Liquid Bulk	8,273	8,875	9,558	10,321	10,986	11,713	12,435	13,146	13,840	18,255	22,239	25,498	28,499	31,842
Vehicles	176	201	235	255	257	274	277	280	282	288	309	321	355	377
Total	**29,747**	**32,103**	**34,833**	**37,517**	**39,967**	**42,660**	**45,296**	**47,860**	**50,321**	**68,416**	**86,175**	**101,619**	**116,636**	**133,863**

The MS Shift Case assumes that the port's stake in South Sudan decreases from 80 percent to 60 percent, together with a decrease of the port's stake in Kenya from 90 percent to 75 percent. These developments are associated with the shift of volumes to the Port of Lamu. However, due to the development of the new standard gauge railway (SGR) in Kenya, the port is assumed to capture a larger share of cargo destined for or originating from Burundi (increase from 5 percent to 20 percent). Lastly, the port's stake in Rwanda is expected to decrease due to the national involvement of Rwanda in the development of the SGR to Dar es Salaam. As a result, Mombasa's share in Rwanda is assumed to decrease from 30 percent to 10 percent.

Figure 12: Demand Forecast – Containers

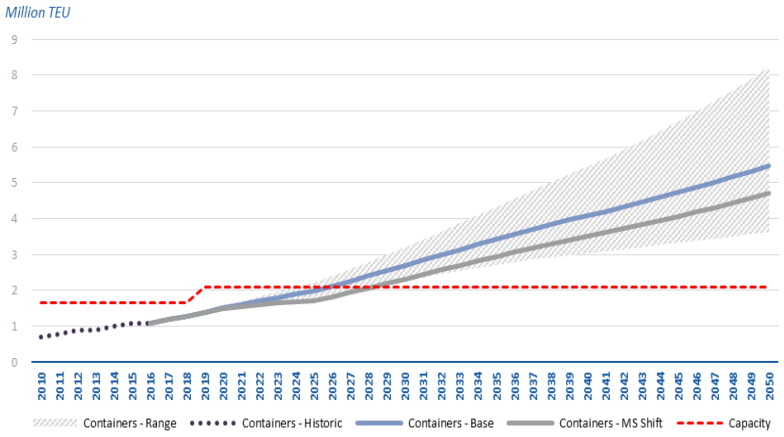
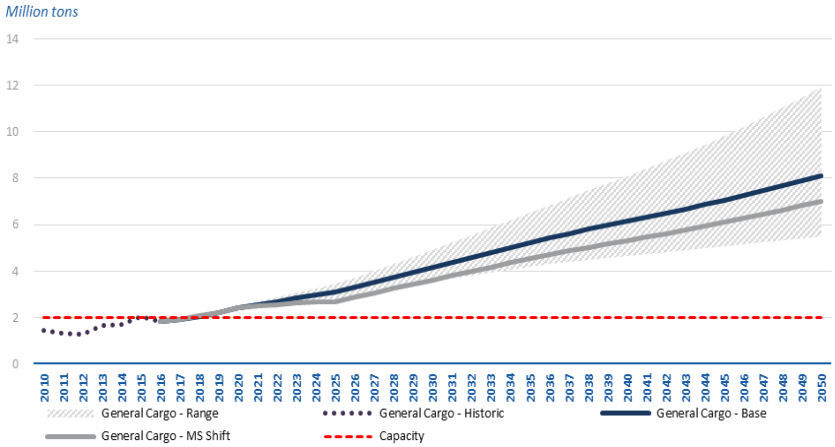


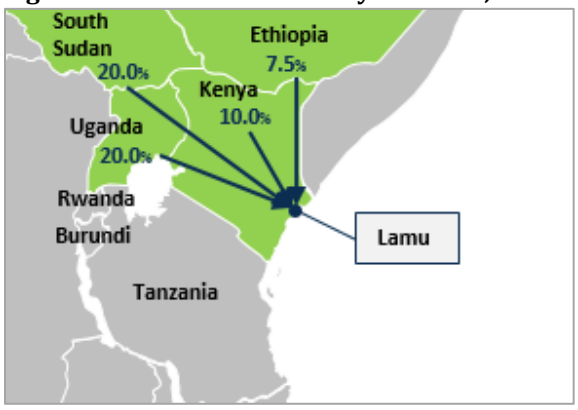
Figure 13: Demand Forecast – General Cargo



Port of Lamu

Transit Shares: Given the fact that no historical traffic is accounted for in the Port of Lamu, there is no assumption possible based on current trends. As this concerns a greenfield port project, the port forecast is based on the information retrieved from the interviews with stakeholders during the site visit. These assumptions are explained in the description of the future competitive environment hereafter.

Figure 14: Hinterland Country Volumes, 2025



Future Competitive Environment: Three berths are expected to be fully operational in end–2020. It is assumed that the Port of Lamu can capture 10 percent of the Kenyan volumes, 20 percent of the Uganda volumes, 20 percent of the South Sudanese volumes, and 7.5 percent of the Ethiopian volumes with a ramp-up period of 5 years in 2021–2025. The large importance of Lamu for South Sudanese trade volumes is due to the expected pipeline connecting Lamu to South Sudan's capital Juba, facilitating oil exports from the country. Lamu is also expected to capture some of the volume demand of Uganda, Kenya, and Ethiopia, based on its favorable location, though capacity constraints with just three berths and the large market presence of Mombasa in East Africa are expected to limit their market-capture potential. Many infrastructure projects of the LAPSSET corridor are still in the stage of securing private sector financing, the success of which will affect the development potential of the Port of Lamu.

Volume Projections: The volumes handled in the Port of Lamu are expected to increase to 27.7 million tons in 2050. With 43.6 percent of total port throughput in 2050, containerized goods represent the largest cargo type, followed by dry bulks with 28.8 percent and liquid bulks with 21.6 percent. As 45.8 percent of these liquid bulk volumes concern oil exports from South Sudan, the importance of capturing the South Sudanese hinterland for the Port of Lamu is evident. Container volumes are predicted to be 12.1 million tons in 2050. Domestic containers to and from Kenya represent 39.1 percent of these volumes, whereas 30.1 percent and 29.4 percent represent transit containers to and from Uganda and Ethiopia, respectively. Dry bulk volumes are the second most important cargo type in the Port of Lamu in 2050, accounting for 8.0 million tons in 2050. With no significant dry bulk commodities expected to be exported by the Port of Lamu, the volumes consist entirely of imports. With a combined volume of 1.7 million tons in 2050, general cargo and vehicles are the smallest cargo types in 2050, representing just 6.1 percent of all volumes handled. Total volumes are expected to increase, with a CAGR of 28.5 percent in 2021–2030, 4.0 percent in 2030–2040, and 2.8 percent in 2040–2050.

Figure 15: Base Case Volume Projections - Port of Lamu

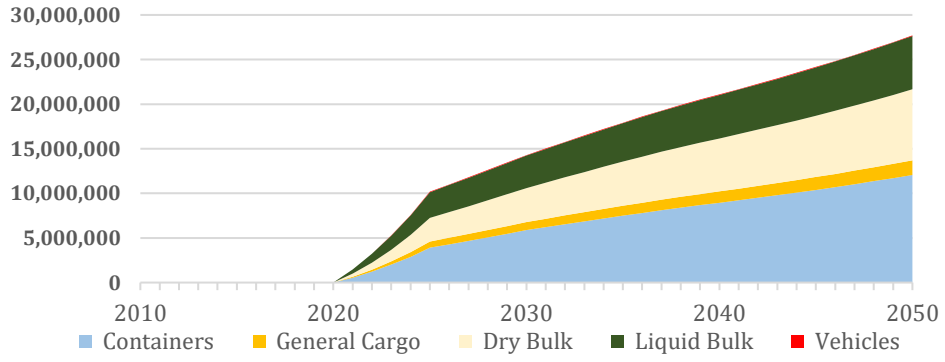


Table 16: Demand projections – Port of Lamu

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	-	-	-	-	560	1,223	1,998	2,889	3,903	5,882	7,492	8,940	10,387	12,067
General Cargo	-	-	-	-	104	224	362	517	689	906	1,109	1,281	1,444	1,629
Dry Bulk	-	-	-	-	358	796	1,322	1,938	2,647	3,811	4,952	5,936	6,881	7,974
Liquid Bulk	-	-	-	-	462	982	1,561	2,200	2,898	3,635	4,316	4,878	5,398	5,972
Vehicles	-	-	-	-	8	19	29	40	51	51	54	56	62	65
Total	**-**	**-**	**-**	**-**	**1,492**	**3,245**	**5,271**	**7,583**	**10,189**	**14,286**	**17,923**	**21,090**	**24,171**	**27,707**

The MS Shift Case assumes that the Port of Lamu takes a 15 percent stake in Ethiopia's domestic demand, representing an increase of 7.5 percent in Ethiopia. In addition, the MS Shift Case assumes that the port is able to increase its share in South Sudanese cargo demand from 20 percent to 40 percent, and its stake in Kenya's demand from 10 percent to 25 percent. This scenario is based on the possibility that Lamu is able to capture a larger share of domestic and transit cargo demand than assumed in the Base Case.

Figure 16: Demand Forecast – Containers

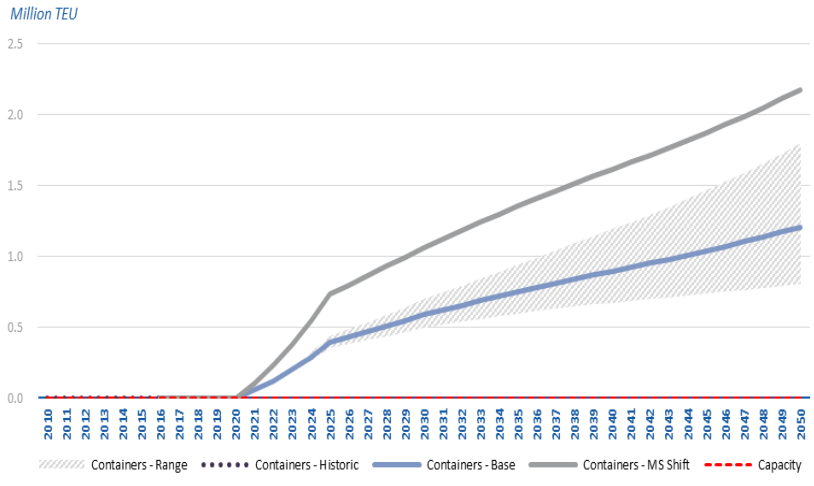
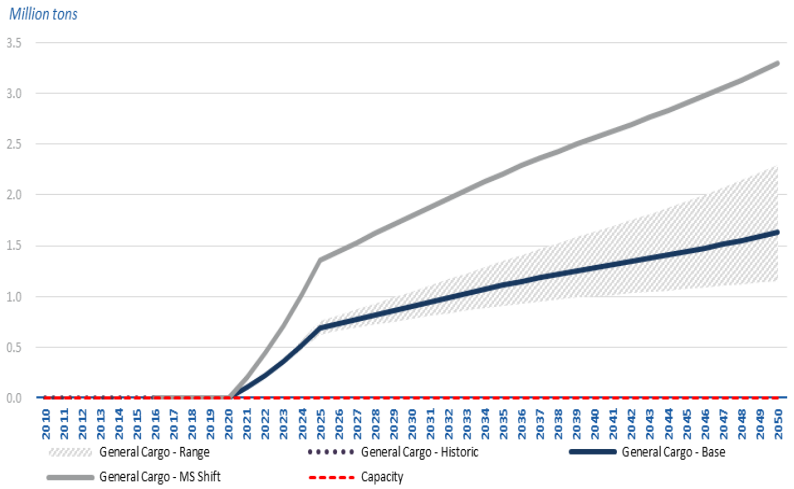


Figure 17: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Key Observations:

- **Port functions:** The Port of Mombasa provides modern port functions with substantial cargo volumes. The port functions provided focus on the role of Mombasa as a gateway port for Kenyan cargoes, a transit port for landlocked Eastern African countries, and a transhipment hub for smaller ports in the region. Logistics and distribution services are provided by private operators (trucks and container freight stations), the KPA (inland container depots), and Kenya Railways (rail freight). There is heavy competition among the operators, and the level of services is high compared with regional competitors.
- **Relationship between port and stakeholders:** The relationship between the port and its stakeholders can be regarded as good. There is cooperation with the main port users and stakeholders through the Mombasa Port Community Charter. This is a formalized structure in which different public and private sector entities involved in the Port of Mombasa have a seat and are involved in the planning of the port. However, the Mombasa municipality is not part of the port charter.
- **Development Strategy of the Port:** The development strategy of the port is largely determined by the KPA and the Kenyan Ministry of Transport, Infrastructure, Housing & Urban Development. Furthermore, the Mombasa Port Community Charter is actively involved in the planning of the port and enables consultation with port users on development plans and investment decisions. The strategy of the KPA towards privatization of its operations is currently unclear. In the past, KPA aimed to follow the landlord strategy, in which it would provide concessions for operations of the new container terminal. In recent years, however, KPA started operations of the new container terminals as a public operator.
- **Degree of vertical integration:** There is a strong degree of vertical integration of the chain in the Port of Mombasa. KPA and its partners (KENTRADE) made substantial investments in IT and systems, such as a single window system and terminal operating systems. Logistics services are provided through a network of container depots and ICDs in Mombasa and Nairobi. The main terminals in the port are connected by the modern SGR railway line that enables direct block-train connections to the hinterland.
- **Degree of horizontal integration:** The degree of horizontal integration of the Port of Mombasa is comparable to that of other ports in the region. The port authority KPA is a nationwide port authority that is also responsible for developments of other ports in the country (such as Lamu). There is no presence of an international operator that is also present in other regional ports, but there are logistics services providers in the port that are also active in other ports in the region.

Proposed Key Actions

- **Pursue the landlord strategy:** Despite different statements in the past, the KPA has so far not pursued a true landlord strategy in which it concessioned operations of the container terminals in Mombasa. This is an opportunity to further improve the operational efficiency of a major cargo segment.
- **Continue port development**: Through different projects (Kipevu Container Terminal, Kipevu Oil Terminal), the KPA has ensured substantial capacity expansions for containers and liquid bulks in the past years. The KPA should ensure that it continues the development of its port and terminals in the way it did in the past, and pay sufficient attention to other cargo segments as well.
- **Ensure a competitive approach toward East African cargoes**: With the development of modern greenfield ports in Lamu and Bagamoyo, it is important that the KPA provides the required port facilities, hinterland connections and services that are needed. The recent implementation of the SGR railway line is expected to have a positive impact on Mombasa's competitive position.

- **Ensure a modal shift:** The SGR railway has the potential to transport substantial flows of cargoes to Nairobi and beyond. Obligated modal shift agreements should be considered by the port authority.
- **Improve the port's road connections**: The current road network within the city results in substantial issues with truck traffic moving through the city. The Mombasa Port Area Road Development Project that is currently ongoing is focussed on addressing this.

Port–city interface

The port–city interface for the Port of Mombasa has been addressed in a recent World Bank study (the World Bank, 2017c).

No details are provided on the total number of employees of the KPA. It is known that the Port of Mombasa provides work to around 7,500 port workers that are partly employed by the KPA, partly employed by labor pools, and partly employed by private operators such as GBHL.

Tanzania: Tanzania is located in East Africa, north of Mozambique and south of Kenya. Tanzania is home to approximately 55.1 million inhabitants and realized a GDP growth of 6.6 percent in 2016, increasing its GDP to 46.6 billion in constant 2010 US$ (The World Bank, 2017b).

1. Port sector institutions

All ports located on the mainland of Tanzania are managed and operated by the Tanzania Ports Authority (TPA). TPA is a Parastatal, established by the Ports Act No. 17 of 2004 (Republic of Tanzania, 2004) as both a port operator and a landlord port authority. TPA operates a system of ports serving the Tanzania hinterland and the landlocked countries of Malawi, Zambia, DRC, Burundi, Rwanda and Uganda. TPA administers the major sea ports Dar es Salaam, Tanga, and Mtwara, as well as the smaller sea ports Kilwa, Lindi, Mafia, Pangani and Bagamoyo. Currently, TPA provides services related to loading and unloading of cargo and passenger services; develops and manages port infrastructure and superstructure; and maintains port safety and security. As more of the port activities are placed in the hands of private operators, the primary emphasis of TPA will change from being an operator to a landlord. This evolution will be supported through the Dar es Salaam Maritime Gateway Project. Those services that remain under TPA control will be restructured into functional business units to facilitate their commercialization, when deemed appropriate.

As of June 30, 2015, TPA employed 2,594 permanent staff, of which 2,011 are male and 583 are female. The majority of these are employed in Dar es Salaam port (where the total number of employees was 2,340 in 2014). The container terminal in the port is operated by the Tanzania International Container Terminal Services (TICTS), which is owned 70 percent by Hutchison Port Holdings and 30 percent by the Harbours Investment Ltd. of Tanzania. The two sides on July 6, 2017, signed a 5-year contract pending a performance review. Given that the current concession is granted to TICTS up to 2025, it remains unclear what will happen between 2022 and the end of the concession in 2025.

Ports on the island of Zanzibar are managed, operated, and developed by the Zanzibar Ports Corporation (ZPC), a parastatal organization established under the ZPC Act No.1 of 1997. It has full autonomy for operation and development of ports. The ZPC oversees five ports in Zanzibar and Pemba Islands. Its key responsibilities include managing, operating, developing, and promoting port industry in Zanzibar.

Other public-sector entities that are relevant to the ports sector concern, among others: Ministries of Transport, the Ministries of Finance and Planning and Maritime/Marine Authorities. Ministry of Works is responsible for the development of roads, bridges and ferries, which impacts the efficiency and effectiveness of ports. The Ministry of Finance and Planning is vitally concerned with the performance of the Tanzanian economy, international trade, monetary affairs, and other aspects of the global economy that affect Tanzania's domestic performance. The main responsibilities impacting the ports sector relate to the role of the ministry in managing government expenditures and coordinating the bilateral and multilateral development financing that is used frequently in port projects. The Ministry of Works, Transport and Communication was established in April 2016.

The Tanzania Surface and Marine Transport Regulatory Authority (SUMATRA) is a Multi-sectoral regulatory agency which was established by an Act of Parliament (No. 9) of 2001 to regulate Rail, Road, and Maritime transport services. The SUMATRA Act came into force on the 15th of August 2004, as per Government Notice No. 297 published on 20th of August 2004. The role and functions of SUMATRA are set out in the SUMATRA Act 2001, as well as the sector legislation. These consist of, among other things: promoting effective competition and economic efficiency; protecting the interests of consumers; and protecting the

financial viability of efficient suppliers. SUMATRA's responsibilities in terms of regulating maritime transport was taken away and vested in a new body, the Tanzania Shipping Agencies Corporation(TASAC) with the passage of the Tanzania Shipping Agencies Act in 2017.

The main shortcomings of port sector institutions:

- TPA has a major responsibility and power over the country's ports sector, and currently provides numerous functions that a modern landlord is not expected to undertake (such as national port policy-making and planning function, internal legal practices, all port operators' functions, the nautical services function, and internal auditing practices).
- The TPA Act makes clear that TPA's function is not in particular to provide port services (including terminal operations). It can only provide port services in case a contracted operator is not performing, and only for a period of up to two years, unless the Minister extends such period with a maximum of two years. Thus, one of the main shortcomings of the sector is the level of private sector involvement, as on the commercial level only TICT is active in the business of container terminal operations.
- The TPA's policymaking autonomy is limited based on the TPA Act: the President has strong powers to define the port limits and to direct TPA to plan and develop projects. (Art. 14); the Minister may give TPA directions in relation to the discharge of the functions and the exercise of powers under this Act (Art. 20).
- It is somewhat unclear which Tanzanian entity is responsible for the international relations function, and hence the representation in multilateral/bilateral agreements. The Ministry of Finance has the objective to represent Tanzania within international financial institutions, but nothing is mentioned on multilateral/bilateral agreements.

The functioning of the ports sector in Tanzania could be improved by ensuring that the non-landlord functions of the TPA are designated to other entities (for example, port and marine services operations are concessioned to the private sector) and by balancing the policymaking between the TPA, the Minister of Transport, and the President through the TPA Act (for example, by implementing a statement that delegates the policymaking to the TPA, the President and the minister).

Zanzibar Maritime Authority (ZMA) is the regulator in Zanzibar (ZPC, 2017a). The ZMA is a fully autonomous institution acting under the direct influence of the Ministry of Construction, Infrastructure, Communication, and Transportation of Zanzibar. It is charged with the responsibility of monitoring, regulating, and coordinating activities in the maritime industry. ZMA discharges flag state and port state responsibilities in an effective and efficient manner, in line with IMO conventions, instruments, and codes. In addition, the ZMA is responsible for the regulation of activities on shipping in sea waterways to ensure safety of navigation. Finally, the ZMA pursues the ratification or accession and implementation of international maritime conventions such as IMO and International Labor Organization (ILO) Conventions in collaboration with other stakeholders.

Key shortcomings of Zanzibar's port sector institutions are:

- ZPC has a major responsibility and power over the country's ports sector, and currently provides numerous functions that a modern landlord is not expected to undertake (for example, all port operators' functions and the nautical services function).
- Despite the operational powers, the ZPC's policy-making autonomy is limited based on the ZPC Act, as the ZPC is for the larger part dependent on the approval of either the Minister of Transport or the President. This decreases the efficiency as it introduces more complexity for the decision-making process, as they must pass multiple phases and approvals.
- The entity responsible for the port training function is not clearly stated in either the ZPC Act or any other governmental role and responsibilities. Only the PPP Act states that training and the transfer of knowledge is a responsibility for an involved private partner.
- It is unclear which governmental entity in Zanzibar has the responsibility to finance basic infrastructure and assess business plans.

Following the ZPC's goal to pursue the landlord strategy, port and marine services operations should be concessioned to the private sector. It is also necessary to balance the policymaking between the ZPC, the Minister of Transport of Tanzania and the President through the ZPC Act.

2. Policy framework

Tanzania

At a regional level, Tanzania's (trans)port policy is guided by the AU, EAC, PMAESA, SADC and Sub-Saharan Africa Transport Policy Program (SSATP). At a national level, transport and trade policy is developed by the Ministry of Transport, Works, and Communications, through a national transport policy document that serves as the basis for the port, road, and railway policy in the country (JICA, 2014). Within this document, Tanzania's sea ports and maritime transport development strategy and policies are described. Furthermore, specific sections of the national port policy are developed by the ports authority TPA (such as environmental port policy and port safety). At a local level, the TPA is responsible to transform policy into development plans for the specific ports in the country, including sea and lake ports. Most Tanzanian ports and their terminals are operated by the Tanzania Ports Authority (TPA), with limited private sector operations. The container terminal at Dar es Salaam Port is a notable exception. However, private sector involvement in the ports sector remains limited.

On a national level, the Government of Tanzania aims to enhance a strengthened transport network that contributes to integrating economic activities. Major projects under the Five-Year Development Plan (FYDP) I part of the Comprehensive Transport and Trade System Development Master Plan focuses on the emergence of the Dar es Salaam metropolitan region as the hub for the national economy and the gateway to overseas and hence got the highest priority from the Tanzanian Government related to future development.

The principal act governing PPPs in Tanzania is the PPP Act No. 18, which was enacted in 2010. Also applicable are the PPP Regulations passed in 2011. Besides setting out what is supposed to be contained in each PPP agreement, the governing PPP act provided Tanzania with two institutionalized committees, tasked with judging and overseeing PPP projects.

Tanzania's national transport policy is documented in the National FYDP's – *Nurturing Industrialization for Economic Transportation and Human Development* Report. Within these Five-Year reports, the Government of Tanzania's objectives for the transport sector are listed. FYDP II is built on three pillars of transformation, namely industrialization, human development, and implementation effectiveness. The Plan lists objectives that are not all directly related to the maritime sector, but on most of the mentioned objectives — such as improved export capacity — maritime sector improvement can make a difference. FYDP II also acknowledges the need for the infrastructure development, especially of hard infrastructure. Despite the recent developments in Dar es Salaam that improved the operations and handling capacity, these developments remain insufficient to adequately support economic transformation and industrialization. Remaining challenging areas include management and operations inefficiencies and inadequate infrastructure, which constrain competitiveness of Tanzania's ports relative to ports in neighboring countries. The absence of smooth intermodal switchover remains an impediment to economic transformation (Tanzania Ministry of Finance and Planning, 2016).

The Tanzania Ports Authority is responsible for the national and local port policy plans. The most recent version of Tanzania's Ports Master Plan covering all coastal and manned lake ports of Tanzania dates to February 2009 (Tanzania Ports Authority, 2009). This Master Plan identified the following main issues:

- The need to increase the capacity of the existing facilities at Dar es Salaam until new facilities can be built elsewhere
- The location of new facilities for Dar es Salaam overspill traffic once traffic growth can no longer be accommodated within the existing port footprint
- The need for new port facilities at Mtwara to support and stimulate development of the Mtwara Corridor

- The role of the smaller coastal ports in supporting local trade, including new terminals for resource-based exports
- The potential of the Lakes ports as gateways to the rapidly growing transit countries, particularly Uganda and DRC.

The Master Plan focuses not only on the largest port in the country, Dar es Salaam, but also on other sea port and lake port developments. From a national port development perspective, it focuses on:

- The national transport infrastructure, including integration of ports with rail and road developments
- Ensuring balanced national growth, with a focus on the Tanga, Central (Dar es Salaam) and Mtwara Corridor Developments
- The creation of Economic Development Zones that provide an important stimulus to trade and attract inward investment
- Urban development, as most of Tanzania's ports are located close to their city centers, where they contribute to traffic congestion and other adverse environmental effects. At the same time, the ports are important sources of local employment and provide a wide range of support activities nearby
- The identification of generic environmental impacts connected with port development, as well as the proposed mitigation measures; and
- The competitive position of Tanzanian ports in relation to the attraction of potential transit cargoes destined to or originating from the landlocked hinterland countries through improved operational efficiency and harmonized development of road and rail hinterland infrastructure.

While the Plan gives guidance and direction on the long-term development, investment planning must be done on the basis of a five-year updated forecast to ensure that development of port capacity is demand driven. These five-year forecasts must be frequently updated by TPA to ensure that sufficient capacity is available ahead of demand, without creating over-capacity. As the current ports master plan dates to 2009, an update is an important requirement for the future planning of port capacity in the country.

The TPA frequently performs studies related to the further development of the Port of Dar es Salaam. In June 2015, the final report on the update market study and economic, financial and credit analysis of the proposed Dar es Salaam Maritime Gateway Program was finalized. In addition, the TPA performed a study for the modernization of berths 1–7 and the deepening of the entrance channel and berths to improve both capacity and port performance (INROS LACKNER A.G. for TPA, 2013). Despite these recent studies on port developments and improvements, no recent update on the five-year forecast for all Tanzanian ports was published at the time of writing this report.

Other shortcomings of Tanzania's port sector policy framework are:

- There is a lack of financing principles included in the policy goals. The National Transport Policy document does not provide an overview of financing principles or a way in which the government plans to fund the policy goals. The National FYDP II does mention the financing principles for different port projects. The Tanzania Ports master plan presents funding assumptions under full public-sector funding (not regarded realistic) or under a landlord model with a split in funding responsibilities between public and private sector. By allocating the investments either to the central government, to the TPA, to donor funding, or to the private sector through PPPs, the Government of Tanzania will get a clear view of the investment needs and responsibilities.
- There are no criteria for investment decisions specified in the National Transport Policy document. It is unclear how investment decisions are validated by the government and how a decision on whether to invest or not is made. A clear guideline with minimum requirements for government investments is regarded a necessity to ensure value for money for the government.

Under the TPA act, the TPA is the agency responsible for operations, development, and project implementation in Tanzania's ports. Policy for the port sector is developed by the Ministry of Transport and used as an input to TPA's port plans. On the other hand, TPA is also providing inputs to

the Ministry of Transport for the port sector development plans.

Zanzibar

The Revolutionary Government of Zanzibar (RGZ) is responsible for policy development for the islands of the Zanzibar Archipelago: Unguja (also known as Zanzibar Island) and Pemba. Transport policy is developed by the RGZ's Ministry of Infrastructure and Communications which was recently transferred into the Ministry of Construction, Communication and Transportation. The RGZ developed a document for its growth strategy, which also includes a section on transport and communication (Revolutionary Government of Zanzibar, 2007). A special section in the report is dedicated to maritime transport. However, the level of policy detail in this document is marginal.

Zanzibar's Growth Strategy document covers the period between 2006 and 2015 and is hence outdated. At the time of writing of this report, there was no update available on the 2007 version of the growth strategy document.

Due to congestion at the Port of Malindi (Zanzibar), the Government of Zanzibar has determined that the development of a new port is necessary to accommodate future growth of cargo and passenger traffic arriving to Zanzibar. The plans of the Government of Zanzibar envision, among other things, the phased construction of a new multipurpose port on Unguja Island; potential construction of a separate port to service oil and gas exploration activities in Zanzibar; upgrading and/or the construction of new port facilities on Pemba Island; and redevelopment of the current port/harbor area to service ferries and passenger traffic.

In August 2014, a study was performed on behalf of the Government of Zanzibar that focuses on the opportunities for the development of a multipurpose port, which also provided recommendations for possible PPP structures. (Nathan Associates, 2014). This Assessment of PPP Options has been developed as part of the activities under a World Bank contract for development of a PPP Policy and Guidelines and preliminary assessment of potential PPP projects for the Government of Zanzibar.

The publicly available information on the port policy framework of ZPC is limited. During a visit and meeting at ZPC's offices in Zanzibar, it was explained that port sector policy is drafted at the level of the Ministry of Infrastructure, Communications and Transport of Zanzibar in coordination with the ZPC, and that the main policy goals for Zanzibar's port sector relate to the development of the greenfield port in Maruhubi, about 2.5 km north of the existing port.

The shortcomings of Zanzibar's port sector policy framework are mostly in line with the shortcomings identified for Tanzania:

- The main shortcoming is related to the amount of publicly available information on the port sector policy framework. There are hardly any documents published and the documents that are available are in many cases outdated.
- Some of the policy planning documents such as the 2006–2015 RGZ strategy plans are outdated and need to be renewed. Within the Multipurpose Port Development Master Plan reference is made to the Zanzibar Port Master Plan of 2007. However, this document is not publicly available, and irrespective of its availability, it is also an outdated document. Since the development of these plans, the actual construction of the Multipurpose Port has progressed, and it is therefore relevant that the new reality is considered in new policy documents. In general, it is regarded a necessity that governments provide up-to-date policy documents that consider recent and relevant developments.
- There is a lack of financing principles included in the policy goals. The Multipurpose Port Master Plan states that the port developments are to be financed primarily by using private finance but will also require some government funds to finance part of the basic infrastructure. It is however unclear how much private or government funding is needed. By allocating the investments either to the central Tanzanian government, to the ZPC, to donor funding, or to the private sector through PPPs, the Government of Zanzibar/

the Government of Tanzania will get a clear view of the investment needs and responsibilities.

- There are no criteria for investment decisions specified in the National Transport Policy documents or in the Multipurpose Port Master Plan. It is unclear how investment decisions are validated by the government, and how a decision on whether to invest or not is made. A clear guideline with minimum requirements for government investments is regarded a necessity to ensure value for money.
- There are no clear guidelines on the type, size, or nature of private sector investments in the nation's ports and port sector, nor have any criteria been specified. The Multipurpose Port development is said to be developed as a PPP with an operator concession. It is currently unclear what the role of ZPC in the new structure will be. The formalization of the PPP process and the implementation of PPP policies are regarded as must-haves for the sustainable development of the port.

Port sector policy is drafted at the level of the Ministry of Infrastructure, Communications and Transport of Zanzibar in coordination with the ZPC. The discussions with ZPC mainly focus on the Port of Malindi because of its size, its importance for the Zanzibar economy, and its congestion issues. The Transport Master Plan and the Port Master Plan of Zanzibar include the most important ongoing development in Zanzibar's port sector: the Marahubi port. This greenfield port project is currently planned north of Zanzibar City and shall relieve congestion from the existing port. If Marahubi port is developed, all cargo traffic shall move to Marahubi, while Malindi shall handle passenger traffic and dhow traffic (which is still a substantial cargo flow in Zanzibar).

Tanzania's National Transport Policy, TPA's port master plans, and Zanzibar's transport agencies all have defined the following objectives:

- **Harmonized policies**: the Tanzanian NDP II states: *"rather than duplicating efforts by having separate customs facilities for inspecting goods twice as they cross borders, efforts need to be made to forge further customs collaboration and harmonization, with officials working side by side, trained to common standards and procedures, and operating transparently under a common roof.*" In addition, the TPA Master Plan mentions the potential to attract additional transit cargoes for the landlocked countries through operational efficiency improvements that are developed in closer harmony with hinterland road and rail connections.
- **Development of ports to accommodate increased economic activities:** The National Tanzanian Transport Development Master Plan includes strategies for freight transport development and states its aim to *"stimulate the growth of various parts of Tanzania, and support the growth of neighboring countries as a regional hub."* In the Tanzanian Port Master Plan the TPA states to implement developments on a strategic, tactical and operational level in order to "*strengthening the competitive position of Tanzanian ports in the East African region and thereby ensuring an ongoing contribution to the economic growth of the country*." The RGZ mentions in their growth strategy: "*the sector has yet to be developed to a level that provides latitude and boost other sectors.*" The ZPC mentions in their mission: "*to provide efficient, effective and responsive port services for socio-economic development of Zanzibar*."
- **Improved conditions of operation and management:** Within the National Tanzanian Transport Development Master Plan is mentioned that: "*Targeted efficiency improvements will reduce dwell time by half at both airports and seaports. In addition, coordinated efforts in port operations, telecommunications, bilateral negotiations with neighboring countries, and data exchange are proving successful.*" In the conclusions and recommendations part of the TPA Ports Master Plan is mentioned that "*significant investments, as well as operational improvements are required to provide sufficient capacity on the short and midterm.*"
- **Overarching regional development plan:** The aim is noted within the National Transport Master Plan to enhance regional economic growth through an improved transportation system, not only focusing at Tanzania but also on its landlocked hinterland countries, such as Burundi, Rwanda, and Uganda.

- **Actual development of policy for the transport sector:** The Public Private Partnership (PPP) Act came into effect in Tanzania in 2009. As part of the acknowledged institutional issues, the Government decided that in case transport related projects are implemented, the guidelines of the Act will be applied. After all, a PPP experts group will have sufficient knowledge and experience to respond to various problems that future projects in Tanzania are likely to face.

3. Legal and regulatory framework

At an international level, Tanzania's legal and regulatory framework for the ports sector is guided by the IMO conventions that are largely focused on maritime safety and security and the prevention of pollution and related matters, and less on specific port sector policies or operational implications. At a regional level, Tanzania's legal and regulatory framework for the ports sector is guided by the AU's Maritime Charter, the EAC treaty and the SADC treaty. Further, Tanzania is a member of the Central Corridor Transit and Transport Facilitation Agency (CCTTFA) Agreement. At a national level, Tanzania's legal and regulatory framework for the ports sector is guided by multiple relevant documents, of which these are of relevant concern: the Tanzania Port Act, the Tanzania PPP (and Amendment) Act and Tanzania PPP Regulations (jointly: PPP Legislation), the Merchant Shipping Act, the Surface and Marine Transport Regulatory Act, and the Investment Act. In addition, the semi-autonomous state of Zanzibar has its own legal and regulatory framework for the ports sector, which is mainly guided by the Zanzibar Ports Corp. Act and the Zanzibar Maritime Authority Act. There is no knowledge of existing documents developed at a local level by, for example, the TPA, ZPC, or any other county/local level agency regarding the regulatory framework at the time of writing this report.

CTTFA Agreement

The Central Corridor is the main transport route connecting the Port of Dar es Salaam to Tanzania and the landlocked countries in the hinterland (Rwanda, Burundi, DRC, and Uganda). The CCTTFA (Central Corridor Transit and Transport Facilitation Agency, 2013) is a cooperation aimed to promote efficient transit transport systems in the interest of all contracting parties, including the governments as well as other stakeholders. The agreement has a view to make the Central Corridor the most cost effective to enhance the TTFA countries' competitiveness in the global market. Under Article 4 of its Agreement, the CCTTFA recognizes the right of landlocked countries to transit through maritime states as declared under specific United Nations General Assembly Resolution 56/180 on needs of Landlocked Developing countries, from which the Almaty Declaration was made in 2003.

In 2006, the CCTTFA Agreement was signed by the ministers of each member state responsible for transport matters. The Agreement was ratified by each member state and Instruments of Ratification deposited with the United Nations Economic Commission for Africa (UNECA). The ratification was followed by the selection of board members for the private sector, the registration of stakeholders and selection of stakeholders' representatives to the Stakeholders Representative Group. Finally, the CCTTFA Agreement came into force on the 20th of November 2008, after the governments of Burundi, Tanzania, and Uganda made the deposit of the Instruments of Ratification at UNECA.

The Tanzania Ports Authority was established by the Tanzania Ports Act No. 17 of 2004 (Republic of Tanzania, 2004) as landlord port authority for seaports and inland waterways ports in Mainland Tanzania and Tanzania Zanzibar. According to Part 1 – article 2(1) – Preliminary Provisions: This Act shall apply to seaports and inland waterways ports in Mainland Tanzania and Tanzania Zanzibar. This article contradicts with statements that the act separated waterway operations between the Tanzanian mainland and Zanzibar and gave TPA the authority over all lake ports on the Tanzanian mainland. The Act incorporated the company into a Parastatal, therefore reducing governmental authority over the company. The TPA acts under the aegis of the Ministry of Works, Transport and Communications and currently performs the role of both a landlord and operator with the main

functions of promoting the use, development, and management of ports and their hinterlands, entering into contracts for delegating the powers of the Authority.

The Ports Act specifies TPA's role as landlord port. Section 5 of the TPA Act provides a description of the underlying objective of the Authority.

The influence of the central government on the TPA is large. The President has strong powers to define the port limits and to direct the Authority to plan and develop projects (Art. 14), while the Minister may give to the Authority directions in relation to the discharge of the functions and the exercise of powers under this Act (Art. 20).

The Provisions of services by Operators are stipulated in Part IV (Art. 25–33):

- Allowed services include the typical services at a container terminal.
- The operator may set tariffs, which are published in the Tariff Book (Art. 26).
- The rates and charges agreed upon in a lease/concession agreement shall be valid during the duration of the agreement or such other period as agreed between the … providers and the authority.
- The power to set rates is subject to the Surface and Marine Transport Regulatory Authority Act, 2001.

Tanzania Port Act relates to port transactions in the following way:

- TPA is entitled to enter into a concession agreement with a terminal operator.
- The Act makes clear that TPA's function is not to provide port services (including terminal operations). It can only provide port services in case a contracted operator is not performing, and only for a period of up to two years, unless the minister extends such period with maximum two years.
- TPA is entitled to participate or fully own a private company.
- The terminal operator could be a private company, in which TPA has an equity stake, or which is a full subsidiary of TPA.

Several of TPA's responsibilities under the Act provide a substantial amount of freedom and autonomy to the TPA: TPA can virtually enter into any agreement with any person or company that it wants to, and it can also hold shares or acquire any corporation under the Act. Based on the current TPA Act, the TPA is responsible for the development of new ports and shall also maintain, operate, improve, and regulate seaports and inland waterways ports in Mainland Tanzania and Tanzania Zanzibar. However, under the powers of the Zanzibar Ports Corporation, the ZPC is responsible for the maintenance, operation, improvement, and regulation of the harbors of Chake Chake, Mkokotoni, Mkoani, Wete and Zanzibar.

The President of Zanzibar signed the Zanzibar Ports Corporation Act No. 1 on the 9th of June 1997 (Republic of Tanzania, 1997a). In the Act, the Corporation was established to be known as the ZPC. In addition, there is an amendment to the Zanzibar Ports Corporation Act, Act No. 5 of 2013 (Republic of Tanzania, 2013). This amendment was signed by the president on the 6th of August 2013. The powers of the Corporation as a public body are described in Section 14.1 of the Act.

Although the powers of the ZPC are all described in the Act, the level of power directly allocated to the ZPC is limited. The Board of the ZPC has to get approval from the Minister responsible for harbors for more substantial decisions, and furthermore, for decisions regarding port constructions the approval is provided by the President of Zanzibar. The ZPC Act provides responsibilities toward the ZPC that are not part of a usual port authority mandate, such as: the operation of inland transport, the construction of electric generating plants and providing houses and other accommodation for employees. ZPC's responsibilities under the Act provide a substantial amount of freedom and autonomy to the ZPC: ZPC can virtually carry on any business necessary or desirable for the purpose of the Corporation.

Tanzania PPP Act and PPP Regulations (the PPP Legislation)

The Public Private Partnerships Act (Republic of Tanzania, 2010), which amended the applicable legal framework, came into force on 18 June 2010 and was amended on 18 November 2014 (Republic of Tanzania, 2014). The PPP Act provides the institutional framework for the implementation of PPP Agreements and sets rules, guidelines, and procedures governing public–private partnership procurement, development, and implementation of public–private partnerships. This act was adopted in line with Tanzania's development program, "Vision 2025." It was followed by the Public Private Partnership Regulations, 2015 (Republic of Tanzania, 2015).

The PPP Act establishes three relevant organizations:

1) Tanzania Investment Centre was established to coordinate, encourage, promote, and facilitate investment in Tanzania, and to advise the Government on investment policy and related matters.
2) PPP Coordination Unit, as part of the Tanzania Investment Centre is focusing on promotion and coordination of all matters relating to PPPs which reports to the Prime Minister's Office.
3) PPP Unit in the Ministry of Finance is tasked with assessing proposed PPP projects involving public finance.

- Important steps must be followed by the contracting authority for every project: identify and develop projects to be implemented; undertake feasibility studies; submit the proposed project to the PPP Coordination Unit; prepare a request for proposal; obtain government approval (if applicable).
- Every PPP should comply with three key principles: providing affordability to the contracting authority; providing value for money; and transferring operational and financial risks to the private party.
- Any agreement entered into under this Act shall be governed and construed in accordance with the laws of Mainland Tanzania or any other laws agreed by parties.

The Tanzanian PPP Act also defines a step-wise approach for the PPP implementation.

In 2014, an Amendment to the Act was developed, resulting in several changes. First, unsolicited PPP projects now have to be procured on a competitive bidding basis. Second, the Coordination Unit and Finance Unit are replaced by the PPP Centre, within the Office of the Prime Minister, and the PPP Technical Committee, comprising, among others, the Permanent Secretaries of the Ministry of Finance, the Prime Minister's Office, and the Ministry of Lands. Third, a new fund will be set up to finance feasibility studies and to assist PPP projects with limited financial viability and high economic benefit.

Overall, the PPP Legislation can be regarded as complete and offers a valid legal ground for the design and the implementation of a PPP arrangement for port projects in the country. The PPP Regulations of 2015 lists the main relevant arrangements for the ports sector, namely the service and management contract, build-(own)-operate-transfer, and design-build-finance-maintain (or operate) agreements.

Zanzibar PPP Act

The Government of Zanzibar identified PPPs as a means of developing infrastructure to meet increasing demand for public services within the constraints on government budgets. Under the National PPP Policy, the Government has outlined main objectives for the promotion of PPPs (Nathan Associates for The World Bank, 2014), such as expansion of coverage and improvement of the quality of infrastructure services; efficiency and innovation typically associated with private sector management or operations; and focusing the government's role on strategic planning, policy making, regulation, and monitoring.

The Government developed an Act to repeal the Concession Project Act No. 1 of 1999 and enact a

new law which provides for the establishment and management of public-private partnerships and other matters relating thereto. This new Act may be cited as the Public Private Partnerships Act of 2015 (Revolutionary Government of Zanzibar, 2015). Part II section 3.1 of the Zanzibar PPP Act states: "The Ministry of Finance, on behalf of the Government, may enter into a Public-Private Partnership with a Private Partner, in accordance with the provisions of this Act." The scope and form of the PPP are described in Part II Section 4 of the Zanzibar PPP Act 2015. Section 4.1 states: "*A Public-Private-Partnership may be implemented through a contractual form.*" Also, Section 4.2 provides an overview of the allowable contractual forms. The PPP structures provided in the Act include the design, construction, financing, maintenance, and operation of new public infrastructure projects; rehabilitation, modernization, financing, expansion, maintenance, and operation of existing public infrastructure; and administration, management, operation, maintenance or other services pertaining to public services or new or existing public infrastructure.

The Zanzibar PPP Act of 2015 described the transfer of assets in part VII of the Act, which describes the PPP Agreement. Such a transfer is often part of PPP concessions seen within PPP contracts.

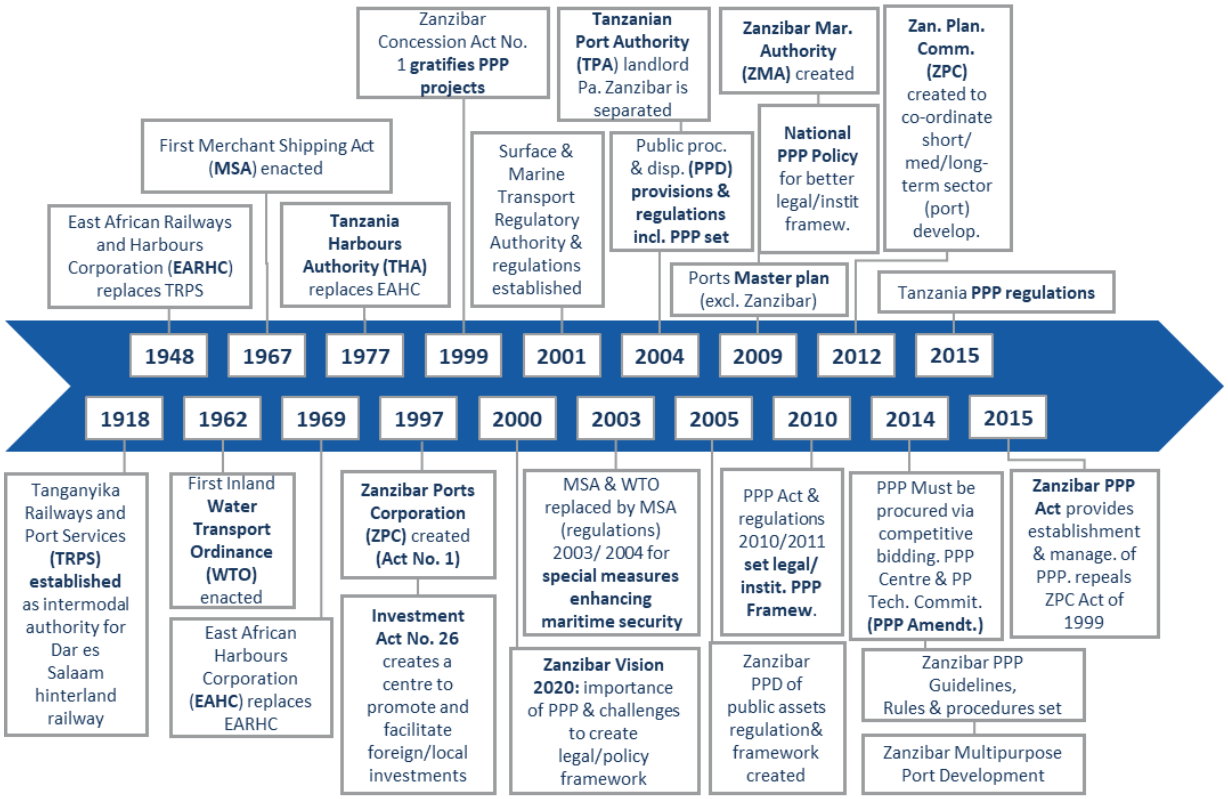
The Tanzania Merchant Shipping Act, 2003 (Republic of Tanzania, 2003) was drafted based on the UK Merchant Shipping Act which regulates shipping and vessels in many common-law countries. The structure and the provisions of the Tanzanian Merchant Shipping Act are therefore common to the structure and provisions of similar Merchant Shipping Act existing in the region such as in Kenya or South Africa. The Act, among other things, provides for the registration and licensing of ships, and provides for the pollution prevention and protection of marine environment and marine security.

The Tanzania Surface and Marine Transport Regulatory Authority Act 2001 (Republic of Tanzania, 2001) establishes SUMATRA. Its main purpose is to carry out its functions to enhance the welfare of Tanzania society, by promoting effective competition and economic efficiency, protecting the interests of consumers, and protecting the financial viability of efficient suppliers (Art. 5). The powers to set rates and charges (Art. 16) are subject to the provisions of sector legislation and licenses under the legislation. In the case of a future concession between TPA and a private operator, the TPA shall define the tariff policy for the terminal operator and consult with SUMATRA prior to finalizing the tariff in a concession agreement.

The Tanzania Investment Act, No. 26 of 1997 (Republic of Tanzania, 1997b) aims to provide for more favorable conditions for investors and related matters. Under the Investment Act, the Tanzania Investment Centre was established, which is an agency of the government, and shall be under the general supervision of the minister.

ZMA is a statutory authority established under the Zanzibar Maritime Act (Revolutionary Government of Zanzibar, 2009) on March 30, 2009, with the mandate to regulate, coordinate, and oversee maritime affairs in Zanzibar. Like the Merchant Shipping Act, the ZMA Act does not formally regulate ports in their development or operation. The main relevance for the ports sector from the ZMA Act is prescribed in Section 5 (1), which dictates that the ZMA has, among others, the duty to administer and enforce the implementation of the Maritime Transport Act, 2006 (No. 5 of 2006); ensure that Environmental Impact Assessment and Strategic Environmental Project Analysis are conducted on all projects or activities likely to have negative impact on the marine environment in consultation with institutions responsible for environment protection; promote and ensure the safe use of ports and approaches thereto; and regulate shipping and port services; and promote and or facilitate the improvement of the performance of ports. It can be interpreted that the ZMA has a direct impact on Zanzibar's ports sector, being the authority that shall administer and enforce the provisions of an act that, in recent years, had a major impact on the future development of port facilities and performance.

Figure 18: Evolution of the Legal and Regulatory Framework in Tanzania and Zanzibar



Key shortcomings of the Tanzania port sector's legal and regulatory framework relate to the unclear financing principles for the port sector.

- The TPA act does not specify specific boundaries regarding the financing principles of the ports sector. This means that it is not clear how investments by the central government, the TPA, or private operators can be assigned to port projects. By presenting investment responsibilities either to the central government, to the TPA, to donor funding, or to the private sector through PPPs, the legal and regulatory framework will be clear on the investment needs and responsibilities. This is highly valued by international operators and donors and it will also result in clearer regulations for the country itself.
- According to section 13.1 of the Act, the Authority may carry on such activities which are advantageous, necessary, or convenient for carrying on or in connection with the discharge of its functions and duties under this Act or any other written law, and may exercise any of the powers specified in this Act, which includes the development of Ports. However, the President has strong powers to define the port limits and to direct the Authority to plan and develop projects (Art. 14). These are contradicting statements that shall preferably be resolved and updated into statements that do not leave room for interpretation.
- The designation of port safety and environmental protection responsibilities and measures are not assigned to an independent entity, as both the TPA and SUMATRA are responsible for port/transport safety and environmental protection. This could result in debates about which entity is responsible for specific actions or services.
- For the PPP implementation process to speed up and be professionalized, there is a need to reduce bureaucracy and for the government to be willing to receive funding from different

entities, such as the World Bank, TMEA, DFID, the European Union, and Chinese parties.

In practice, the ZMA acts as a regulating body for the ports, only with respect to the three topics of safety, security, and economics. For all other decisions, the ZPC can make its own decisions, meaning that the majority of port planning, capacity enhancement, or operational decisions can be made independent of ZMA (except when above-mentioned topics are concerned). ZMA has the mandate to regulate ports on safety, security, and economic topics (tariff setting for port dues, terminal handling charges, etc.). ZMA is a fully autonomous institution with no interference by the Government of Tanzania. All decisions made with respect to the role and functioning of the ZMA are made by the Government of Zanzibar.

The main shortcomings of Zanzibar's port sector legal and regulatory framework relate to:

- Ambiguity around the consistency of legal and regulatory frameworks within the different bills, acts, rules, and regulations as a semi-autonomous state of Tanzania. The current position of Zanzibar as a semi-autonomous state leads to contradictions among different documents and it is not always clear which of the different bills, acts, rules and regulations are leading. There is likely no easy solution for this, as these legal implications are applicable to all legal documents relevant for Zanzibar, and these have emerged historically. For the ports sector, it is advised that a working group of TPA, ZPC, and ministerial delegates assess the potential to ensure that contradictions between the port sector legal documents of Zanzibar and Tanzania are resolved.
- Limited clarity on the designation of port managerial responsibilities and associated monitoring bodies, which in the Ports Act is described as "control" that could be interpreted as different to "management"; and
- The financing principles regarding port construction or development are not specifically drafted in the legal and regulatory frameworks of Zanzibar.

Safety and security pose as major issues for the Port of Malindi, as before the establishment of the ZMA, these procedures did not exist at all. Some improvements have been made, but workers (and even management of ZPC) far from adhere to these new rules. Therefore, the ZMA is implementing a Port–State Control Unit to oversee safety and security procedures in the Port of Malindi.

Port tariffs

There are two publicly available sources on Dar es Salaam's port tariffs: the Tanzania Ports Authority Tariff Book of Port Dues and Charges (Tanzania Ports Authority, 2013) and the Dar es Salaam Container Terminal Tariff Book of TICTS (Tanzania International Container Terminal Services, 2016). Since the TPA is the main entity responsible as a port authority, terminal operator (except for containers, for which TICTS is mainly responsible) and provider of marine services in the Port of Dar es Salaam, the TPA Tariff is largely complete in terms of the tariffs it considers. In addition, the TICTS tariff book provides insight into the tariffs charged on the container terminal activities.

In Zanzibar, the single publicly available source that is available on port tariffs is published by the ZPC Tariff (Zanzibar Ports Corporation, 2014). It is largely complete in terms of the tariffs it considers.

The current port tariff structure in Dar es Salaam is broadly in order: all tariffs are charged based on the preferred structures. An error in the tariff book, however, is that the berthing dues are paid based on gross registered tonnage (GRT), when they should be directly related to the length of the vessel. Secondly, the wharfage charge that is included in the tariff book for non-containerized cargoes is charged on an ad-valorem basis, causing a double "tax" on the value of the cargo due to the charge of the port authority, as well as the customs authority. It is advised that the TPA adjusts its wharfage and berthing dues to be in line with best practices.

The current port tariff structure in Zanzibar is in order, except the fact that berthing dues paid are based on GRT instead of a charge per meter of the vessel or per berth.

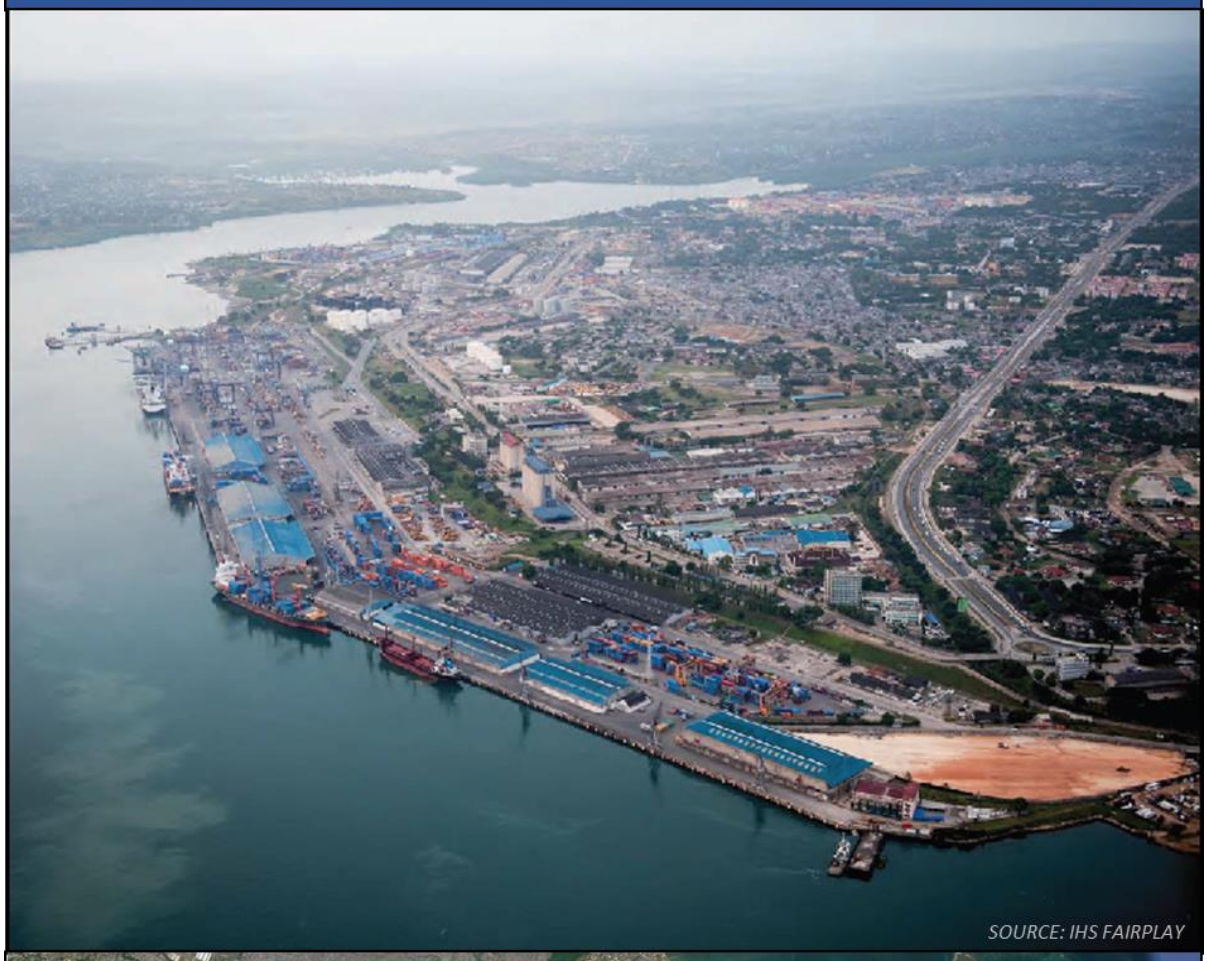
4. Port description

Tanzania's main port is the Port of Dar es Salaam, located in the country's largest city and former capital, on the coast of the Indian Ocean. Dar es Salaam is the largest city in Tanzania and its port is the most important Port of Tanzania, as it handles about 95 percent of Tanzania's international trade. The Port of Dar es Salaam has a large hinterland which includes the landlocked countries of Burundi, Rwanda, Malawi, Zambia, and the DRC. The port is surrounded by the city of Dar es Salaam, which is Tanzania's largest city, housing more than 5 million inhabitants. Hence, this has a substantial influence on the port–city relationship, as all cargo throughput handled by the port is required to cross the city of Dar es Salaam. There are no dedicated port access roads, which results in substantial congestion of port and city traffic on the roads around the port. Moreover, in recent years, less than 1 percent of the cargo to the hinterland was moved by rail over the two existing railway lines because of lack of services.

Other seaports include the Port of Tanga in the northern part of Tanzania, and the Port of Mtwara situated in the south. The Port of Dar es Salaam functions as gateway port for the landlocked countries of Tanzania, Burundi, Rwanda, the DRC, and Uganda, to which it is connected via "the Central Corridor." In addition, the Dar es Salaam Corridor connects Zambia and Malawi to the Port of Dar es Salaam. As a result, transit volumes represent approximately 30 percent of the total cargo throughput in the Port of Dar es Salaam. Since 2014, the port has faced congestion issues with the maximum handling capacity estimated at 15 million tons per year. Resulting inefficiencies are costing Tanzania and surrounding countries an estimated US$2.6 billion a year. Several expansion projects are underway to increase the port's capacity to 28 million tons, with support from the World Bank (US$345 million) and UKAid (US$12 million).

The Port of Zanzibar is located on the western side of the island of Zanzibar, approximately 40 nautical miles from the Port of Dar es Salaam. It acts as gateway port to the island of Zanzibar, handling approximately 90 percent of the Zanzibar trade (PMAESA, 2017). With approximately 1.5 million passengers per year, the port has one of the busiest passenger terminals in East Africa. The port has one large berth of 240 m which is capable of handling 20,000 DWT vessels with a maximum draft of CD −10.0m. With just one MHC, most ships are geared to handle cargo in the Port of Zanzibar. Container and cargo volumes are relatively small, as the port acts primarily as gateway port to the island of Zanzibar. Despite these volumes, the Port of Zanzibar is severely congested, partly due to the limited expansion possibilities in the port.

Port of Dar es Salaam - Tanzania



SOURCE: IHS FAIRPLAY

Table 17: Performance Indicators - Port of Dar es Salaam

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	2.02	6.86	3.08	2.31	0.66
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	511		9,029		
Port area productivity	ton/ha			155,055		
Container dwell time	days	8.00	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	3.08	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	3.42	4.41	n/a	4.11	2.65

Source: MTBS, TPA

Table 18: Performance Indicators - Port of Zanzibar

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	4.19	7.96	1.68	1.06	-
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	331		3,314		
Port area productivity	ton/ha			212,720		
Container dwell time	days	7.00	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	n/a	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	3.17	4.04	n/a	4.03	3.32

Source: MTBS, ZPC

Table 19: Berth Characteristics – Port of Dar es Salaam

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
KOJ 01 - 02	Kurasini Oil Terminal	TPA	Berth 1: 84 Berth 2: 36	Berth 1: 11.5 Berth 2: 6.5	LPG, vegetable oils, crude oil, clean products, and aviation fuel.	17.6		Diesel tank (2,050m^3) Kerosene tank (385m^3)
SPM 01 -02	Mjimwema Oil Terminal	TPA	-	16.7	Crude oil.	SPM	SPM	Gasoline tank (1,400m^3)
1 - 4	Tanzania Port Authority Terminal	TPA	726	8.7	General cargo, Ro-Ro, bulk, and grains.	31.8	28x Portal Cranes (5-7t) Grain conveyors	WH (8.1ha) OS (5.2ha) Grain silos (30,000t)
5 - 7	Tanzania Port Authority Terminal	TPA	548	9.5 - 10.5	Container spill-overs.	18.0	6x MHC 3x RTG 14x RS	CTS (12ha)
8 - 11	TICTS	HPH (70 percent), Harbours Investment Ltd. (30 percent)	670	10.5	Containers.	22.0	9x STS 1x RMGC 17x RTG	CTS (15ha)

Source: IHS Fairplay, 2017

Table 20: Berth Characteristics – Port of Zanzibar

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
North Berth	Milindi Wharf	Zanzibar Ports Corp (ZPC)	113	6.0	Multipurpose	0.3	see West Berth	see West Berth
West Berth	Milindi Wharf	Zanzibar Ports Corp (ZPC)	240	6.0 - 9.0	Multipurpose	5.2	1x MHC (50t) 6x RS	CTS (2.2ha) WH (1ha)
Mtoni	Zanzibar	Zanzibar Ports Corp (ZPC)	-	-	Liquid bulk (products)	SPM	1x SPM	

Source: IHS Fairplay, 2017

Table 21: Throughput and Capacity - Port of Dar es Salaam

Type	Unit	Throughput (2016)	Capacity	Utilization
Port of Dar es Salaam				
Dry Bulk	ton	1,875,051	4,100,000	45.73 percent
General Cargo	ton	328,261	3,100,000	10.59 percent
Vehicles	ton	146,028	300,000*	48.68 percent
Container Terminals				
TICTS	TEU	497,897	600,000	82.98 percent
TPA Container Terminal	TEU	124,474	450,000	27.66 percent
Liquid Bulk Terminal				
Kurasini Oil Terminal	ton	5,288,861	6,000,000	88.15 percent

Source: Tanzania Ports Authority *estimated

Table 22: Port Volumes - Detailed - Port of Dar es Salaam

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	349,805	359,773	380,395	390,078	379,901
	Transit	TEU	199,671	215,042	238,116	235,634	201,575
	Transshipment	TEU	12,996	25,698	46,434	33,371	40,895
	Subtotal	**TEU**	**562,472**	**600,513**	**664,945**	**659,083**	**622,371**
General Cargo	Domestic	ton	187,674	317,304	273,779	243,086	211,704
	Transit	ton	103,326	174,696	150,733	133,835	116,557
	Subtotal	**ton**	**291,000**	**492,000**	**424,512**	**376,921**	**328,261**
Dry Bulk	Domestic	ton	1,305,440	1,586,542	1,563,844	1,388,526	1,209,270
	Transit	ton	718,728	873,494	860,997	764,473	665,781
	Subtotal	**ton**	**2,024,168**	**2,460,036**	**2,424,841**	**2,152,999**	**1,875,051**
Liquid Bulk	Domestic	ton	2,230,051	2,763,094	2,645,162	2,597,227	2,750,071
	Transit	ton	1,753,466	2,026,313	2,084,889	2,724,496	2,538,790
	Subtotal	**ton**	**3,983,517**	**4,789,407**	**4,730,051**	**5,321,723**	**5,288,861**
Ro-Ro	Domestic	ton	111,221	139,836	159,928	155,582	94,177
	Transit	ton	61,234	76,989	88,051	85,658	51,851
	Subtotal	**ton**	**172,455**	**216,825**	**247,979**	**241,241**	**146,028**

Source: Tanzania Ports Authority

Table 23: Throughput and Capacity - Port of Zanzibar

Type	Unit	Throughput (2016)	Capacity	Utilization
Zanzibar Port				
Containers	TEU	76,787	100,000*	76.79 percent
Multi-purpose	ton	359,872	600,000*	59.98 percent
Liquid bulk	ton	42,220	75,000*	56.29 percent

Source: ZPC *estimated

Table 24: Port Volumes - Detailed - Port of Zanzibar

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	65,053	70,592	79,256	75,161	76,787
	Transit	TEU	-	-	-	-	-
	Transshipment	TEU	-	-	-	-	-
	Subtotal	**TEU**	**65,053**	**70,592**	**79,256**	**75,161**	**76,787**
General Cargo	Domestic	ton	139,152	141,004	158,424	265,448	287,898
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**139,152**	**141,004**	**158,424**	**265,448**	**287,898**
Dry Bulk	Domestic	ton	34,788	35,251	39,606	66,362	71,974
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**34,788**	**35,251**	**39,606**	**66,362**	**71,974**
Liquid Bulk	Domestic	ton	20,406	20,678	23,233	38,927	42,220
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**20,406**	**20,678**	**23,233**	**38,927**	**42,220**
Ro-Ro	Domestic	ton	n/a	n/a	n/a	n/a	n/a
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**

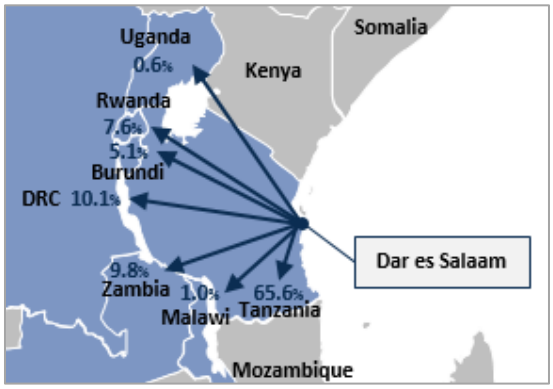
Source: Tanzania Ports Authority

Volume forecasts

Port of Dar es Salaam

Transit Shares: Dar es Salaam is the main gateway port of Tanzania and serves a vast hinterland comprising Uganda, Rwanda, Burundi, The DRC, Zambia, and Malawi. Figure 19 illustrates the share of total port volumes which is destined and originates from the port's hinterland. Between 2010 and 2016, on average 65.6 percent of the total volumes handled by the Port of Dar es Salaam were domestic volumes from and to Tanzania. Dar es Salaam's largest transit partners in the same period were the DRC, representing 10.1 percent of the import and exports, and Zambia, representing 9.8 percent of the port's volumes. Smaller port volumes were handled for Uganda (0.6 percent), Rwanda (7.6 percent), Burundi (5.1 percent), and Malawi (1.0 percent) (Central Corridor Transit Transport Facilitation Agency, 2017). The port also

Figure 19: Port of Dar es Salaam Transit Shares in 2016



plays a small transshipment role for containers destined to areas along the eastern and southern African coast. As transshipment activities are classified separately, the share of transshipment cargo is not illustrated in Figure 19. In 2016, approximately 6.6 percent of the Port of Dar es Salaam's container volumes represented transshipment boxes, which is approximately 0.4 million tons.

Hinterland Volume Shares: Dar es Salaam is a gateway port for Tanzania, Zambia, Burundi, and Rwanda. It handles about half of the Zambian volumes and 70 percent of Rwanda's volumes (Evidence on Demand, 2015). Even more dependent are the countries Tanzania and Burundi, with 85 percent and 95 percent of the countrys' volumes passing through Dar es Salaam respectively. Uganda, which moves most of its cargo via Mombasa, imported and exported marginal volumes through Dar es Salaam, whereas just 4 percent of Malawi's cargo was shipped in and out via Dar es Salaam. Malawi's country volumes are handled by the Port of Durban primarily (Cross Border Road Transport Agency, 2016). Lastly, the Port of Dar es Salaam handled approximately 14.3 percent of The DRC's volumes.

Future Competitive Environment: Firstly, the rehabilitation project in the Port of Nacala, which saw phase one completed in September 2015 and phase two commence in 2016, is expected to decrease Zambian and Malawi trade via the Port of Dar es Salaam. The construction of a new railway line linking Zambia with Malawi and Nacala is further contributing to this end, decreasing Dar es Salaam's share for Zambia from 50 percent in 2017 to 40 percent in 2022 and for Malawi from 4 percent to 2 percent over the same time. Domestically, Dar es Salaam might face severe competition with the construction of the Port of Bagamoyo, located just 65 km north of Dar es Salaam, one step closer after the Government of Tanzania approved a proposal from the State General Reserve Fund of Oman to go forward with the project and include a special economic zone (Construction Review Online, 2017). Based on these recent developments, the forecast assumes that the Port of Bagamoyo captures 35 percent of Tanzanian container and general cargo traffic from the Port of Dar es Salaam between 2025 and 2032. For the other commodities destined to or originating from Tanzania, the Port of Dar es Salaam is assumed to retain its market share of 85 percent. For the remaining hinterland countries, the demand forecast does not expect a significant shift in market share for the Port of Dar es Salaam.

Volume Projections: The volumes handled in the Port of Dar es Salaam are expected to increase from 13.9 million tons in 2016 to 58.3 million tons in 2050. Containerized cargo is expected to be the largest cargo type in 2050, with 38.4 percent of total volumes, followed by liquid bulks with 34.8 percent, and dry bulks with 22.4 percent. Dry bulk exports, mainly comprising copper from Zambia and the DRC, are limited with just 0.4 million tons, the equivalent of just 3.3 percent of dry bulk volumes handled by the Port of Dar es Salaam in 2050. Liquid bulk volumes are estimated to increase to 20.3 million ton in 2050, with the vast majority comprising imports. In 2050, approximately 175,000 vehicles are imported for the port's hinterland. Total volumes are projected to increase with a CAGR of 6.7 percent in 2016-2030, 3.3 percent in 2030–2040, and 2.7 percent in 2040–2050.

Figure 20: Base Case Volume Projections - Port of Dar es Salaam

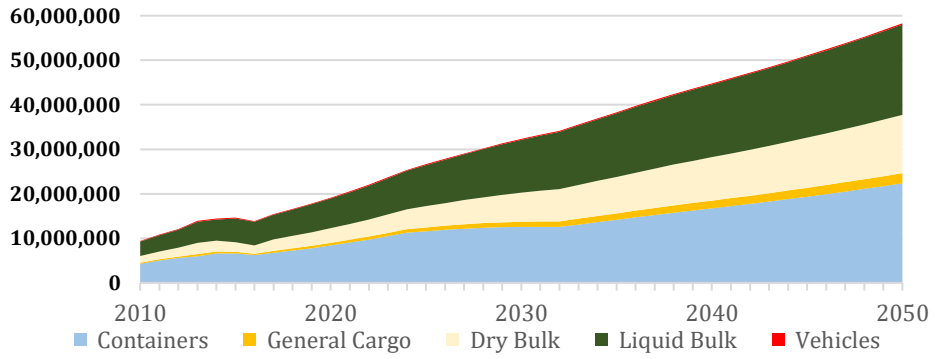


Table 25: Demand projections – Port of Dar es Salaam

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	6,731	7,247	7,801	8,394	9,032	9,721	10,482	11,268	11,603	12,596	14,144	16,763	19,368	22,377
General Cargo	484	522	562	604	650	699	753	809	866	1,162	1,454	1,716	1,976	2,277
Dry Bulk	2,573	2,794	3,028	3,275	3,541	3,828	4,132	4,447	4,769	6,496	8,209	9,750	11,288	13,068
Liquid Bulk	5,531	5,906	6,300	6,716	7,156	7,621	8,146	8,678	9,214	11,876	14,315	16,337	18,215	20,303
Vehicles	134	157	164	163	168	173	175	181	184	198	213	221	244	263
Total	**15,452**	**16,625**	**17,855**	**19,151**	**20,546**	**22,042**	**23,688**	**25,382**	**26,636**	**32,328**	**38,335**	**44,787**	**51,091**	**58,287**

The MS Shift Case assumes that the port's stake in the DRC increases from 14.5 percent to 30 percent together with an increase of the port's stake in Rwanda from 70 percent to 90 percent. These shifts are associated with the development of the new SGR in Dar es Salaam. However, due to the development of the SGR in Kenya, the port is assumed to capture a smaller share of cargo destined for or originating from Burundi (decrease from 95 percent to 80 percent).

Figure 21: Demand Forecast – Containers

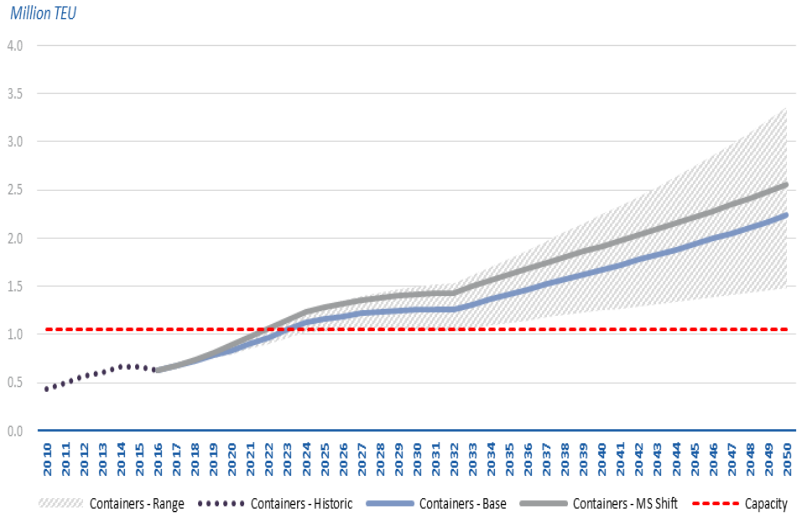
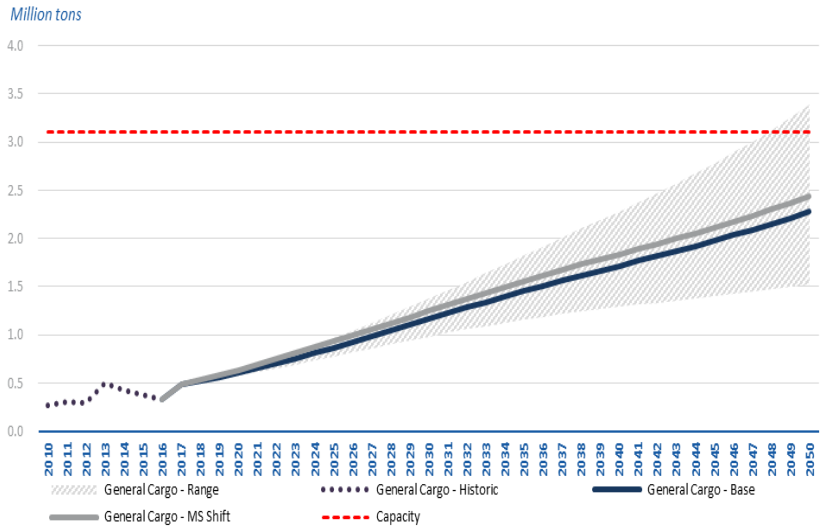


Figure 22: Demand Forecast – General Cargo



Port of Zanzibar

Volume Share Port of Zanzibar: The Port of Zanzibar handled solely traffic destined for the island of Zanzibar, which represented approximately 90 percent of the volumes in Zanzibar (PMAESA, 2017). The total volume share of the Port of Zanzibar in Tanzania's volumes is estimated to be 14 percent for containers, 5 percent for dry bulk imports, 50 percent for general cargo, 1 percent for liquids, and no vehicles. These shares are based on the historical throughput figures received from the ZPC and the TPA.

Future Competitive Environment: With the Port of Zanzibar handling over 90 percent of the volumes destined for and originating from Zanzibar and cargo handling space and equipment being limited, the port faces congestion issues. The Maruhubi Multipurpose Terminal Project, for which construction commenced in 2016, is anticipated to relieve this congestion in the Port of Zanzibar, with the targeted completion date being 2018 (Nathan Associates, 2014). As we assume this project to be part of the Port of Zanzibar, market shares are not expected to decrease with the construction of the new multipurpose port.

Volume Projections: The volumes handled in the Port of Zanzibar are expected to increase from 1.2 million tons in 2016 to 6.4 million tons in 2050, equivalent to a CAGR of 7.4 percent in the period 2016–2030, 4.2 percent in 2030–2040, and 3.0 percent in 2040–2050. Containerized traffic is projected to be the largest cargo type, with 3.7 million ton, i.e. 370,000 TEU in 2050. The second-largest cargo type is general cargo, with 30.3 percent, followed by dry bulks with 9.7 percent. Most of these cargo types are imports, as there are no significant export commodities identified for the island of Zanzibar.

Figure 23: Base Case Volume Projections - Port of Zanzibar

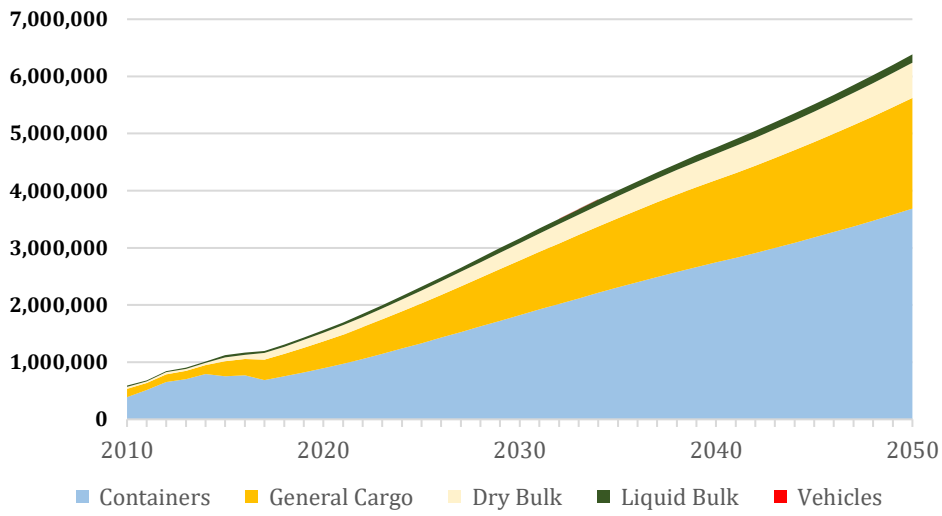


Table 26: Demand projections – Port of Zanzibar

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	685	751	821	894	973	1,059	1,147	1,239	1,333	1,823	2,307	2,744	3,182	3,688
General Cargo	360	394	431	469	511	555	602	650	699	957	1,210	1,440	1,669	1,935
Dry Bulk	115	126	137	150	163	177	192	207	223	305	386	459	533	617
Liquid Bulk	35	38	42	45	49	52	56	60	64	83	101	116	129	145
Vehicles	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**1,195**	**1,309**	**1,431**	**1,558**	**1,695**	**1,844**	**1,997**	**2,156**	**2,319**	**3,168**	**4,005**	**4,759**	**5,513**	**6,385**

Given the fact that the Port of Zanzibar is located on an island, no shift in market shares is expected. As such, the MS Shift Case is not depicted.

Figure 24: Demand Forecast – Containers

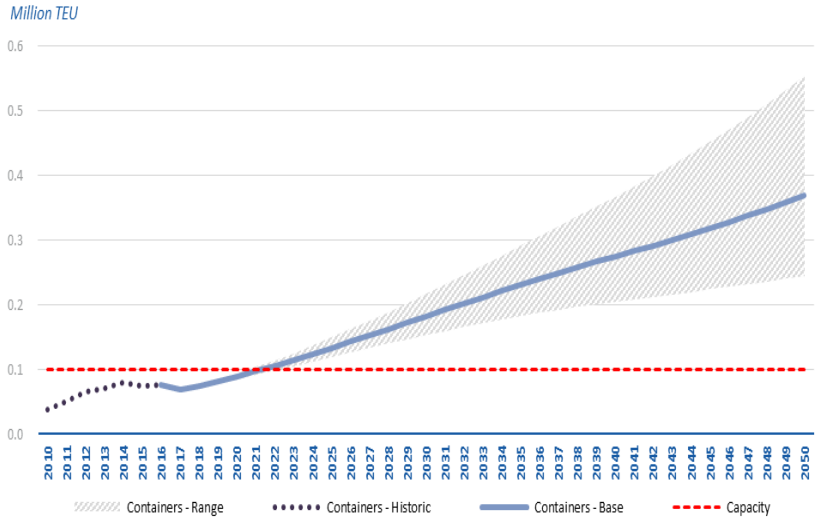
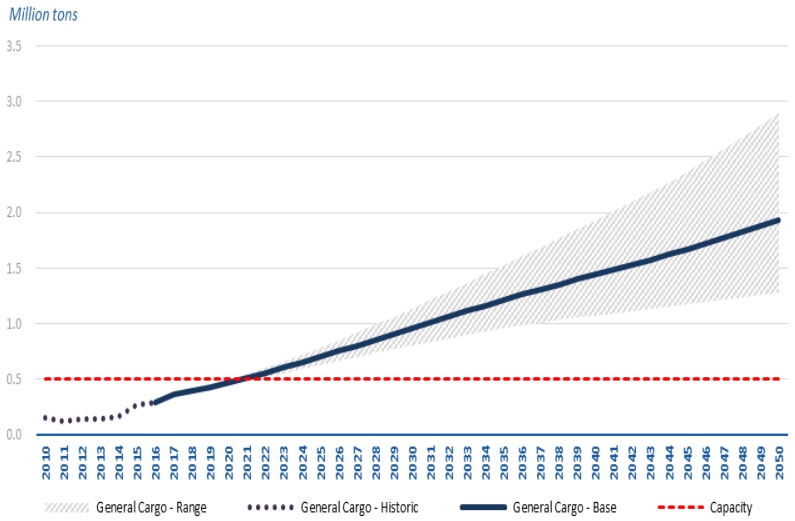


Figure 25: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Key Observations:

- **Port functions:** The Port of Dar es Salaam provides modern port functions with substantial cargo volumes. Logistics and distribution services are provided by private operators (truck operators and container freight stations), the TPA (lake ports) and Tanzania Railways Limited/Tanzania Zambia Railway Authority (rail freight). The level of services is limited by the congestion in/around the city, and the limited services provided by the rail operators due to lack of investment in new infrastructure.
- **Relationship between port and stakeholders:** The relationship between the port and its stakeholders is limited. Even though the port's growth is hampered by the lack of sufficient landside transport capacity, there is limited dialogue or integrated planning between the port authority and the authorities in Dar es Salaam. Shipping lines, trucking companies, forwarders, and cargo owners can engage in a direct dialogue with the TPA through stakeholder meetings under the CCTTFA.
- **Development Strategy of the Port:** The development strategy of the port is largely determined by the TPA under support of The World Bank and other development agencies. Through this structure, the development plans for the port are publicly available. Under a TMEA supported project, TPA is implementing a port charter, similar to Mombasa's Port Community Charter. This will allow the involvement of port users in development plans. The strategy of the TPA toward privatization of its operations is currently uncertain. TPA is considering setting up specialized business units for the different activities it performs, to specialize and potentially enable their future privatization.
- **Degree of vertical integration:** There is a limited degree of vertical integration of the chain in the Port of Dar es Salaam. There are several ICDs and CFSs available that are operated by TPA and by private logistic operators. The current level of IT and systems is regarded to be below benchmark levels. The use of rail as an alternative to trucks has almost disappeared in the past decade: currently only 1.0 percent of cargoes is moved by rail. In terms of integrated logistics services provided, TICTS is a notable exception when compared to the TPA operated terminals. TICTS offers a logistic service package to its customers that includes inland logistics via rail and ICD services in Dar es Salaam.
- **Degree of horizontal integration:** The degree of horizontal integration of the Port of Dar es Salaam is comparable to that of other ports in the region. The port authority TPA is a nationwide port authority that is also responsible for developments of other ports in the country (e.g. Bagamoyo). There is no presence of an international operator that is also present in other regional ports, but there are logistics services providers in the port that are also active in other ports in the region.

Proposed Key Actions

- **Pursue the landlord strategy:** Except for TICTS, TPA has not pursued a landlord strategy in which it concessioned operations of the terminals in Dar es Salaam. This is an opportunity to improve operations of the non-container cargoes.
- **Develop a stakeholder forum:** This will ensure involvement of the port's stakeholders (public and private) in the development plans and create understanding of which developments are needed and why.
- **Ensure a competitive approach towards East African cargoes:** With the development of modern greenfield ports in Lamu (Kenya) and Bagamoyo (Tanzania), and the ongoing developments in Mombasa, the position of Dar es Salaam for East African cargoes is under pressure. To remain competitive for these cargoes, it is important that the TPA is aware of these other developments and provides the required port facilities, hinterland connections, and services that are needed.
- **Ensure a modal shift:** The railway developments in Tanzania have the potential to transport substantial flows of cargoes. TPA should focus on enabling a modal shift.

- **Improve the port's road connections:** The current road network within the city results in substantial issues with truck traffic moving through the city. The ongoing World Bank supported projects are aimed to address this.

Port–city interface

The population development in Dar es Salaam has been substantial over the last decade and reached a CAGR of 4.7 percent over the last 5 years. IMF forecasts the average Tanzanian population to grow 2 percent up to 2020, but the population growth in Dar es Salaam is expected to outperform this.

The port–city governance interface currently focuses mainly on congestion on port access roads. This is a major issue, especially given the high percentage of cargo being moved by trucks. With regard to the immediate hinterland connections, TPA is in (limited) contact with the municipality. Planning and governance is difficult, because of the involvement of different entities in road planning: the municipality and the national roads authority TANROADS. TANROADS is responsible for all inter-city road connections and the inter-city roads within city boundaries. Municipalities are responsible for all other roads.

The current ongoing and planned developments in the Port of Dar es Salaam are mainly focused around the redevelopment and modernizing program for berths 1 to 7. This plan includes not only the deepening and strengthening of the quays, but also should improve the cargo handling performance and port layout. In addition, plans exist to further expand the port with a new container terminal. This plan includes the development of berths 13 and 14. However, this project is recently postponed by the TPA to the long term, as the focus should first be on the modernization of berths 1–7.

Port Development Stage: Port Generation

The Port of Dar es Salaam is one of the largest ports on the East African coastline in terms of cargo throughput. In terms of the port generation related to its port–city interface, Dar es Salaam can be characterized as second-generation port. This can be explained by the expanding port and city, and the port and city integration of today. The port and city both suffer from traffic congestion and space limitation. Some parts of the city west of the port are redeveloped for port and logistics purposes. On the other hand, part of the port can be characterized as a third-generation port, as the port receives specialized vessels for different cargo commodities and there is a functional separation with dedicated terminals.

Key Recommendations:

- The TPA should engage in a more frequent and systematic dialogue with the municipality to develop a port–city master plan, which includes port and city zoning.
- The TPA should facilitate communication with all stakeholders involved in optimizing the hinterland transport chains to and from the Port of Dar es Salaam.
- Dwell times and truck congestion can be reduced through ICT investments and better clearing systems.
- To limit congestion at the port entrance and in the city, TPA can implement dedicated truck waiting areas where transport documents can be checked; Terminal Appointment Systems; and off-peak operating hours.
- Implement a specific committee in which port-related stakeholders meet with local community stakeholders to discuss port–city issues like the local Ports Consultative Committee in South Africa.

Comoros: The Union of the Comoros is an island located at the northern end of the Mozambique Channel off the Eastern coast of Africa. The Union of the Comoros consists of three major islands, Grand Comoros, Anjouan, and Mohéli, and numerous small islands. With a GDP of just US$611 million in 2016, and a population of approximately 800,000 people, the Comoros is a relatively small country both in terms of GDP and total inhabitants (The World Bank, 2017b).

1. Port sector institutions

The port authority of the Comoros is the Sociètè Comorienne des Ports (SCP), which was created in 2013 to replace the separate port authorities on the different islands, including the semi-autonomous port authority active in Moroni, the Autorité Portuaire des Comores (APC). The SCP falls under the Ministry of Transport for all technical-related issues, while the Ministry of Finance oversees the SCP from a financial point of view. During legislative proceedings, the President's office suspended the law as the island of Mohéli was not included in the SCP. While this issue appears to have been addressed in the current form of SCP, the SCP does not yet exist today. Once the SCP is established, it will assume all the tasks and responsibilities of the APC and the APC will cease to exist.

The APC is a fully government-owned, semi-autonomous port authority that manages the day-to-day operations of the Port of Moroni. The APC respects the traditional landlord model. The APC, through the Government of Comoros, is responsible for all infrastructure investments, while the port's private operators are responsible for superstructure- and equipment-related investments. The archipelago's other major commercial port, Mutsamudu, is also managed by a local port authority. The Port of Boingoma management falls under the responsibility of the APC. They have the same mandate as the APC. The APC is responsible first and foremost for executing the national port policy. The APC is also the conceding authority for port concessionaires. APC has three areas of responsibility: port management, port services, and auxiliary services.

Bolloré Africa Logistics manages the Moroni Terminal, which handles container and general cargo operations. The concession was granted in 2011 for ten years (Bolloré Ports, 2017).

ANAM, Maritime Affairs Authority of the Comoros, is a government agency responsible for monitoring and regulating all maritime-related affairs on the Comoros. It was introduced by Law No. 11 in 2007 and established by Decree No. 159 of 2007. ANAM's main responsibilities are to, among other things, carry out hydrographic surveys; control maritime borders; review compliance to international maritime standards and enforce port state control measures; inspect vessels; give licenses to inter-island maritime services; and regulate all conflicts between stevedores and the operator. ANAM is also invited to comment on any development plans, but it is not involved in monitoring the implementation of concession agreements.

The Ministry of Transport is responsible for all technical aspects of the island-state's national port and maritime policies. The Ministry of Transport is the main policymaking organ on the Comoros and is responsible for monitoring and implementation of concession agreements with private operators. The Ministry of Finance is responsible for all financial aspects of all national port and maritime policies. In this role, the ministry acts mainly in a supporting role to the Ministry of Transport by providing guidance on all financial aspects. It also assists the Ministry of Transport in the monitoring and implementation of concession agreements with private operators.

The main shortcomings of the Comoros' port sector institutions include the lack of policymaking at the local level, and the lack of a coordinated approach in executing the Ministries' national port policies. Once the SCP is established, they will assume this role. Most importantly, however, there appears to be no concrete expectation that the SCP will be established in the short term. Speaking to

representatives of ANAM revealed that the Government of Comoros' official priorities lie in other sectors, including public health, education, and sports. A prolonged absence of implementation undermines the authority and the status of the institutions that are supposed to uphold it.

The number one point on a roadmap toward an improved functioning of the ports sector in the Comoros is to ensure that the SCP is established as soon as possible. The current lack of prioritized implementation of the SCP means that port sector developments are put on hold.

2. Policy framework

The Comoros applies a centralized port policy-making framework. Port policy is currently defined at a national level. Despite the autonomy given to each of the archipelago's islands of Grande Comore, Anjouan, and Mohéli governorships, port policy is still defined at a national level as it constitutes a policy of the Union of the Comoros. At a regional level, the Comorian (trans)port policy is guided by regional organizations, including COMESA, Indian Ocean Commission (IOC) and SSATP. The most concrete objective is outlined by the IOC, namely the establishment of a regional shipping line to bring down the cost of transport and to improve connectivity (Indian Ocean Commission, 2013).

The Ministry of Transport is the sole policy-making organ relevant for the ports sector across the Comoros. The national port authority, the APC, is responsible for executing this policy. While no official port or transport policy exists, there are two government documents that serve as the reference point for all port-related policy decisions. These documents comprise the *Élaboration du Schéma Directeur Portuaire en Union des Comores* (National Port Master Plan) of 2014 and *Stratégie de Croissance Accélérée de Développement Durable* ("SCA2D": National Five-Year Plan for Accelerated and Sustainable Growth); the current version covers the 2015–2019 period. While the Ministry of Finance is not directly involved in drafting port policies, it is responsible for ensuring the financial validity of any official port-related policy. At a local level, the three islands' autonomous port authorities are tasked with executing the port policy defined by the Ministry of Transport.

SCA2D is an overarching national policy document that covers all sectors of national importance (Comoros, 2015). The island-state's infrastructure is the second of four axes of development. In addition to port-related infrastructure, the document's focus on infrastructure also comprises energy infrastructure, roads, airports and ICT infrastructure. The National Port Master Plan of 2014 reviewed the island-state's entire port setup and included the ports of Mutsamudu and Boingoma in addition to the Port of Moroni. The National Port Master Plan concludes with seven main implementation steps.

National Port Master Plan implementation steps:

- The creation of a single, national port authority: *Société Comorienne des Ports*
- The development of the Port of Mutsamudu as a transhipment port for the sub-region, serving Mayotte, the Seychelles and parts of Mozambique
- The reduction of the overall cost of transport through the Port of Moroni by rehabilitating the port's existing infrastructure and by expanding the port's container quay in order to allow vessels to berth alongside instead of at anchorage
- The construction of a breakwater at the Port of Boingoma in order to improve the safety of vessels at berth and the construction of a RoRo quay to be used for inter-island trade
- The improvement of port infrastructure for inter-island passenger services;
- The expansion of the Port of Mutsamudu's oil terminal and the improvement of the security measures taken to handle and store liquid bulk products at all ports
- Compliance with all ISPS standards at all ports.

The main shortcomings based on the assessment of Comoros' port sector policy framework are:

- While it is a component of one of the four axes of sustainable development, the SCA2D devotes very little attention specifically to the port sector and the bodies and institutions that support it.
- The most recent developments and the unofficial government policy of the long-term development plan of a greenfield port are not yet included in the official five-year plan.
- SCA2D does not devote any attention to environmental concerns related to rehabilitating existing port infrastructure or developing new port infrastructure. None of the development plans that were presented provide information on the sustainable development of the ports toward their surroundings. With the port development plans that are currently envisaged (greenfield or expansion inside the existing port), this is regarded a major drawback of the Comoros' port policy.
- SCA2D does not adequately distinguish between public and private sector responsibilities in terms of management, operations, or financing. It is unclear how the APC or the Comoros Government and its ministries aim to finance the proposed port investment plans that are listed in the SCA2D. By allocating the investments either to the central government, to the APC, to donor funding or to the private sector through PPPs, the Comoros Government will get a clear view on the investment needs and responsibilities. There are also no guidelines on the type, size, or nature of private sector investments in the nation's ports and port sector, nor have any criteria been specified. The greenfield port development is said to be developed as a private port, but it is currently unclear what the role of APC in such a new structure would be.
- SCA2D does not provide adequate guidelines on the financing mechanisms it is prepared to help implement. It is unclear how the APC or the Comoros Government and its ministries aim to finance the proposed port investment plans that are listed in the SCA2D policy document.

Reflecting the limited port-specific references in the SCA2D, various port actors believe that developing the country's ports are not a true government priority. The institutional framework is too fragile to follow through on the establishment of the SCP, as this would directly result in laying off over 200 people, according to a representative of the *Agence Nationale des Affaires Maritimes* (Maritime Affairs Authority of the Comoros). This is a very contentious political issue, and there is no social safety net to absorb the unemployment that would be created in the aftermath. The unofficial government policy has been developed ad hoc after having China Road and Bridge Corporation (CRBC) execute feasibility studies on its behalf on the development of a greenfield port. This unofficial policy is being included in an updated version of the current SCA2D document but until that is accomplished, the unofficial policy is contradicting the official policy, which does not explicitly mention the expansion of the Port of Moroni or the development of a greenfield deep-sea port.

Finally, Comoros lacks a specific PPP law or policy, though there has been interest to revisit this. The National Investment Promotion Agency is the governing body in charge of investment promotion in the country and as such, facilitates the implementation of PPPs. The NIPA is an autonomous public institution which was formed as part of the Investment Code 2007 (The World Bank, 2015c).

3. Legal and regulatory framework

At an international level, the Comoros' legal and regulatory framework for the ports sector is guided by the IMO conventions, and at a regional level by the AU's Maritime Charter and the COMESA treaty. Further, the Comoros are a member of the IOC, cooperating with Reunion, Madagascar, Mauritius, and the Seychelles on trade facilitation among the islands. At a national level, the Comoros' legal and regulatory framework for the ports sector is guided by the Merchant Shipping Act and the Investment Code. There is no additional layer of local legislation that impacts the

Port of Moroni's operations and the vessels operating in it. This is due to the centralized nature of the Comoros' policymaking setup.

The Comoros has ratified all major international conventions, except SOLAS Protocols 88 and 96, STCW-F Convention 95, MARPOL Protocol 97, Ballast Water Management Convention, and Hong Kong Convention. Comoros-flagged vessels have been blacklisted by the 1984 Paris Memorandum of Understanding on Port State Control. Comoros-flagged vessels are one of 11 nations considered to pose a medium to high risk. Of the 228 inspections carried out between 2014 and 2016, a total of 40 detentions were made. This mostly relates to the fact that these vessels are used as "end-of-life flags" and are hardly used during the operational life of a ship (Shipbreaking Platform, 2015).

Agence National pour la Promotion des Investissements (ANPI) is the national investment promotion agency, charged with the promotion of private investments. This includes promoting sectors identified as 'priority' by the Government of the Comoros abroad. Examples of priority sectors include fishing and telecommunications. The ANPI's role is primarily that of technical due diligence. While formally all private investments have to be reviewed by the ANPI, in practice, large scale investments, such as those related to the construction of a new deep-sea port in Sereheni, are likely to bypass the ANPI and be handled directly by the Ministries of Transport and Finance.

The current *Comoros Merchant Shipping Act*, Law No. 030 of 2014, was finally promulgated and voted into law in 2015. This follows three previous documents: the Comoros Merchant Shipping Code of 2001 and two laws dating back to 1966 that were inherited from the French.

The main shortcoming of the existing legal and regulatory framework is the absence of enforcement of the SCP Act. The Government has signaled its ambition to modernize the legal and regulatory framework by voting in favor of the Act but yet has not been able to implement the law. This creates the risk of creating a vacuum in the port and the port sector's governance and acts as a barrier to further developments. The different legal and regulatory components that are currently not scoring well are components that are all taken care of in the SCP Act.

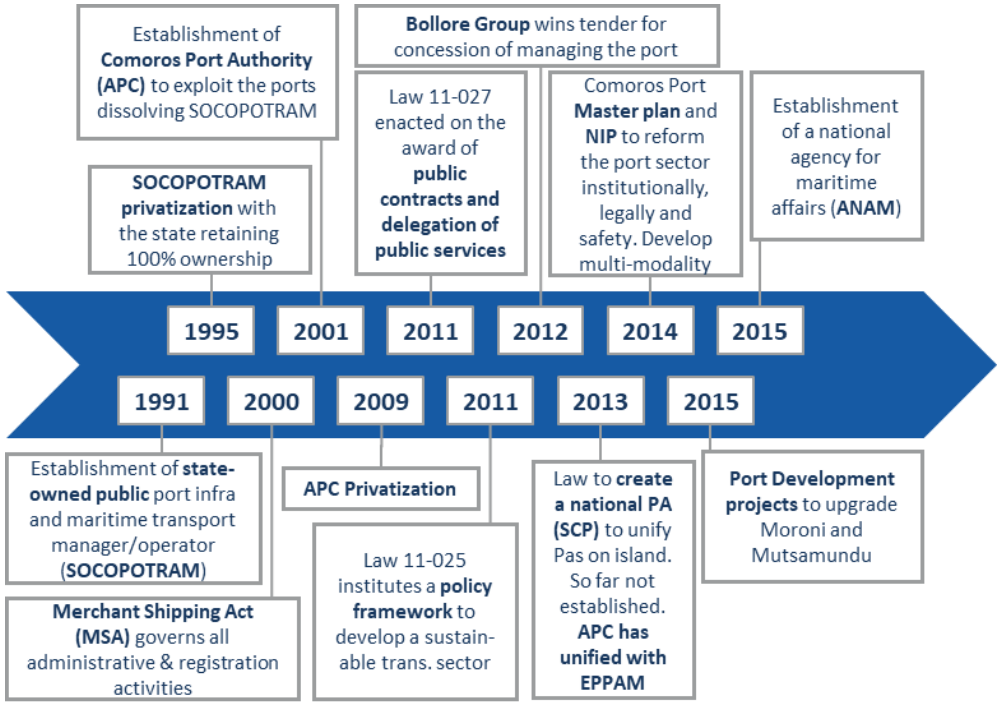
Handling operations of general cargo, containers, and cement have been privatized. However, public authorities including the APC, Customs, and the ANAM interfere with the day-to-day operations by involving themselves with activities that are supposed to be handled by the operator.

With regard to the enforcement of the SCP Act, a continued impasse in legislative proceedings acts as a barrier to any further developments in the nation's ports. Worse yet, any developments initiated now that contradict the SCP Act will make it even harder to enforce the SCP Act.

Law No. 025 of 2011 determines the objectives, defines the framework for actions to be undertaken, and the governance structure and instruments required in the medium- and long-term to enforce the policy and to ensure the sustainable development of the transport sector. The primary objective is to improve and modernize the transport infrastructure while improving the service level and reducing the cost of transport. The law defines several steps that the sector must undertake to meet this objective.:

- Expand the existing port infrastructure and equipment to improve the nation's ports' service levels
- Promote private sector investment and involvement in improving port infrastructure and improving the private sector's access to credit
- Simplify administrative and procedural processes to improve the overall competitive value and transparency of markets
- Put in place a data collection and monitoring system for maritime transport
- Reinforce the legal framework for the protection of the environment by establishing an institution dedicated to evaluating and monitoring the environmental impact of port developments
- Improve Customs procedures and port and maritime security standards
- Strengthen the financial autonomy and the knowledge base of the port authorities, while at the same time unifying the existing individual port authorities.

Figure 26: Evolution of the Legal and Regulatory Framework in the Comoros



Port tariffs

The available sources on port tariffs at Moroni are the APC and the port's CTO, Bolloré Africa Logistics. All tariffs at Moroni are charged based on the preferred structures, except:

- Port dues are charged per day, which is unusual;
- On the other hand, berthing dues are *not* charged per unit of time, which is also unusual. The shipping line should have a financial incentive to free up the berth as quickly as possible;
- Pilotage dues do not distinguish between vessel types (e.g. vessels carrying hazardous cargo); and
- The mooring dues are charged at a fixed rate.

4. Port description

The Port of Moroni is located on the west side of the largest island of the Union of the Comoros, Grand Comoros, approximately 300 km from the African mainland. The port's main imports consist of food and petroleum products, whereas exports comprise vanilla, spices, and flowers. Due to its low draught at quay (approximately 4.5 m), large vessels are not able to berth inside the Port of Moroni. Consequently, large vessels must anchor outside the port and be unloaded onto barges. The port faces several days of downtime each year during the cyclone season, which occurs between November and April and hampers berthing procedures. The port has two berths, with one berth being dedicated to containers and the other handling general cargo and dry bulks.

Port of Moroni - Comoros

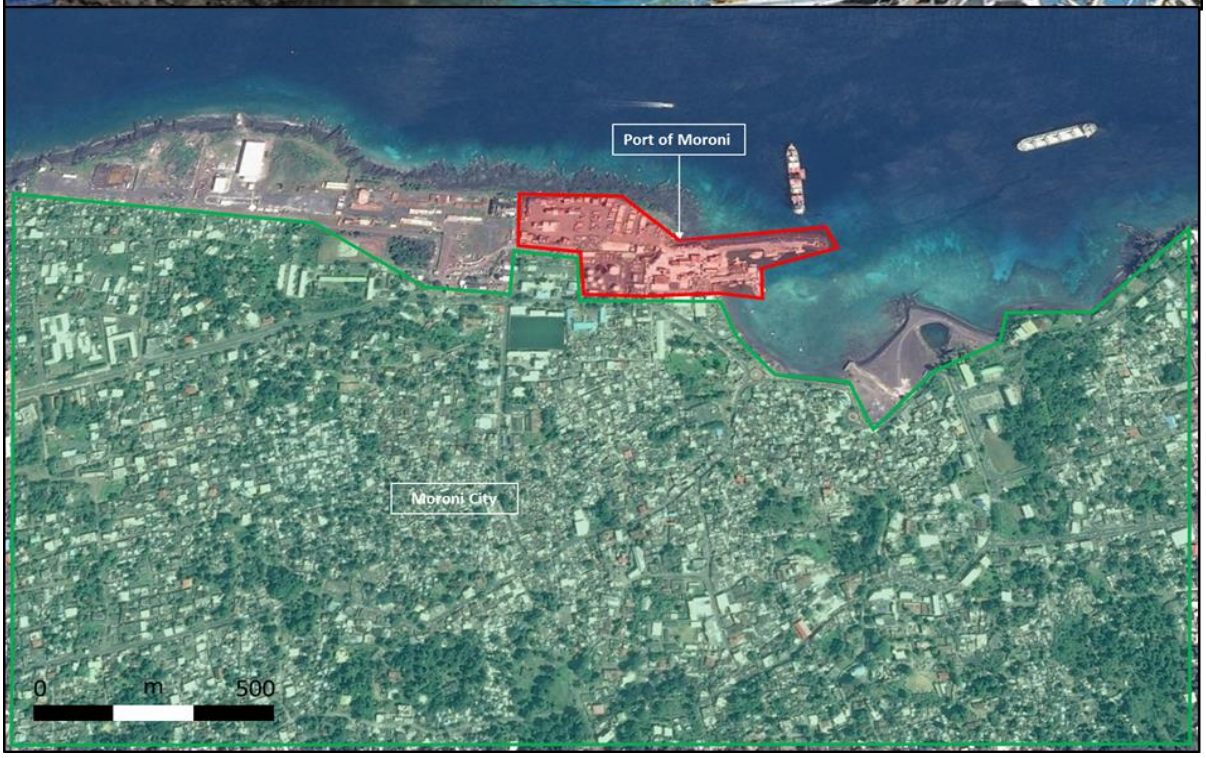


Table 27: Performance Indicators - Port of Moroni

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	3.06	6.84	2.30	1.80	-
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	291			2,912	
Port area productivity	ton/ha			38,823		
Container dwell time	days	21.00	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	n/a	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	4.96	4.15	n/a	4.15	3.82

Source: MTBS, SCP

Table 28: Berth Characteristics – Port of Moroni

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
Moroni Container Berth	Moroni Container Terminal	Bolloré Ports	100	5.5	Loading and unloading containers to barges.	6.0	2x Stackers 2x Mobile Cranes (100t) 2x Barge with transport capacity of 24TEUs and 1 x barge with transport capacity of 12TEUs.	CTS (5.6ha)
Tanker No 1	Moroni Terminal			4.5		1.5	SPM	7.5t liquids

Source: IHS Fairplay, 2017

Table 29: Throughput and Capacity - Port of Moroni

Type	Unit	Throughput (2016)	Capacity	Utilization
Moroni Container Terminal				
Containers	TEU	18,322	30,000	61.07 percent
Multi-purpose	ton	93,554	100,000*	93.55 percent
Moroni Terminal				
Liquid Bulk	ton	14,398	90,000**	16.00 percent

SCP *estimated based on site visit; ** estimated based on approximately 7,500 ton static storage capacity with 1 tank run/ month.

Table 30: Port Volumes - Detailed - Port of Moroni

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	16,693	17,250	17,903	16,340	18,322
	Transit	TEU	-	-	-	-	-
	Transshipment	TEU	-	-	-	-	-
	Subtotal	**TEU**	**16,693**	**17,250**	**17,903**	**16,340**	**18,322**
General Cargo	Domestic	ton	46,766	92,782	73,177	113,757	84,904
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**46,766**	**92,782**	**73,177**	**113,757**	**84,904**
Dry Bulk	Domestic	ton	4,677	9,278	7,318	11,376	8,490
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**4,677**	**9,278**	**7,318**	**11,376**	**8,490**
Liquid Bulk	Domestic	ton	50,000	52,500	56,471	35,054	14,398
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**50,000**	**52,500**	**56,471**	**35,054**	**14,398**
Ro-Ro	Domestic	ton	600	450	320	110	159
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**600**	**450**	**320**	**110**	**159**

Source: SCP

Volume forecasts

Volume Share Port of Moroni: The Port of Moroni handled solely traffic destined for the island Grand Comoros, which represented 55 percent of the volumes recorded in The Union of the Comoros. The other islands in the country's territory are Anjouan and Mohéli which represented 40 percent and 5 percent of the country's volumes respectively and were served solely by the ports on their separate islands.

Future Competitive Environment: As all islands in the Union of the Comoros have one dedicated port, the share of domestic volumes allocated to each port is not expected to change. Also, no future port development projects or macroeconomic indicators are identified that could affect the distribution of domestic market shares differently over the three ports in The Union of the Comoros.

Volume Projections: The volumes handled in the Port of Moroni are expected to increase from 0.3 million tons in 2016 to 1.3 million tons in 2050, equivalent to a CAGR of 6.3 percent in 2016-2030, 3.8 percent in 2030–2040, and 2.8 percent in 2040–2050. With 69.9 percent of the volumes handled by Moroni in 2050, containerized cargo is projected to be the largest cargo type, with 0.9 million tons, the equivalent of some 91,000 TEU. The second largest cargo type is estimated to be general cargo with 23.5 percent, followed by liquid bulks (3.4 percent). Most of these cargo types concern imports; there are no significant export commodities identified for the Grand Comoros.

Figure 27: Base Case Volume Projections - Port of Moroni

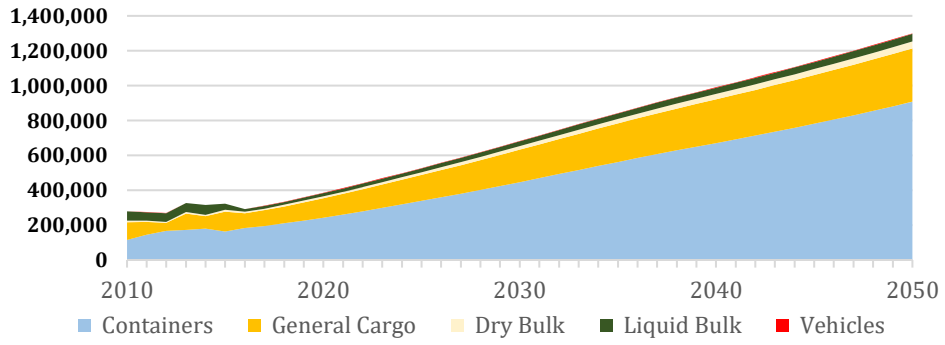


Table 31: Demand projections – Port of Moroni

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	195	210	226	243	261	280	299	319	339	447	562	671	782	908
General Cargo	90	97	104	111	119	126	134	141	149	186	221	251	278	306
Dry Bulk	9	10	10	11	12	13	14	15	16	21	26	30	35	40
Liquid Bulk	15	16	17	18	18	19	20	21	22	27	32	36	40	44
Vehicles	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total	**311**	**335**	**359**	**385**	**412**	**440**	**469**	**498**	**527**	**682**	**843**	**990**	**1,137**	**1,299**

Given the fact that the Port of Moroni is located on an island, no shift in market shares is expected. As such, the MS Shift Case is not depicted.

Figure 28: Demand Forecast – Containers

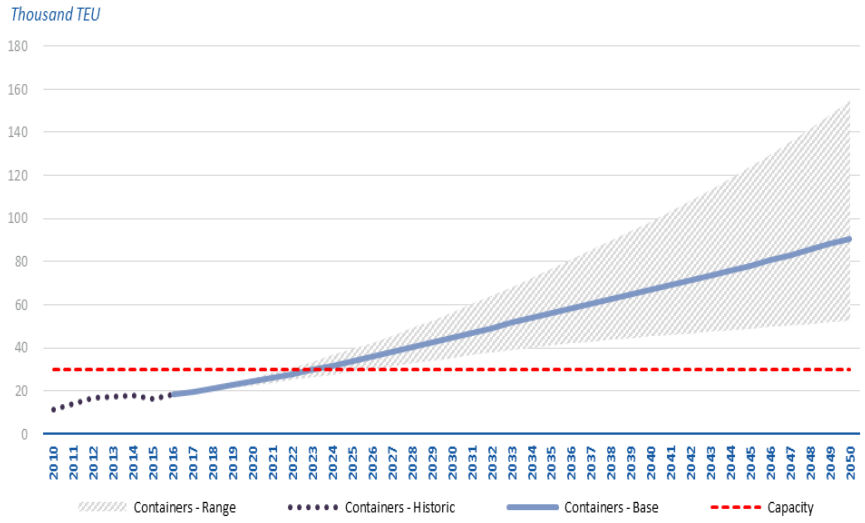
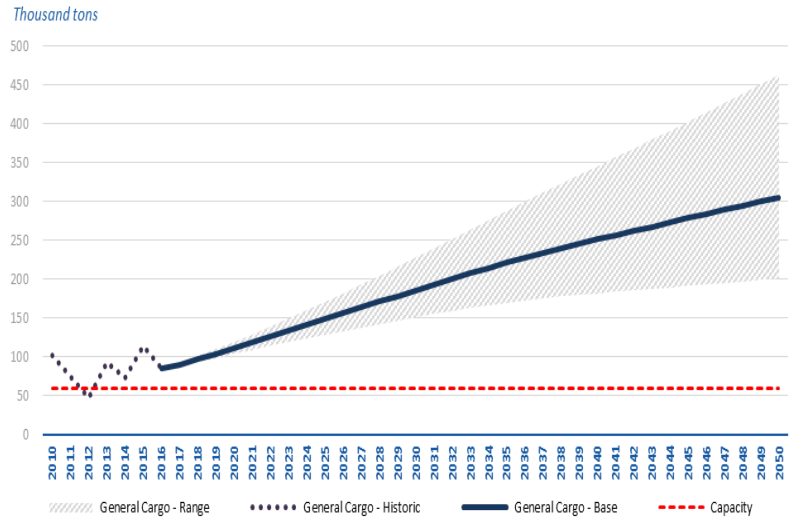


Figure 29: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Key Observations:

- **Port functions:** The Port of Moroni currently is a small port in terms of its size, cargo flows and services offered. The main terminal is under management of Bolloré, which provides its services in a relatively good manner given the circumstances (discharging of vessels at anchorage, no quay cranes). The current logistics and distribution services in the port are provided by trucking companies or by importers. These entities use outdated general cargo trucks that are stuffed with cargoes.
- **Relationship between port and stakeholders:** The relationship between the port and its stakeholders is good; there is dialogue between Bolloré, the port authority, and the ministry. However, Bolloré would like to improve its terminal and especially its terminal access to provide more efficient services, but this needs government funding for the road improvement that currently is not available.
- **Development Strategy of the Port:** There has historically been limited consultation with port users in the preparation of development plans and investments in the port. However, the Comoros government, through the EU-funded port master plan has involved port users in preparing development plans.
- **Degree of vertical integration:** So far, there is almost no degree of vertical integration in the port. Bolloré operates an in-house developed terminal system, but apart from that, no systems are used. There are no intermodal solutions in the port, and all cargoes are picked up in the port by importers.
- **Degree of horizontal integration:** The degree of horizontal integration in the Port of Moroni is relatively high. The port authority APC is the national ports authority of the country, and terminal operator Bolloré is also present throughout the region.

Proposed Key Actions:

- **Ensure competitive port facilities and operations**: The port-related aspects such as the available draft, quay length, equipment, and operations are currently at a very low level, and cause substantial delays in case of bad weather. To resolve this, the National Port Master Plan includes an expansion of the port's main quay in order to allow vessels to berth alongside instead of at anchorage. This will resolve a lot of the current operational issues faced by the port. The main issue related to this expansion concerns the available funding for such plans.
- **Improve logistics services:** To provide improved logistics services, an investment program in the transport sector is a must-have. The truck fleet is outdated, and there are no IT systems used in the transport sector, or independently operated warehouses.
- **Develop formalized interaction with stakeholders**: A formalized stakeholder forum or port charter should be set up to ensure involvement of the port's stakeholders (public and private) in the development plans and create understanding of which developments are needed and why this is the case. Currently, there is a regular dialogue between Bolloré and the main public stakeholders, but this is not institutionalized.
- **Improve the port access road:** Bolloré would like to improve its terminal and especially its terminal access road. The current access/exit road flows directly into the center of the city, leading to congestion on the roads and inefficient operations in the port. Trucks currently enter on one side of the port through a very bad road (outside the concession area), drive through the entire terminal, and end up at the full container yard where they leave the terminal again at the exit gate through a bad road (outside the concession area). This is inefficient and causes a mixture of flows (reach stackers, terminal trailers, and regular trucks) in the terminal.

Port–city interface

The Moroni population showed a strong growth pattern, increasing from about 40,000 people in 2003 to an estimated 67,000 people in 2017. The 2003–2011 growth CAGR is 3.8 percent, which is approximately in line with the IMF population growth projection for the Comoros of 3.0 percent up to 2022 (International Monetary Fund, 2017).

As all decisions relating to the port are inherently of a large financial consequence, and as the office of the mayor does not have any port experts, all issues relating to the port–city interface are assumed by the central government. This includes any proposed development plans for the Port of Moroni's access roads that weave through the city center. The city does, however, have an influence in the development of secondary roads in the city. These are not considered to be roads of primary importance to the port's accessibility.

A full master plan has been developed for the ports on the Comoros islands, including an objective to improve the service offering and safety for inter-isles passenger transport, and to improve efficiency and reduce the cost of landed goods on the islands. In addition, there are several plans mentioned to improve the Port of Moroni, but none of them are implemented, for example, the upgrade of breakwater to improve operations and increase safety by the separation of passenger services from freight. Finally, terminal operator Bolloré is also deploying a significant investment plan, intended to modernize the Port of Moroni.

Port Development Stage: Port Generation

The Port of Moroni is a relatively small port that receives small sailing ships with low frequency. It also handles larger commercial vessels, but in an inefficient way that requires double handling outside the port. The port is surrounded by the city, and hence has limited space for expansion on the landside without removing part of the city. Also, the port lacks the availability of port infrastructure and equipment to efficiently run the port operations. All in all, the Port of Moroni can be best described as a first-generation port.

Key Observations:

- The port is surrounded by the city and hence has limited space for expansion on the landside.
- There is no functioning Port Community System that can be used and accessed by all stakeholders.
- The port does not have rail connections to the hinterland. With no dedicated port access road, the communal and national roads are shared by port and city traffic.
- Basic road and port infrastructure needs major improvements on each of the archipelago's islands to enable economic development. The deteriorating infrastructure is constraining travel from island to island as well and could lead to socioeconomic discord on the Comoros.
- There is a general lack of port- and transport-related competences. Among others, this has hindered the execution of the existing port master plan given the absence of proper technical assistance.
- Moroni has successfully established a port master plan with concrete development plans to foster the growth of the port and to improve operational standards.

Key Recommendations:

- Improve basic road and port infrastructure by attracting financing via soft loans.
- Establish a professional training institute to build up core capabilities and competencies, by creating a pool of port academicians and port experts; and a national plan to improve (business) language skills.
- Implement a specific committee or forum in which port-related stakeholders meet with local community stakeholders to discuss port–city issues.
- Development of industrial activities could be promoted through creation of a special economic zone.

- Several operational efficiencies need improvement: relocating the entrance gate to the southern part of the terminal; developing the access roads to and from the port; paving of the empty container yard and development of a CFS; and purchase of additional tugs to enable faster operations for barges.

Madagascar: Madagascar is the third largest island in the world, located in the Indian Ocean east of the mainland of Africa and separated from the mainland by the Mozambique Channel. Madagascar has a relatively low GDP with just US$10.3 billion in 2016. With a total population of 24.9 million in 2016, it has a GDP per capita of just US$415 and is considered one of the poorest countries in the world (The World Bank, 2017b).

1. Port sector institutions

The Agence Portuaire Maritime et Fluviale (APMF) is the regulating body in charge of all sea and inland ports in Madagascar and manages the implementation of the national port policy. The APMF's second purpose is to act as the port authority of the non-autonomous international and national ports. This consists of all of Madagascar's ports except Toamasina, which is managed and operated by its own autonomous port authority, SPAT. SPAT is fully government-owned, established by Decree No. 703 of 2007. SPAT operates according to the landlord model: it is responsible for the day-to-day management of port affairs but concedes all cargo handling operations to private operators. SPAT also acts as the conceding authority in such privatizations. In this, SPAT distinguishes between concessionaires and permissionnaires. Concessionaires are operators whose primary cargo flows consist of public goods. This includes containers and general cargo. Permissionnaires, on the other hand, handle exclusively dedicated commodities such as cobalt and nickel. Contractually, both types of tenants are required to pay a fixed and a variable fee to the conceding authority. The main contractual difference is that the term of the concessionaires' agreement typically ranges between 10 and 20 years while that of a permissionnaire usually lasts five years. Moreover, SPAT is responsible for all major infrastructure investments, including dredging works, the deepening and widening of the access channel, works to improve the port's breakwater, and the construction of new quays. As stipulated by the landlord model, the concessionaire is responsible for superstructure works (such as paving and office buildings) and all equipment-related investments.

APMF manages the Port of Mahajanga (APMF, 2017). The APMF is a government regulator established by Decree No. 659 of 2003. The APMF has a dual objective: it acts as the regulator on all maritime and fluvial affairs at a national level, and as the port authority of the non-autonomous international and national ports. This consists of all of Madagascar's ports except Toamasina. The APMF's initial mandate was to manage all maritime and fluvial affairs, a responsibility previously held by the Ministry of Transport. The Ministry of Transport currently sits above the APMF. Since Decree No. 391 of 2012, the APMF's amended mandate means it is only responsible for monitoring the execution of the Ministry of Transport's official policy on maritime and fluvial affairs and for executing the policy in the country's non-autonomous ports.

As of June 2005, container operations have been concessioned to International Container Terminal Services Inc. (ICTSI) for a period of 20 years. ICTSI is consequently in charge of operating, managing, financing, and developing the container terminal in the Port of Toamasina. At Mahajanga, cargo handling operations are shared between the stevedoring companies "COMAMA" and "SEMS". An agreement between both companies states that handling equipment is shared, which counts for reach stackers, trucks, and forklifts operating inside the Port of Mahajanga.

The Ministry of Transport is the official co-author of all national port-related policies along with the Ministry of Finance and Budget. In practice, the two Ministries' involvement in devising the national policy is limited. Instead, the APMF is most involved in developing a national policy while SPAT's autonomous status means it has been the sole policymaker in the Port of Toamasina. Ultimately, all port-related policies must be validated by both Ministries. The Ministry of Finance and Budget is responsible for validating the financial aspects of any port policies brought forward by SPAT or by the Ministry of Transport. The Ministry's official objectives, however,

highlight the Ministry's distant position from the actual policy making that takes place in Madagascar's port sector.

The main shortcomings of Madagascar's port sector institutions are as follows:

- The central Ministries' input into the drafting of port-related legislation is limited. In practice, they are only involved in validating policies proposed to them by SPAT or by the APMF.
- The three non-autonomous international ports are still being managed centrally through the APMF, while they are supposed to hold the same autonomous status as SPAT.
- There is an inherent conflict of interest in the APMF's role of fulfilling the role of port authority in the country's non-autonomous ports while also being the national port regulator.
- There is a lack of an independent monitoring body that can verify, audit, and check the functioning of the ports sector, from the perspective of tariff setting, concession agreements, and environmental or safety measures means that there is a need for an independent port sector regulator.
- The management of the SPAT in Toamasina has proven that the local, autonomous authorities can act successfully. The current role of APMF as a semi-centralized port authority for the non-autonomous international ports goes against the national ports policy.

It is necessary to ensure that the central ministries of Madagascar are involved in the port sector policymaking and legislation. The current lack of involvement of the ministries leads to reduced attention to the ports sector from the national government.

2. Policy framework

Madagascar has a centralized policy-making structure with the country's national port policy being defined at ministerial level. However, the Port of Toamasina, by far the most significant commercial port of Madagascar, enjoys a substantial degree of autonomy in policy-making. At a regional level, Madagascar's (trans)port policy is guided by regional organizations including COMESA, IOC, and SSATP. None of these organizations have official policies. They do, however, provide several guidelines on best practices as well as long-term objectives related to improving the region's connectivity.

At a national level, the Ministry of Transport and the Ministry of Finance and Budget are the responsible policy-making organs. The ministries have one policy for Toamasina and another policy for the remaining ports. There is no official national policy document regarding the development of the Port of Toamasina or any of the nation's other ports. Another body acting on a national level is the APMF, which acts as a national ports regulator and also as the port authority in all ports except Toamasina. Despite policymaking not being one of their official tasks, the APMF is currently developing a national master plan and expects to publish it in the coming months. The Ministry of Transport and the Ministry of Finance and Budget will first have to validate the national master plan.

At a local level, SPAT devises the Port of Toamasina's policy. SPAT has developed a port master plan in collaboration with the Japan International Cooperation Agency (JICA). Together they published a feasibility study in 2009 which is now being updated. Any locally devised port policies must be validated by the Ministry of Transport and the Ministry of Finance and Budget before they become official policy.

The main shortcoming of the Malagasy port sector policy framework is the lack of an official policy document at national level. This is particularly surprising considering the vast population served by the country's ports. A national master plan has two main objectives. First, a national master plan helps the central and local governments execute the policy as the desired end-states and the implementation steps are clearly specified. Second, a thorough national master plan will highlight the government's investment priorities and criteria. As such, a national master plan helps attract and guide (foreign) private investments. Madagascar's lack of an official policy document is therefore

considered a major deficiency in their institutional framework.

The main single recommendation for Madagascar's port policy framework therefore is to urgently develop a national port master plan through APMF, and involving SPAT. According to interviews at APMF, the authority is currently developing such a master plan and is in the process of finalizing it. The document would then need to be approved by the Ministry of Transport.

The country's port-related knowledge is concentrated within the SPAT. As a result, the importance of Toamasina both in terms of traffic as well as human resources means SPAT has almost full autonomy in devising its policies and the Ministry of Transport and the Ministry of Finance and Budget only serve to review and revise SPAT's policy proposals. The relatively underdeveloped state of the country's remaining three commercial ports means there has been no government initiative to develop and publish an official policy for them. The port reform that took place in 2004 intended for these three commercial ports to have the same institutional and operational status as Toamasina, but this never materialized.

In February 2016, Madagascar issued a PPP law (The World Bank, 2017d). However, the framework lacks structure, as there is no official PPP policy, no PPP unit, and no PPP control organ.

3. Legal and regulatory framework

At an international level, the Malagasy legal and regulatory framework for the ports sector is guided by the IMO conventions. These focus on maritime safety and security, pollution prevention and control, and the safe operating of vessels at sea. At a regional level, the AU's Maritime Charter, and the COMESA treaty shape the legal and regulatory framework of Madagascar. Further, Madagascar is a member of the IOC, in which it cooperates with the Comoros, Reunion, Mauritius and the Seychelles on trade facilitation between the islands. At a national level, the Malagasy legal and regulatory framework for the ports sector is guided by several laws and acts, including the Act establishing the APMF, the Ports Act, and the PPP Act. At a local level, the Act establishing SPAT and the Act establishing the SMMC are the primary pieces of legislation.

According to the IMO, Madagascar has ratified all major international conventions except SOLAS Protocols 78, 88, and 96; STCW-F Convention 95; MARPOL Protocol 97; and Hong Kong Convention.

Madagascar underwent a major port reform in 2003–2004. As such, most of the country's legal and regulatory framework dates from this period.

> The Ports Act, Law No. 25 of 2003, established APMF as the national port administrator, financier, and as the port authority. The law also stipulates that ports of national interest may be autonomous so long as the public stake—either through the state, the province, or the local municipality—is the majority stake. In 2004, Decree No. 699 announced several important changes to the existing Ports Act.
>
> The role of port authority as defined in Law No. 24 of 2003 is carried out by an autonomous port authority in autonomous ports and by a company holding a global concession to manage the port in all other ports. Port master plans or port plans for the execution of works are to be prepared at the autonomous port authority's initiative, in the case of autonomous ports. In non-autonomous ports, the APMF holds this responsibility. Port infrastructure works in autonomous ports are to be financed by the autonomous port authority, while the APMF holds this responsibility in non-autonomous ports.

Law No. 659 of 2003 established Agence Maritime, Portuaire et Fluvial (Maritime, Ports and River Agency).

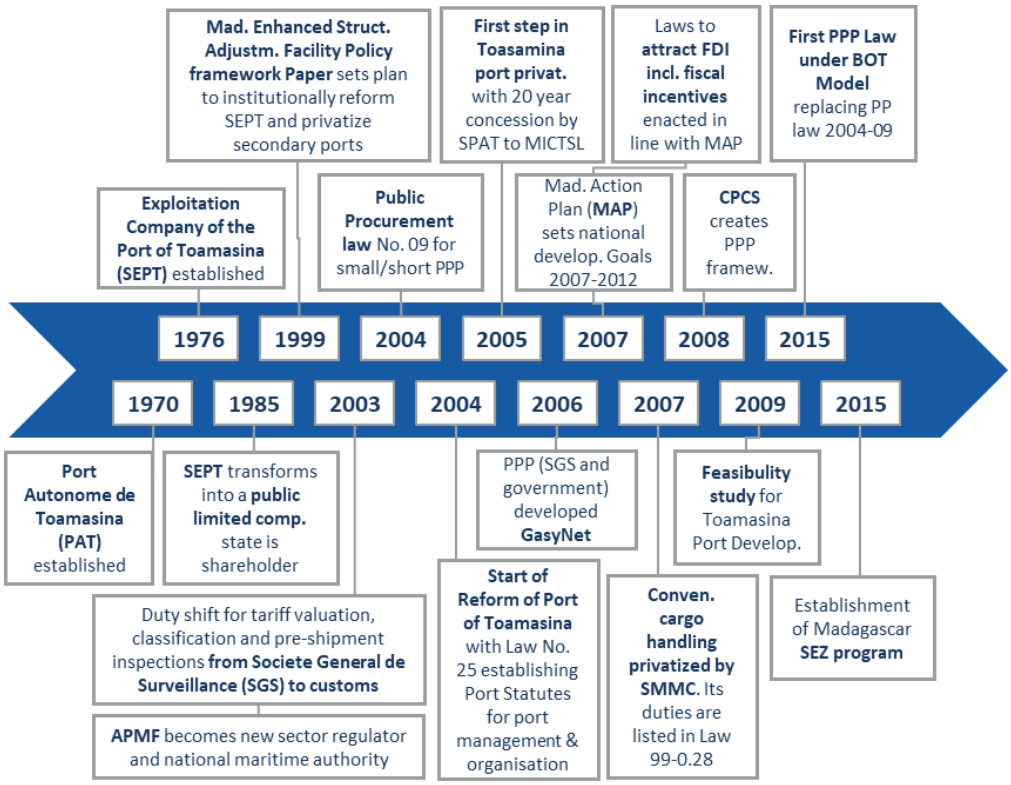
One of the primary reasons for the drafting and voting into law of Law No. 39 of 2015, also known as the PPP Act, was the inadequate scope for private sector investments in national investments provided by Law No. 009 of 2004, also known as

the Investment Code. The current law specifically caters to PPPs through concession agreements. The law also provides a legal basis for entering into Build-Operate-Transfer agreements.

Law No. 702 of 2004 labels Toamasina as a Port of national interest, and thus marks the end of the transition period granted by the Ports Act for the establishment of an autonomous port authority in ports of national interest. As such, the Law formally establishes SPAT as the autonomous port authority of Toamasina. Moreover, the Law stipulates that all tasks and responsibilities, assets (buildings, equipment and material) and concession agreements previously held by the Société d'Exploitation du Port de Toamasina (SEPT, Toamasina Port Operating Company) are transferred to the SPAT's title. The tasks and responsibilities assumed by SPAT are in line with those specified in the Ports Act of 2003 and 2004.

Law No. 867 of 2007 approved the status of the Société de Manutention des Marchandises Conventionnelles (SMMC, General Cargo Handling Company). The Law grants SMMC the authority to perform all necessary cargo handling operations at the quay and in the yard for the handling of the Port of Toamasina's general cargo commodities. Like SPAT, all tasks and responsibilities, assets, and concession agreements previously held by SEPT relating to SMMC's status—that of general cargo handler—are hereby transferred to SMMC. Also like SPAT, the state is a shareholder of the company and private participation is allowed.

Figure 30: Evolution of the Legal and Regulatory Framework in Madagascar



There are a few major shortcomings in Madagascar's legal and regulatory framework: The main issues for Madagascar's port sector from an institutional perspective relate to the actual implementation of the legal and regulatory framework. The APMF still acts as port authority in all ports except for Toamasina. The Ports Act of 2004 clearly stipulates that non-autonomous ports should be managed by a global concession holder. However, APMF still fulfills this role. As a result,

the APMF's dual role as port authority on the one hand and national port regulator on the other naturally creates a conflict of interest. Another shortcoming is that the Ports Act does not provide financing principles for APMF as a regulatory body.

Port tariffs

The tariffs for Toamasina are provided by the port authority, SPAT, and the general cargo handler, SMMC. For the country's non-autonomous ports (e.g. Mahajanga), the tariff book is provided by the APMF. Wharfage, cargo handling costs, and storage tariffs generally comply with best practice; however, the other types of tariffs are not explicitly mentioned in the tariff book. In practice, it is extremely unlikely that port dues, berthing dues, dues related to marine services, or gate dues are not charged in the Port of Toamasina. It is Madagascar's main commercial port and houses a major global container operator in ICTSI. However, the absence of any of these tariffs in the tariff book means it is not possible to compare their structure relative to the good practice framework and evaluate their performance relative to peers.

Shortcomings in the national tariff book for non-autonomous ports, such as Mahajanga, include:

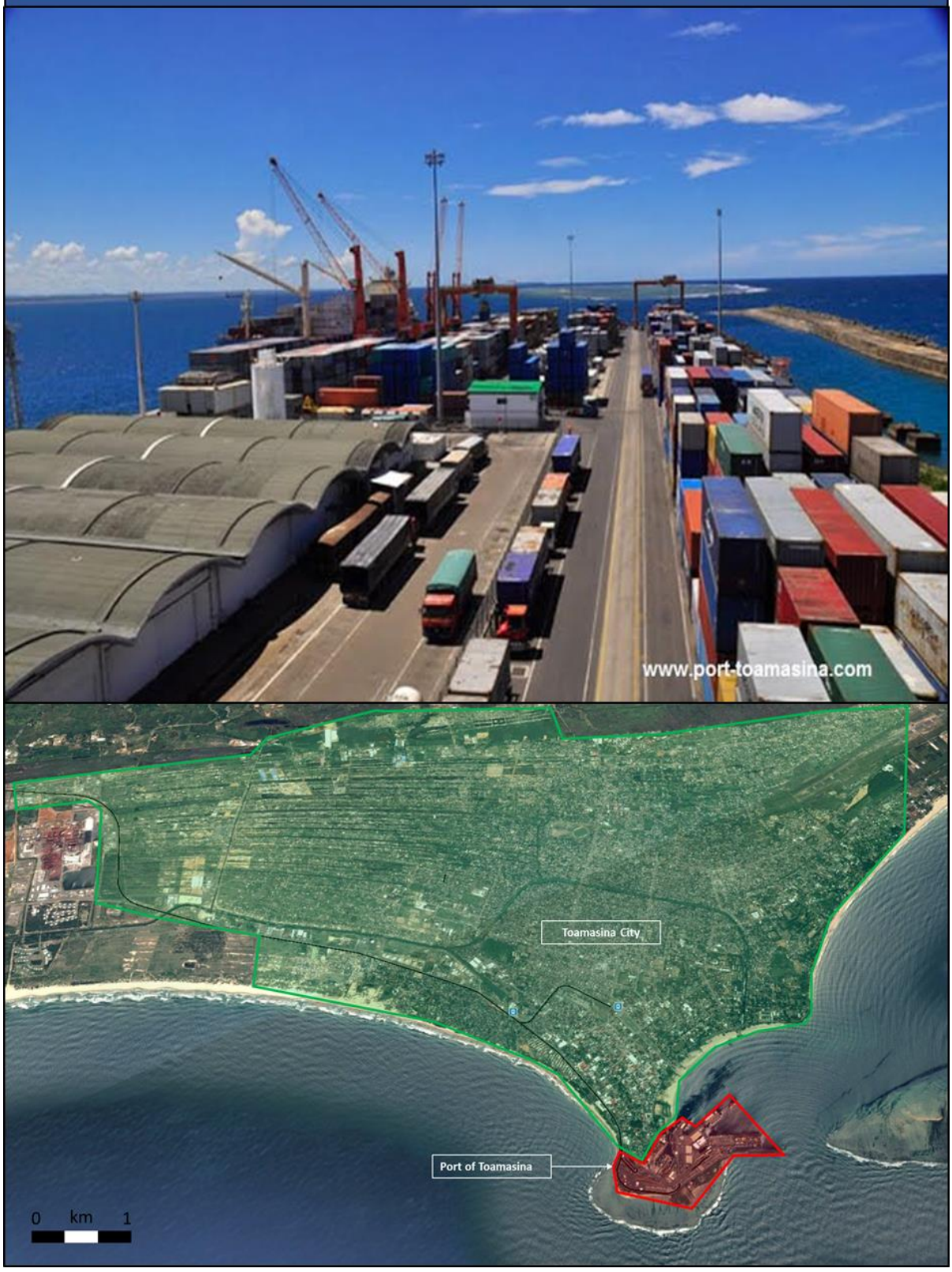
- The vessel volume ranges that define the vessel types are not specified in the tariff book.
- Adding pilotage, towage, and mooring fees to the official tariff book to more clearly communicate the costs associated with these maritime services. In practice, it is very unlikely that these fees are not charged in the Port of Mahajanga, but the lack of clarity provided by the tariff book diminishes the overall value and standards applied by this tariff book.
- The tariff book does not specify any gate handling or storage fees. These tariffs are likely charged directly by operators COMAMA and SEMS, for which no information was provided.

4. Port description

The largest Port of Madagascar is the Port of Toamasina, located on the east side of the island. The port represents approximately 35 percent of the direct employment of all residents of Toamasina, stating its importance for both the city and the country of Madagascar. The Port of Toamasina handles approximately 90 percent of Madagascar's container volumes via the Madagascar International Container Terminal, operated by ICTSI since 2005, and some 90 percent of the total trade volumes passing through the ports of Madagascar. The port is equipped to handle various cargo types, including bulk grain, Ro-Ro, and passenger traffic. The sharp increase in the port's volumes are primarily due to the increase of nickel and cobalt exports, originating from mines in Moramanga 80 km east of Antananarivo. The mine is operated by the company "Ambatovy" and is part of a large-scale project including the construction of supporting infrastructure in Madagascar such as new roads, railway lines, and a power plant facility.

The country's second-largest port is Mahajanga (Majunga), situated in Bombetoka Bay with direct access to the Mozambique Channel. The port is mainly used for local trade on Madagascar's west coast and small neighboring islands. The principal commodities handled in the Port of Mahajanga are rice, salt, and containers (ICTSI, 2017). Large prawn farms near Mahajanga also use the port to export their products. Due to its low water depth at berth of 4.5 m, Mahajanga is only capable of handling small-to-medium-sized vessels, with an average vessel size of 800 TEU. The stated water depth is measured during high tide, and with a tidal range of roughly 4m, there is hardly any water depth during low tide. This severely limits the operations and cargo handling activities in the port. The Economic Development Board of Madagascar (EDBM) has presented rehabilitation projects including the construction of new docks and dredging plans worth approximately US$12 million. The project aims to increase capacity and improve port efficiency. Studies toward this end have been conducted, though need to be updated.

Port of Toamasina - Madagascar



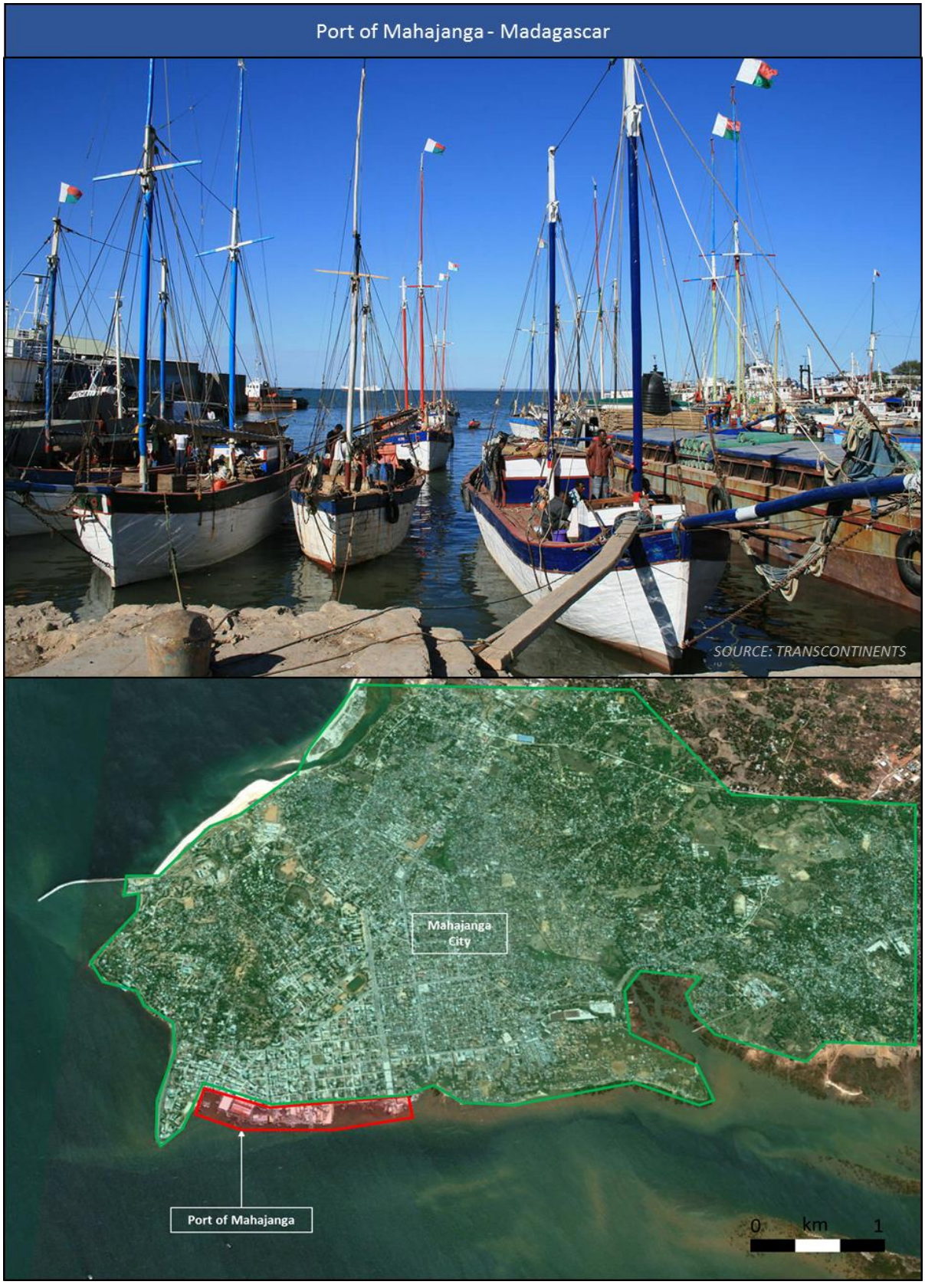

Port of Mahajanga - Madagascar
SOURCE: TRANSCONTINENTS
Mahajanga City
Port of Mahajanga
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Table 32: Performance Indicators - Port of Toamasina

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	1.31	6.05	2.31	2.05	0.43
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	1,191		2,802		
Port area productivity	ton/ha			121,838		
Container dwell time	days	5.50	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	1.25	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	4.57	3.50	n/a	3.80	3.37

Source: MTBS, SPAT

Table 33: Performance Indicators - Port of Mahajanga

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	1.92	6.12	7.55	1.06	-
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	67		531		
Port area productivity	ton/ha			30,265		
Container dwell time	days	-	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	n/a	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	4.63	4.15	n/a	3.80	3.61

Source: MTBS, APMF

Table 34: Berth Characteristics – Port of Toamasina

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
Pier B East & West	Ambatovy	Ambatovy	420	11.0 - 12.0	Exporting refined nickel, cobalt, ammonium sulphate fertilizer. Importing bulk raw materials such as limestone, coal, sulphur, and ammonia.	2.5		
Tanker Berth	Galana Raffinerie et Terminal (GRT)	Galana Petroleum	75	14.0	Petroleum products, gas oil (diesel), MO gas (gasoline), Jet A-1, naphtha, LPG, and fuel oil.	0.3		Silo (360,000m^3)
C1	Port of Toamasina	Multi-user	219	9.5	Unloading wheat and cement, chrome ore, concentrate, automobiles, flour, grain, tallow, vegetable oils, and Ro-Ro.	28.9	4x MHC 4x RTG	OS (2.9ha) CTS (12.0ha)
C2 - C3	MICTSL	MICTSL	307	10.0 - 12.0	Containers, general cargo, and some bulk cargoes (wood chips).	7.0		Grain silos (64,000t)
Quay A	Port of Toamasina	Multi-user	384	6.8 - 8.5	General cargo and Ro-Ro.	8.6		WH (1.5ha) Car storage (2.0ha)
Quay B	Port of Toamasina	Multi-user	190	8.5	Containers, general cargo, and cruise.	1.3		WH (0.7ha)

Table 35: Berth Characteristics – Port of Mahajanga

Number	Terminal	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
Quai Orsini	Port of Majunga	150	0.5 - 3.5	Ocean-going vessels anchor approx. 0.5nm offshore. Coasters have the use of 4 quays, 3 with depths of 2.0m alongside at LW, and 1 which dries out at LW.	1.5		
Quai Coste	Port of Majunga	110	0.5 - 3.5	Multi-purpose.	1.0	yard cranes (10-70t)	WH (0.2ha) CS (0.5ha)
Quai Vuillemin	Port of Majunga	150	0.5 - 4.0	Multi-purpose.	2.0	yard cranes (10-70t)	WH (0.3ha)
Quai Barriquand	Port of Majunga	180	0.5 - 4.5	Containers.	3.0	yard cranes (10-70t)	OS (0.7ha) Ground slots (450TEU)
Poste Petrolier	Port Schneider	SPM	7.2	Petroleum products.	3.7	SPM	

Source: IHS Fairplay, 2017

Table 36: Throughput and Capacity - Port of Toamasina

Type	Unit	Throughput (2016)	Capacity	Utilisation
Port of Toamasina				
Multi-purpose	ton	658,911	670,000	98.34%
Vehicles	ton	25,837	105,000*	24.61%
Madagascar International Container Terminal				
Containers	TEU	209,116	400,000	52.28%
Ambatovy Terminal				
Dry Bulk	ton	2,153,390	4,000,000	53.83%
Galana Raffinerie et Terminal (GRT)				
Liquid Bulk	ton	992,051	900,000**	110.23%

Source: SPAT * estimated based on 2 hectare of ground area dedicated to vehicles, with an average vehicle dwell time of 7 days.
** estimated based on approximately 80,000 ton static storage capacity with 1 tank run per month.

Table 37: Port Volumes - Detailed - Port of Toamasina

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	162,415	173,195	178,744	175,482	200,154
	Transit	TEU	-	-	-	-	-
	Transshipment	TEU	19,940	23,070	28,246	15,860	8,962
	Subtotal	**TEU**	**182,355**	**196,265**	**206,990**	**191,342**	**209,116**
General	Domestic	ton	190,399	168,261	258,441	400,175	373,418
Cargo	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**190,399**	**168,261**	**258,441**	**400,175**	**373,418**
Dry Bulk	Domestic	ton	1,247,708	1,578,855	2,447,703	2,749,199	2,438,883
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**1,247,708**	**1,578,855**	**2,447,703**	**2,749,199**	**2,438,883**
Liquid Bulk	Domestic	ton	805,931	785,558	775,648	936,689	992,051
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**805,931**	**785,558**	**775,648**	**936,689**	**992,051**
Ro-Ro	Domestic	ton	21,087	22,241	19,239	19,591	25,468
	Transit	ton	332	42	82	331	369
	Subtotal	**ton**	**21,419**	**22,283**	**19,321**	**19,922**	**25,837**

Source: SPAT

Table 38: Throughput and Capacity - Port of Mahajanga

Type	Unit	Throughput (2015)	Capacity	Utilization
Port of Mahajanga				
Containers	TEU	12,122	15,000*	80.81 percent
Multi-purpose	ton	217,753	300,000*	72.58 percent

Source: APMF *estimated based on port ground area.

Table 39: Port Volumes - Detailed - Port of Mahajanga

Type		Unit	2012	2013	2014	2015	2016*
Containers	Domestic	TEU	12,530	15,076	15,076	12,122	13,000
	Transit	TEU	-	-	-	-	-
	Transshipment	TEU	-	-	-	-	-
	Subtotal	**TEU**	**12,530**	**15,076**	**15,076**	**12,122**	**13,000**
General Cargo	Domestic	ton	128,278	134,267	169,525	195,978	198,000
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**128,278**	**134,267**	**169,525**	**195,978**	**198,000**
Dry Bulk	Domestic	ton	14,253	14,919	18,836	21,775	22,000
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**14,253**	**14,919**	**18,836**	**21,775**	**22,000**
Liquid Bulk	Domestic	ton	n/a	n/a	n/a	n/a	n/a
	Transit	ton	n/a	n/a	n/a	n/a	n/a
	Subtotal	**ton**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Ro-Ro	Domestic	ton	n/a	n/a	n/a	n/a	n/a
	Transit	ton	n/a	n/a	n/a	n/a	n/a
	Subtotal	**ton**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**

Source: APMF *estimated figures

Volume forecasts

Port of Toamasina

Hinterland Volume Shares: Toamasina handles about 90 percent of the country's cargo (African Business, 2017). The port also handles transshipment containers, accounting for approximately 7.9 percent of the container volumes in 2015.

Future Competitive Environment: Market shares are not expected to shift between the ports located in Madagascar. With the Port of Toamasina having superior port infrastructure, superior road and rail connection to the capital Antananarivo, and the Ambatovy plant located near the port, Toamasina is expected to maintain its dominant market share in future cargo demand in Madagascar. Based on the general cargo statistics received from SPAT and APMF, and the fact that many cargoes are not yet containerized in the Port of Mahajanga, the share of general cargo volumes handled by Toamasina is lowered to 62.5 percent. As the draught in the Port of Mahajanga does not allow vessels deeper than 4.5m to berth, it is assumed that Ro-Ro operations and liquid bulk operations are handled solely in Toamasina.

Volume Projections: The volumes handled in Toamasina are expected to increase from 5.9 million ton in 2016 to 21.0 million ton in 2050. With approximately 51.4 percent of the volumes handled by the port in 2050, containers are the largest cargo type, followed by dry bulks with 26.6 percent and liquid bulk with 16.3 percent. Dry bulks at Toamasina are expected to increase from 2.4 million ton in 2016 to 5.6 million ton in 2050, of which 67.8 percent of the total dry bulks in 2050 are related to the Ambatovy operations. When running at maximum capacity, the Ambatovy production plant is expected to export approximately 275,000 tons of refined nickel, refined cobalt, and ammonium sulfate fertilizer every year, utilizing roughly 3.5 million tons of raw materials, such as limestone, coal, sulphur, and fuels, in their production process (Ambatovy, 2017). In 2014, Toamasina imported approximately 2.1 million of raw materials to produce approximately 160,000 tons of finished products. The forecast assumes operations running at full capacity in 2017. The production of the finished products is not expected to increase further in the forecast due to capacity constraints in the Ambatovy facility, limiting the imports and exports at 3.5 million ton and 275,000 ton respectively.

Containerized cargo is expected to be the largest cargo type, increasing to 10.8 million tons in 2050. With 0.1 million tons, vehicles represent the smallest cargo type in the Port of Toamasina in

2050. Total volumes in the Port of Toamasina are expected to increase with a CAGR of 5.6 percent in the period 2016–2030, 2.8 percent in 2030–2040, and 2.2 percent in 2040–2050.

Figure 31: Volume Projections - Port of Toamasina

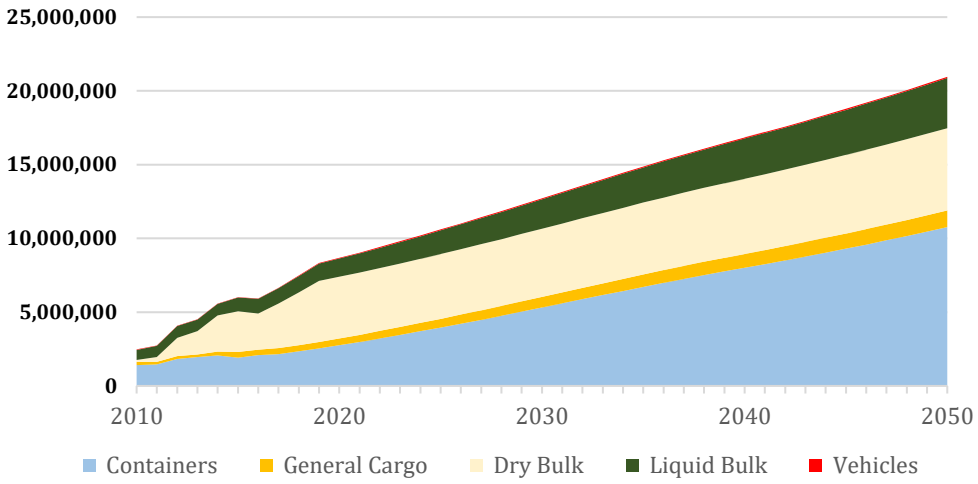


Table 40: Demand projections – Port of Toamasina

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	2,162	2,342	2,541	2,750	2,974	3,212	3,456	3,706	3,958	5,311	6,714	8,005	9,303	10,764
General Cargo	393	415	439	463	488	514	540	566	592	720	840	941	1,035	1,134
Dry Bulk	3,016	3,580	4,147	4,181	4,219	4,259	4,300	4,343	4,387	4,624	4,872	5,099	5,323	5,569
Liquid Bulk	1,045	1,105	1,169	1,236	1,306	1,381	1,456	1,532	1,608	2,001	2,384	2,722	3,052	3,414
Vehicles	29	48	50	50	52	54	56	59	61	63	65	65	69	71
Total	**6,645**	**7,490**	**8,345**	**8,681**	**9,040**	**9,419**	**9,808**	**10,205**	**10,606**	**12,718**	**14,875**	**16,832**	**18,782**	**20,952**

Given the fact that the Port of Toamasina is located on an island, no shift in market shares is expected. As such, the MS Shift Case is not depicted.

Figure 32: Demand Forecast – Containers

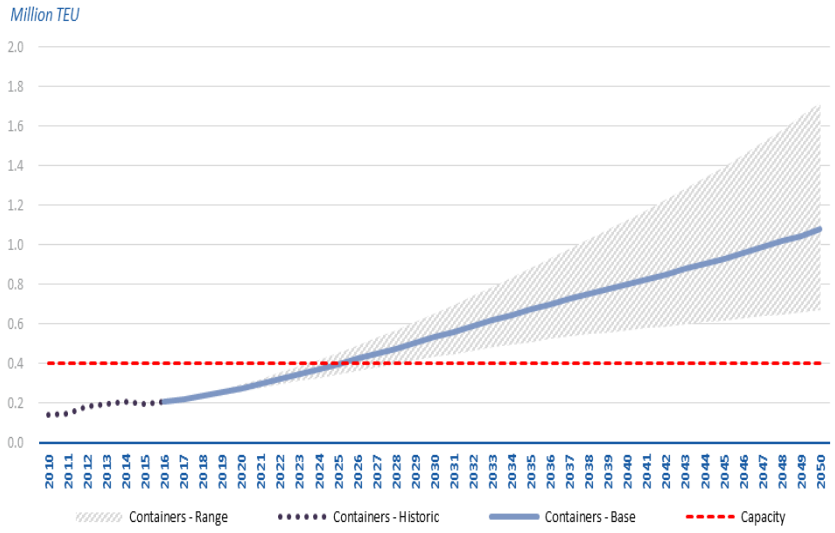
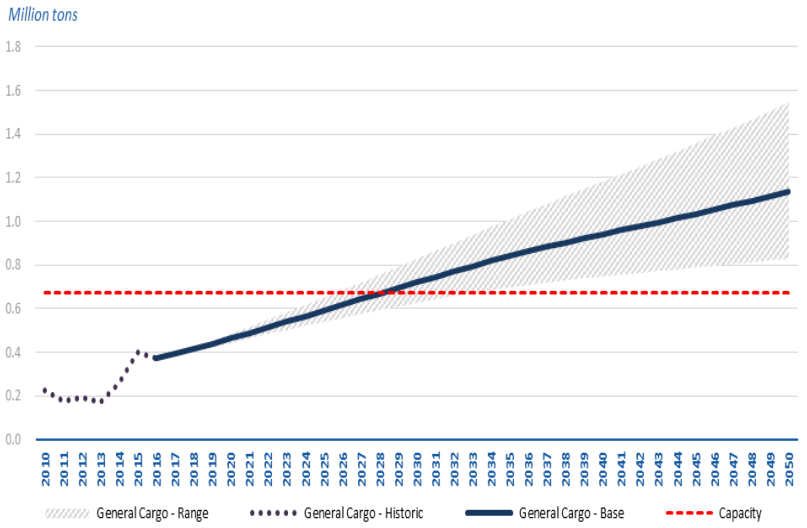


Figure 33: Demand Forecast – General Cargo



Port of Mahajanga

Future Competitive Environment: The Port of Mahajanga handles approximately 7.5 percent of Madagascar's containerized and dry bulk cargo, with a primary focus on local traffic on the west coast of Madagascar. Based on the statistics received from SPAT and APMF, the port handled approximately 35 percent of the general cargo landed on Madagascar. Due to its shallow draught at berth, the port's operations are limited to small to medium sized vessels. Though the EDBM has presented rehabilitation works for the Port of Mahajanga, including dredging and construction of new docks, the port's focus remains on handling local cargo (EDBM, 2016). Thus, market shares are not expected to shift to other ports in Madagascar.

Volume Projections: The volumes handled in the Port of Mahajanga are expected to increase from 350,000 tons in 2016 to 1.7 million tons in 2050, equivalent to a CAGR of 7.1 percent in the period 2016–2030, 3.6 percent in the period 2030–2040, and 2.6 percent in the period 2040–2050. With 53.4 percent of the volumes handled by the Port of Mahajanga in 2050, containerized cargo is projected to be the largest cargo type, with 0.9 million tons, the equivalent of some 90,000 TEU. The second largest cargo type is forecast to be general cargo with 37.8 percent, followed by dry bulk with 8.9 percent. Most of these cargo types concern imports, with a small percentage consisting of exports of shrimps from local business to neighboring islands.

Figure 34: Volume Projections - Port of Mahajanga

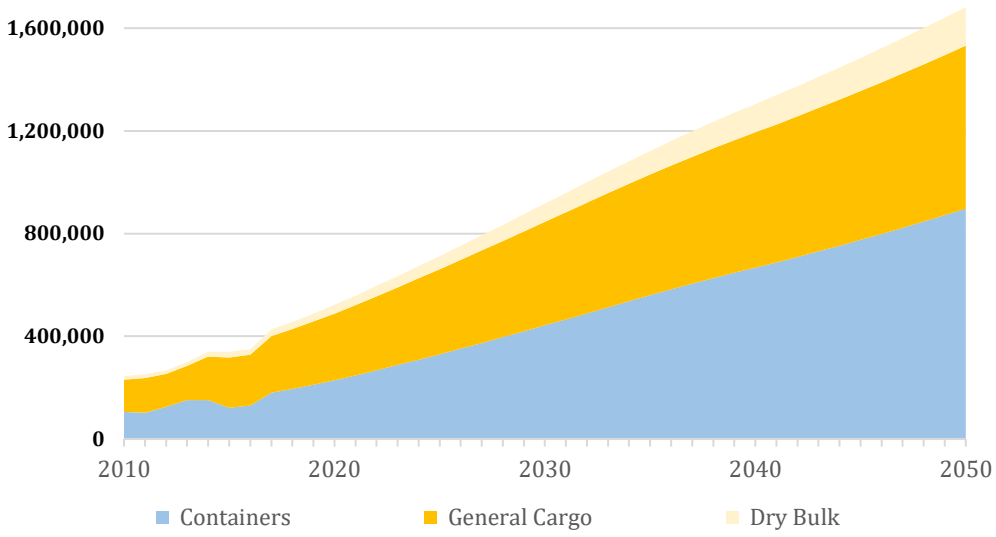


Table 41: Demand projections – Port of Mahajanga

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	180	195	212	229	248	268	288	309	330	443	560	667	775	897
General Cargo	220	233	246	259	273	288	302	317	331	403	470	527	580	635
Dry Bulk	26	28	31	34	37	40	44	47	51	71	91	110	129	149
Liquid Bulk	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicles	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**426**	**456**	**488**	**522**	**558**	**596**	**634**	**673**	**712**	**917**	**1,121**	**1,304**	**1,484**	**1,681**

Given the fact that the Port of Mahajanga is located on an island, no shift in market shares is expected. As such, the MS Shift Case is not depicted.

Figure 35: Demand Forecast – Containers

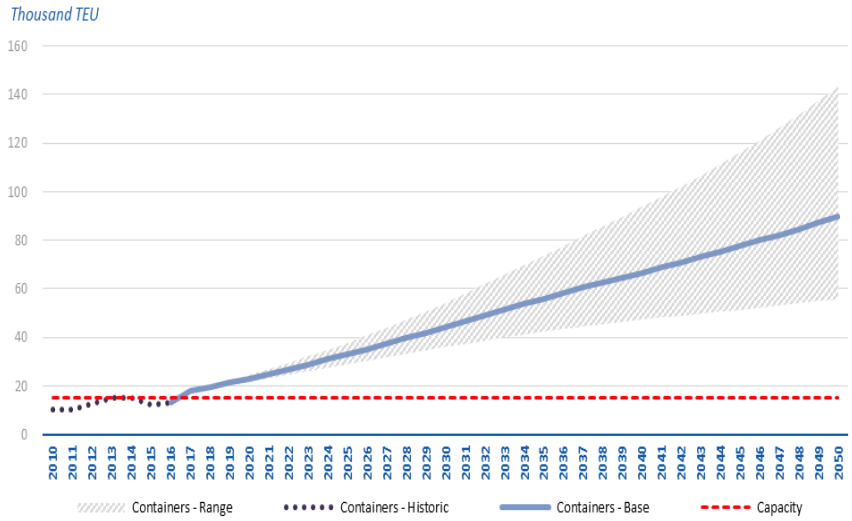
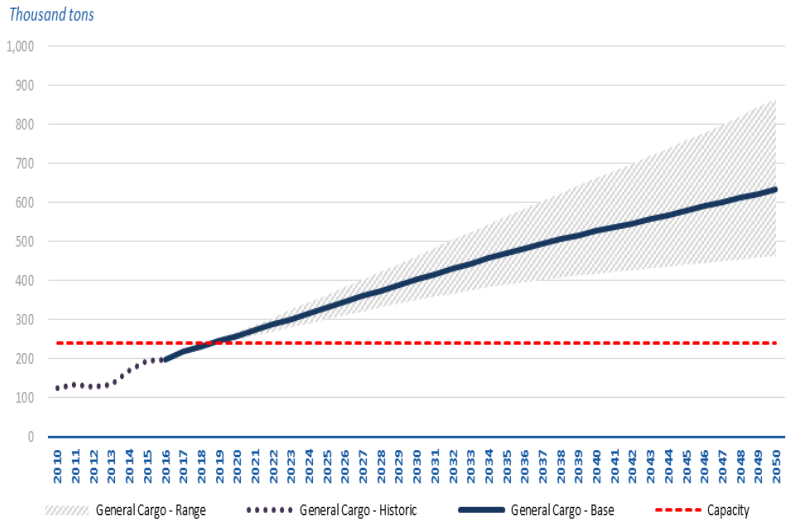


Figure 36: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Port of Toamasina

Key Observations:

- **Port functions:** The Port of Toamasina provides modern port functions with relatively large cargo volumes. The port is managed by the SPAT as a port authority, and operations are carried out mostly by private operators. Toamasina is the main Port of Madagascar and the largest markets for the port are the capital Antananarivo and the Ambatovy nickel plant.
- **Relationship between port and stakeholders:** The relationship between the port and its stakeholders is good. MICTSL and SMMC give their input to SPAT on port planning. The SPAT subsequently presents this to the Ministries of Transport and Finance for validation. There is close collaboration between terminal operators, shipping lines, and importers/exporters.
- **Development strategy of the port:** The development strategy of the port is largely based on the planning documents of SPAT. There is limited involvement of ministries or other government entities in the planning, except for their required validation. The main issue on the port's development strategy relates to the development of hinterland links. The municipality of Toamasina and the Ministry of Public Works are responsible for the port access road, but have not been able to solve the issues on the road. SPAT has therefore launched an own initiative to develop a dedicated port access road by itself.
- **Degree of vertical integration:** There is a strong degree of vertical integration of the chain in the port. The government of Madagascar made substantial investments in IT and systems such as a single window system for customs and the private operators invested in terminal operating systems and gate management systems. The latter is however not working, as the main gate-related issue concerns the entrance of the port itself (and not so much the entrance gate of the terminals). Currently, almost all cargoes are transported by road. In the past, around 5–10 percent of containers were transported by rail.
- **Degree of horizontal integration:** The degree of horizontal integration of the Djibouti ports sector is relatively low. SPAT is purely functioning as the authority of the Port of Toamasina, ICTSI is only active in the region in Toamasina, and there are only a few logistics services providers present in Toamasina that are also active in other ports in the region.

Proposed Key Actions:

- **Continue port development based on formalized planning:** The terminal operations in Toamasina are currently at benchmark levels in the region. Under the JICA funded Toamasina Port Development Project, it is expected that the position of the port is further improved. It is important that this project considers the expected increase in cargo flows.
- **Develop a stakeholder forum** to create understanding of which developments are needed and why. Involving the municipality of Toamasina in this forum is regarded as a must, to resolve the current port access road issues.
- **Ensure a modal-shift**: The current 5–10 percent share of cargoes transported by rail is regarded to be too low, given the substantial cargo flows to Antananarivo (which can be reached by rail). This is partly due to a lack of on-dock rail connections at the container terminal, and partly due to operational issues at rail operator Madarail. Investments in an on-dock rail connection—and in powerful locomotives to solve Madarail's issues with the substantial altitude difference between Toamasina and Antananarivo—are expected to ensure this modal shift.

- **Improve the port's road connections:** The current port access road network causes substantial issues, especially during peak times. Dedicated access roads should be provided as well as time slots for cargo pick-ups and incentive schemes to spread traffic throughout the day.

Port of Mahajanga

Key Observations:

- **Port functions:** Logistics and distribution services in the port are provided by small trucking companies or by the importers themselves. These entities use general cargo trucks that are stuffed with loose cargoes. The truck fleet is outdated. There are no large freight forwarders or logistic service providers present in Mahajanga.
- **Relationship between port and stakeholders:** Private operators (COMAMA and SEMS) and local representatives of the Port Authority APMF in the Port of Mahajanga have not responded to requests for cooperation, so it is unclear how these entities value their relationships with each other.
- **Development Strategy of the Port:** Private operators (COMAMA and SEMS) and local representatives of the Port Authority APMF in the Port of Mahajanga have not responded to requests for cooperation, so it is unclear how the development strategy for the Port of Mahajanga is functioning.
- **Degree of vertical integration:** So far, there is almost no degree of vertical integration in the port. APMF is the port authority, SEMS and COMAMA operate the terminals, and several local transport companies provide trucking services.
- **Degree of horizontal integration:** The degree of horizontal integration in the port is relatively high, as APMF is the national port authority and COMAMA has other operating divisions in the ports of Toliara and Diego Suarez. DAMCO and MSC logistics are present with local representative offices.

Proposed Key Actions:

- **Ensure competitive port facilities and operations**: The port-related aspects such as the available draft, quay length, equipment, and operations are currently at a very low level. All cargoes are offloaded using barges for vessels that are anchored outside the port. To resolve this, an expansion of the port quay into the sea is needed to allow vessels to berth alongside instead of at anchorage. It is not clear if this is planned, but this will resolve a lot of operational issues (and competitive disadvantages).
- **Improve logistics services:** To provide improved logistics services, investments are needed. The truck fleet is outdated, and there are no IT systems used in the transport sector. There currently are no independently operated warehouses, as all importers collect their cargoes themselves.

Port–city interface

Port of Toamasina

The population development in Toamasina increased from about 185,000 people in 2000 to 300,000 in 2017. This growth is equal to a CAGR of 3.0 percent, approximately in line with the Madagascar population projection of the IMF of 2.8 percent growth per year up to 2022. (International Monetary Fund, 2017). The terminals in the Port of Toamasina have about 4,000 employees in total, including both permanent workers and daily workers from a labor pool.

The city is not actively involved in any port-related development plans that have an impact on the city. However, the city is consulted during the drafting of development plans. Moreover, all parties must approve development plans before they are given the green light.

Since the presence of the Philippines-based global terminal operator ICTSI in 2005, the handling performance on the Madagascar container terminal improved from 10 or less TEU moves per hour to more than 30 TEU per hour per vessel. In March of 2017 the JICA and Government of Madagascar signed a US$411 million loan agreement for the expansion of the Toamasina Port, to be developed in several phases.

Port Development Stage: Port Generation

The Port of Toamasina is located on the foreland of Toamasina, surrounded by the city. The port and the city both showed growth over the last decades and are hence integrated. There is no opportunity for the port to expand in any direction on the land side without sacrificing the city. The only obvious way of port expansion is eastward development toward the sea side. In addition, various types of cargo are handled at the port. However, the port still shows the characteristics of a traditional multi-purpose port with finger piers and sheds. Moreover, the port lacks the availability of state-of-the-art container gantry cranes but uses traditional port cranes. The Port of Toamasina can hence be characterized as a second-generation port.

Key Observations:

- As the port is completely surrounded by the city, there is no opportunity for it to expand in any direction on the land side. The port can only expand its surface area through land reclamation.
- The port's (long-term) development plans are incorporated in the Toamasina Port Development Project Plan. There is no information on specific city land-use plans.
- Although no formal committee or council appears to exist, the SPAT does enable involvement of local community stakeholders to present their concerns regarding future developments.
- Rail connection between the port and the country's capital exists. However, the current railways are severely outdated. The tracks are designed with a very narrow gauge, contrary to most SGR rail lines in other countries. The current track faces steep inclines, hampering accessibility and productivity. As a result, almost no cargo leaves the port via rail.
- About 300 to 500 trucks per day are using the two-lane (one in, one out) access road to the port. This causes major issues with high peaks for the terminal gates and congestion on the road.
- The municipality of Toamasina and the Ministry of Public Works are responsible for the port access road, however these entities have not yet been able to propose adequate solutions, leading to congestion issues and a long queue of trucks outside the gate.
- According to SPAT, municipality representatives tend to have limited port or infrastructure-related competences, except in cases when they are former staff of the port itself.

Key Recommendations:

- Implement a specific committee or forum in which port-related stakeholders meet with local community stakeholders to discuss port–city issues.
- To alleviate the congestion on the port access road, by: improving the rail infrastructure connecting the Port of Toamasina to local markets and Antananarivo, and subsequently stimulate the modal shift from road to rail; constructing a dedicated port access road; and implementing terminal appointment systems or promotion of off-peak operating hours.
- Strengthen environmental measures taken to reduce the negative externalities for the adjacent city. Policy measures which could be implemented by the SPAT include variable port fees to incentivize the use of less polluting vessels; installation of facilities to cater for the cold ironing; and measurement and regulation of noise levels.
- Establish a professional training institute to build up core capabilities and competencies by creating a pool of port academicians and port experts.
- Push for the creation of a Special Economic Zone which was mentioned in the Economic Development Document published by the Ministry of Economy and Planning of Madagascar.

Port of Mahajanga

The Mahajanga population developed from about 147,000 people in 2000 to 247,000 people in 2017, which is equal to a CAGR of 3.1 percent. The IMF projects the Madagascar population to grow with an average of 2.8 percent per year up to 2022 (International Monetary Fund, 2017).

The EDBM has presented rehabilitation projects including the construction of new docks and dredging plans worth approximately US$12.4 million. The project aims to increase capacity and improve port efficiency. Studies toward this end have been conducted, though are required to be updated.

Port Development Stage: Port Generation

The Port of Mahajanga is a small port characterized by the small sailing ships calling the port with low frequency. In addition, larger vessels can be loaded or unloaded in the bay with barges. These larger vessels cannot be accommodated at the quay due to the port's limited draught of CD—4.5 meters. The port is located along the city center of Mahajanga. Where the city mainly grew over time to the fourth largest city of Madagascar, the port is still relatively small. Based on this, the Port of Mahajanga can be best characterized as a first-generation port.

Key Observations:

- There is no possibility to expand the port further to the north. Land reclamation to the east of the current port area could enable the port to expand.
- The Port of Mahajanga has no concrete development plans in place to modernize the port.
- There is no port communication system available. SEMS and COMAMA operate in-house systems for their cargo operations and administrative duties.
- There is no rail infrastructure or dedicated port access road, implying that all cargo leaves the port by truck.

Key Recommendations:

- Development of a port master plan to modernize the port facilities.
- Improve port-related competences and assist in the execution of potential development projects.
- Create a dedicated truck waiting area to reduce congestion outside the main gate.
- Ensure proper transport documentation before gate arrival.

Mauritius: The Republic of Mauritius comprises four islands in the Indian Ocean, east of Madagascar, with a total land area of some 2,000 km^2. The main island of Mauritius comprises 1,875 km^2 has approximately 1.3 million inhabitants and recorded a GDP (measured in constant 2010 US$) of US$12.4 billion in 2016 (The World Bank, 2017b).

1. Port sector institutions

The Mauritius Port Authority (MPA), set up under the Ports Act 1998, is the governing authority in the port of Port Louis. Acting as a landlord port authority, it provides the main port infrastructure and superstructure, together with related facilities, marine services, and navigation aids. The MPA functions both as a port authority and as a port regulator in terms of safety and environmental protection. Container, general cargo, and bulk activities (excluding products through pipelines) have been concessioned for 30 years to Cargo Handling Corporation Ltd. (CHCL) (CHCL, 2017). CHCL is a state-owned private company and the sole operator for container handling activities at Port Louis. It also handles general and bulk cargoes excluding products through pipelines. In case of port developments, clearance is needed from the Municipality of Port Louis and the Ministry of Public Infrastructure and Land Transport. In practice, the MPA is the main policy-making entity in the ports sector: it is responsible for developing master plans and implementing government policies in the ports sector.

The External Communications Division (ECD) of the Government of Mauritius is under the direct supervision of the Prime Minister. The ECD is responsible for managing the semi-autonomous government entities involved in the transport sector: among others, the MPA and Airports of Mauritius. In this role, ECD also provides one of the board members of the MPA. It is the ECD's vision to position Mauritius as a hub in the region for the provision of the state-of-the-art and modern port and airport facilities that contribute to the economic growth of Mauritius. Its mission is to respond effectively and professionally to the growing needs and aspirations of the stakeholders engaged in the sea and air transport sectors in terms of transforming Port Louis Harbor into a major transshipment hub in the region; fostering the development of safe, secure, regular and efficient civil aviation operations; and establishing a solid regulatory framework and provide quality services that meet international standards.

Mauritius' Ministry of Finance and Economic Development is responsible for the economic development policies in the country and for the economic management of government affairs to achieve faster and sustainable economic development. Through its role as a budget-provider for the MPA and the CHCL, the Ministry also provides one of the board members of the MPA. The ministry is also responsible for providing around 45.0 percent of the funding for key capital projects for the Mauritian port sector in coming years.

The Shipping Division of the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping is responsible for ensuring the safety and security of ships and for the protection of life and property at sea and the marine environment. The main distinction between the regulatory role of the Shipping Division and the MPA concerns the geographical scope: the MPA is purely responsible for regulation and control of vessels in its ports, while the Shipping Division is responsible for the regulation and control of vessels in Mauritius' territorial waters.

Shortcomings of the Mauritius port sector institutions:

- The MPA currently acts both as a landlord authority and as a port regulator according to the Mauritius Ports Act. The Shipping Division of the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping is responsible for safety, security and environmental regulations at sea, but there is no independent regulator in the sector that regulates tariffs or licenses and concessions in the port.

- Through its substantial shareholding in the CHCL, the MPA still has a major operational role in Port Louis.
- There is no specific ministry responsible for the port and transport sectors that can draft policies, laws, and represent Mauritius in bilateral agreements. Through the ECD, the MPA falls under the direct responsibility of the Prime Minister, but it is regarded good practice that a Ministry of Transport is present that is responsible for the port authority.

If MPA is serious about implementing the landlord model, it would be advisable that port operations are concessioned to a specialist private sector terminal operator and/or that MPA's shareholding in the CHCL is reduced. Secondly, the lack of an independent monitoring body that can verify, audit, and check the functioning of the ports sector, from the perspective of tariff setting, concession agreements, and environmental/safety measures underlines the need for an independent port sector regulator. Finally, it is necessary to improve the policymaking at the national government level (Ministry of Transport) to ensure that the development plans for the Port of Port Louis are part of national government planning and policy.

2. Policy framework

The policymaking framework in the port sector in Mauritius consists of multiple levels: regional, national and local-level policymaking. At a regional level, Mauritius' (trans)port policy is guided by regional organizations including COMESA, AU, PMAESA, IOC, and SADC. Some of these regional organizations provide policy guidelines for the transport sector, but these guidelines, if they exist, are broad and provide limited detail on the direction of the development of the port sector.

At a national level, port policy is developed by the MPA under the Government's External Communications Division that directly reports to the Prime Minister. Further, the transport policy and strategy is embedded within the National Physical Development Plan (NPDP) (Mauritius Ministry of Housing and Lands, 2003) developed by the Planning Division of the Ministry of Housing and Lands. This national development plan presents policy sections on the development of the transport and ports sector. The Ministry of Finance and Economic Development also presents a three-year strategic plan that includes policy goals for the port and transport sector. At a local level, the MPA is responsible to transform policy into development plans for the ports in the country, with the Port of Port Louis being the main port of the country. The Ports Act mandates the MPA as the sole national port authority to regulate and control the port sector and provide marine services.

Mauritius' national transport policy is documented in the transport section of the NPDP. Although this document is outdated (2003), it is regarded as the main guiding document for national transport policy. It must be noted that the document has strong emphasis on highways and public transport (over 25 pages) while there is limited attention for the port sector in the document, with only one section of three pages. The Government of Mauritius' mission and objectives for the transport sector are listed in the report. Apart from these statements, no references relevant to the port sector are provided in the NPDP.

The 3-year strategic plan of the Ministry of Finance and Economic Development (Mauritius Ministry of Finance and Economic Development, 2017a) presents a vision for the transport sector, namely: to support Mauritius as it moves into a new phase of development driven by innovation, supply chain efficiencies and productivity to attain the status of a "high-income economy." More detailed projects and developments for specific sectors (road, airport, port) are also presented in the strategic plan.

Mauritius national port policy and planning practices have historically focused on the port of Port Louis as the main deep-sea port in the country. This means that the national ports policy is similar to the local ports policy as there are no other main ports present or planned within the country. The national ports policy is developed by the MPA that reports to the External Communication Division. Furthermore, the Ministry of Finance and Economic Development presents specific developments and corresponding

funding requirements in its three-year strategic plan (Mauritius Ministry of Finance and Economic Development, 2017a) and national budgets (Mauritius Ministry of Finance and Economic Development, 2017b).

The following documents that are prepared under supervision of the MPA present more details on the implementation of the ports policy into practice:

- *The 2002 Master Plan* (Mauritius Ports Authority, 2002) was developed to ensure that the new landlord port objectives of the MPA are reflected as set out in the Ports Act 1998; traffic forecasts are updated in the light of new emerging trade patterns; appropriate recommendations on infrastructure and equipment requirements are made on the basis of revised forecasts and other new considerations; and a harmonized land use plan is developed outlining concrete actions that need to be taken for the most suitable development of the various zones in the port to cater for port-related industries, service organizations, and waterfront development. Not all targets that were listed in the 2002 Master Plan have been achieved. The first target clearly shows the former desire of the MPA and the Mauritian government to enable privatization of the ports sector. This desire has not been met, and the port is currently largely operated by a publicly owned company (CHCL).

- *The Port Corporate Plan of 2012* (Mauritius Ports Authority, 2012) for 2012–2014 presents short-term plans and developments for the MPA, as well as a summary of the MPA's overall corporate strategy. It intends Port Louis to become a regional logistics hub and lists various port improvement projects and operational measures, including the extension and strengthening of the berth at the Mauritius Container Terminal (MCT); land reclamation works for additional terminal areas; clinker grinding and cement packing plant; and development of LPG storage facilities.

- *Port Master Plan Report 2016* (Mauritius Ports Authority, 2016) largely focuses on the need for the MPA to develop the new Island Container Terminal next to the existing ICT to remain attractive for transshipment traffic.

- *Port Development Strategy 2018* (Mauritius Ports Authority, 2018) is a representation of the Port Master Plan 2016 and includes developments such as the MCT gate expansion project; ICT development; cruise terminal development; ship repair and ship building; and bunkering and petroleum hub.

The available policy documents reflect the following objectives:

Economic growth: the importance of maritime sector and port development as a driver and enabler of economic growth is marked in the main national transport and port policy documents.

Ease the flow of goods: most policy documents present the need and desire for the MPA and its port facilities to become more efficient (and thus, ease the flow of goods). The National Development Plan mentions that "[port] development strategies should identify and safeguard interchange facilities and access improvements to ports, together with appropriate sites for port and wharf use needed to meet changing market requirements."

Improve landside facilities: although Mauritius as an island economy cannot develop landside facilities to neighboring countries, the different policy plans focus substantially on the development of landside facilities for local cargo.

Safe and secure: all policy documents highlight the importance of safe and secure development of the port sector in Mauritius. According to the 2002 Master Plan, the port of Port Louis handles around 1.0 million tons of hazardous cargoes and the port is one of the highest risk areas of the country. Based on these findings, the Master Plan presents a clear action plan on short, medium, and long-term actions to remain a safe and secure port.

Environment: the importance of sustainable port development is highlighted in all policy documents. The first sentence on port policy in the National Development Plan starts with "Long-term sustainable development of the port". The MPA's 2012 Corporate Plan lists "regulation and control of pollution and protection of the environment within ports, and the enhancement of safety and

security" as one of the key functions and duties of the MPA.

Shortcomings of Mauritius' port sector policy:

- There is a lack of financing principles included in the policy goals. It is unclear how the MPA or the Government of Mauritius and its ministries aim to finance the proposed port investment plans that are listed in the different policy documents. By allocating the investments either to the central government, to the MPA, to donor funding, or to the private sector through PPPs, the Government of Mauritius will get a clear view on the investment needs and responsibilities.
- Some outdated policy and planning documents need an update: National Development Plan (Mauritius Ministry of Housing and Lands, 2003). It is regarded a necessity that governments provide up-to-date policy documents that consider recent and relevant developments such as the Island Container Terminal development in Port Louis.
- There is a clear contradiction between policy statements and policy implementation on private sector participation. The role of the MPA as a landlord port with concessions is highlighted in most policy documents, while in practice, the main cargo handling concession is granted to the public CHCL in which MPA has a 40 percent shareholding position, and the other shares are owned by the ECD and the State Investment Cooperation.
- Criteria for investment decisions are not clearly mentioned in the main policy documents. The criteria are mentioned in some of the more operational documents that focus on the development projects of the coming years, but it is advised that these are also included in the longer-term policy documents. A clear guideline with minimum requirements for government investments is regarded a necessity to ensure value for money for the government.

3. Legal and regulatory framework

At an international level, Mauritius' legal and regulatory framework for the ports sector is guided by the IMO conventions that are largely focused on maritime safety and security, the prevention of pollution and related matters, and less on specific port sector policies or operational implications. At a regional level, Mauritius' legal and regulatory framework for the ports sector is guided by the AU's Maritime Charter, the COMESA treaty and the SADC treaty. Further, Mauritius is a member of the IOC in which it cooperates with the Comoros, Reunion, Madagascar, and the Seychelles on trade facilitation between the islands. At a national level, Mauritius' legal and regulatory framework for the ports sector is guided by multiple documents, of which the following are of relevant concern: the Mauritius Ports Act (1998) and its amendments (2003 and 2013), the Port (operations and safety) Regulations 2005, the Ports (Issue of Licenses) Regulations 1981, the PPP Act, the BOT bill and PPP Manual (jointly: PPP Legislation), the Merchant Shipping Act and the Merchant Shipping Regulations. There are no formal legal and regulatory documents available at the local level (Port of Port Louis).

Mauritius has ratified all major international conventions except SOLAS Protocol 78, SOLAS Agreement 96, STCW-F Convention 95, MARPOL Protocol 97, and Hong Kong Convention. Two agreements that are not fully adhered to are the AU Maritime Charter and the SADC Protocol on Transport, Communications, and Meteorology, which both guide member states to promote private sector participation in port operations. This is currently not being fully promoted in Mauritius, where a public operator runs the main cargo terminals. Only liquid bulk is being handled currently by private operators.

The Mauritius Ports Authority was established under the Mauritius Ports Act (1998) and its amendments (2003 and 2013). Through the act, the MPA was established as the successor of the Mauritius Marine Authority. The MPA operates directly under the Prime Minister through the External Communications Division of the Government. The Act also determines the regulatory powers of the MPA. These cover matters such as movement and stay of vessels in a port; pilotage; loading, discharging, and storage of

cargo; safety of navigation; environmental protection; port security; concession contracts, licenses, and leases; and finance, including levying rates, charges, duties, and fees.

Mauritius' *Merchant Shipping Act* is drafted based on the UK Merchant Shipping Act, which regulates shipping and vessels in many common-law countries. The Act regulates vessels, shipping, seafarers, safety of life and navigation, carriage of bulk cargoes ad dangerous goods, maritime security, and dedicated institutions. The Merchant Shipping Act does not regulate ports in either their construction or operation. It does regulate the protection of the marine environment and the safety and security of ships.

PPP Act, the BOT bill, and PPP Manual

The PPP legislation in Mauritius is clearly defined and explained in the PPP Manual published by the Ministry of Finance and Economic Development through its PPP Unit (Mauritius Ministry of Finance and Economic Development, 2006). This manual uses the PPP Act of 2004 as the basis, and provides an overview of the processes to be followed for the establishment of a PPP in Mauritius. These processes are in line with global practices for PPPs, and follow the usual steps (pre-feasibility study, feasibility study, invitation for bids, evaluation of bids, negotiations, signing of the agreement, implementation of the project, monitor and control the project, and terminate the project). Furthermore, clear criteria for the establishment of PPPs are listed in the PPP Manual.

Next to the PPP Manual and PPP Act, the Build Operate Transfer (BOT) Projects Bill of 2016 (Mauritius Assembly, 2016) provides an additional legal framework for the execution of specific projects under BOTs. This Bill specifically mentions that the PPP Act shall not apply to any BOT project, and that the separate BOT Projects Unit of the Procurement Policy Office shall be responsible for the implementation and assessment of BOT projects. It is not clear why a separate BOT Bill is needed, as the PPP Manual of 2006 already presented the possibilities for a BOT before the BOT Projects Bill was implemented. Furthermore, no update of the PPP Manual is available that considers the impact of the BOT Projects Bill.

The PPP Legislation can be regarded as complete, and offers a valid legal ground for the design and the implementation of a PPP arrangement for port projects in the country. It is regarded necessary that the PPP Manual is updated and includes the BOT Projects Bill as an alternative form of legislation for BOTs relative to all other PPPs. The main relevant arrangements for the ports sector, based on international norms concern concessions, are build-operate-transfer or design-build-operate-finance.

Overall, the main shortcomings of the Mauritius' port sector's legal and regulatory framework are as follows:

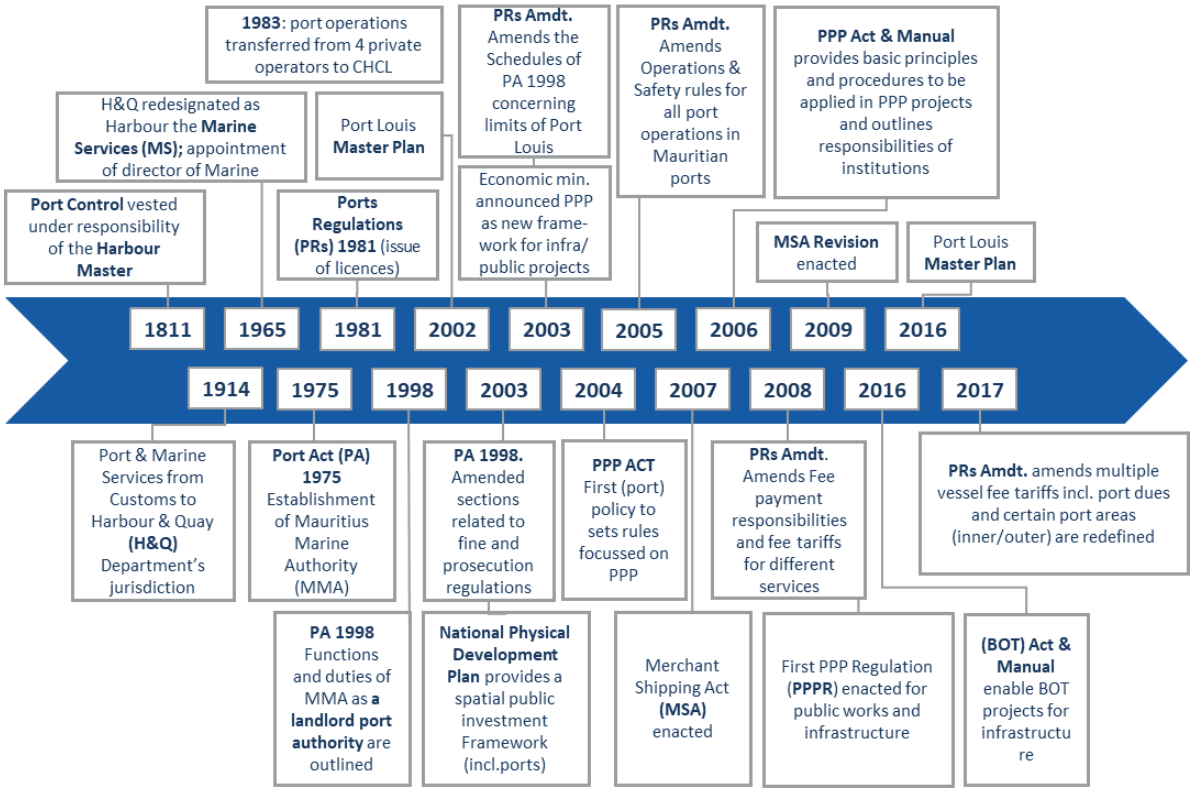
- There is no independent regulator; instead, MPA acts as the ports regulator for the country that sets tariffs, regulates safety and environmental issues, and determines regulations on concession contracts.
- The MPA has substantial freedom to invest as per section 18 of the Act. This autonomy is generally regarded positive, but in this case, there is too much autonomy; for example, the MPA may invest any sums not immediately required for the purposes of its business in any investment or loans; and acquire any land or building wherever situated, or any interest therein. It is recommended that the powers of the MPA be somewhat restricted, especially in terms of the clauses that could lead to investments of assets.
- The powers of the MPA over concessionaires are very strong in the current Act. If there were a desire to enter into more or other concession agreements with private operators, this would become a problem, as it is expected that private operators will not appreciate the differences in power between the MPA and a concessionaire as per section 37 of the Act. In the current plans to set up a BOT with a shipping line in the Island Container Terminal, these clauses will certainly need to be adjusted.

Port tariffs

The available sources are the MPA and the port's operator, CHCL. The current port tariff structure in Port Louis generally corresponds to best practice. Most of the tariffs that are charged are based on the preferred structures. It is striking to see that

no light(house) dues or mooring tariffs are charged, but it is understood that these are included in the port dues and in the towage dues. The only notable error in the tariff books is that the current berthing dues are based on the vessel's gross tonnage (a volume measure) and not on the vessel length. This means that vessels with a relatively high gross tonnage such as pure car carriers (RoRo vessels) pay very high berthing dues as compared to other vessels that occupy the same amount of berth space.

Figure 37: Evolution of the Legal and Regulatory Framework in Mauritius



4. Port description

Port Louis, located in the north-west part of Mauritius, is the largest port of the country, and handles approximately 99 percent of all trade volumes of Mauritius. Next to its function as gateway port to the island, the port has developed itself as transshipment hub for the East African region, handling approximately 250,000 TEUs transshipment in 2016 (out of a total handled volume of 511,000 TEUs). The port's major import products include food, petroleum products, and raw materials for the textile industry, whereas export products include primarily sugar and textiles. Port Louis has several terminals: the MCT, the Multi-Purpose Terminal (MPT), and the Cruise Terminal. The second Port of Mauritius is the port of Port Mathurin, located on the island of Rodrigues. It serves primarily as the gateway port to Rodrigues and handled approximately 10,000 TEU in 2016 (MPA, 2017).

Port Louis - Mauritius

Table 42: Berth Characteristics – Port Louis

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
BST Jetty	Bulk Sugar Terminal	Mauritius Ports Authority	210	12.2	Bulk sugar, black oil.	9.6		Sugar storage (350,000t)
Cruise Jetty	Christian Decotter Cruise Terminal	Mauritius Ports Authority	124	10.8	Cruise.	1.2		
Oil Jetty	IOML Terminal	Mauritius Ports Authority/Petredec	270	14.5	Motor gasoline, gasoil, aviation fuel, fuel oil and LPG.	8.1	Pipelines	Gas (84,000m^3)
Friod de Mascareignes No 01 - 06	Terminal I	Mauritius Ports Authority	320	4.6 - 8.0	Fish.	3.3		
Quay A & D	Terminal I	Mauritius Ports Authority	380	12.2	Black oil, fuel oil, containers, wheat, maize, molasses, soya bean meal, edible oil, general cargo, passengers, and inter-island trade.	5.3		Wheat silos (40,000t) Caustic Soda storage (1,000t)
Quay E	Terminal I	Mauritius Ports Authority	135	9.0	Black oil, inter-island trade, general cargo, and passengers.	2.1		
Trou Fanfaron I & II	Terminal I	Mauritius Ports Authority	345	5.5 - 6.0	Fish.	2.1		
Mauritius Freeport Development	Terminal II	Mauritius Ports Authority	118	7.0	Fish.	0.5		
No 01 Quay	Terminal II	Mauritius Ports Authority	123	13.5	Coal, fertilizers, white oil, and black oil.	15.5		
No 02 & 03 Quay	Terminal II	Mauritius Ports Authority	365	12.5	General cargo, containers, cement, and coal.	26.9		Cement silos (95,500t) OS (11.5ha)
No 04 Quay	Terminal II	Mauritius Ports Authority	185	12.2	General cargo, containers, LPG, and bitumen.	16.5		
MCT1 & 2	Terminal III Mauritius Container Terminal	Mauritius Ports Authority	560	16.5	Containers.	76.3	5x STS 5x RMGC 14x RTG	CTS (15ha) WH (8.1ha)

Source: IHS Fairplay, 2017

Table 43: Performance Indicators - Port of Port Louis

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	1.87	4.91	2.12	2.97	0.26
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	587		2,908		
Port area productivity	ton/ha			56,510		
Container dwell time	days	n/a	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	n/a	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	4.59	3.22	n/a	4.47	3.9

Source: MTBS, MPA

Table 44: Throughput and Capacity - Port of Port Louis

Type	Unit	Throughput (2016)	Capacity	Utilization
Port of Mauritius				
General Cargo	ton	207,811	400,000	51.95%
Dry Bulk	ton	1,810,678	2,000,000	90.53%
Liquid Bulk	ton	1,929,091	4,000,000	48.23%
Ro-Ro	units	n/a	50,000*	n/a
Mauritius Container Terminal				
Containers	TEU	511,101	1,000,000	51.11%

Source: MPA * * estimated based on 1 hectare of ground area dedicated to vehicles, with an average vehicle dwell time of 7 days.

Table 45: Port Volumes - Detailed - Port of Port Louis

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	259,163	248,948	251,798	255,884	265,927
	Transit	TEU	-	-	-	-	-
	Transshipment	TEU	316,608	272,756	302,406	210,450	245,174
	Subtotal	**TEU**	**575,771**	**521,704**	**554,204**	**466,334**	**511,101**
General Cargo	Domestic	ton	202,792	178,353	172,633	187,164	207,811
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**202,792**	**178,353**	**172,633**	**187,164**	**207,811**
Dry Bulk	Domestic	ton	1,807,223	1,801,151	1,706,238	1,818,828	1,810,678
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**1,807,223**	**1,801,151**	**1,706,238**	**1,818,828**	**1,810,678**
Liquid Bulk	Domestic	ton	1,621,165	1,526,965	1,609,438	1,682,085	1,929,091
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**1,621,165**	**1,526,965**	**1,609,438**	**1,682,085**	**1,929,091**
Ro-Ro*	Domestic	ton	n/a	n/a	n/a	n/a	n/a
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**

Source: MPA *Ro-Ro statistics were unavailable in the annual reports of the MPA.

Volume forecasts

Hinterland Volume Shares: The port of Port Louis is the largest port of Mauritius, handling approximately 99 percent of the country's trade (MPA, 2017). As such, all imports and exports are destined for or originating from the island of Mauritius.

Future Competitive Environment: Market shares regarding domestic cargo are not expected to shift, resulting in the port of Port Louis maintaining its market share of 99 percent of Mauritius' trade.

Volume Projections: The volumes handled in the port of Port Louis are expected to increase from 9.1 million tons in 2016 to 28.3 million tons in 2050. These projections are based on the country projections, the volume share assumption, and the standard conversion rate of containers and vehicles to tons. Considering the small size of the island of Mauritius, container volumes are not surprisingly the largest cargo type in the port of Port Louis in 2050. Total container traffic is expected to increase from 5.1 million ton in 2016 to 17.0 million ton in 2050. Liquid bulk and dry bulk volumes represent 19.6 percent and 18.3 percent of Port Louis' volumes in 2050 respectively, with dry bulk exports representing less than 1 percent and liquid bulk exports representing approximately 23.0 percent. Combined general cargo and vehicle volumes are projected to be 0.6 million tons in 2050, representing just 2.0 percent of the port's total volumes. Total volumes in the port of Port Louis are expected to increase with a CAGR of 4.4 percent in the period 2016–2030, 3.0 percent in the period 2030–2040, and 2.5 percent in the period 2040–2050.

Figure 38: Base Case Volume Projections - Port of Port Louis

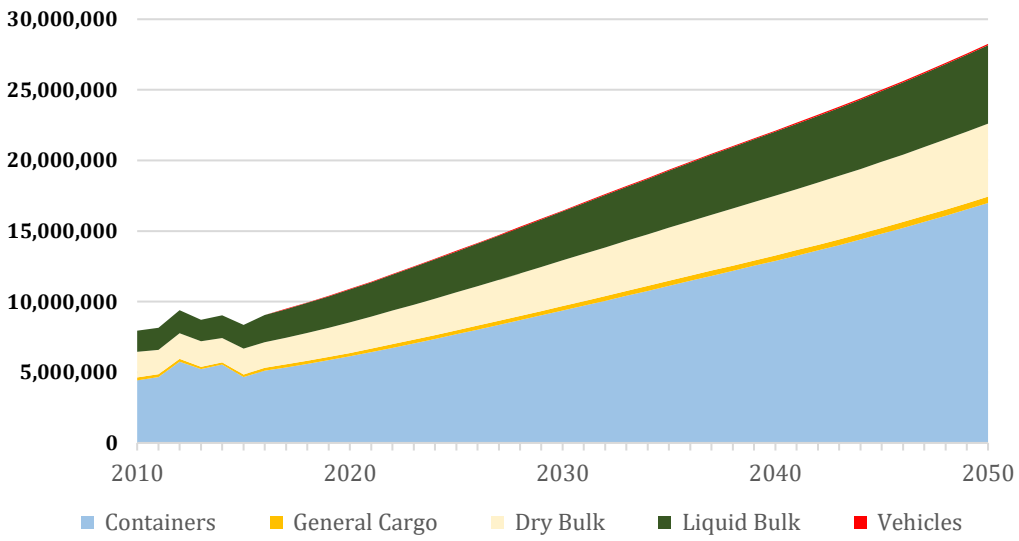


Table 46: Demand projections – Port of Port Louis

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	5,343	5,593	5,856	6,134	6,427	6,734	7,048	7,366	7,689	9,372	11,120	12,891	14,804	16,988
General Cargo	214	221	229	236	244	252	260	268	276	316	354	387	419	453
Dry Bulk	1,891	1,980	2,074	2,173	2,274	2,379	2,484	2,591	2,697	3,238	3,765	4,229	4,681	5,171
Liquid Bulk	2,019	2,115	2,217	2,322	2,431	2,543	2,657	2,771	2,886	3,466	4,032	4,530	5,016	5,542
Vehicles	34	36	39	41	43	45	48	50	53	60	69	77	89	101
Total	**9,502**	**9,945**	**10,414**	**10,906**	**11,418**	**11,953**	**12,497**	**13,046**	**13,601**	**16,453**	**19,339**	**22,114**	**25,008**	**28,256**

Given the fact that the port of Port Louis is located on an island, no shift in market shares is expected. As such, the MS Shift Case is not depicted.

Figure 39: Demand Forecast – Containers

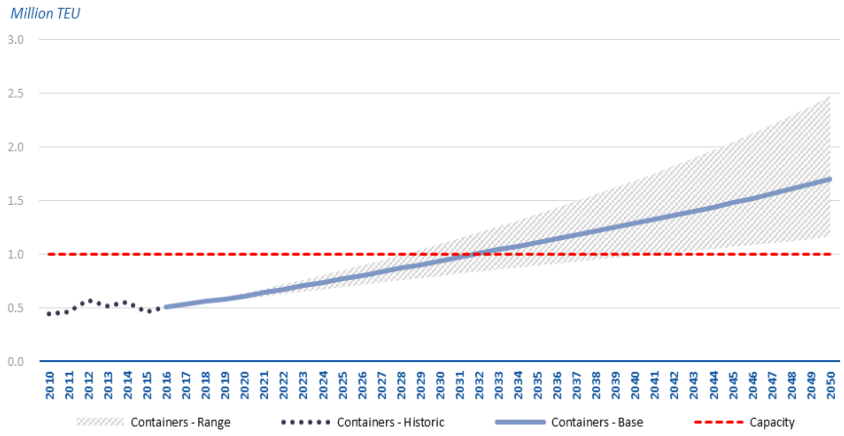
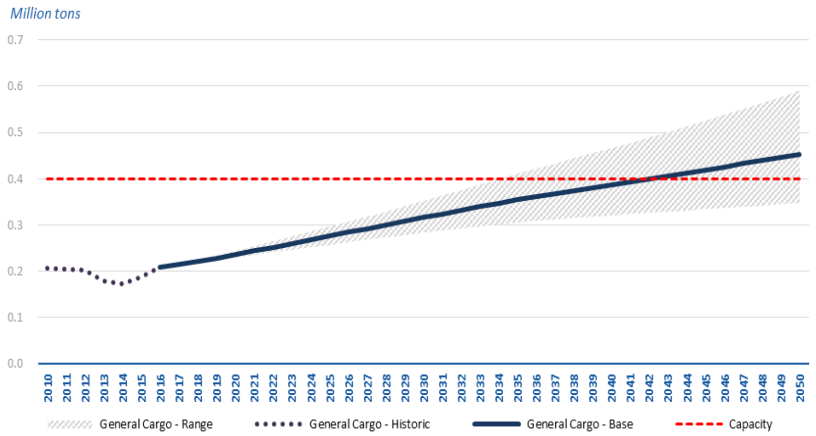


Figure 40: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Key Observations:

- **Port functions:** Port Louis provides modern port functions with substantial cargo volumes. The container terminals are focused on gateway and transhipment cargoes, both representing around half of the container throughput. CHCL provides stuffing and stripping services for containers and general cargoes, and storage for containers where it is possible to (de)consolidate cargoes prior to their onward journey. Furthermore, several private operators provide logistics depots in the vicinity of the port.
- **Relationship between port and stakeholders:** The relationship between the port and its stakeholders can be regarded as good. The port of Port Louis and the city are closely connected and during interviews with the MPA it was mentioned that the developments of the port are closely coordinated between the MPA and the municipality of Port Louis. The three main shipping lines (Maersk, MSC and CMA-CGM) account for 92 percent of the container traffic in the port. There is no formalized stakeholder discussion platform available.
- **Development Strategy of the Port:** The development strategy of the port is largely based on the autonomy of MPA and CHCL. However, for the development of the new Island terminal, the MPA is willing to enter a BOT structure with a shipping line that shall enable the development of the terminal and ensure sufficient transhipment volumes. The MPA has presented its Port Development Strategy 2018 document, which includes multiple developments: gate expansion project, Island Container Terminal project, cruise terminal project, ship repair and ship building project, and a bunkering hub.
- **Degree of vertical integration:** There is a strong degree of vertical integration of the chain in the port of Port Louis. The MPA and CHCL made substantial investments in IT and systems such as a port community system and terminal operating systems. Logistics services are provided through a network of container depots and ICDs and around the port. The logistics services for hinterland transport are provided by local 2PLs and 3PLs. With the proposed shipping line-related BOT for the Island Container Terminal, a next step toward vertical integration will be achieved.
- **Degree of horizontal integration:** The degree of horizontal integration in Port Louis is relatively low: there are no international operators, and although the MPA is the national port authority, its main basic asset is Port Louis (and the much smaller port of the Rodrigues Island 600 km east of Mauritius).

Proposed Key Actions:

- **Continue port development based on formalised planning and a PPP focus**: The level of logistics services and terminal operations are currently at benchmark levels in the region. Port Louis shall ensure that it retains this position and continue the development of its port and terminals in the way it did in the past decades. Following the plans for the Island Container Terminal, the MPA is now also considering implementing true PPPs based on the planned involvement of shipping lines in a terminal BOT. This is regarded important to ensure sufficient transhipment volumes and have benchmark level operations through international operators.
- **Develop a stakeholder forum** to ensure involvement of the port's stakeholders in the development plans and create understanding of which developments are needed, and why this is the case.
- **Improve the port's road connections:** The road network in and around the port is under pressure based on the current cargo volumes. This is expected to increase further if an additional container terminal is opened. It is important that MPA, the municipality of Port Louis, and the Ministry of Public Infrastructure and Land Transport join to ensure that proper road access to/from the port is ensured.

Port–city interface

The population development in Port Louis is steady over time, with 154,000 people in 2000 and 150,000 in 2015. However, the capital's population slightly increased again from its dip in 2011, which is in line with the IMF growth projection for Mauritius, equal to 0.4 percent growth per year up to 2022 (International Monetary Fund, 2017).

The MPA is a landlord port authority, providing the main port infrastructure and superstructure, together with related facilities. There is close coordination between the MPA and the Port Louis municipality. Based on the location of the port in the middle of the city, there is a constant need to be in contact and align planning between the entities.

The most substantial recent development is the extension of the CHCL container terminal. The quay of the terminal was extended from 560 to 800 meters and offers a depth of CD −16.5m. A master plan has been carried out in 2015 for Port Louis that included an assessment of needs for extending and upgrading port infrastructure and developing a land use plan for the next 25 years, up to 2040. This long-term plan includes, among others, the reclamation of 60 hectares land and the development of a new container terminal able to handle 1.5 million TEU per year.

Port Development Stage: Port Generation

Port Louis is a modern port, equipped with state-of-the-art port handling equipment and infrastructure able to accommodate large sea-going vessels. Although it is surrounded by the city, it remains developing, mainly toward the sea side. The port accommodates specialized vessels for containers, liquid bulk, general cargo, and dry bulk and strives to continuously improve its performance to reduce vessel berthing time within the port. In addition, there is a clear functional separation with dedicated terminals within the port. Based on these characteristics, the port of Port Louis can be best characterized as a third-generation port.

Key Observations:

- The Mauritius Port Authority is expanding the port area mainly through new land-reclaimed terminal development plans such as the Island Container Terminal.
- MPA and the municipality of Port Louis coordinate port development closely, especially related to land and zoning arrangements, terminal access, and truck routing options.
- The MPA has initiated multiple human capital development projects aimed at increasing relevant skills, in collaboration with the University of Mauritius. In addition, the MPA wishes to establish a Port and Maritime Training Centre, thus creating a pool of port academicians and port experts.
- The "Green Port Concept" was introduced by the MPA with the objective of reducing the negative impacts of the port's activities on the environment. This concept includes, among other things, waste management policies such as recycling of used oil.
- The MPA and the municipality of Port Louis have successfully developed the Caudan waterfront near the port and are planning to develop additional waterfront projects.

Key Recommendations:

- Develop dedicated port access roads to reduce the wear of port-induced traffic on public roads and reduce air emissions from congested port roads. Rail is not regarded as a solution, due to the small size of the island and the fact that the port is already located in the main economic center.
- Attract value-adding services such as warehouse operations to create even more employment locally.
- Further expand the port's Green Port Policy by: imposing variable port fees to incentivize the use of less polluting vessels; installing facilities to cater for the cold ironing of vessels; and implementing environmental performance indices such as the Environmental Ship Index or the Clean Shipping Index.

- To limit congestion in the city of Port Louis, MPA can impose Terminal Appointment Systems; promote off-peak operating hours; and assure proper transport documentation before gate arrival.
- Implement a specific committee or forum in which port-related stakeholders meet with local community stakeholders to discuss port–city issues.

Mozambique: Mozambique is located in southern Africa, north of Swaziland and South Africa and south of Tanzania. Mozambique's population grew to approximately 28.8 million inhabitants in 2016, where its GDP realized a growth of 3.4 percent in 2016, increasing GDP to 14.8 billion in constant 2010 US$ (The World Bank, 2017b).

1. Port sector institutions

The Ports and Railways Company of Mozambique (CFM), is a parastatal authority that oversees the railway network as well as its connected ports. It is involved in the handling of cargo, the transport of goods, and the transport of passengers. CFM is active in Nacala, Beira, and Maputo:

- Maputo: CFM holds 49 percent of the shares of the Maputo Ports Development Company (MPDC) and also holds capital shares in the DPW Container Terminal in Maputo (40 percent), holds a share in the rail/road sugar terminal of Mahotas (50 percent) and is involved in the operation of the Maputo Cabotage Terminal (49 percent).
- Beira: CFM holds a 33 percent share in the CdM, which operates the general cargo and container terminal in the Port of Beira, holds a 15 percent share in the Beira Grain Terminal, and a 30 percent share in the New Coal Terminal Beira.
- Nacala: CFM holds a 30 percent share in the Ports of North, which is managing and operating the Port of Nacala.

The Port of Maputo is managed by the MPDC, a Mozambican registered joint venture between CFM (49 percent) and Portus Indico (51 percent). The latter company has its shares split between DPW (48.5 percent), Grindrod (48.5 percent), and local company Mozambique Gestores (3 percent). MPDC has a master-concession that runs until 2033, with a possible 10-year extension until 2043. Under the master-concession, MPDC either develops terminals under sub-concession arrangements or handles its own cargoes. MPDC holds the rights to finance, rehabilitate, construct, operate, manage, maintain, develop, and optimize the entire concession area. Additionally, MPDC holds the powers of a Port Authority and is hence responsible for maritime operations; piloting towing (tugboats); stevedoring; terminal and warehouse operations; and the port's planning development.

The Port of Beira resides under CFM, which manages the port and operates the liquid bulk terminal. The remaining port terminals are operated by CdM, a joint venture between CFM (33 percent) and Cornelder Holdings B.V. (67 percent), a private company. CFM has retained operational management of the liquid bulk terminal in the port, while the fishery port on berth 1 also falls outside the responsibilities of CdM.

The port of Nacala, and the connecting railway line, are consessioned to Corredor de Desenvolvimento do Norte (CDN); however, a management contract was signed on the 15th of March 2013, transferring management of the port and railway line to Portos do Norte (PdN). It is a private Mozambican company responsible for the management of terminals and movement of all types of cargo in the Nacala Port. CDN retains management and operations of pilotage, berthing operations, and general cargo operations. CFM operates the liquid bulk terminal, whereas Vale owns and operates the coal terminal opposite the Port of Nacala.

Decree No. 40/89 of 5 December 1989 established the National Institute of Hydrography and Navigation (INAHINA), the Mozambican Hydrographic Office working under the Ministry of Transport and Communications. This Decree defined INAHINA its attributions, competences and organizational structure, with a view to respond in the best way to the increasing advances and requirements of the development of hydrography, oceanography, and safety to maritime navigation in the country. Thereby, INAHINA is responsible for ensuring the safety of maritime navigation in national waters (INAHINA, 2012).

The Council of Ministers' Degree No. 32/2004, Dated 18th of August 2004, established the Instituto Nacional de Marinha (INAMAR). INAMAR is the designated authority with the responsibilities to coordinate, implement, and supervise the ISPS Code for Mozambican ships and port facilities; designate the port facilities requiring Port Facility Security Plans; asses the security of Mozambican ships and port facilities; give certification to ships for compliance with the ISPS Code; and develop regulations, in coordination with other relevant authorities, to implement the requirements of the ISPS Code Article. INAMAR is also responsible for the supervision and control of safety at Mozambican ports and the security of Mozambican ships and port facilities.

The main shortcoming of Mozambique's port sector institutions is that there is no regulator in the ports and railway sector for the activities of CFM and its concessions. A regulator is present in most main economic sectors in Mozambique, such as the energy sector, aviation sector, etc., however not in the port and transport sector. This poses a large problem for Mozambique, as tariffs are currently not regulated (potentially increasing total chain costs to the hinterland).

To improve the functioning of the sector, there should be an independent monitoring body that can verify, audit, and check the functioning of the ports sector, from the perspective of tariff setting, concession agreements, and environmental/safety measures.

The Mozambique Report to the Maritime and Security Workshop prepared by the Ministry of Transport and Communications provides an overview of weaknesses and solutions regarding INAMAR, which are shown below (Mozambique Ministry of Transport and Communications, 2009).

Weaknesses

- INAMAR currently lacks adequate staff with the required security expertise and resources to undertake its regulatory functions under SOLAS chapter XI-2 and the ISPS Code
- Lack of finance and technical resources
- Low dissemination of ISPS Code
- No centralization of information structure.

Solutions

- There is an urgent need to provide security training material at all levels to Mozambique, including the training of INAMAR staff, Port Facility Security Officers, and those undertaking security duties within port facilities. It would also be advantageous to provide high-level introductions to the requirements of SOLAS chapter XI-2 and the ISPS Code to senior government officials
- There is a need to provide finance and technical assistance to comply with ISPS obligations.

2. Policy framework

At a regional level, Mozambique's transport policy is guided by AU, PMAESA, SADC, and SSATP. Some of these regional organizations provide policy guidelines for the transport sector, but they are broad and general guidelines that provide limited detailed direction for the development of a ports sector. At a national level, transport policy is developed by the Ministry of Transport and Communications, through a clear national transport policy document that serves as the basis for the ports policy in the country.

At a local level, the port authorities of the respective Mozambican ports should be responsible to transform policy into development plans for the specific ports in the country. Every port publishes its local port strategy, policy, or master plan. The publicly available documents that are used for this assessment are Economic Development Strategies for the Nacala Corridor; the Beira Master Plan; and the Port Maputo Master Plan.

Mozambique's national transport policy is documented in the 2009 ***Strategy for Integrated Transport System Development*** report. In it, the Government of Mozambique recognized the importance of developing a robust and solid infrastructure and transport system to support the future economic growth of the country. The national goals include:

- Reaching an integrated rational use of each mode of transport to reduce and contain transaction costs
- Developing the logistics chain and the multi- and inter-modal interactions
- Promoting national and regional development, unlocking mining, agriculture, and tourism.

The Government of Mozambique recognizes the need to realize trade growth prospects of the country, and the SADC and has been promoting the liberalization of the transport sector, the introduction of concession regimes for management of basic transport infrastructure and creating favorable conditions for PPPs. In this respect, Mozambique has realized some impressive achievements in the ports sector, including the privatization of its main ports. However, within the Trade and Transport Facilitation Audit of Mozambique (2004) it is mentioned that: "these trends of concessioning the main transport infrastructure network and privatizing transport services and operations are still being hampered by outdated legislation and regulations." (NEA Transport Research and Training, 2004). Hence, Mozambique still has to improve its legislation and regulatory framework with respect to the ports and transport sector.

Furthermore, the *Strategy for Integrated Transport System Development* recognizes that one of the problems connected to the high costs of port operations in Mozambique results from the incidence of customs taxes and procedures.

There is no knowledge on the existence of a publicly available national port policy, strategy, or master plan document. For all individual Mozambican ports, a local port study, port strategy, policy or master plans exists. Planning of the ports sector in Mozambique thus effectively happens on a local (port) level.

Local Port Policy – Nacala

The publicly available document on the local port policy in Nacala concerns the *Economic Development Strategies for the Nacala Corridor* (JICA, 2015c). On behalf of the Ministry of Economy and Finance of Mozambique, JICA completed their final study in April 2015. This report presents the opportunity of establishing a region-wide freight network that can be strengthened through the implementation of the planned infrastructure projects, as well as the wider corridor development strategies. In addition, the chance of private sector involvement opportunities in the agricultural, mining, and logistics sectors is investigated by the implementation of the corridor development strategies and planned infrastructure projects. The JICA study specifically focuses on the regional development of the international transport corridor as well as the program for strengthening multimodal transport functions, which is in line with both the regional and national transport policies.

On a regional level, the Brazilian FGV Projetos (a higher education institution) plans to start a global investment fund that aims to provide substantial capital investments for agricultural development in Africa. It has introduced the Nacala Corridor Fund with the goal to develop several integrated agricultural projects and related infrastructure developments in the Nacala Corridor (FGV Projetos, 2012). This initiative has the objective to support and improve the regional logistics infrastructure sector.

Local Port Policy – Beira

Two non-formal master plans were developed for the Port of Beira in the last few years: the Beira Master Plan prepared for the Government of the Netherlands regarding the cooperation between Mozambique and the investment opportunities for the Dutch private sector (Port Consultants Rotterdam, 2014), and a Port Master Plan for the Port of Beira prepared by a Masters student from the Technical University of Delft (van der Meer, 2013). Neither of these studies specifically focused on the port policy aspects, but rather on port

infrastructure development in relation to the competing ports and corridors.

Local Port Policy – Maputo

The Port of Maputo prepared the Port of Maputo Master Plan in June 2011, of which a presentation is made available by the Maputo Corridor Logistics Initiative (Maputo Corridor Logistics Initiative, 2017). In this presentation, the Port of Maputo mentions the main objective: to maximize the cargo flows by contributing to the logistics efficiency of port users. Within this master plan, a medium- to long-term time horizon is applied for future volumes, and various development requirements are indicated for additional terminal capacity in most cargo segments, as well as the deepening and rehabilitation of berths and dredging of the channel.

Mozambique's National Transport Policy and the separate ports' master plans reflect the following goals:

- **Economic growth**: The importance of maritime sector and port development as a driver and enabler of economic growth is marked in the Mozambique National Transport Policy. The Master Plan for the Port of Maputo acknowledges that to drive economic growth in Southern Africa and Mozambique, the limitations of access to the market for commodities and cargo should be removed.
- **Conditions of operation and management to enhance productivity:** The Mozambique National Transport Policy mentions that "operational costs must be reduced, and procedures should be simplified." It also states that ports "must urgently adapt to new methods of operating the cargo, with main objective of increasing the efficiency of operation and reduce permanence of ships on ports and maximizing its use." The Nacala Corridor Plan mentions that: "Due to the improvement of Nacala Corridor Railway and its operation, benefits, such as lower cargo transport costs, shorter delivery time and more reliable transport and lower risk of theft can be created."
- **Optimal utilization of existing facilities:** Within the presentation of the National Transport Strategy of the Mozambique Ministry of Transport and Communications it is stated that one of the challenges to materialize the new vision is to realize the: "rehabilitation and improvement of existing ports and of existing rail infrastructures". The Maputo Master Plan mentions requirements to increase port capacity by rehabilitating its berths and through dredging of the port to accommodate larger vessels.
- **Safety of shipping and navigation:** The National Transport Strategy document presents the objective to reduce the costs of import, export, and consumption. According to the strategy, the way to reach this objective is by restoring maritime cabotage and establishing water transport.
- **Inter-modal integration:** One of the main goals presented in the Mozambique National Transport Policy is to "bring in the multi- and intermodal interactions" as a strategy for the development of an integrated transport system. Moreover, the National Transport Policy states that an integrated rational use of each mode of transport is required to reduce and contain transaction costs.

Shortcomings of Mozambique's port sector policy:

- Some outdated policy and planning documents need an update: National Transport Strategy (2009, with an updated presentation of 2013), Maputo Master Plan (2011).
- In the available policy documents, there are presented clear timing requirements; however, these all concern outdated plans, most of which are already implemented. Hence, an update is required.
- There is a lack of sustainable development plans of ports toward its environment, which only exist on a high level. These documents hence do not present clear policy on boundaries or mitigating measures. With the substantial port development plans that are currently envisaged in Mozambique, this is regarded a major drawback of the country's port policy, and it is recommended that CFM and its partners include environmental standards in all port development plans.
- Corporate governance and structures of power in the ports sector are unclear in the available

policy documents. The National Transport Strategy document does not provide a separate section on the legal, regulatory, and institutional framework of the sector or a policy toward improving it. Therefore, a section on the division of tasks and responsibilities at an administrative level (Region/Nation/Port) is regarded to be required and included in the policy documents.

- There is a lack of financing principles included in the policy goals. It is unclear how CFM or the Government of Mozambique and its ministries aim to finance the proposed port investment plans that are listed in the different policy documents. By allocating the investments either to the central government, to CFM, to local public/private port authorities, to donor funding or to the private sector through PPPs, the government will get a clear view on the investment needs and responsibilities.
- There is a lack of guidance regarding the division of responsibilities of port development and port operations in the National policy documentation. CFM is a public company which oversees all Mozambican ports. However, for all the different ports, a different port development and operational structure is used. Some of the ports are already fully (Nacala) or partly (Maputo) privatized, and in others, CFM is shareholder at port operator level (Beira). It can be a strategic consideration for CFM to select on a case-by-case basis a different port development/operational structure, but it is regarded a necessity that CFM then provides this strategy in the policy documents. It is currently not clear why a different responsibility structure is selected for the different port projects.
- The National Transport Strategy document does not present criteria for investment decisions. It is unclear how investment decisions are validated by the government, and how a decision on whether to invest or not is made. A clear guideline with minimum requirements for government investments is regarded a necessity to ensure value for money for the government.
- There is a lack of principles for the development of legislation regarding the port and transport sector. The National Transport Strategy document states that for the materialization of its overall vision, the government should create a conducive environment for both investment in infrastructure, services and in terms of appropriate legislation. The actual principles for the development of legislation are hence unclear at the time of writing this report, and its existence should be clarified during the site visits to the ports. However, there are no detailed principles presented on how this should be done, or by which governmental bodies. Usually, policy is transferred into the legal domain by allocating responsibilities for policy measures toward specific government entities that have the task to formally implement the policies. It is therefore advised that responsibility of these National Transport Strategy projects is allocated to specific government entities.
- Mozambique has had a regulatory PPP framework in place since 1997. However, the framework needed to be strengthened markedly. Currently, Mozambique is being assisted by The World Bank's Public-Private Infrastructure Advisory Facility to efficiently strengthen the country's PPP framework.

3. Legal and regulatory framework

At an international level, Mozambique's legal and regulatory framework for the ports sector is guided by the IMO conventions that are not specific on port sector policies or operational implications. At a regional level, Mozambique's legal and regulatory framework for the ports sector is guided by the AU's Maritime Charter and SADC treaty. Further, on road/corridor level, Mozambique is a member of the Tripartite Transport & Transit Facilitation Program, which is designed to assist the continental countries of the Tripartite (COMESA, EAC, and SADC). The program's overall strategic objective is to facilitate the development of a more competitive, integrated,

and liberalized regional road transport market in the Tripartite region. Its purpose is to develop and implement harmonized road transport policies, laws, regulations, and standards for efficient cross-border road transport and transit networks, transport and logistics services, systems and procedures in the Tripartite region (SADC, 2017). At a national and local level, Mozambique's legal and regulatory framework for the ports sector is determined by the decree of establishment of CFM, the Public Enterprises Law and the PPP act.

A key multilateral agreement that is not fully adhered to by Mozambique is the SADC Protocol on Transport, Communications, and Meteorology which recommends harmonized tariff structures and regulation of charges to avoid monopolistic exploitation. This is currently not enabled through Mozambique's regulatory framework, as a ports tariff regulator is lacking.

The Mozambican Ports Sector currently lacks an entity in the ports and railway sector that regulates the activities of CFM and its concessions. A regulator is present in most main economic sectors in Mozambique, such as the energy sector, aviation sector, etc., however not in the port and transport sector. This poses a large problem for Mozambique, as tariffs are currently not regulated (potentially increasing total chain costs to the hinterland).

CFM Ports - Decree Nº 40/94 on 13 September 1994

CFM is a legally constituted Public Company with the responsibility to operate in the transport industry, the ports and railways sector, and to ensure the satisfaction of the needs of the populations in terms of mobility and movement, thus contributing towards the stabilization and the improvement of the country's balance of payments in addition to functioning as a promoter of employment. The transformation of the National Directorate of the Ports and Railways of Mozambique, a state company, into CFM through Decree Nº 40/94 on 13 September 1994 was its characteristic feature (Government of Mozambique, 1994). Article 3(1) of the decree provides for the list of powers of CFM, among which CFM is responsible for rail transport of passengers and goods and for the provision of port services. Furthermore, the decree states that CFM may sub-concession, create financial holdings, and form joint ventures, as long as this is authorized by the Ministers of Transport and Communications and Finance. Apart from these broad terms, the decree that established CFM does not present a high level of detail in terms of the responsibilities of CFM and its possibilities to sub-concession part of its activities. The clauses from Section 3(1) enable CFM to operate ports in any possible PPP structure.

Within the decree, reference is made to the Mozambique Public Enterprises Law no. 6/2012 on 8 February 2012. This law sets the possibilities for public companies to benefit from private funding: public companies can subscribe to the capital of existing companies or establishment of new business entities, as long as the subscription is approved by the minister who oversees the area of finance, after consultation with the minister or head of sector umbrella organization of the respective company.

The official Mozambican government bulletin of 3 December 2015 (Government of Mozambique, 2015) provides additional information on the recent legal status of the different port concessions in the country, based on CFM's mandate as per the Decree Nº 40/94 on 13 September 1994.

The Ministry of Transport provides a section on its website in which the requirements for private stevedores in the ports sector are listed (Mozambique Ministry of Transport and Communications, 2017). Based on these requirements, it can be concluded that it is possible for private operators to present unsolicited proposals to the Ministry of Transport regarding terminal operations that need to be evaluated within thirty days after application. It is not entirely clear how this process works in practice, as it is impossible to evaluate an unsolicited proposal within thirty days, and Mozambique's PPP Act does not allow for direct implementation of unsolicited proposals under Article 13 (5).

Mozambique PPP Act

This assessment is based on the preliminary version of the Mozambique Regulation of the Law on PPPs and mega projects of April 27,2010, Maputo, and a translated version of the act as provided by a Mozambican law firm (SAL &

Caldeira Advogados Lda, 2011). In accordance with the objective of the PPP Chapter 1 Act, of Art. 2, this PPP Act establishes the rules and procedures with respect to PPPs and other forms of business licenses for mega projects. In addition, the PPP Act provides the institutional framework and possibilities of intervention of state institutions in the realization process, investment monitoring, guidance, control, and monitoring of the development process, operations, management and maintenance of these projects. The PPP Act applies to the business nature hiring process at central, provincial, district, and municipal levels, for the following types of developments:

- PPPs, regardless of the contractual form
- Mega-Projects benefiting from tax incentives or some concession for exploration and/or exploitation of mineral resources, oil, and other natural resources
- Other projects carried out under business lease for the use or exploitation of property, assets, or economic or social activity of the public domain area.

The PPP Act clearly states the duration for each of the type of PPP contracts with respect to the expected return on invested capital of the project, for example, in a project in which the private party invested capital. These fixed ranges are also defined for forms of PPPs without invested capital by the private party, but in relation to operational or management contracts.

Finally, Chapter 3 of the PPP Act describes the roles of the responsible Ministries (Transport & Finance):

- **Art. 6:** Specific sector protection by the implementation of a PPP, which in the case of the ports sector is attributed to the Ministry of Transport and Communications.
- **Art. 7:** The financial supervision over PPP projects or mega projects, which in the case of the Ports sector is attributed to the Ministry of Finance.
- **Art. 8:** The technical functions of financial supervision and the provision of assistance to the authorities responsible for sectoral and financial guardianships are held by the Public-Private-Partnerships and Mega-Projects Unit (the PPP Unit).
- **Art. 9:** Describes that in addition to the functions of the sectoral and financial guardianship as referred to Art. 6 and Art. 7 of this Regulation, the regulatory authority of the project area (with respect to ports, the Ministry of Transport and Communications) has the responsibility, technical function, and powers to ensure the full compliance with the obligations contractually assumed by the parties and compliance with laws, rules, standards, specifications, and levels of investment, production and / or services and their marketing for the respective developments.
- **Art. 10:** The autonomous business entity implementing and/or managing each agreed project between the contracting parties must take the form of public limited company, be incorporated and registered under the relevant applicable law, having its own legal capacity and lasting for the project duration time; and be legally liable for its acts or omissions, and the acts and omissions of its governing bodies and representatives in any of the phases inherent in applying the process of this enterprise's operations.

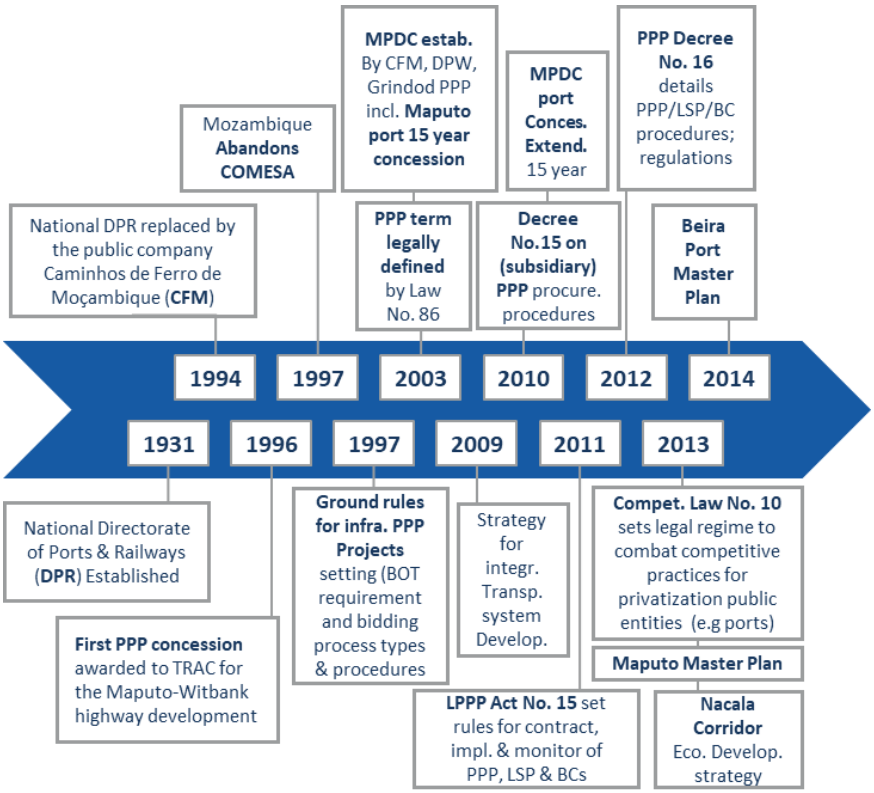
Shortcomings of Mozambique's port sector legal and regulatory framework:

- CFM's legal and regulatory mandate is defined in very broad, general terms: it is not clear which roles and responsibilities shall remain with the public sector. This has caused serious issues in former and existing concessions where the responsibilities were not clearly defined. It is recommended that the legal and regulatory mandate of CFM in the ports sector is redefined using modern, internationally recognized practices. The way to do so could be through a team of international legal experts in the ports sector that, jointly with CFM's legal division and the Mozambican Ministry of Transport, redefine the mandate of CFM into narrower and more concrete terms. Roles and responsibilities of different entities shall be clearly defined, and the options to enter PPPs shall also be part of this mandate.
- There is no regulator in the ports and railway sector that regulates the activities of CFM and its concessions (and no financing principles for a ports sector regulator have been

defined). This poses a large problem for Mozambique, as tariffs are currently not regulated (potentially increasing total chain costs to the hinterland). It is therefore recommended that Mozambique engages an independent regulator that checks the port authority in terms of tariff setting.

According to MPDC, there are several port concessions operating that have been signed prior to the approval of the official PPP law. This means that these concessions need to be reconsidered. There is a need for a national port master plan in Mozambique that considers port development from an overarching, country-wide perspective. A key issue in Mozambique's PPP sector is the fact that there is no regulator present for the ports sector. All ports are managed under (different) PPP structures, but there is no independent government authority in place that regulates and checks tariffs, safety, and security. Tariffs in the Port of Maputo are regulated by the MPDC tariff committee. This is not an independent entity, as it its members are all MPDC employees. This can lead to excessive pricing and excessive profits for MPDC or its concessionaires. Safety and security regulations are monitored by national health and safety boards, and the proper adherence to environmental laws and guidelines is monitored by the Ministry of Environment.

Figure 41: Evolution of the Legal and Regulatory Framework in Mozambique



Port tariffs

The only publicly available source that is available regarding Nacala's port tariffs is the PdN Tariff Book (Portos do Norte S.A. , 2015). The PDN tariff book is largely complete in terms of the tariffs it considers. The main tariff that is currently lacking concerns handling tariffs of the privately-operated dry bulk (coal) export facility of Vale, located on the west side of the Nacala Bay.

The sole publicly available source on Beira's port tariffs is the Port of Beira Additional Information clause (World Food Programme , 2009). The

published tariffs are largely complete, in terms of the type of tariffs it considers, excepting lighthouse dues, wharfage, and berthing dues, which are missing.

There are two publicly available sources regarding port tariffs at the Port of Maputo: the MPDC's tariff book (Maputo Port Development Company, 2015), applicable for the port's marine charges and the DPW container terminal charges applied in the Port of Maputo (DP World, 2016). The MPDC tariffs applied in combination with the DPW tariff book are largely complete in terms of the tariffs considered. However, the Maputo tariff book does not include a charge on Wharfage, and no gate-handling fees are listed in the DPW Tariff Book for the Port of Maputo.

The current port tariff structure in Nacala lacks many of the preferred tariff structures that are typically charged to earn back certain infrastructure investments, especially on the vessel charge category, such as port dues and berthing dues. In addition, the vessel charges applied lack the connection to vessel dimensions, resulting in the same charge for either small or large vessels. Moreover, the pilotage dues and mooring/unmooring dues are combined in one single charge, which does not provide the opportunity of having a vessel berthing alongside the quay without the use of a pilot. This implies that any vessel that enters the Port of Nacala requires to be guided by a pilot. Finally, the towage charge is not linked to any kind of vessel dimension but is based on a single charge per tug-master per hour. Hence, the Nacala tariff book can still be substantially improved based on the arguments provided above.

Notable shortcomings in the tariff structure at Beira relate to the fact that most of the charges are not connected to the characteristics or dimensions of the vessels (GRT/LOA/GT/etc.). Hence, the Beira tariff book can still be substantially improved:

- Port dues are based on a fixed amount per vessel and are not linked to the vessel dimensions.
- Towage is charged per hour, irrespective of the number of tug required for the operation.
- Mooring operations are charged a fixed fee and do not have any connection with vessel dimensions.
- The cargo handling costs consist of multiple elements, including the equipment charge, the stevedoring charge, and a terminal charge. The different charges might overlap between the cargo handling costs and vessel handling costs.
- The Beira tariff book does not include light(house) dues, berthing dues or a gate-handling fee.

Port tariff structure at the Port of Maputo is more consistent with best practice, as compared to the structures at Nacala and Beira. However, some notable shortcomings in the tariff book are as follows:

- The port dues are based on two categories, vessels >500 GRT and vessels < 500 GRT.
- The marine service tariff book of the MPDC includes a government charge (INAHINA) of US$0.232 per GRT per entry, which is an uncommon charge in the preferred structure.
- ISPS security charge is added to the tariff book of US$150 (inwards only).
- A dredging fund charge is applied for vessels >5,000 GRT of US$810 (inwards only).
- A channel fee is applied for vessels of US$0.40 per GRT (inwards only).

4. Port description

Nacala, Beira, and Maputo are the three main ports of Mozambique, with Maputo being the largest port. Hinterland markets for the Port of Nacala include northern Mozambique, Malawi, and Zambia, whereas Beira is strategically located to also serve those markets and Zimbabwe as well. With its location in the southern part of Mozambique, Maputo's hinterland includes the southern part of Mozambique, the northern provinces of South Africa, and Swaziland.

The Port of Nacala is in the north of Mozambique and is the largest natural deep-water port on the eastern coast of Africa. Due to its deep water, the port has no restrictions in terms of ship movement or ship size. The port is strategically located to

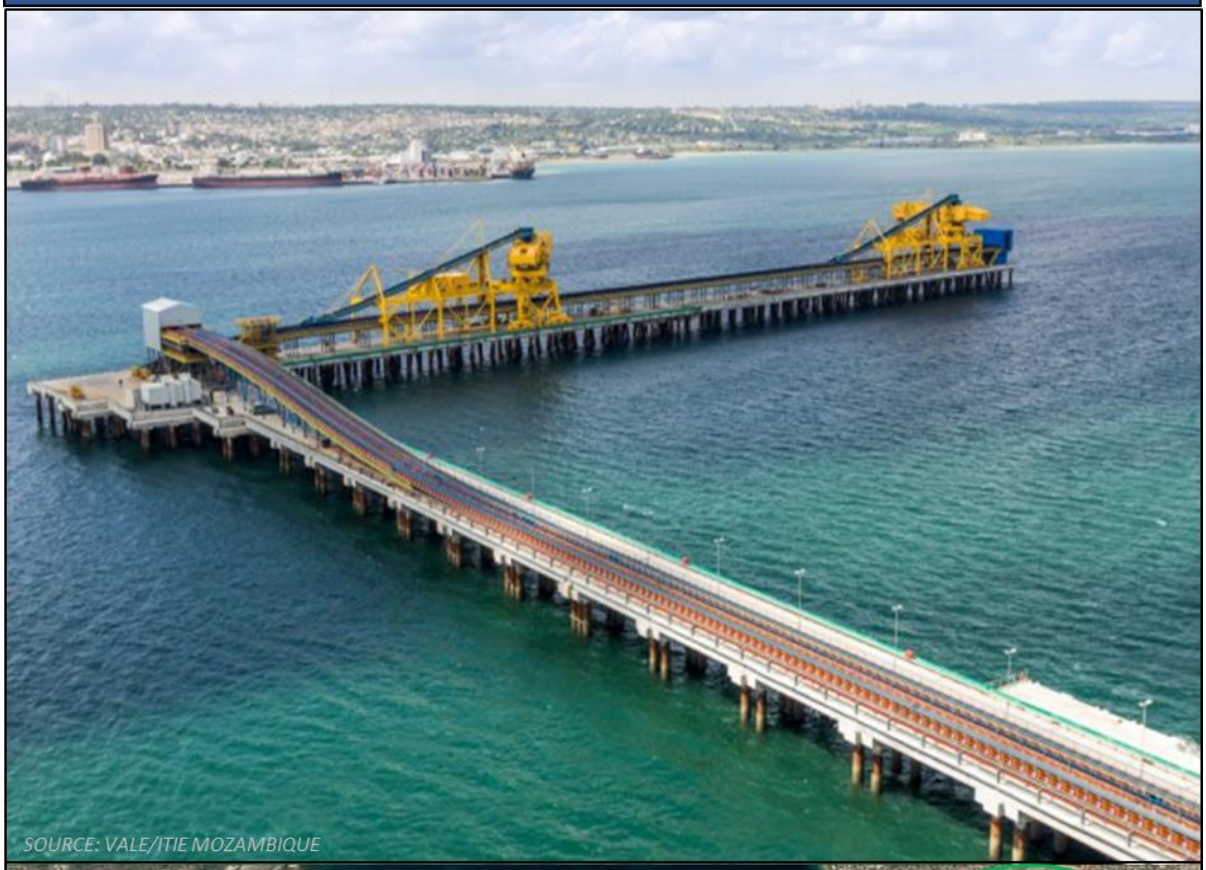
serve the province of Nampula and is the main node in the "Nacala Corridor", which connects Nacala to the countries of Malawi and Zambia. The first phase of the rehabilitation project was completed in September 2015 and consisted of repairing berths 3 and 4, upgrading the liquid bulk terminal, and upgrading container operations with RTGs.

The second phase started in 2017 and comprises the extension of a dedicated container berth, installation of two STS gantry cranes, and six additional RTGs. Other developments include the construction of a new coal-handling port, situated across from the Port of Nacala, which is dedicated to the export of coal to markets in Asia, Europe, and Brazil. This port falls outside the concession granted to PdN.

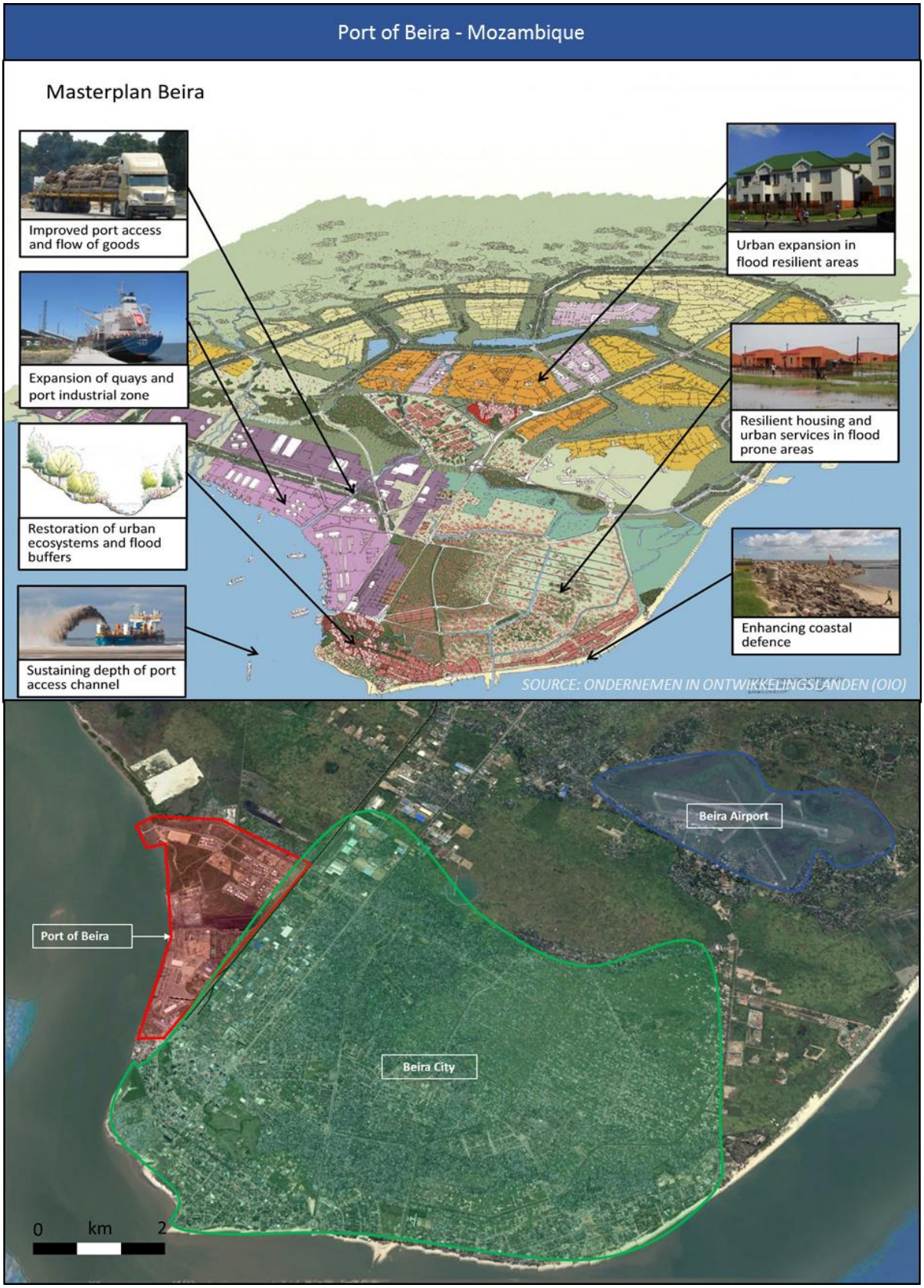
The Port of Beira is located on the mouth of the Pungue River, approximately 20 km from open sea. With is central location in Mozambique, Beira has a large hinterland comprising Zimbabwe, Malawi, and Zambia. Beira is the second-largest port in Mozambique, after the Port of Maputo. The Port of Beira is connected to its hinterland via the Beira Agricultural Growth Corridor, which aims to promote increased investment in commercial agriculture and agribusiness in the hinterland. Beira used to serve as the port for the export of coal from Tete province in Mozambique. However, due to the new railway connection between the coal mines in the Tete province and the Port of Nacala, and the draught restrictions, coal handling is expected to decrease significantly. The port suffers from shallow waters, due to heavy siltation and shifting sandbanks, making it difficult for large vessels to enter the port. As a result of this, Vale had two barges specifically made for the coals exports from the Port of Beira which transported the coal to a larger (Panamax) vessel waiting at anchorage outside the port.

The Port of Maputo is in the southern part of Mozambique, 120 km from the South African border. It is the largest port in Mozambique, and Maputo is also the capital and most populous city of the country. The port has two main terminals: the Maputo Cargo Terminals, which includes the container terminal, and the Matola Bulk Terminals, situated 6 km further upstream in Maputo Bay, and including coal, grain, and aluminum terminals. Transit cargo is mainly destined for South Africa, Botswana, and Zimbabwe. The port has experienced a large growth in throughput, with volumes having more than doubled in 5 years, from 8 million tons to some 19 million tons in 2014. However, in recent years, growth has stalled, and total throughput dropped to 15 million tons of cargo in 2016. Ambitions are set high, with the port aiming to handle 40 million tons by 2020. To realize this, the port has a master plan in place.

Port of Nacala - Mozambique



SOURCE: VALE/ITIE MOZAMBIQUE


Port of Beira - Mozambique
Masterplan Beira
Improved port access and flow of goods
Expansion of quays and port industrial zone
Restoration of urban ecosystems and flood buffers
Sustaining depth of port access channel
Urban expansion in flood resilient areas
Resilient housing and urban services in flood prone areas
Enhancing coastal defence
SOURCE: ONDERNEMEN IN ONTWIKKELINGSLANDEN (OIO)
Beira Airport
Port of Beira
Beira City
0
km
2

Port of Maputo - Mozambique

SOURCE: PORT OF MAPUTO

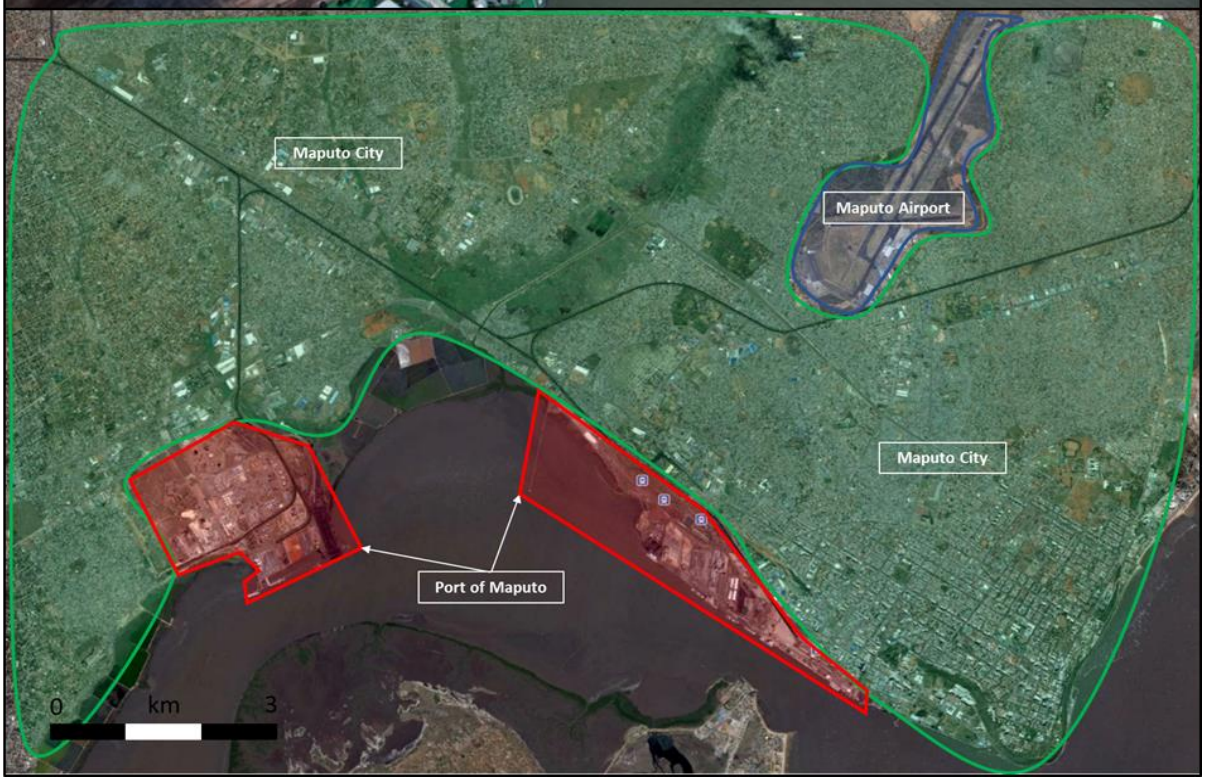


Table 47: Performance Indicators - Port of Nacala

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	3.04	1.71	1.80	2.57	1.67
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	191		6,263		
Port area productivity	ton/ha			87,341		
Container dwell time	days	13.00	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	0.67	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	4.86	4.27	n/a	4.32	3.38

Source: MTBS, PdN

Table 48: Performance Indicators - Port of Beira

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	1.69	3.83	2.01	3.32	0.95
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	306		6,748		
Port area productivity	ton/ha			35,328		
Container dwell time	days	-	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	n/a	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	4.47	4.55	n/a	4.13	2.87

Source: MTBS, CdM

Table 49: Performance Indicators - Port of Maputo

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	0.81	2.17	0.10	1.78	0.35
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	316		4,113		
Port area productivity	ton/ha			57,409		
Container dwell time	days	-	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	2.25	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	5.00	5.00	n/a	4.32	3.31

Source: MTBS, MPDC

Table 50: Berth Characteristics – Port of Nacala

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
No 1 - 2	Container Terminal	Portos do Norte SA	372	14.0	Containers	9.2	2x RTG 11x RS (42-45t)	CTS (5,722 TEU)
No 4	Nacala Oil Terminal	CFM & CdN	190	9.5	Clean products, aviation fuel, crude products, vegetable oils, and dirty products.	5.7		Vegetable oil tank (2,400t) 3.5km pipeline
No 1 - 3	North Quay	Portos do Norte SA	610	7.5-9.5	General cargo, containers, grain, and fertilizers.	20.0	5 bulk hoppers	WH (1.2ha)
Coal berth	Nacala-a-Velha	Vale	435	-	Coal	61.8		

Table 51: Berth Characteristics – Port of Beira

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
No 01	Fishing Terminal	Port of Beira	174	8.0	Fishing	1.4		CS (490t)
No 02 - 05	Container Terminal	CdM	644	8.4	Container, vehicle, and general cargo.	32.3	4x STS (50t) 8x RS (16-28t)	WH (1.2ha) CTS (15ha) CS (1,100t)
No 06 - 07	Conventional Terminal	CdM	316	8.0	General cargo and refrigerated cargo.	31.1	25x Electric cranes (3-20t)	
No 08	TCC8 Coal Terminal	Nectar Coal Handling	165	7.5	Coal	19.6	Conveyor belts	OS (15ha)
No 09 - 10	Beira Grain Terminal	Seaboard Overseas & Trading Group	370	7.1	Grains	2.2		Grain silos (50,000t)
No 11	Beira Oil and Gas Terminal	CFM	-	-	Tanker berth: Berth No 11 can accommodate tankers up to 20,000DWT, and is fitted with pipelines for refined products. Berthing is not always possible due to strong tidal currents.	1.6		
No 12	Beira Oil and Gas Terminal	CFM	264	10.0	Diesel, petrol, jet avgas, fuel oil, edible oil, and LPG.	182.0		

Source: IHS Fairplay, 2017

Table 52: Berth Characteristics – Port of Maputo

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
1-2	Coastal/Cruise Terminal	Terminal de Cabotagem de Maputo SA	313	7.5 - 8.0	Coastal traffic.	2.5		WH(0.5ha) OS (1.5ha)
3-5	Maputo Car/General Cargo Terminal	Grindrod Mozambique Limitada (GML) / MPDC	677	9.0 - 12.0	Multipurpose Ro-Ro, project cargo, and Cruise).	3.6		Parking bays (4,158)
6-7	Molasses Terminal	AGRIMOL	380	9.0 - 11.0	Multipurpose (Ro-Ro, project cargo, and general cargo).	2.5		WH(2ha)
8	Citrus Terminal	MPDC	200	11.0	General cargo and coastal traffic.	1.0		WH (1.4ha)
9	Bulk Sugar Terminal	Ociedade Terminal de Açucar de Maputo (STAM)	200	-	Sugar.	5.8	Bulk ship loaders conveyors	WH (5ha/175,000t)
10-11	India Terminal	MPDC	360	11.5	Mineral ores, breakbulk, and project cargo.	25.0		WH(5,000t) Grain silos (25,000t)
14	DP World Maputo	DP World	308	12.5	Containers.	15.0	3x MHC 6x RTG 8x RS	CTS (7ha)
15	ACO	MPDC	185	11.0	General cargo, minerals, gypsum, and clinker.	1.0		
16	ACO	MPDC	172	12.0	Vegetable oil.	1.0		Storage tanks (10,000m^3)
Matola Coal Terminal	Matola Bulk Terminals	Grindrod Mozambique Limitada (GML)	220	11.0	Coal.	22.0		Silos (25,000t) OS (9.5ha)
Mozal Terminal	Matola Bulk Terminals	Mozal Aluminium	230	-	Aluminium.	2.0		
P3 Oil Terminal	Matola Bulk Terminals	Maputo Liquids Storage Company (MLSC)	56	10.5	Clean products and aviation fuel.	n/a		
Stema Grain Terminal	Matola Bulk Terminals	Silos e Terminal Graneleiro da Matola SA (STEMA)	300	12.6	Grains.	2.0		

Source: IHS Fairplay, 2017

Table 53: Throughput and Capacity - Port of Nacala

Type	Unit	Throughput (2016)	Capacity	Utilization
Nacala Port				
Containers	TEU	71,142	180,000	39.52 percent
Liquid Bulk	ton	510,559	1,600,000	31.91 percent
Multi-purpose	ton	923,903	2,400,000	38.50 percent
Coal Terminal				
Nacala-a-Velha Coal Terminal	ton	6,300,000	18,000,000	35.00 percent

Source: Portos do Norte

Table 54: Port Volumes - Detailed - Port of Nacala

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	61,223	78,249	90,699	75,130	66,392
	Transit	TEU	3,940	4,559	6,382	4,287	4,750
	Transshipment	TEU	-	-	-	-	-
	Subtotal	**TEU**	**65,163**	**82,808**	**97,081**	**79,417**	**71,142**
General Cargo	Domestic	ton	359,833	557,793	617,219	474,279	475,300
	Transit	ton	58,091	90,050	99,644	76,568	76,732
	Subtotal	**ton**	**417,924**	**647,843**	**716,863**	**550,847**	**552,032**
Dry Bulk	Domestic	ton	240,892	373,418	413,201	317,509	6,618,192
	Transit	ton	38,890	60,285	66,707	51,259	51,369
	Subtotal	**ton**	**279,782**	**433,702**	**479,908**	**368,768**	**6,669,561**
Liquid Bulk	Domestic	ton	316,255	339,492	419,419	385,170	403,897
	Transit	ton	2,600	-	2,285	500	106,662
	Subtotal	**ton**	**318,855**	**339,492**	**421,704**	**385,670**	**510,559**
Ro-Ro	Domestic	ton	1,749	2,711	2,999	2,305	2,310
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**1,749**	**2,711**	**2,999**	**2,305**	**2,310**

Source: Portos do Norte

Table 55: Throughput and Capacity - Port of Beira

Type	Unit	Throughput (2016)	Capacity	Utilization
Beira Port				
Containers	TEU	197,183	400,000	49.30 percent
Multi-purpose	ton	1,924,293	2,300,000	83.66 percent
Beira Grain Terminal				
Grains	ton	386,504	500,000	77.30 percent
Liquid Bulk Terminal				
Beira Oil and Gas Terminal	ton	2,800,000	2,500,000	112.00 percent

Coal Terminal				
TCC8 Coal Terminal	ton	2,413,492	6,000,000	40.22 percent

Source: CdM

Table 56: Port Volumes - Detailed - Port of Beira

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	86,217	136,701	149,627	151,130	133,068
	Transit	TEU	84,433	47,800	57,569	60,241	64,115
	Transshipment	TEU	-	-	-	-	-
	Subtotal	**TEU**	**170,650**	**184,501**	**207,196**	**211,371**	**197,183**
General	Domestic	ton	201,149	259,734	347,516	298,623	241,289
Cargo	Transit	ton	268,443	300,271	235,058	338,758	330,026
	Subtotal	**ton**	**469,591**	**560,004**	**582,574**	**637,380**	**571,315**
Dry Bulk	Domestic	ton	3,037,941	4,585,065	5,680,379	5,781,338	3,137,359
	Transit	ton	805,328	900,812	705,174	1,016,273	990,079
	Subtotal	**ton**	**3,843,268**	**5,485,876**	**6,385,553**	**6,797,611**	**4,127,438**
Liquid Bulk	Domestic	ton	383,333	507,353	551,617	586,275	631,373
	Transit	ton	1,316,667	1,742,647	1,894,683	2,013,725	2,168,627
	Subtotal	**ton**	**1,700,000**	**2,250,000**	**2,446,300**	**2,600,000**	**2,800,000**
Ro-Ro	Domestic	ton	-	-	5,815	29,358	25,536
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**-**	-	**5,815**	**29,358**	**25,536**

Source: CdM

Table 57: Throughput and Capacity - Port of Maputo

Type	Unit	Throughput (2016)	Capacity	Utilization
Maputo Port				
Containers	TEU	97,352	150,000	64.90 percent
General Cargo	ton	498,226	3,000,000	16.61 percent
Dry Bulk	ton	5,887,371	4,000,000	147.18 percent
Liquid Bulk	ton	83,113	200,000	41.56 percent
Ro-Ro	ton	25,673	172,500	14.88 percent
Matola Bulk Terminals				
Coal Terminal	ton	3,966,126	7,500,000	52.88 percent
Petroleum Terminal	ton	1,244,547	5,000,000	24.89 percent
Mozal Terminal	ton	1,840,134	1,960,000	93.88 percent
Grain Terminal	ton	n/a*	250,000	n/a

Source: Maputo Port Development Company *included in the received dry bulk volumes.

Table 58: Port Volumes - Detailed - Port of Maputo

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	77,991	99,198	106,474	97,345	77,871
	Transit	TEU	10,031	12,131	16,195	17,490	13,384
	Transshipment	TEU	298	6	2,087	8,658	6,097
	Subtotal	**TEU**	**88,320**	**111,335**	**124,756**	**123,493**	**97,352**
General	Domestic	ton	571,042	963,007	269,340	900,476	498,226
Cargo	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**571,042**	**963,007**	**269,340**	**900,476**	**498,226**
Dry Bulk	Domestic	ton	5,699,329	6,144,355	7,249,157	5,377,038	5,262,134
	Transit	ton	6,965,846	7,509,767	8,860,081	6,571,935	6,431,497
	Subtotal	**ton**	**12,665,175**	**13,654,122**	**16,109,239**	**11,948,973**	**11,693,631**
Liquid Bulk	Domestic	ton	582,847	597,487	799,734	798,123	1,128,511
	Transit	ton	102,855	105,439	141,130	140,845	199,149
	Subtotal	**ton**	**685,702**	**702,926**	**940,864**	**938,968**	**1,327,660**
Ro-Ro	Domestic	ton	109,304	145,739	96,254	59,741	25,673
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**109,304**	**145,739**	**96,254**	**59,741**	**25,673**

Source: MPDC

Volume forecasts

Port of Nacala

Transit Shares: The Port of Nacala is a gateway and exit port for the countries Mozambique and Malawi. The port functions as the main node in the Nacala Corridor. In 2016, the port statistics received from Portos do Norte show that a small volume of Zimbabwean cargo was handled as well. Most of the port's throughput is destined for or originating from Mozambique. The remaining 6.1 percent was handled for Malawi. Transshipment activities in the port are limited. The recently constructed coal terminal on the opposite side of the bay from the port, is an important factor for the dominating volumes of Mozambique. The coal terminal in Nacala-a-Velha is connected via a rail line to the coal mines in the Tete region in Mozambique.

Hinterland Volume Shares: The Port of Nacala handled approximately 20 percent of the Mozambican cargo in 2016. The port faces competition from Mozambique's other ports Maputo and Beira, as well as from the Port of Durban, which handled cargo destined for the southern provinces of Mozambique. In addition to these domestic volumes, the Port of Nacala handled 17.0 percent of Malawi's cargo (Cross Border Road Transport Agency, 2016). Zambian and Zimbabwean cargo handled by the Port of Nacala is minimal, with the majority passing through the ports of Dar es Salaam, Durban, and Beira (Evidence on Demand, 2015).

Future Competitive Environment: Two important development projects influence the future competitive environment of the Port of Nacala. Most importantly, the construction of a new coal terminal in Nacala-a-Velha, situated on the opposite side of the bay from the existing Port of Nacala, and the construction of a new railway connecting the terminal to the coalmines in the Tete province, are expected to increase coal exports via the Port of Nacala significantly. Especially since Brazilian mining company Vale invested in the construction of the new railway and terminal, Vale's coal volumes are expected to shift entirely to Nacala's new coal terminal (Macauhub, 2017b) from Beira.

A second important development project affecting the competitive position of Nacala is the construction of a new stretch of railway from Serenje to Chipata, facilitating the trade from east Zambia via the Nacala Corridor (Portos do Norte, 2017b). Lastly, the port's own rehabilitation and expansion project is expected to benefit the port's

market position relative to the ports of Beira and Maputo in the south and the Port of Dar es Salaam in the north.

Volume Projections: The volumes handled in the Port of Nacala are expected to increase from 8.4 million tons in 2016 to 33.5 million ton in 2050, characterized by a steep ramp-up of dry bulk export volumes (coal) between 2017 and 2022 (Figure 42). The newly constructed railway has the capacity to transport 22 million tons per year, of which 18 million ton is reserved for coal exports (Club of Mozambique, 2017c). With all mining, transport, and terminal handling infrastructure in place, the forecast assumed that the maximum capacity was reached in 2018. Containerized cargo is expected to be the second largest cargo type in 2050 with 21.2 percent of total volumes, followed by liquid bulk with 6.5 percent (Figures 43 and 44). Total volumes are expected to increase with a CAGR of 8.3 percent in the period 2016–2030, 1.4 percent in the period 2030–2040, and 1.2 percent in the period 2040–2050.

Figure 42: Base Case Volume Projections - Port of Nacala

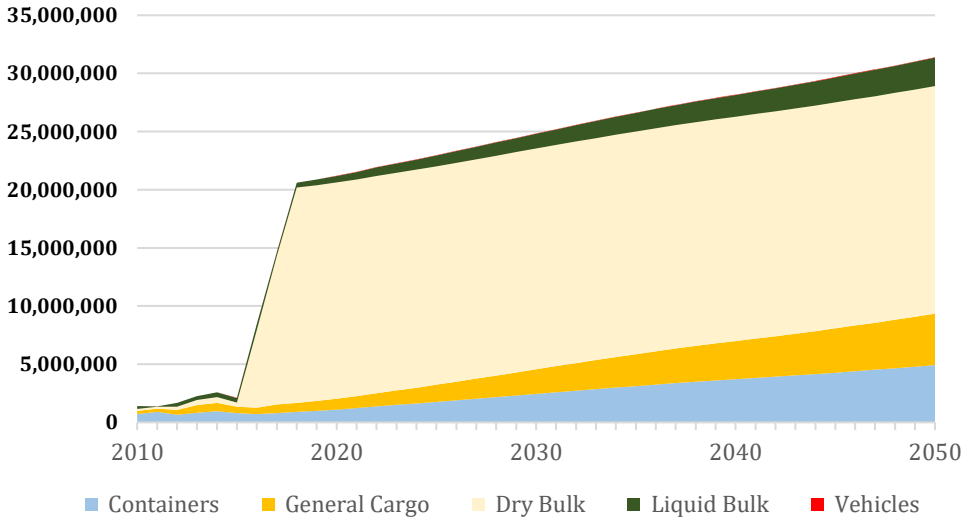


Table 59: Demand projections – Port of Nacala

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	803	891	993	1,108	1,233	1,385	1,506	1,633	1,763	2,448	3,119	3,703	4,272	4,928
General Cargo	722	780	846	924	1,008	1,118	1,231	1,349	1,471	2,118	2,747	3,288	3,810	4,414
Dry Bulk	12,802	18,528	18,557	18,590	18,625	18,667	18,706	18,746	18,785	18,978	19,150	19,292	19,424	19,571
Liquid Bulk	344	407	478	558	645	747	807	870	934	1,268	1,593	1,872	2,142	2,450
Vehicles	9	12	15	18	20	23	24	24	25	24	25	26	28	29
Total	**14,681**	**20,618**	**20,890**	**21,198**	**21,531**	**21,940**	**22,275**	**22,621**	**22,978**	**24,837**	**26,635**	**28,181**	**29,676**	**31,392**

Due to the port's favorable location to Malawi and Zambia, the MS Shift case assumes the Nacala is able to increase its market share over time to these land-locked countries. It is assumed that Nacala increases its market share in Malawi from 17 percent to 50 percent and in Zambia from 10 percent to 30 percent.

Figure 43: Nacala Demand Forecast – Containers

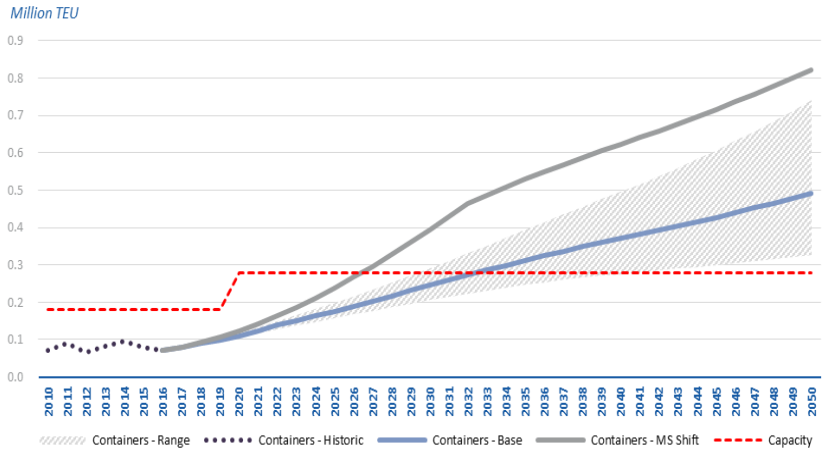
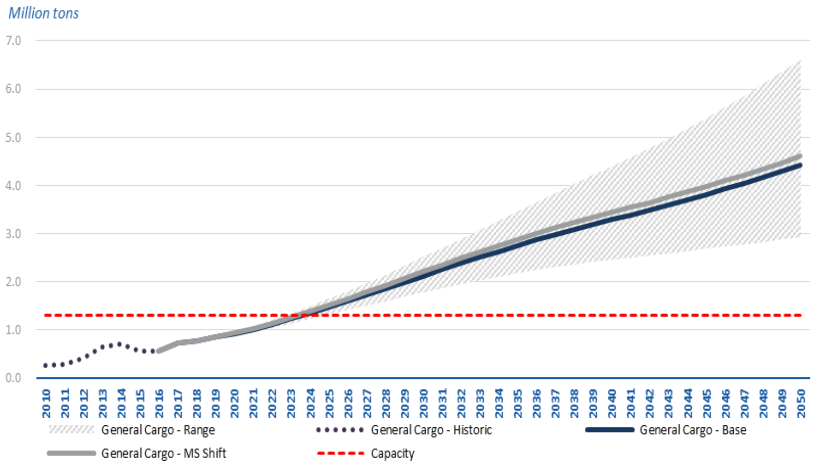


Figure 44: Nacala Demand Forecast – General Cargo

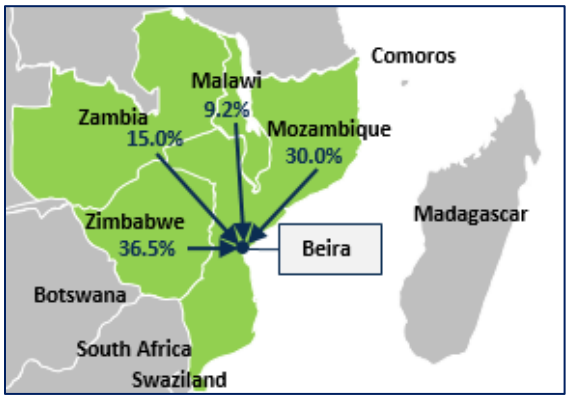


Port of Beira

Transit Shares: Beira is one of the three main ports of Mozambique, and serves the landlocked countries of Malawi, Zambia, and Zimbabwe. In addition to these hinterland markets, minor volumes are also handled for the DRC and Botswana, though these are negligible. In 2016, 43.4 percent of the total volume handled by Beira was domestic to and from Mozambique. Beira's largest transit partner is Zimbabwe, representing 29.3 percent of the volume handled. This large share is due mainly to the oil imports via the Beira-Feruka oil pipeline, connecting Mutare and Harare with Beira. Additionally, 18.6 percent of Beira's port volumes were handled for Malawi, with 8.5 percent of the total volumes in Beira destined for or originating from Zambia.

Hinterland Volume Shares: The Port of Beira has a market share of approximately 40 percent in Mozambique, though the market share by cargo type fluctuates between 20 and 50 percent. The port's market share is based on historical throughput of all ports serving Mozambique and the average share the different ports have in these volumes (Figure 45).

Figure 45: Beira's Hinterland Country Volumes, 2016



Moreover, Beira is the main gateway port for approximately 36.5 percent of the domestic volume demand of Zimbabwe, with another 45 percent handled by the Port of Durban, 10 percent handled by the Port of Maputo, and the remaining share handled by the Port of Walvis Bay (JICA, 2015b). Zambian transit volumes moved through the Port of Beira represented 15.0 percent of the national volume demand of Zambia, with the remaining share handled by the ports of Dar es Salaam (50 percent), Durban (33 percent), and Walvis Bay (2 percent). Lastly, the Port of Beira handled 9.2 percent of Malawi's volumes, which is calculated based on transit statistics in the Port of Beira and the national volume projection of the country itself.

Future Competitive Environment: With the opening of the new coal terminal in Nacala-a-Velha, Beira is expected to lose most of the coal volume shipped by Vale via Beira. However, in August 2017, the Government of Mozambique announced a 30-year concession deal with Essar Ports for the development of a new coal terminal at Beira port, as part of a public–private partnership project. The joint venture between Essar Ports, which will own 70 percent, and Portos e Caminhos de Ferro de Mocambique, which will own 30 percent, will enhance coal handling capacity by 20M ton per year (Further Africa, 2017). However, competition is expected to intensify with the construction of a third route for exporting coal from the Moatize mines in Tete province. This plan entails the construction of a deep-water port in the Macuse area, connected via a 500-km railway to the mining sites in the Tete province. In addition to the railway being considerably shorter in length, the new Port in Macuse will have the advantage to berth ships of up to 80,000 DWT; significantly larger than the ships that can dock the Port of Beira (Club of Mozambique, 2017b).

Volume Projections: The volumes handled in the Port of Beira are expected to increase from 9.5 million tons in 2016 to 35.5 million tons in 2050. The port's volatile growth pattern is explained due to the growth of coal volumes in the Port of Beira between 2011 and 2015, increasing from 0.2 million to 4.9 million tons in 2015. With the opening of the Nacala-a-Velha terminal, coal exports via the Port of Beira decreased to 2.4 million tons in 2017 and an estimated 0.5 million tons in 2018. Between 2019 and 2021, the Essar coal terminal is being constructed. From 2022, it is expected that coal volumes grow again from 0.5 million tons to 10 million tons in three years, equal to the capacity envisioned by Essar Ports for phase one of the terminal. Coal export volumes are thereafter assumed to be 10 million tons per year, as phase two of the coal terminal is confirmed. The second largest commodity is projected to be liquid

bulk with a third of total port volumes in 2050. Total volumes are projected to increase with a CAGR of 6.8 percent in 2016–2030, 2.3 percent in 2030–2040, and 1.8 percent in 2040–2050 (Figure 46, Table 60).

Figure 46: Base Case Volume Projections - Port of Beira

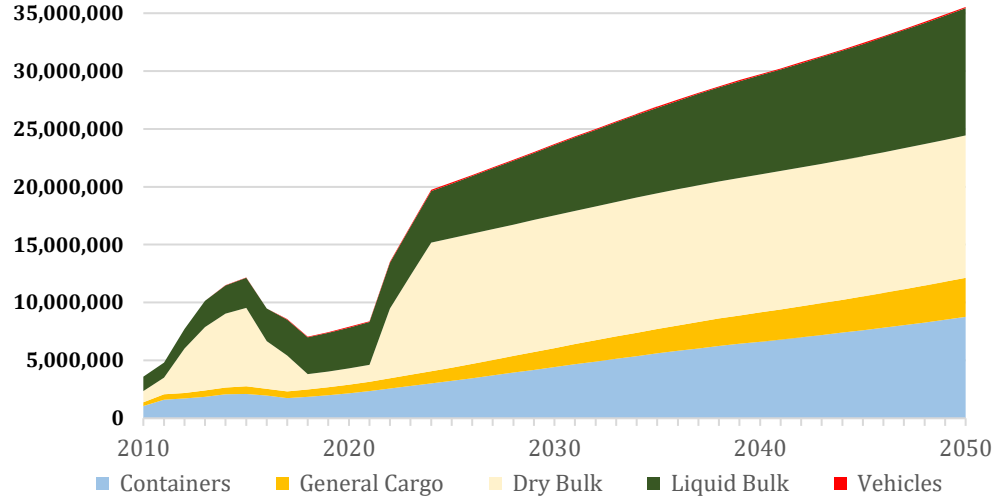


Table 60: Demand projections – Port of Beira

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	1,746	1,861	2,001	2,167	2,347	2,571	2,782	3,002	3,229	4,426	5,599	6,621	7,613	8,757
General Cargo	582	625	675	733	796	879	964	1,054	1,146	1,636	2,113	2,522	2,918	3,375
Dry Bulk	3,088	1,323	1,364	1,412	1,462	6,024	8,580	11,137	11,194	11,473	11,719	11,921	12,109	12,317
Liquid Bulk	3,098	3,190	3,333	3,518	3,715	3,960	4,201	4,451	4,708	6,066	7,398	8,564	9,696	10,990
Vehicles	49	45	59	69	71	81	84	86	89	86	89	90	96	99
Total	**8,562**	**7,044**	**7,432**	**7,898**	**8,391**	**13,515**	**16,612**	**19,730**	**20,367**	**23,686**	**26,918**	**29,718**	**32,432**	**35,537**

Due to the port's favorable location for trade with Malawi, Zambia, and Zimbabwe; the MS Shift case assumes the Beira is able to increase its market share over time to these land-locked countries. In particular, it is assumed that the Port of Beira increases its market share in Malawi from 9 percent to 50 percent, in Zambia from 15 percent to 30 percent, and in Zimbabwe from 36.5 percent to 80 percent (Figures 47 and 48).

Figure 47: Beira Demand Forecast – Containers

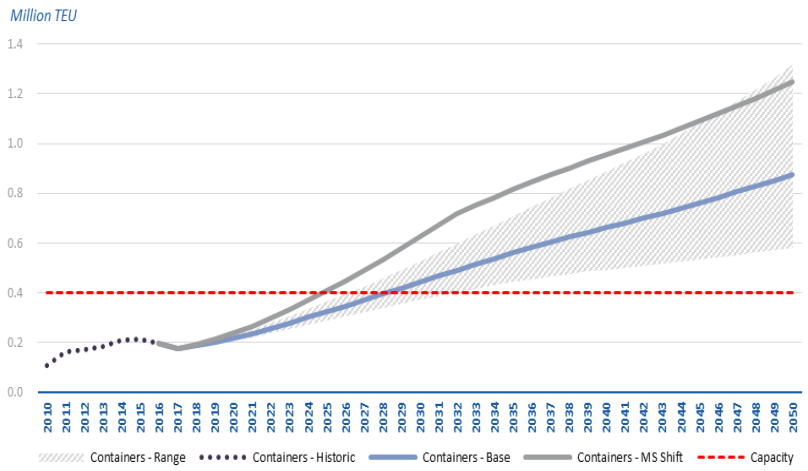
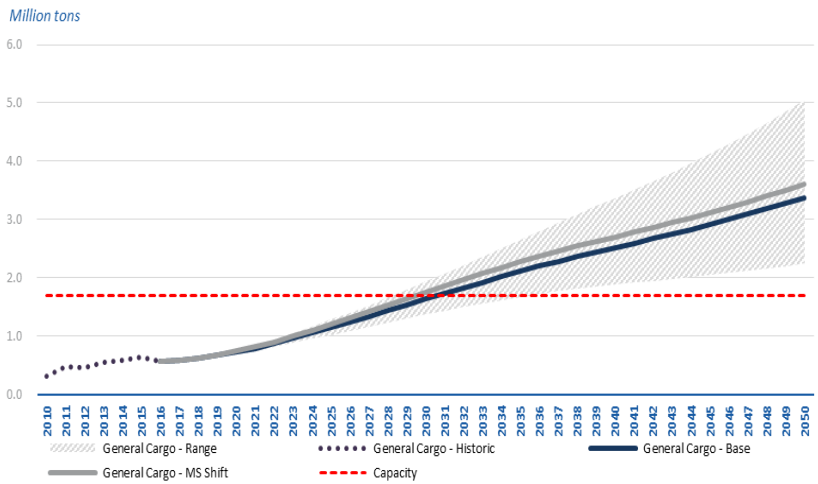


Figure 48: Beira Demand Forecast – General Cargo



Port of Maputo

Transit Shares: Domestic volumes in the Port of Maputo accounted for just 35.0 percent of the total volumes handled in the port, illustrating the importance of transit traffic. With 58.5 percent of the volumes handled in Maputo's port, South Africa was the largest trade partner in 2016, with most of magnetite and coal being transported from South Africa to the Port of Maputo. Capacity along this trade route is expected to increase with Mozambique testing magnetite transport by train to the port (Macauhub, 2017c). In addition, 5.2 percent of the port's cargo consisted of transit cargo to and from Swaziland. With just 1.3 percent of the port's total imports and exports, Zimbabwe was the smallest trade partner of the Port of Maputo. In addition, transshipment containers in the Port of Maputo accounted for 6.3 percent in 2016.

Hinterland Volume Shares: Maputo handled approximately 32.4 percent of Mozambican cargo in 2016, based on the share of Maputo's share in Mozambique's country demand. The actual market share for each cargo type specifically fluctuates between 30 percent for containers and 70 percent for Ro-Ro. Though South Africa accounted for most of volumes in the Port of Maputo, it is assumed that this represents just 5.0 percent of South Africa's total volumes, with large-scale coal exports being handled in the Port of Richards Bay, and containers and liquid bulk exports being handled in the Port of Durban. Zimbabwe shipped 10.1 percent of its trade via the Port of Maputo, with the majority handled by the ports of Durban and Beira. Swaziland is assumed to ship 20 percent of its cargo via Maputo.

Future Competitive Environment: Though Table A61 presents many market shares for various cargo types, the market shares themselves are not projected to shift significantly over time for the Port of Maputo. Domestic container volumes handled by Maputo are projected to remain stable at approximately 32 percent. Though Swaziland transports just 4.4 percent of its containers via the Port of Maputo, most sugar cane exports are shipped via this port (Swaziland Railway, 2017). The imports of fuels and vehicles are handled by the Port of Durban completely, reducing the importance of Maputo for these two cargo types to zero (Government of Swaziland, 2017). With respect to South African trade, it is assumed that 5 percent of the country's dry bulk trade is handled by the Port of Maputo. In addition, as Durban handles most of South African containerized cargo, Maputo's share in South African containerized cargo is just 0.5 percent (JICA, 2015b). South African liquid bulk and vehicle trade is assumed to be handled completely by South African ports.

Volume Projections: The volumes handled in the Port of Maputo are expected to increase from 14.5 million tons in 2016 to 46.5 million tons in 2050 (Figure 49). Dry bulk represents the largest cargo type, predicted to account for 67.6 percent of the volume handled by Maputo in 2050, followed by liquid bulk with 13.4 percent and containers with 11.4 percent. Dry bulk handled in the Port of Maputo is expected to increase from 11.7 million tons in 2016 to 31.4 million tons in 2050, of which 47.7 percent are exports of magnetite and coal. The large volume increase is based on the potential expansion of the Grindrod Coal Terminal from 7.5 million tons to 20 million tons. 75 percent of the terminal's yearly volumes are envisioned to be magnetite, versus 25 percent coal (Business Report, 2013).

The forecast assumes that 75 percent of this envisioned terminal capacity is reached, albeit that the increase occurs linearly over the entire forecast period. This ramp-up period is longer than normal based on decreasing commodity prices for magnetite due to the increase in Mozambican supply. Other dry bulk exports such as iron ore and sugar are expected to increase with a yearly growth rate of 2.0 percent. Liquid bulk is expected to be the second largest cargo type, increasing to 6.2 million tons in 2050, followed by containerized cargo, which increases to 5.3 million tons in 2050. General cargo and vehicle volumes are projected to be 7.6 percent of total volumes in 2050, with approximately 3.3 million tons of general cargo handled and approximately 170,000 vehicles imported in 2050 (Figures 50 and 51). Total volumes in the Port of Maputo are expected to increase with a CAGR of 4.7 percent in the period 2016-2030, 3.2 percent in the period 2030-2040, and 2.1 percent in the period 2040-2050.

Figure 49: Base Case Volume Projections - Port of Maputo

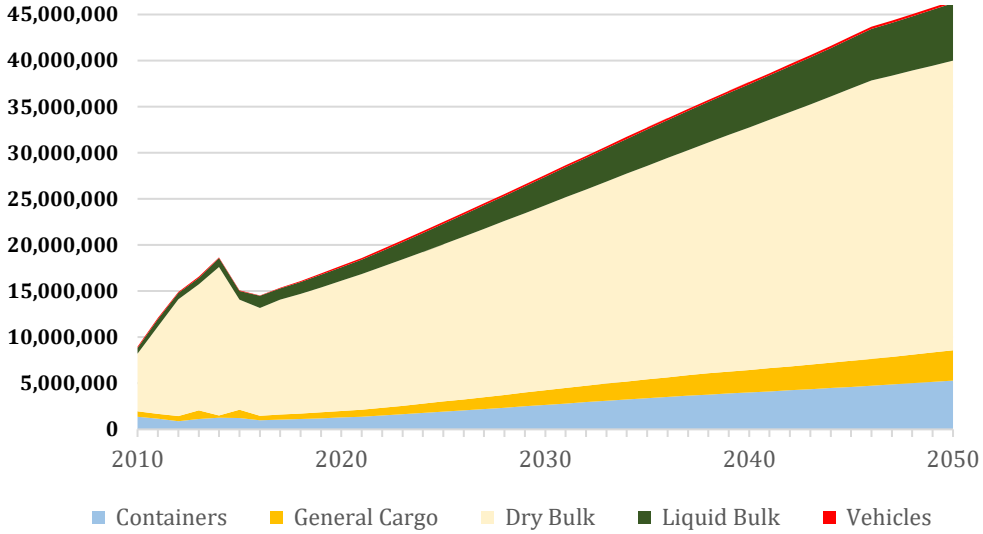


Table 61: Demand projections – Port of Maputo

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	1,053	1,116	1,193	1,283	1,380	1,506	1,637	1,773	1,914	2,658	3,381	4,003	4,603	5,295
General Cargo	556	597	646	702	762	843	926	1,013	1,104	1,582	2,047	2,447	2,832	3,279
Dry Bulk	12,446	12,999	13,561	14,129	14,702	15,286	15,874	16,466	17,060	20,077	23,157	26,303	29,550	31,433
Liquid Bulk	1,214	1,282	1,367	1,469	1,580	1,725	1,879	2,039	2,205	3,085	3,943	4,684	5,399	6,226
Vehicles	99	108	137	160	165	194	201	205	210	205	216	222	243	253
Total	**15,369**	**16,102**	**16,904**	**17,743**	**18,588**	**19,554**	**20,517**	**21,496**	**22,494**	**27,607**	**32,745**	**37,658**	**42,628**	**46,486**

Due to the port's favorable location for trade with Swaziland and Botswana; the MS Shift case assumes the Maputo is able to increase its market share over time to these land-locked countries. It is assumed that Maputo increases its market share in Swaziland to 50 percent and in Botswana to 30 percent.

Figure 50: Maputo Demand Forecast – Containers

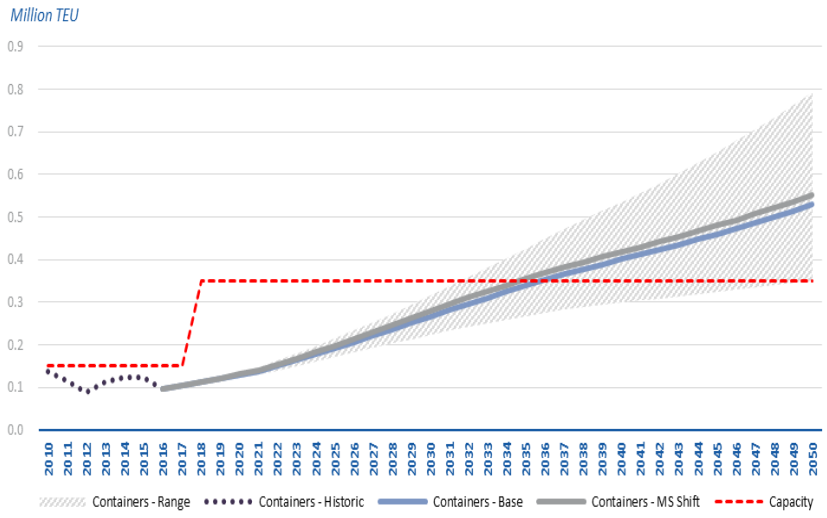
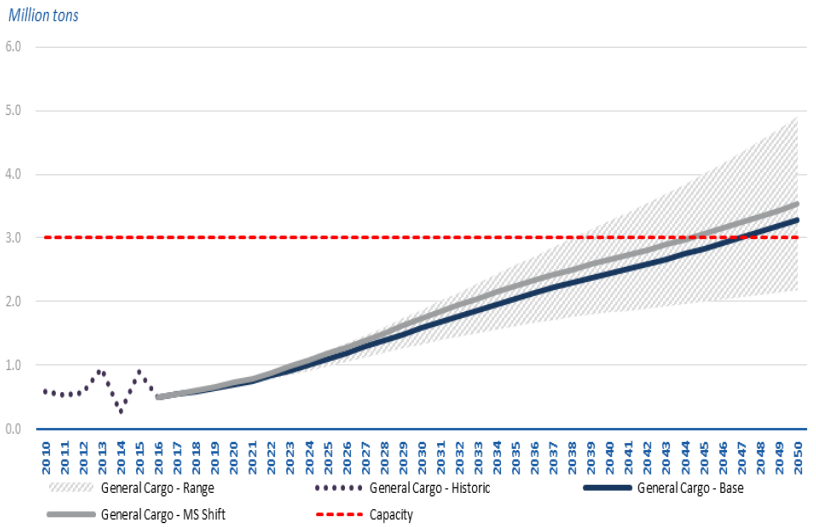


Figure 51: Maputo Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Port of Nacala

Key Observations:

- **Port functions:** The PdN-operated part of the port is a relatively small multi-purpose terminal that handles containers, general cargo, and small dry bulk volumes for Northern Mozambique, Malawi, and Zambia. CFM provides liquid bulk handling at the same multi-purpose terminal. The Vale-Mitsui coal terminal is a state-of-the art facility where 18.0 million tons of coal can be exported annually. There is limited involvement and cooperation by the different entities.
- **Relationship between port and stakeholders**: The relationship between the port and its stakeholders is good. There is a strong dependence of the port on the city and vice-versa: the port needs the city for its workers (about 600–800 people) and for its services. The city needs the port for its economic importance. There is regular (informal) contact between the port and the municipality.
- **Development Strategy of the Port:** The development strategy of the multi-purpose port is largely based on a JICA project that is carried out by the Government of Mozambique, but that is not fully supported by port operator PdN. There has been little consultation between JICA and PdN on this project. This has led to plans to convert the container yard to RTG operations and increasing container storage capacity. Based on the actual volumes in the port, creating even more storage space seems questionable, and having the RTG-operated container yard might not be optimal for just 100,000 TEUs. Moreover, the container yards are established by demolishing sheds that currently generate revenues.
- **Degree of vertical integration:** There is a strong degree of vertical integration of the chain in the Port of Nacala. PdN and CFM made investments in IT and systems, such as the MCNET single window system and a terminal operating system. There are rail connections to the multi-purpose port and to the coal terminal, but currently only the coal terminal is served by rail. There is a railway connection to Malawi that could be used for a block-train service for Malawian containers, but there is no operator available that can perform these services. The existing rail operator is only interested in serving the coal mines.
- **Degree of horizontal integration:** The degree of horizontal integration in the Port of Nacala is relatively limited as compared to other ports in the region. PdN only operates in the Port of Nacala, and Vale-Mitsui is also not present in other ports in the region. CFM is the only notable exception, as the national port authority is also involved in the other ports in Mozambique in various PPP structures (for example, as a shareholder in terminal operations or as landlord authority).

Proposed Key Actions

- **Continue port development based on on-going JICA project:** The level of logistics services and terminal operations by PdN are expected to be strongly improved based on the JICA project (although this can be regarded as over-dimensioned for the current size of the port). PdN should ensure that its operations reach benchmark levels with the competing ports to attract additional cargo flows.
- **Ensure a competitive approach toward transit cargoes**: The competitive position for transit cargoes to Malawi and Zambia is under continuous pressure from the ports of Dar es Salaam, Beira, and Durban. For Nacala to remain competitive for these transit cargoes, it is important that it provides the required port facilities, hinterland connections, and services. Especially the hinterland connections can be strongly improved through the availability of train connections to Malawi and Zambia.
- **Develop a stakeholder forum** to ensure involvement of the port's stakeholders (public and private) in the development plans, and create understanding of which developments are needed and why.

- **Improve the port's road connection**: The traffic flows on the port access roads are currently under control, but, if the port grows, more road capacity is needed. This is currently being addressed through a JICA project, with the implementation of a bypass road.
- **Ensure a modal shift:** A missing 40-km stretch of rail in Malawi prevents a modal shift from Nacala.

Port of Beira

Key Observations:

- **Port functions:** Beira handles cargo flows on almost all cargo types, and is a true multi-purpose port. Except for liquid bulks that are handled by CFM, all cargoes are handled by CdM. The port functions provided focus on the role of Beira as a gateway port for central-Mozambican cargoes and as a transit port for Zimbabwe and Zambia. Logistics and distribution services are provided by private operators (trucks and container freight stations), CFM (rail freight) and CdM (ICD at the Zimbabwean border).
- **Relationship between port and stakeholders:** According to CdM, the relationship with the city and municipality is very good. There are port-consulting forums between CdM, CFM, the municipality, and port users that are used to balance the interests of all parties.
- **Development Strategy of the Port:** The development strategy of the port is largely based on CdM's vision for the port as a flexible, multi-purpose port that can adjust to the ever-changing needs of the regional economies. Through the port-consulting-forums, CdM also involves its users in the development strategy of the port. Through the shareholding of CFM in CdM, there is a direct involvement of the railway operator (CFM) in the development of the port. It is CdM's desire to further develop the rail connections to the port and increase the modal-shift to rail.
- **Degree of vertical integration:** There is strong vertical integration of the chain in Beira. CdM and CFM made investments in IT and systems, such as the MCNET single-window system and a terminal operating system (Navis N4). The port has two rail connections: one to Machipanda at the Zimbabwean border and one to Moatize, the mining region in the Tete province. CdM also offers ICD services at a depot in the Zimbabwean border town of Mutare, and can therefore be regarded as a partly integrated concept: a terminal operator that provides hinterland services.
- **Degree of horizontal integration:** The degree of horizontal integration in the Port of Beira is relatively limited as compared to other ports in the region. CdM only operates in the Port of Beira, although its main shareholders, Cornelder and its subsidiaries, are also active as a maritime agent, logistics services provider, project developer, and investor in the maritime sector globally. However, CFM, as the national port authority, is also involved in the other ports in Mozambique in different PPP structures (for example, as a shareholder in terminal operations or as a landlord authority).

Proposed Key Actions:

- **Ensure a competitive approach toward transit cargoes**: The competitive position for transit cargoes to Zimbabwe and Zambia is under continuous pressure from the ports of Dar es Salaam, Nacala, and Durban. For Beira to remain competitive for these transit cargoes, it is important that it provides the required port facilities, hinterland connections, and services (for example, rail to Zimbabwe and Zambia).
- **Ensure modal shift**: The modal split for general cargo and containers in Beira is about 5–10 percent rail and 90–95 percent truck. A missing 40km stretch of rail in Malawi prevents a modal shift for goods from Beira to Malawi. CdM also wants to have block-trains running to its ICD in Mutare (Zimbabwe).

Port of Maputo

Key Observations:

- **Port functions:** Maputo handles cargo flows on almost all cargo types. MPDC is responsible for the entire port, and part of its operations are carried out under concessions by private operators. MPDC also operates some of the terminals on its own account. Functions focus on the role of Maputo as a gateway port for southern-Mozambican cargoes and as a transit port for South Africa and Swaziland.
- **Relationship between port and stakeholders:** According to MPDC, there is good cooperation and coordination with the municipality in which the interface management between the port and the city is arranged. The port authority is regarded as flexible and approachable by port users. There is substantial communication and dialogue with the port users. MPDC has to be customer-oriented because its infrastructure is less-developed than that of competitors (for example, Durban and Richards Bay).
- **Development Strategy of the Port**: MPDC and its shareholders have a dual role as a port user and as landlord authority, so there is a direct involvement and consultation with port users in preparing its development plans and investment decisions. The development strategy of the port is largely based on private operators' visions for the port. The development strategy is guided by MPDC's master plan.
- **Degree of vertical integration:** there is a strong degree of vertical integration of the chain. The private operators, MPDC and CFM, jointly made investments in IT and systems, such as the MCNET single-window system and terminal operating systems. The port is connected by a railway that feeds into the Mozambican railway system that connects to South Africa, Swaziland, and northern Mozambique. There is a functioning rail service at the Matola terminals and the Maputo cargo terminals. Around 80 percent of the cargo handled in Maputo is moved via road, 20 percent via rail. The Matola coal and magnetite terminal is 100 percent serviced by rail.
- **Degree of horizontal integration:** The degree of horizontal integration in the Port of Maputo is relatively high. DPW and Grindrod are present as port/terminal operators in multiple ports in the region; CFM is also involved in the other ports in Mozambique in different PPP structures.

Proposed Key Actions:

- **Continue port development**: Through various projects (access channel dredging, quay-deepening projects), MPDC has ensured substantial capacity expansions of the port in the past years. MPDC should ensure that it pays sufficient attention to the dry bulk segment, as capacity utilization of the terminals at Matola (Mozal) and in the Maputo port are under pressure.
- **Ensure a competitive approach toward transit cargoes**: The competitive position for transit cargoes to South Africa and Swaziland is under continuous pressure from the ports of Durban and Richards Bay. This is partly due the time-consuming and inefficient border operations at the Komatipoort / Ressano Garcia border between South Africa and Mozambique.
- **Develop a stakeholder forum t**o ensure involvement of the port's stakeholders (public and private) in the development plans and create understanding of which developments are needed and why.
- **Improve the port's road connections**: The road connections within the city of Maputo are causing problems; especially the road stretch between the Matola terminals and the city of Maputo at peak hours. Truck traffic to the port's entrance gates is also causing issues that should be resolved through dedicated port access roads, and through reducing the share of truck transport to and from the port.

- **Ensure modal shift**: The modal split for non-dry bulk is approximately 20 percent rail and 80 percent truck. Based on railway connection improvement projects by CFM, this share can be much improved, through incentive schemes and minimum requirements for shippers or terminal operators.

Port–city interface

Port of Nacala

The city of Nacala is Mozambique's seventh-largest city. The population growth has been strong in Nacala, at a CAGR of 1.9 percent between 2007 and 2016. The IMF expects the population of Mozambique to grow at an average of about 2.7 percent per year up to 2022 (International Monetary Fund, 2017). The port employs approximately 800 people directly.

During the field visit, PdN management indicated that the port and the city were highly dependent on each other. The port needs the city for its workers, for its trucking services, and shipping agents; and the city needs the port for its economic importance. Traffic flows of trucks through the city are currently under control, and do not pose a significant problem in the port–city interface. However, this could be improved through the development of a bypass road.

JICA is providing technical and financial support for the development of the Nacala port. The project aims to rehabilitate and expand the Port of Nacala in three phases. The main objective of the project is to increase productivity in cargo handling at the port, which in turn will contribute to economic development and poverty reduction in the northern region as well as in Malawi and Zambia. The first phase was completed and included berth rehabilitation and the purchase of two RTGs to improve port performance. The second and third phases include the construction of an improved access road for container and general cargo traffic to improve the city congestion and the purchase of two STSs.

Port Development Stage: Port Generation

The port facilities of Nacala are separated from the city, but its location is relatively close to the city center. The port offers dedicated berthing facilities for general cargo vessels and container vessels but lacks mechanization in terms of modern container quay cranes for handling. On the opposite side of the bay, the mining corporation Vale recently invested in a modern coal export facility. The location decision of this facility is clearly separated from the city to reduce its negative effects in terms of dust and noise. Based on these developments, the Port of Nacala can be described as a port that is currently transferring from the second- to a third-generation port.

Key Observations:

- There is a lack of trained and skilled workers in the city of Nacala. This results in difficulties for PdN in finding the right people to work in the port. For example, the maintenance department of the port consists of Sri Lankan workers with a lack of local knowledge.
- With Nacala being an industrial town where most of the population depend directly or indirectly on the port, labor is an important topic for the Port of Nacala (it employs about 800 workers).
- There is no common master plan for both port and city, though information on the development of the port is shared with representatives from the municipality.
- During the meetings with PdN, there was no mention of severe congestion problems in the city. The JICA master plan has envisioned the construction of a bypass road in future phases of the project, to prevent this from being a problem if the port volumes grow further.
- Should the port grow further, additional access road capacity is needed. This problem is being addressed through the JICA project with the implementation of the bypass road.

Key Recommendations:

- Establish a professional training institute to build core capabilities and competencies for local workers.
- Although congestion issues do not yet pose significant challenges in the port–city interface, it is recommended to engage in a more frequent and structured dialogue between the port and municipality (as in Durban), to tackle rising problems at an early stage.
- Attract funding to develop inland container depots to mitigate storage constraints at ports and terminals and reduce the truck traffic directed to the port.
- Invest in the rehabilitation of the railway and maintenance in Malawi and improve rail operations.
- Though the impact of the port on the environment is addressed by PdN in their statements, additional measures could be considered to limit the port's impact on the local community: variable port fees to incentivize the use of less-polluting vessels; regulation of truck emissions through truck retirement programs; or installation of facilities to cater for the cold ironing of vessels calling the Port of Nacala.

Port of Beira

The population of Beira city grew from about 432,000 people in 2007 to 462,000 people in 2016. The IMF expects the population of Mozambique to grow at an average of about 2.7 percent per year up to 2022. (International Monetary Fund, 2017). In total, 650 people are employed by CdM, with another 1,000 employed by private companies providing labor in the port.

The Beira city master plan considers city zoning, environmental aspects, and the development of the port and the city. According to CdM, the relation between port management and the municipality works well for both parties. There are also port-consulting forums between CdM, CFM, the municipality, and the port's users, that are used to balance the interests of all parties involved.

Some of the recent developments in the Port of Beira include the Sena railway line rehabilitation (2013); the development of the Manga-Mungassa Special Economic Zone of 217 hectares (2014); and construction of a new multi-lane entrance gate (2017). In addition, planned investments include the development of the Essar Coal Terminal; an upgrade of the Sena Rail line to 18 mtpa; construction of a four-lane connection to the EN-6 main road; and a dedicated truck-waiting area outside the port.

Port Development Stage: Port Generation

The Port of Beira is located west of the city of Beira, from which it is separated. The port has dedicated terminals with a functional separation for the cargo types handled. In addition, the port accommodates specialized ships for containers, liquid bulk, dry bulk and general cargo. With the handling equipment used at the terminals such as STS Gantry Cranes at the container terminal, the port strives to minimize the berthing time of vessels in the port. Therefore, it can be characterized as third-generation port. Moreover, if the port succeeds to further improve its efficiency by adopting new patterns and technologies and by being able to accommodate larger vessels, the port will be able to become a fourth-generation port.

Key Observations:

- Beira is one of the three port cities where the port is not completely enclosed by city. As in Djibouti and Berbera, Beira has more opportunities to expand the port without restricting the adjacent city.
- Multiple projects have been initiated to improve the interface between the port and the city (such as the construction of a truck-waiting area outside the port to alleviate congestion in front of the gate by trucks that are not in possession of the proper documentation to enter the port). The municipality has always acted in time and avoided the interface from becoming a problem.

- There are port-consulting forums between CdM, CFM, the municipality, and port users, that are used to balance the interests of all parties. According to CdM, this works well and facilitates the collaborative relation between CdM and the municipality.
- Beira City Master Plan stipulates development projects and initiatives for the port and city up to 2035.
- CdM has invested in educating local workers to take management positions within the operations of the port. Currently, only four expats are employed by CdM, with the remaining employees being locally hired.

Key Recommendations:

- Monitor the improvements of the new truck-waiting areas and access roads to the port. Although this is envisioned to decrease the queue of trucks outside the entrance of the port, it could be that the new operational procedures associated with this development are not in line with the projections.
- Connections to Malawi could be much improved if a 40-km rail track would be developed in Malawi. This would provide Beira a direct rail connection to Blantyre.
- Strengthen environmental measures to reduce the negative externalities for the adjacent city. Policy measures that could be considered by CdM are: variable port fees to incentivize the use of less polluting vessels; and facilities to cater for cold ironing; and measure and regulate noise levels.

Port of Maputo

Maputo is the largest city and capital of Mozambique. The population development in Maputo grew over the last decade from roughly 1.1 to 1.3 million people, and reached a CAGR of 1.6 percent between 2007 and 2016. The IMF expects the Mozambique population to grow an average of about 2.7 percent per year up to 2022 (International Monetary Fund, 2017).

The main port–city interface issues relate to the truck traffic moving through the city of Maputo and the fact that this is mixed with inter-city traffic. There is good cooperation and coordination with the municipality and city council in which the interface management between the port and the city is arranged.

The Port of Maputo has a total available concession area of 140.6 hectares, with an additional 5,500 hectares available for port expansion (this area is within the port's 'jurisdiction area', but not within the current concession area). The current Port Master Plan of the Port of Maputo includes additional investment plans of US$2.0 billion by MPDC and its sub-concessionaires until 2033. The planned developments, as presented by the MPDC, are focused around the expansion and improvement of the coal terminal (US$834 million), container terminal (US$300 million), bulk terminal (US$104 million), and other infrastructure and transport upgrades for the road, rail, and port developments costing another US$246 million.

Port Development Stage: Port Generation

The Port of Maputo's development stage and port generation can be best described as characteristic of a third-generation port. This is mainly due to the specialized ships that the port accommodates for the container, Ro-Ro, and bulk cargo segments. In addition, the port has a functional separation with dedicated terminals for the different cargo segments. However, port–city separation in Maputo is challenging, as the port is surrounded by the city. With the development of new port facilities, the old facilities can retreat from the north bank waterfront to facilitate urban renewal. Based on the space limitations and the port–city integration that causes congestion in the city, the port can be partly characterized as a second-generation port.

Key Observations:

- The main port-city interface issues relate to the truck traffic moving through town and mixing with inter-city traffic. There is good cooperation and coordination with the municipality and city council, in which the interface management between the port and the city is arranged.

- The current highway that links the Port of Maputo to the South African border is the TRAC N4 toll road. However, the road stretch between the Matola terminals and the city of Maputo is causing issues during peak hours. Additionally, the truck traffic to the port's entrance gates is causing issues. Plans are being executed to increase the current 4-lane road to a 6-lane road, hopefully decreasing congestion in the city and the hinterland transport chain.
- To accommodate the modal shift from road to rail, the port's master plan stipulates several development projects including the upgrade of short sidings to accommodate longer trains up to 25 wagons or more, and the expansion of the rail sidings at the Matola terminals.
- The master plan for the Port of Maputo is currently being updated (previous version dates to 2011).

Key Recommendations:

- Relocation of specific bulk cargo storage areas should be priorities. This terminalization can reduce the number of vehicle movements within the port by limiting double-handling. As a result, CO_2 levels can be brought down, contributing to a significant improvement in air quality around the port.
- To limit congestion in the city, especially during peak hours, MPDC can impose the following regulations: Terminal Appointment Systems; off-peak operating hours; and assuring proper transport documentation before gate arrival.
- In collaboration between CFM, MPDC, and municipality, a common port–city master plan should be drafted to address specific topics such as port–city zoning and port-induced city congestion.

South Africa: South Africa is the southernmost country on the continent and is the largest economy of the countries in the study. In 2016, South Africa's GDP accumulated to 418.5 billion in constant 2010 US$. The population of South Africa was approximately 55 million in the same year (The World Bank, 2017b).

1. Port sector institutions

All commercial ports in South Africa are managed by Transnet National Ports Authority (TNPA), one of the five operating divisions of South Africa's publicly owned freight transport company, Transnet SOC Ltd. The core responsibilities for TNPA are to (Transnet, 2016) plan, provide, maintain, and improve port infrastructure; provide marine-related services; ensure the provision of port services, including the management of port activities and the port regulatory function at all South African ports; and provide aids to navigation and assistance to the maneuvering of vessels within port limits and along the coast. TNPA has about 4,200 employees in the country, of which a large although unspecified share is working in the Port of Durban, the largest port of the country.

Transnet is wholly owned by the Government of the Republic of South Africa, and is the custodian of the country's freight railway, ports, and pipeline infrastructure (Transnet SOC Ltd, 2017). Transnet consists of five main business units: Transnet National Port Authority, Transnet Port Terminals, Transnet Freight Rail, Transnet Pipelines and Transnet Engineering. TNPA is responsible for the efficient, effective, and safe functioning of the national port system, which it manages through a landlord structure. Transnet Port Terminals (TPT) is the port operating division of Transnet SOC Ltd., which operates 16 terminals across seven South African ports. TPT operates terminals under operating licenses granted by TNPA, and currently has 21 terminal operator licenses in South Africa (Transnet Port Terminals, 2017b). TPT has about 8,900 employees. TPT has developed a Compliance Risk Management Plan, as well as a Critical Control Framework and the Control Self Assessments (CSAs) for the Ports Act. The CSAs are rolled out across the business on a biannual basis and ensure compliance with the Ports Act and Terminal Operator Licenses issued. TPT submits reporting requirements regarding operations, performance, competition, and finance to Transnet National Ports Authority (TNPA) on an annual basis, and TNPA conducts mandatory annual audits on all the terminals. In addition to the TNPA and TPT, Transnet SOC has a freight division, a pipeline division, and an engineering division. Transnet SOC falls under the Department of Public Enterprises.

Transport Port Terminals operates most terminals at the Port of Durban, including the Durban Container Terminal (DCT). Furthermore, Grindrod operates a multipurpose terminal, and Vopak and Oiltanking each have a liquid bulk terminal in the port. TPT is also responsible for the commercial operations in the Port of East London. All terminals, expect for the liquid bulk terminal, are operated by TPT, which has a concession contract with TNPA. The liquid bulk terminal has four concessionaires: BP, Engen, Total, and Chevron. Operations and transport of the liquid bulks to the nearby tank farms is done by Engen.

The Department of Transport is the custodian of the National Ports Act and provides the strategic direction of the maritime and ports sector. Within the Ports Act, the powers of the Department through the Minister of Transport are determined. The Minister may, by notice in the Gazette, determine ports in addition to the ports contemplated in subsection (1) which fall under the jurisdiction of the Authority; may, after consultation with the Authority, review, vary or extend the boundaries of ports and must consult with the municipality concerned if such review, variation or extension affects the municipal boundaries; appoints the chairperson and members of the Ports Regulator; may direct the Authority to perform a specified act within the Authority's power or not to perform a specified act, if such direction is necessary; must appoint a Port Consultative Committee for each port; and must appoint a National Port Consultative Committee.

The Department of Public Enterprises originally emerged out of the former Department of Finance

(now National Treasury) in 1999 as the caretaker department that was overseeing the reform of state assets in key sectors of the economy either through privatization (or partial privatization) of state owned enterprises (SOEs) or through the introduction of private competition into markets where SOEs held a dominant position. While Department of Public Enterprises became the shareholder department of SOEs such as Transnet, Eskom and SAA, it was the department with sector expertise. Within the Ports Act, the powers of the DPE through the Minister of Public Enterprises are determined. For example, the Minister must ensure that the necessary steps are taken for the incorporation of the National Ports Authority of South Africa and must appoint the chairperson of the Board of the National Ports Authority.

The Ports Regulator of South Africa (PRSA) was established under the National Ports Act. Its main functions are to exercise economic regulation of the ports system in line with government's strategic objectives; promote equity of access to ports and to facilities and services provided in ports; monitor the activities of the National Ports Authority to ensure that it performs its functions in accordance with this Act; and hear complaints and appeals under the Ports Act. The Ports Regulator was first proposed in the White Paper on National Transport Policy (South Africa Department of Transport, 1996) which mooted the need for the creation of the national PA and the corollary need for an independent Ports Regulator to oversee the monopoly that would be the national PA. PRSA has no jurisdiction over TPT, meaning that the only regulation of the tariffs of the latter is by TNPA, which sits within the same corporate stable as TPT. Even though the Ports Act requires the TNPA to corporatize soon and thereby obtain a measure of independence from TPT, this has not happened (Trade and Industrial Policy Strategies (TIPS), 2014).

The South African Maritime Safety Authority (SAMSA) was established under the SAMSA Act 5 of 1998 (South African Maritime Safety Authority, 2017). SAMSA's mandate is to ensure safety of life and property at sea; prevent and combat pollution from ships; and promote the Republic's maritime interests.

The shortcomings of South Africa's port sector institutions are:

- Transnet SOC, through its subsidiaries TNPA and TPT, functions both as a landlord and a port operator.
- TNPA determines the land rents and concession fees charged to TPT and its competitors, an important item in their cost structures.
- TPT is unregulated; and it is therefore impossible to judge the extent to which it cross-subsidizes its activities (for example, using the revenues from areas in which it has a monopoly power).
- The current regime allows for a situation where the Regulator can lower the tariffs that TNPA can charge, however, TPT—which remains out of the regulatory reach of the Ports Regulator—can then increase its charges to overcome the shortfall that Transnet group may experience.

To improve the functioning of the ports sector, it is necessary to ensure that the power of Transnet SOC (TNPA and TPT) in the ports sector is reduced, and that the landlord and port operator function is separated in different entities as per the Ports Act and policy goals. It is also important to establish a regulator for the port terminals (next to the existing Ports Regulator which regulates the TNPA).

2. Policy framework

Of the countries within the project scope, South Africa's policy framework is by far the most advanced and comprehensive. At a regional level, South Africa's (trans)port policy is guided by AU, PMAESA and SADC. At a national level, transport policy is developed by the Department of Transport, through four national transport policy documents that serve as the basis for the ports policy in the country:

- Broad policy goals: National Transport Policy White Paper (South Africa Department of Transport, 1996) and Draft Revised White Paper on National Transport Policy (South Africa Department of Transport, 2017a)

- Long-term transport vision: National Transport Master Plan 2050 (South Africa Department of Transport, 2014)
- Revised medium-term transport plan: 2015–20 Strategic Plan for the National Department of Transport (South Africa Department of Transport, 2017b)
- A recent policy document that is fully focused on maritime and port sector policy: Comprehensive Maritime Transport Policy for South Africa (South Africa Department of Transport, 2017c).

At a local level, TNPA is responsible to transform policy into development plans for the specific ports in the country. The National Ports Act mandates the TNPA *to own, manage, control and administer ports to ensure their efficient and economic functioning*. With regard to planning and port policy, TNPA is tasked to *prepare and periodically update a port development framework plan for each port, which must reflect the Authority's policy for port development and land use within such port* (Republic Of South Africa, 2005). In line with this task, TNPA prepares annually updated National Port Development Plans of which the most recent will be assessed in this section (Transnet National Ports Authority, 2016). Further, the operating division of Transnet, Transnet Port Terminals, has presented a capacity master plan for its terminals (Transnet Port Terminals, 2013).

The foundation of South Africa's transport policy is the National Transport Policy Whitepaper, which was first published in 1996 and updated recently (May 2017) to reflect the changes in South Africa's political, economic, and social conditions in the past twenty years.

A specific section of South Africa's **1996 National Transport Policy Whitepaper** focuses on port operations and administration within the maritime transport sector, and presents the following long-term policy objectives:

- A port authority (or authorities) with specific responsibilities for the maintenance and development of port infrastructure will be established.
- Although the intention is that an independent port authority (or authorities) be established at national level, there is no reason why a port authority should not be devolved to provincial or metropolitan levels.
- The port authority will have the function of administering the port infrastructures, ensuring the long-term development of the ports to meet the needs of the economy, regulating the operations in the ports by controlling tariffs and service standards where this is necessary in a monopolistic situation, and providing, on a cost recovery basis, essential port services not willingly taken on by private enterprise.
- Since it will itself be a monopoly, the port authority will be regulated by an independent regulator.
- The port authority will be independent of any port operating entity (or entities).
- To promote low costs, high level of service, and shipper choice in the port operations, a competitive environment will be created by enabling private enterprise to offer port services.
- All stakeholders, including all levels of government, will be consulted in the planning of ports.

The policy objectives stated above are in line with the 2002 National Commercial Ports Policy that states that *the current National Ports Authority within Transnet will be positioned outside Transnet in accordance with the restructuring programme of Transnet, as approved by the Minister of Public Enterprises* (South Africa Department of Transport, 2002). However, until today the National Ports Authority is part of Transnet, and therefore is not fully independent of TPT. This issue has also been addressed in a review of regulation in South Africa's ports sector (Trade and Industrial Policy Strategies (TIPS), 2014).

South Africa's *National Transport Master Plan 2050* (NATMAP) (South Africa Department of Transport, 2017b) presents strategies and interventions in the port sector for the coming decades. NATMAP

also presents the country's long-term vision regarding freight transport. There is a limited focus on the ports sector within this part of NATMAP, as the freight transport master plan largely focuses on freight transport within South Africa and not on freight transport to or from the country. One of the strategy objectives mentioned in the document's introduction concerns *expanding rail, port and pipeline infrastructure*. The expansion of port infrastructure, however, is not included in the actual NATMAP.

The Department of Transport recently published its Comprehensive Maritime Transport Policy (CMTP) for South Africa (South Africa Department of Transport, 2017c). This document is structured along the policy documents presented above and clearly presents the guiding principles behind it, including the South African Constitution.

The 2015–20 *Strategic Plan for the National Department of Transport* presents the medium-term goals for the South African transport sector (South Africa Department of Transport, 2014). A specific program area focuses on the maritime sector. One of the main relevant objectives stated in the strategic plan concerns the implementation of private sector participation (PSP) in the sector: *to address the issue of low level of investment, the DoT will in the medium term develop a PSP framework, which will inform how private sector investments will be enhanced in the Transport Sector. The framework will also focus on investments in the ports and railway sub-sectors as a means of growing railway-carrying capacity beyond Transnet Freight Rail, and port operations capacity beyond Transnet Port Terminal.*

The policy statements in the CMTP and the 2015–20 Strategic Plan contradict the current practices in the South African ports sector and are inconsistent with the published policy plans by TPT (Transnet Port Terminals, 2017a) that focus on providing integrated intermodal solutions from vessel to the end-consumer. This means that in the strategy plans of TPT, there is substantial supply chain control and operations by public entities.

Local Port Policy – Durban

Within the National Port Plan 2015 (Transnet National Ports Authority, 2015), the port development policy for the Port of Durban is presented as follows: *although the Port of Durban is a mature port with increasingly congested operations, there is potential to improve throughput capacity by reconfiguring and rationalizing the existing precincts of DCT, Point, Maydon Wharf, and Island View. The development of the dig-out port at the old airport site is key to the provision of medium- and long-term capacity.*

Local Port Policy —East London

Within the National Port Plan 2015, the port development policy for the Port of East London is presented as follows: *while East London will continue to provide general cargo handling services to its hinterland, the constraints to expansion, the limited hinterland and the development of the new Port at Ngqura, suggest that the Port of East London will see limited growth in the 30 year planning horizon.*

The available policy documents of South Africa's ports sector reflect the following overarching objectives:

Economic growth: the importance of maritime sector and port development as a driver and enabler of economic growth is marked in all port policy documents, for example, in the National Transport Policy as follows: "To improve South Africa's competitiveness and that of its transport infrastructure and operations by reducing the cost of doing business." NATMAP 2050 presents as a policy goal *to ensure sustainable growth of the ocean economy that will maximise socio-economic benefits*. The CMTP states that it is needed "to revive the maritime transport sector and enhance its contribution to the growth and radical transformation of the South African economy." Finally, the 2015–20 Strategic Plan main strategic goal is to have "an efficient and integrated infrastructure network that serves as a catalyst for social and economic development."

Institutional restructuring and port competition: the focus on institutional restructuring is presented in most port policy documents. The National Transport Policy Whitepaper states "in order to promote low costs, high level of service, and shipper choice in the port operations, a competitive environment will be created by enabling private enterprise to offer port

services." The National Transport Master Plan 2050 states that "greater competition in the management of container terminals is encouraged. The approach to competition should be linked to private sector involvement." The CMTP for South Africa presents the strategic objective to "ensure efficient and effective regulation and clear separation between maritime operations and maritime regulation and these to be a reflected in the institutional and governance frameworks." The 2015–20 Strategic Plan does not present institutional restructuring as a policy goal.

Improve landside facilities: The National Transport Policy Whitepaper has a substantial focus on landside transport and provides a specific mission for it: "to provide safe, reliable, effective, efficient, and fully integrated land freight transport operations and infrastructure which best meets the needs of customers." The National Transport Master Plan 2050 especially focuses on the modal split shift from road to rail. The CMTP for South Africa states that "maritime transport development requires advanced levels of infrastructure development in the form of road and rail networks in order for the sector to make a significant contribution to the growth and development of the Southern African region." The 2015–20 Strategic Plan presents a focus on integrated transport, including landside facilities.

Safe and secure: The National Transport Policy Whitepaper states the policy goal "to improve the safety, security, reliability, quality, and speed of transporting goods and people." The CMTP report presents numerous policy targets regarding safe and secure operations, among others in the dedicated section *Enhanced General Safety and Security of Maritime Facilities Including on Inland Waterways*. The 2015–20 Strategic Plan presents a similar dedicated section: *regulate and enhance transport safety and security.* NATMAP 2050 does not present specific sections on safety in the ports sector, and merely focuses on safety in the road and railways sector.

- **Environment:** The National Transport Policy Whitepaper's section on maritime transport does not present a policy statement on environmental protection. However, the opening section of the whitepaper presents an overarching target regarding the environment, namely: "South Africa, in line with the developed world, will have to adapt her economic growth policies to the requirements of environmentally sustainable development. Apart from any other considerations, this will be necessary to assure continued survival in the global economy." The National Transport Master Plan 2050 focuses on environmental sustainability in the key areas of growth: "a number of key areas such as aquaculture, marine transport, offshore oil and gas exploration will be crucial in growing the economy, providing much-needed jobs and improving prosperity while ensuring environmental sustainability and integrity." The CMTP document in its vision already states the importance of the environment, namely: "the sector should be environmentally sustainable within the global logistics chain." Finally, the 2015–20 Strategic Plan does not focus on the environmental aspects in the maritime section, but it does present an overarching targeted outcome of the plan being to "protect and enhance our environmental assets and natural resources."

Shortcomings of South Africa's port sector policy:

- Except for the local port master plans and the 2015–20 Strategic Plan, there is a lack of time-based policy goals. This should be resolved for policymakers to be accountable and responsible for their plans. For the local port policies within Transnet National Ports Authority's National Port Plans, there is a clear timing: short term (2021), medium term (2044) and long term (>2044).
- Criteria for investment decisions are not mentioned in the policy documents. It is unclear how investment decisions are validated by the government and how a decision on whether to invest or not is made. A clear guideline with minimum requirements for government investments is regarded a necessity to ensure value for money for the government.

At the Port of Durban, the implementation of the port and the city master plan is not moving ahead as fast as desired. All stakeholders know what needs to be improved, and how this needs to be improved, yet remaining challenges (especially funding) hinder the implementation of these plans. Total investments needed add up to billions of South African Rand. The municipality believes

given the national importance of the Port of Durban, there should be additional funding available through the government, TNPA, and TPT. South Africa's legal and regulatory framework for PPS is managed by the National Treasury's PPP Unit under the Ministry of Finance. There is a clear roadmap toward implementation of PPPs through the National Treasury's PPP Manual (The World Bank, 2017e).

3. Legal and regulatory framework

At an international level, South Africa's legal and regulatory framework for the ports sector is guided by the IMO conventions that are largely focused on maritime safety and security, the prevention of pollution, and related matters, and less on specific port-sector policies or operational implications (Figure 52). At a regional level, South Africa's legal and regulatory framework for the ports sector is guided by the AU's Maritime Charter and SADC treaty. At a national level, South Africa's legal and regulatory framework for the ports sector is guided by multiple documents of which the main are of relevant concern: the National Ports Act, the National Port Rules, the National Port Regulations, TNPA Guidelines for Agreements, Licenses, and Permits and the PPP Manual. There is no knowledge of existing legal documents developed at a local level by local divisions of TNPA or TPT or any other county or local level agency regarding the regulatory framework at the time of writing this report. The different documents based on TNPA's description of the port legal framework (Transnet National Ports Authority, 2017a) are summarized below.

South Africa has not fully adhered to the SADC Protocol on Transport, Communications, and Meteorology which guides members to accommodate public or private ownership of facilities and encourages competition in the supply of port services.

The National Ports Act No.12 of 2005 seeks primarily to give effect to the Government's Policy on Commercial ports that outlines the role of ports in the South African economy. The Government's White Paper on National Commercial Ports Policy was approved by Cabinet on 6 March 2002, and published on 8 August 2002. The National Ports Act aims to modernize and enable efficient operations of South Africa's ports. The National Ports Act is the primary piece of legislation regulating the port sector in South Africa, and came into effect on 26 November 2006. Section 11(1) of the Ports Act provides the list of functions that TNPA must exercise, while Section 11(2) of the Ports Act provides the list of functions that TNPA *can* exercise. These include, for example, facilitating private investments and participation in the provision of ports services and facilities. Based on Section 58 of the Act, TNPA may enter into a joint venture subject to the provisions of the Public Finance Management Act (1 of 1999). According to the act, the TNPA will be positioned outside Transnet as part of Transnet's restructuring program and additional private sector involvement in port operations is being pursued. The act dates from 2005, but so far, the national ports authority is still part of Transnet and all major terminals are operated by Transnet Port Terminals.

Transnet National Ports Authority has developed Port Rules in terms of section 80(2) of the National Ports Act "for the control and management of ports and the approaches thereto and for the maintenance of safety, security and good order in the ports." These port rules mainly focus on vessels that are within South African ports and their entrances. For the current assignment, there is no direct impact on the ports sector based on the port rules: they strive to ensure a safe and environmentally friendly operation of vessels in ports, which is regarded to be of major importance for a sustainable ports sector.

The Minister of Public Enterprises has repealed the Harbour Regulations issued under the South African Transport Services Act No.65 of 1981 and the Legal Succession to SA Transport Services Act No.9 of 1989. The Ministerial Notice was published in the Government Gazette No. 31958 on 6 March 2009. The Minister of Transport has promulgated Port Regulations in terms of section 80(1) of the National Ports Act. The Port Regulations published in Government Gazette No. 30486 came into effect on 23 November 2007. The port regulations mainly focus on providing additional legal text alongside the Ports Act, additional economic

participation and empowerment of historically disadvantaged groups in port operations, the economic review role of the Regulator, Port Consultative Committees, and the definition of the port limits.

Transnet National Ports Authority has developed "*Guidelines for agreements, licenses and permits*" (the Guidelines) in terms of the National Ports Act to ensure fair, equitable, transparent procedures for the awarding of agreements, licenses, and permits (Transnet National Ports Authority, 2008). The Guidelines set out the approach to be adopted for appropriate controls over port facilities, services, and other activities in ports. According to the guidelines, "control will take place through licenses and other authorizations issued and agreements entered into by the Authority and other powers exercised under the provisions of the Act." The Guidelines present the procedures that are required to apply for operating port terminals, vessel repair facilities, or offshore handling facilities (Group A) and for providing port services (Group B). The procedural requirements for an agreement application and a license application follow the globally accepted process of a two-staged tender process (Expression of Interest and Proposal) for agreements and a one-staged tender (Proposal) for licenses (Transnet National Ports Authority, 2008).

The TNPA Guidelines provide a clear regulation with regard to the licenses that are held by TPT and Transnet Freight Rail (TFR): TPT and TFR will continue to operate its existing terminals and railways in the ports, unless otherwise decided by the Board of Directors of Transnet. Based on the Guidelines and the Ports Act, TPT retains its position as the main port operator, until TNPA decides otherwise. This implies that the position of TPT in the main cargo segments is strong, and not likely to change on short notice.

South Africa PPP Manual

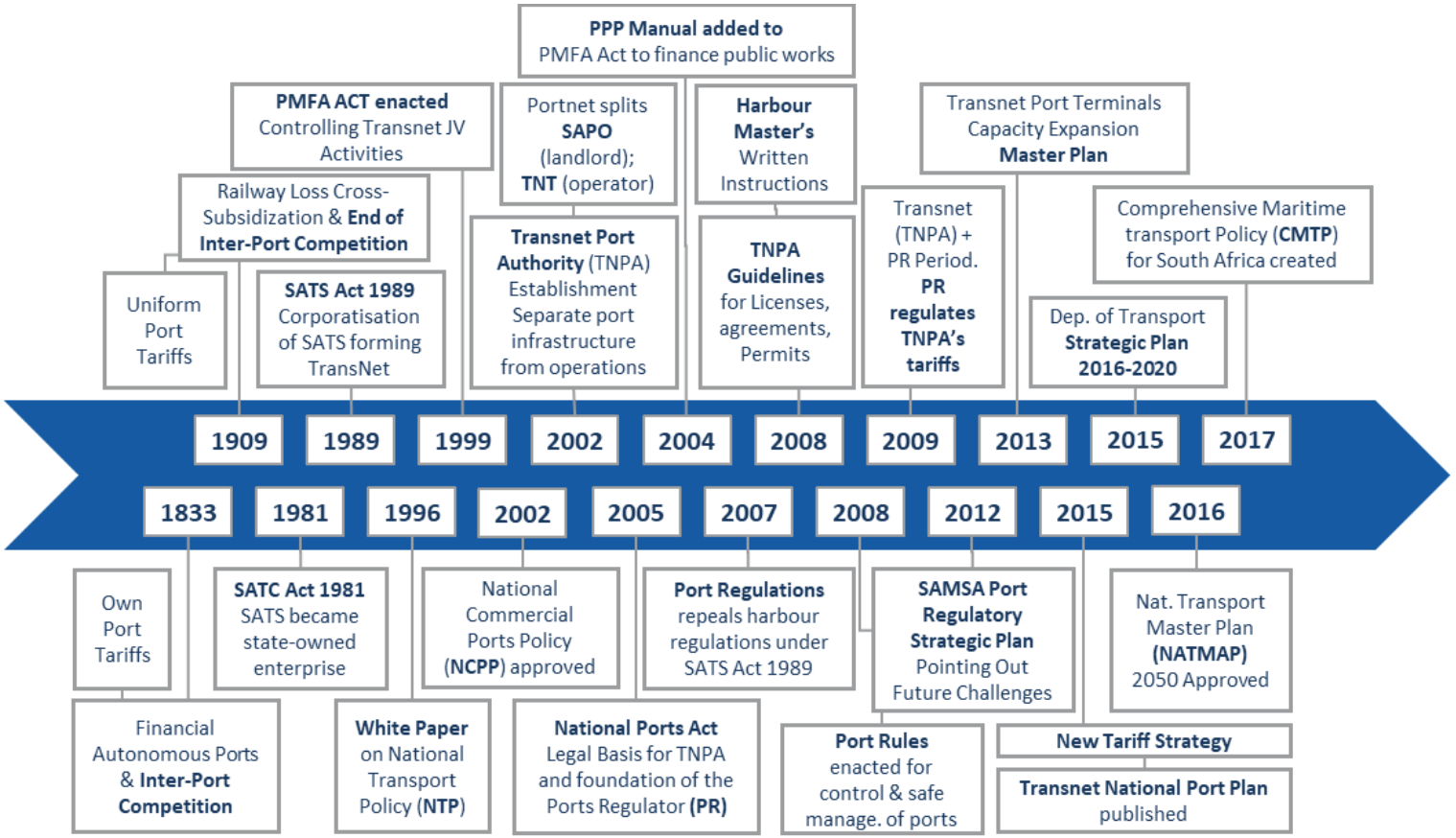
The PPP Unit of South Africa's National Treasury has issued a PPP Manual with the goal to "systematically guide public and private parties through the phases of the regulated PPP project cycle for national and provincial government, unpacking policy, and providing procedural clarity as it does so." (South Africa National Treasury, 2004). Each module of the PPP Manual is issued as a National Treasury PPP Practice Note in terms of the 1999 Public Finance Management Act.

Within this PPP Manual, the National Treasury has issued Standardized PPP Provisions in its Practice Note No. 1 of 2004. The provisions describe the key issues likely to arise in a PPP and provide how these should be dealt with in a PPP agreement. These are not specific to port projects. The provisions identify circumstances where an approach to an issue is recommended (based on value for money considerations). However, these provisions are not applicable to the TNPA, as Transnet and its subsidiaries are listed in the Public Finance Management Act's list of Schedule 2 Public Institutions. As per the PPP Manual's Definitions (Section 16.1), the major public entities listed in schedule 2 to the Public Finance Management Act are not subject to Treasury Regulation 16, which prescribes the institutions to be part of PPPs. From this perspective, TNPA is exempted from the PPP Manual, and can rely on the Ports Act and the TNPA Guidelines for Agreements, Licenses and Permits for its PPPs explained above.

Despite the legal framework for PPPs, until now, all port projects have been fully developed by Transnet or its state-owned predecessors, so there is no current precedent for any new port project other than fully funded, built, and operated by the state or a parastatal organization (Law Business Research, 2016).

In practice, the concessions and leases in the ports of South Africa are under the responsibility of the Ministry of Transport, while the Transnet operations are under the responsibility of the Department of Public Enterprises, since Transnet is one of the biggest public organizations in South Africa. Transnet SOC is the corporate body that is responsible for transactions and has a dedicated unit responsible for PPPs: the Private Sector Participations (PSP) Department.

Figure 52: Evolution of the Legal and Regulatory Framework in South Africa



The main shortcomings of South Africa's port sector legal and regulatory framework are:

- The legal framework has been developed with a focus on TNPA being positioned outside Transnet and becoming an independent National Ports Authority. Within this movement, additional private sector involvement in port operations is being pursued. The legal documents that enable this move all date from the early 2000s, but so far, the national ports authority is still part of Transnet, and all major terminals are still operated by Transnet Port Terminals. The South African ports sector thus does not adhere to the SADC requirements on the development of ports through PPPs. It is strongly recommended that this situation is changed, but it is regarded unlikely to happen on short notice, based on the current dominance of Transnet in the sector.
- The financing principles of the ports sector based on the legal documents that were reviewed are unclear. The only statement regarding the financing of the sector in the Ports Act mentions that the Authority shall remain financially autonomous, but there are no guidelines provided in terms of how financing can be arranged. It is recommended that these guidelines are set by the TNPA and the Ports Regulator, and are then included in the Ports Act.
- The Ports Regulator of South Africa has an important role in South Africa's ports sector, but its functioning can be improved. The goal should be that the regulator supports and enables economic development, but currently the regulator is not always monitoring the right areas. For example, the setting of odd performance targets, such as reducing pilotage times or basing tariff ceilings on comparing the Port of Durban to, for example, the Port of Hamburg or Singapore. By inducing capacity building, the roles of the port regulator might become more understandable for TNPA workers, as well as the port regulator learning about operations and challenges faced within TNPA. This should enhance the cooperation and understanding of both organizations.

Port tariffs

There are two publicly available sources on South African ports' tariffs: the Transnet National Ports Authority tariff book 2017–18 (Transnet National Ports Authority, 2017b) and the Transnet Port Terminals tariff book 2017–18 (Transnet Port Terminals, 2017c). TNPA as the port authority and provider of marine services presents the port dues and marine services fees, and TPT as the terminal operator presents terminal handling charges.

The current port tariff structure in Durban is largely in line with the preferred structures. However, some notable errors in the tariff book are related to the following:

- Port dues are partly charged based on a time dimension of a vessel call, while they should serve to recoup investments in infrastructure that vessels only use per vessel call (e.g. entrance channel, turning basin);
- Berthing dues are charged on a GRT basis instead of a charge per LOA meter of the vessel or per berth;
- There are no additional berthing dues for vessels over 53,000 tons, while these are usually the deep-draft vessels that require deep quays to be moored at that require substantial investments from a port authority.

The current port tariff structure at the Port of East London is also mostly consistent with best practice. The remaining shortcomings are as follows:

- Port dues are partly charged based on a time dimension of a vessel call, but they should serve to recoup investments in infrastructure that vessels only use per call (e.g. entrance channel, turning basin);
- Berthing dues are charged on a GRT basis instead of a charge per LOA meter of the vessel or per berth;
- There are no additional berthing dues for vessels over 53,000 tons, while they usually require deep quays to be moored at that require substantial investments from a port authority.

4. Port description

South Africa is home to nine commercial ports: Saldanha Bay, Cape Town, Port Elizabeth, Ngqura, East London, Durban, Richards Bay, Mossel Bay, and Port Nolloth. The ports of Saldanha Bay and Richards Bay are primarily focused on the exports of bulk cargoes, with the former exporting iron ores from the Northern Cape and the latter exporting large volumes of coal. The ports of Mossel Bay and Nolloth are fishing ports with limited commercial cargo activity, whereas the Port of Ngqura was developed as transshipment hub, servicing traffic from America and West Africa.

The remaining four ports are geographically positioned to serve their immediate hinterlands, with Cape Town providing for the Western Cape, Port Elizabeth and East London serving the Eastern Cape, and Durban serving the northern regions, as well as the more distant transit countries (Transnet Port Terminals, 2017d).

The Port of Durban is located on the east coast of South Africa. It is South Africa's main general cargo port and its premier container port, as well as the largest container port of sub-Saharan Africa (Table A62). It is the principal port serving the KwaZulu-Natal province and the Gauteng region, as well as the southern African hinterland. It is the leading port in the SADC region, strategically positioned along the global shipping routes. The port has a central role in the transport and logistics chain, with 65 percent of all South Africa's containers and liquid bulks passing through the port (Table A64). Hence, it assumes a leading role in facilitating economic growth in South Africa. Within the Port of Durban, Pier 1 and Pier 2 are being redeveloped to accommodate bigger (container) vessels. The first pier is being expanded to a total capacity of 2.1 million TEU, including deepening of the basin to CD −16.5 m. The second pier is being dredged and extended to accommodate ULCC vessels. The total investments for the both expansion projects add up to around 6 billion South African Rand

The Port of East London is located 460 km south of the Port of Durban, at the mouth of the Buffalo River. It is South Africa's only river port, and consists of a Ro-Ro terminal, grain silos, a multipurpose terminal equipped to handle both general cargo and containers, and a liquid bulk terminal (Table A63). Focus areas for the Port of East London are primarily Ro-Ro, grains, and vehicle-related container imports. With a dedicated road, the two Ro-Ro berths are connected to the adjacent Daimler factory which fabricates Mercedes-Benz models, and has increased volumes through the port significantly. The port's dependency on Daimler is represented by the fluctuating port throughput volumes surrounding the launch of a new model which occurs every eight years. The container berth has a capacity of 90,000 TEU and handles primarily volumes related to the motor industry. As the port is not equipped with cranes, ships are required to have their own gear. As a result of equipment investments such as straddle carriers, mobile cranes, and forklifts, the Port of East London has ample capacity and ability to attract additional volumes across varying cargo segments (Table A65).

Port of Durban - South Africa

SOURCE: CISION PR NEWS

Port of East London - South Africa

Table 62: Performance Indicators - Port of Durban

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	2.94	3.01	2.51	2.68	1.19
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	832		5,351		
Port area productivity	ton/ha			124,820		
Container dwell time	days	-	n/a	n/a	n/a	n/a
Truck turnaround time	Truck time from gate in to gate out (hours)	1.75	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	3.60	4.41	n/a	4.51	4.62

Source: MTBS, TNPA

Table 63: Performance Indicators - Port of East London

Performance Indicator	Unit	Containers	Dry Bulk	Liquid Bulk	General Cargo	Ro-Ro
Average ship turnaround time	Days between a ship's arrival time in port and its departure	2.94	3.01	2.51	2.68	1.19
Quay productivity	*Containers*: TEU/m quay *Other types*: ton/m quay	325		624		
Port area productivity	ton/ha			49,544		
Container dwell time	days	-	n/a	n/a	n/a	IM:2 EX:10
Truck turnaround time	Truck time from gate in to gate out (hours)	1.75	n/a	n/a	n/a	n/a
Tariffs relative to other ports: tariffs	Score from 0 (lowest) to 5 (highest)	3.82	4.55	n/a	4.51	5.00

Source: MTBS, TNPA

Table 64: Berth Characteristics – Port of Durban

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
Bluff No 1 - 4	Bluff Coal Terminal	Bluff Mechanical Appliance	743	8.6 - 10.0	Coal, coke, mineral products, fertilizer and Sulphur	15.5	Conveyors 2x Bucket loader 2x Grab loader	OS (40,000t)
100 - 107	Durban Container Terminal (Pier 1)	Transnet Port Terminals	1990	8.8 - 12.2	Containers and general cargo.	29.8	6x STS (twin lift) 22x RTG 2x RMGC 2x RS	CTS (19.7ha / 24,960 TEU) Reefer (800 slots)
108, 109 & 200 - 205	Durban Container Terminal (Pier 2)	Transnet Port Terminals	2128	11.1 - 12.2	Containers.	131.0	22x STS (twin lift) 3x RMGC 115x SC 2x RS	CTS (110ha / 39,474 TEU)) Reefer (1,744 slots)
A - B	Durban Point Multipurpose Terminal	Transnet Port Terminals	617	9.6 - 11.2	Containers, general cargo, and granite.	8.0		
M	Durban Point Multipurpose Terminal	Transnet Port Terminals	370	11.1	Livestock, general cargo, and Ro-Ro.	6.5		
C - G	Point and T-Jetty	TNPA	1177	6.1 - 8.8	Containers, general cargo, and Ro-Ro.	34.4		Parking bays (14,000)
N	Point and T-Jetty	TNPA	262	11.3	Passengers.	1.5		
O - P	Point and T-Jetty	TNPA	610	10.6 - 11.6	Citrus fruits.	6.4	Cold store Pallet/wharf cranes	CS (3.8ha)
Q - R	Point and T-Jetty	TNPA	366	10.1 - 10.6	Ro-Ro.	2.6		
1 - 15	Maydon Multipurpose Terminal	SA Port Operations/SA Sugar Terminal/Rennies/Grain Elevator (Agriport)/Grindrod	2809	8.3 - 9.9 (berth 12: 5.1)	Multipurpose (containerised bulk cargo, bagged sugar, heated and non-heated hard and soft vegetable and animal oils, agri-/mineral bulk, steel, general cargo, grain, molasses, soda ash, pulp, paper).	118.1	Conveyors Grain Elevator	WH (256,500t) Silos (520,000t) Steel (40,000t)

								Soda (32,000t) Molasses (48,000t)
No 2 - 4	Island View Storage	Vopak/IVS/JBS/IOP/Blendcore	281	9.4 - 14.2	Liquid bulks (petroleum products, aviation fuel, LPG, LNG, crude, chemicals, and vegetable oils). Three jetties (Berth No 2: Dolphin extension 226m, No 3: Dolphin extension 172m, and No 4: Dolphin extension 184m).	17.0	Conveyors Pipelines	Grain silos (69,000t) Liquid storage (484,000m^3)
No 5 - 8	Sapref Island View	Sapref/Engen	547	10.3 - 13.0	Petroleum products, chemicals, aviation fuel, LPG, LNG, and crude. Two jetties (Berth No 7: Dolphin extension 206m and No 8: Dolphin extension 233m).	162.7		
No 1	Sapref Island View	Sapref/Engen	176	10.3	Bunker barges	1.0		
No 9	Salisbury Island	Natcos	106	12.2	Petroleum products and crude. Dolphin extension 245m.	0.9		
SPM	Sapref Refinery	Sapref/Engen	SPM		Crude.	SPM	SPM	

Table 65: Berth Characteristics – Port of East London

Number	Terminal	Ownership	Length (m)	Draught (m)	Use	Land Area (ha)	Equipment	Storage
I, K & L	Container Terminal	TNPA	638	8.1 - 10.3	Containers and general cargo.	7.7	Straddle carriers Mobile gantries	OS (3.8ha) WH (2.5ha) CTS (1,360 TEU)
C, F & G	East London	TNPA	560	9.1 - 9.5	General cargo, cruise, lay-ups, and vegetable oil.	2.0		WH (0.4ha)
S & T	Grain Elevator	TNPA	388	10.3	Maize bulk.	3.1		Grain silos (76,000t)
N & R	Motor Vehicle Terminal	TNPA	555	8.2 - 10.2	Ro-Ro.	10.4		Parking bays (5,100)
Tanker Berth	Oil Terminal	TNPA	259	10.7	Clean products.	18.7	Pipelines	

Source: IHS Fairplay, 2017

Table 66: Throughput and Capacity - Port of Durban

Type	Unit	Throughput (2016)	Capacity	Utilization
Durban Port/Maydon				
General Cargo	ton	1,779,594	4,000,000	44.49 percent
Dry Bulk	ton	4,740,547	5,000,000	94.81 percent
Ro-Ro	units	440,924	520,000	84.79 percent
Container Terminals				
DCT Pier 1	TEU	650,000	700,000	92.86 percent
DCT Pier 2	TEU	1,970,026	2,100,000	93.81 percent
Liquid Bulk Terminals				
Island View Terminal	ton	11,178,800	18,000,000	62.10 percent
SBM	ton	16,768,200	24,000,000	69.87 percent
Dry Bulk Terminals				
Bluff Coal Terminal	ton	5,500,000	6,000,000	91.67 percent

Source: TNPA

Table 67: Port Volumes - Detailed - Port of Durban

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	2,017,773	2,068,365	2,130,977	2,184,511	2,013,077
	Transit	TEU	146,059	149,721	154,253	158,128	145,719
	Transshipment	TEU	404,292	414,429	379,100	427,696	461,230
	Subtotal	**TEU**	**2,568,124**	**2,632,515**	**2,664,330**	**2,770,335**	**2,620,026**
General Cargo	Domestic	ton	2,737,807	3,089,895	3,029,277	2,246,927	1,659,471
	Transit	ton	198,179	223,665	219,277	162,646	120,123
	Subtotal	**ton**	**2,935,986**	**3,313,561**	**3,248,554**	**2,409,573**	**1,779,594**
Dry Bulk	Domestic	ton	8,665,166	9,677,940	9,960,716	8,145,584	9,462,951
	Transit	ton	627,871	700,548	721,052	665,833	777,596
	Subtotal	**ton**	**9,293,037**	**10,378,488**	**10,681,768**	**8,811,417**	**10,240,547**
Liquid Bulk	Domestic	ton	26,630,335	24,845,530	25,061,870	25,003,123	26,060,578
	Transit	ton	1,927,665	1,798,470	1,814,130	1,809,878	1,886,423
	Subtotal	**ton**	**28,558,000**	**26,644,000**	**26,876,000**	**26,813,000**	**27,947,000**
Ro-Ro	Domestic	ton	664,440	719,199	673,499	674,683	634,636
	Transit	ton	29,520	34,940	28,739	30,217	26,750
	Subtotal	**ton**	**693,960**	**754,139**	**702,239**	**704,900**	**661,386**

Source: TNPA

Table 68: Throughput and Capacity - Port of East London

Type	Unit	Throughput (2016)	Capacity	Utilization
East London Port				
Containers	TEU	71,901	90,000	79.89 percent
General Cargo	ton	17,471	250,000	6.99 percent
Dry Bulk	ton	261,482	1,000,000	26.15 percent

Liquid Bulk	ton	925,770	2,400,000	38.57 percent
Ro-Ro	units	101,427	139,000	72.97 percent

Source: TNPA

Table 69: Port Volumes - Detailed - Port of East London

Type		Unit	2012	2013	2014	2015	2016
Containers	Domestic	TEU	52,213	43,718	41,957	66,213	71,661
	Transit	TEU	-	-	-	-	-
	Transshipment	TEU	93	78	-	80	240
	Subtotal	**TEU**	**52,306**	**43,796**	**41,957**	**66,293**	**71,901**
General	Domestic	ton	20,861	77,006	112,533	48,467	17,471
Cargo	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**20,861**	**77,006**	**112,533**	**48,467**	**17,471**
Dry Bulk	Domestic	ton	185,591	107,505	126,443	127,300	261,482
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**185,591**	**107,505**	**126,443**	**127,300**	**261,482**
Liquid Bulk	Domestic	ton	859,917	837,714	861,135	932,093	925,770
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**859,917**	**837,714**	**861,135**	**932,093**	**925,770**
Ro-Ro	Domestic	ton	94,148	80,708	86,045	96,916	152,140
	Transit	ton	-	-	-	-	-
	Subtotal	**ton**	**94,148**	**80,708**	**86,045**	**96,916**	**152,140**

Source: TNPA

Volume forecasts

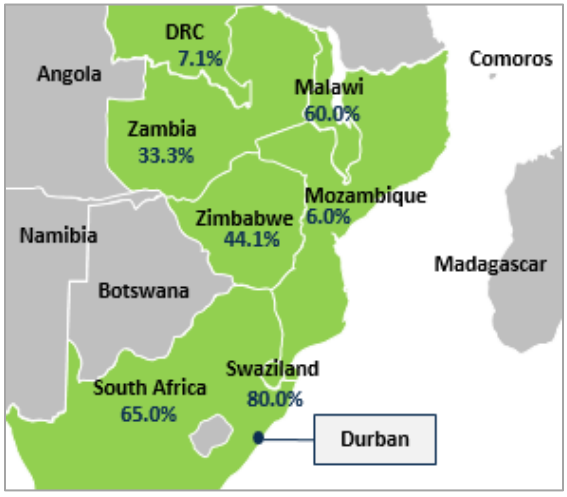
Port of Durban

Transit Shares: As the actual volumes of transit cargo are not present in the statistics for the Port of Durban; it is assumed that 6.75 percent of the volumes handled in the Port of Durban are transit volumes. This assumption is derived from previously conducted studies in the Port of Durban and larger South African region. From the total transit share of 6.75 percent, the hinterland split is as follows; Zambia (30 percent), Zimbabwe (26 percent), DRC (20 percent), Mozambique (12 percent), Swaziland (8 percent), and Malawi (4 percent), resulting in the shares depicted in Figure A53. Zambia is thus the main trade partner, followed by Zimbabwe and the DRC. The Port of Durban is connected to its hinterland via the North-South Corridor, which links the Port of Durban to the Copperbelt region in the DRC and Zambia, and has spokes linking to the Port of Dar es Salaam in Tanzania. Domestic volumes in the Port of Durban are higher compared with other ports due to the more advanced economic development of South Africa compared to its neighboring countries, resulting in more domestic imports, and an abundance of natural resources such as magnetite and coal, resulting in more domestic exports. In addition to the port's role as gateway and exit port to South Africa and other African countries connected to the North-South Corridor, the Port of Durban serves as transshipment hub for Far East trade, European trade, and trade destined to the United States (TNPA, 2017). Transshipment containers handled in the Port of Durban amounted to approximately 17.6 percent of total containers handled in 2016 (Tables A66 and A67).

Hinterland Volume Shares: On average, Durban handled about 60 percent of the container volumes and 72 percent of the liquid bulk volumes passing through all South African ports (Ports Regulator of South Africa, 2016). As dry bulk exports are excluded from the country forecast, which are handled in large quantities by the Port of Richards Bay, the forecast assumes that 65 percent of South African cargo volumes are handled by Durban. For Swaziland, Durban handled approximately 80 percent of total dry bulk demand; for all other cargo types, Durban handled almost Swaziland's entire demand. About 60 percent of Malawi's volumes are handled on the North-South trade corridor (Cross Border Road Transport Agency, 2016). Zimbabwe and the DRC

used Durban to import and export 44.1 percent and 7.1 percent of their total country volumes, respectively (JICA, 2015b). Lastly, Zambia and Mozambique shipped 33 percent and 6 percent of their domestic volumes via Durban, respectively (Evidence on Demand, 2015).

Figure 53: Port of Durban Hinterland Volumes, 2016



Future Competitive Environment: Hinterland volume shares are not expected to shift significantly for the Port of Durban. Though Swaziland transports approximately 97 percent of its containers via the Port of Durban, dry bulk cargo volumes passing through Durban are lower, with the majority of sugar canes being shipped via the Port of Maputo. However, imports of fuels and vehicles are handled by the Port of Durban completely (Government of Swaziland, 2017). With respect to South African trade via the Port of Durban, it is assumed that Durban's share in South Africa's cargo demand remains stable at 65 percent, with no major changes expected in the imports of liquid bulks or containers (Transnet Port Terminals, 2017a).

Volume Projections: The volumes handled by Durban are expected to increase from 66.8 million ton in 2016 to 119.0 million ton in 2050 (Figure 54). With approximately 47.3 percent of the volumes handled by the Port of Durban in 2050, containers are the largest cargo type, followed by liquid bulk with 34.9 percent. Liquid bulk handled in the Port of Durban is expected to increase from 27.9 million ton in 2016 to 41.5 million ton in 2050, of which approximately 93 percent are imports and 7 percent exports. Containerized cargo is projected to increase from 26.2 million tons in 2016 to 56.3 million tons in 2050, the equivalent of 5.6 million TEU. Increasing from 10.2 million tons in 2016 to 16.8 million ton in 2050, dry bulks are the third largest commodity handled in the Port of Durban in 2050 with 14.2 percent. Exported dry bulks represent 39.5 percent of these volumes, growing at an average rate of 0.5 percent per year based on estimates from the Ports Regulator of South Africa (Ports Regulator of South Africa, 2016). Vehicle volumes are projected to be 0.9 percent of total volumes in 2050 at Durban, approximately 1.0 million ton or 700,000 vehicle units, with imports being approximately 60 percent. General cargo volumes are expected to increase from 1.8 million ton in 2016 to 3.3 million ton in 2050, which remains below the historical general cargo volumes recorded in the Port of Durban in the period 2010 to 2015. Total volumes in the Port of Durban are expected to increase with a CAGR of 2.2 percent in 2016–2030, 1.5 percent in 2030–2040, and 1.3 percent in 2040–2050.

Figure 54: Base Case Volume Projections - Port of Durban

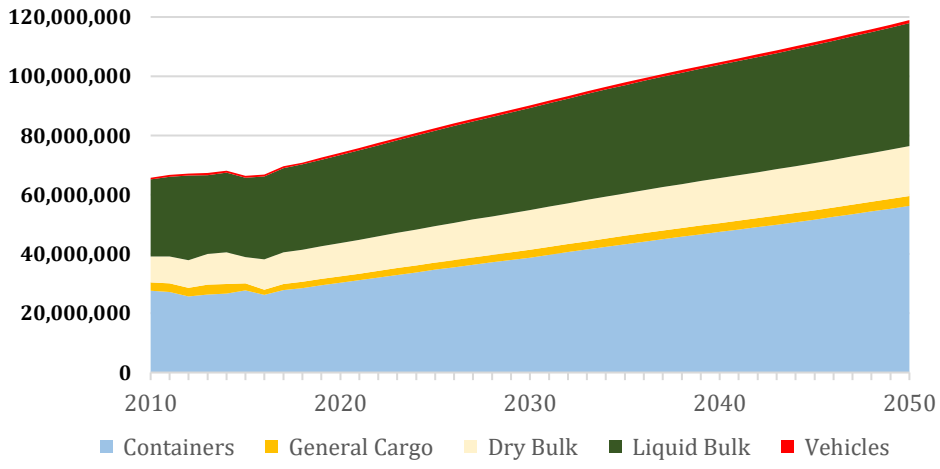


Table 70: Demand projections – Port of Durban

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	27,811	28,517	29,426	30,262	31,127	32,031	32,928	33,815	34,689	38,790	43,312	47,452	51,632	56,289
General Cargo	2,054	2,088	2,134	2,181	2,229	2,278	2,327	2,375	2,421	2,638	2,828	2,987	3,134	3,292
Dry Bulk	10,682	10,836	11,035	11,241	11,452	11,671	11,890	12,108	12,324	13,370	14,330	15,168	15,972	16,834
Liquid Bulk	28,460	28,788	29,240	29,713	30,199	30,700	31,197	31,688	32,173	34,480	36,524	38,232	39,834	41,537
Vehicles	608	643	718	732	756	786	812	836	857	861	896	921	970	1,010
Total	**69,615**	**70,871**	**72,552**	**74,130**	**75,763**	**77,467**	**79,153**	**80,821**	**82,465**	**90,139**	**97,889**	**104,759**	**111,542**	**118,963**

The MS Shift Case assumes that the port is losing cargo to land-locked countries which are more conveniently located to be served by other ports along the ESA coastline. The port is currently able to capture cargo destined to countries such as Malawi or Zambia due to their superior port infrastructure and hinterland connectivity with these countries. As the Mozambican ports develop their port infrastructure and corridors, it is expected that this benefit is lost. Although the infrastructure in South Africa may still be superior, it is assumed that this will not outweigh the transport cost savings for these land-locked countries to ports such as Beira, Nacala, or Maputo. Although the port might lose its market share to these countries, the captured South African demand makes the impact for the port small. Durban is assumed to lose market share in Zimbabwe (from 44 percent to 20 percent) and in Swaziland (from 95 percent to 50 percent). In addition, the port is expected to lose all its market share in Malawi and Zambia to the Mozambican ports and Dar es Salaam (Zambia) (Figures 55 and 56).

Figure 55: Demand Forecast – Containers

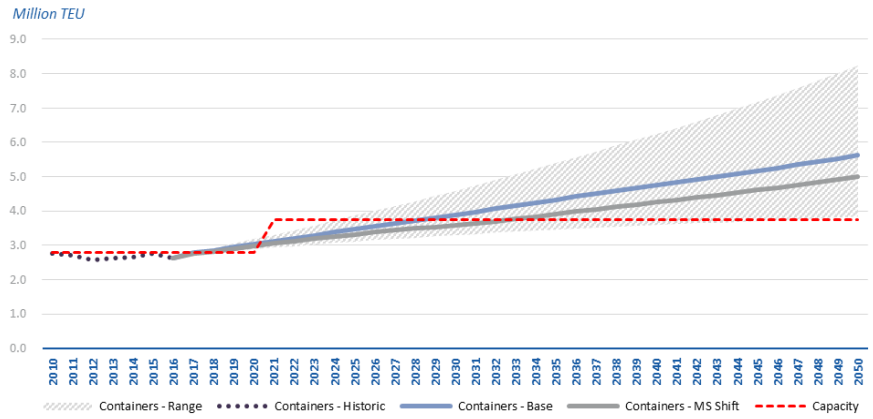
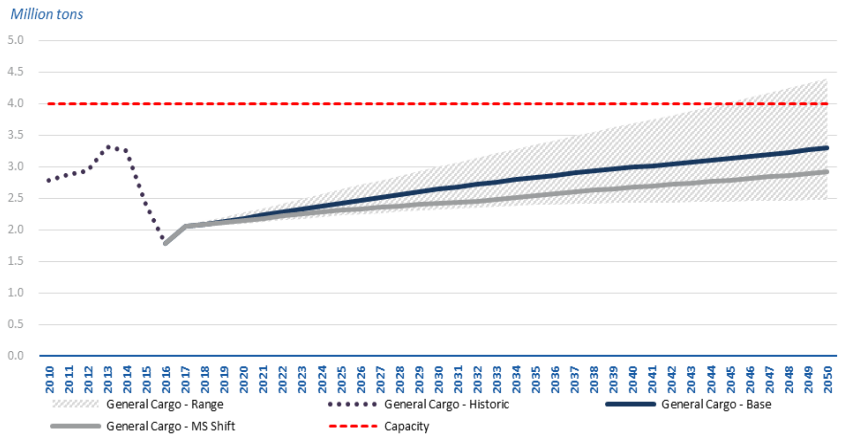


Figure 56: Demand Forecast – General Cargo



Port of East London

Transit Shares: East London is primarily focused on the automotive industry. All historical exports and imports handled in the Port of East London are destined for or originating from South Africa. Neither transshipment nor transit activities are significant in the Port of East London, resulting in 100 percent of the volumes handled in the Port of East London to be from South Africa.

Hinterland Volume Shares: East London's share in South African vehicle volumes is approximately 12.5 percent (Ports Regulator of South Africa, 2016). The port's importance with respect to other cargo types is lower, with approximately 5 percent of the general cargo and dry bulk import volumes, 3 percent of the liquid bulk import volumes, and 2.5 percent of the domestic container volumes. These percentages have been calculated based on the average share of East London's historical throughput over South Africa's demand for these cargo types.

Future Competitive Environment: East London's modest role in South Africa's port landscape is not expected to change significantly in the next 35 years, due to the port's expansion constraints and limited hinterland (Transnet Port Terminals, 2017a). Expansion constraints in East London are largely due to the port's narrow and steep lands on both sides of the river, and the bridges located upstream of the port. The port is expected to maintain its focus on serving the Eastern Cape and handling primarily industrial and agricultural cargo (e.g. local automotive industry) (Transnet Port Terminals, 2017a). Two development projects might increase the port's importance: the rehabilitation and expansion of the liquid bulk handling facilities and a coal mine situated 270 km from the Port of East London that is expected to start operations in 2021 and has a maximum mining capacity of 2.1 million tons per year. These volumes could be transported via rail to the Port of East London. The vessels would be part-loaded in East London and topped-up in Port Elizabeth.

Volume Projections: The volumes handled in the Port of East London are expected to increase from 2.1 million ton in 2016 to 3.8 million ton in 2050 (Figure 57) Liquid bulks are projected to be the largest cargo type, with 1.6 million tons in 2050. This is based on the projected realization of the development plans for the liquid bulk handling facilities. Containerized traffic is expected to be the second largest cargo type in 2050, with 36.3 percent of total volumes. The dry bulk forecast does not capture the potential coal volumes, because these plans refer to a coal mine which is not becoming operational for another four years. Though it remains an interesting project to keep an eye on, the forecast excludes these volumes. As a result, dry bulk volumes increase to just 0.6 million ton in 2050, representing 16.0 percent of the projected volumes for the Port of East London in 2050 (Table 71). With the port's focus on the automotive industry, the vehicle share in total port volumes is clearly visible in Figure 57, and accounts for 4.4 percent of the volumes handled by the Port of East London in 2050. The total number of vehicle units handled in that year accumulates to approximately 160,000, with 52.5 percent being imports and 47.5 percent being exports. General cargo volumes represent the smallest share of total volumes in 2050, representing just 1.0 percent. Total volumes are projected to increase with a CAGR of 2.9 percent in 2016–2030, 1.1 percent in 2030–2040, and 0.9 percent in 2040–2050.

Figure 57: Base Case Volume Projections - Port of East London

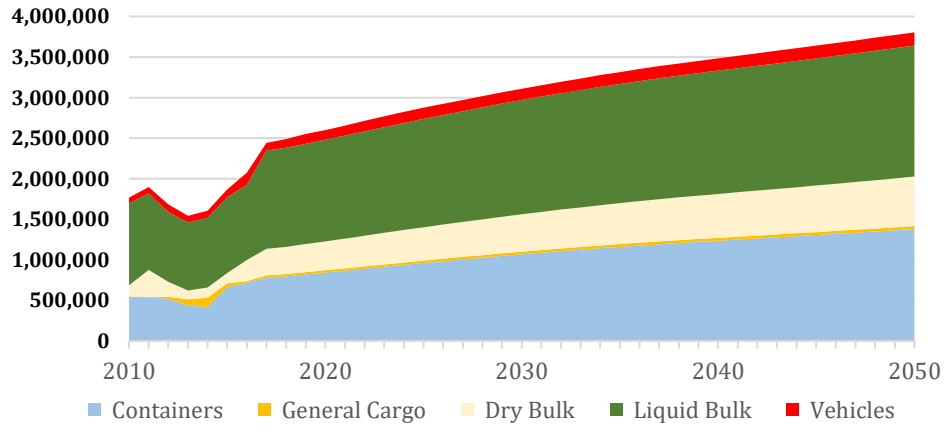


Table 71: Demand projections – Port of East London

Item ('000s ton)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Containers	782	798	821	844	867	891	915	938	961	1,068	1,161	1,236	1,306	1,379
General Cargo	26	26	27	27	28	28	29	29	30	32	34	35	37	38
Dry Bulk	330	337	347	357	368	379	390	401	412	461	505	541	574	609
Liquid Bulk	1,209	1,220	1,236	1,252	1,269	1,286	1,303	1,319	1,335	1,408	1,470	1,520	1,566	1,614
Vehicles	97	110	120	120	124	129	132	136	139	139	145	150	158	164
Total	**2,444**	**2,491**	**2,551**	**2,601**	**2,656**	**2,713**	**2,769**	**2,823**	**2,876**	**3,109**	**3,315**	**3,482**	**3,640**	**3,804**

As the Port of East London serves only South Africa and a significant shift in market share in this country is not expected, the MS Shift case is not depicted for the Port of East London.

Figure 58: Demand Forecast – Containers

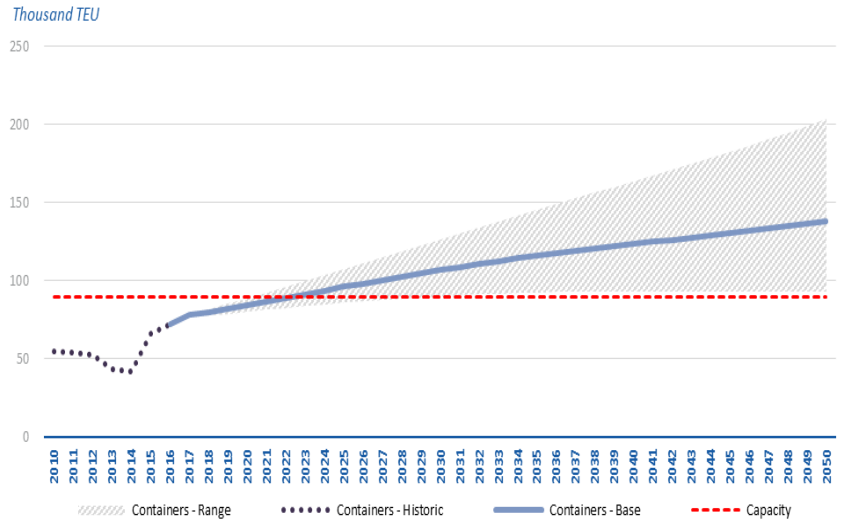
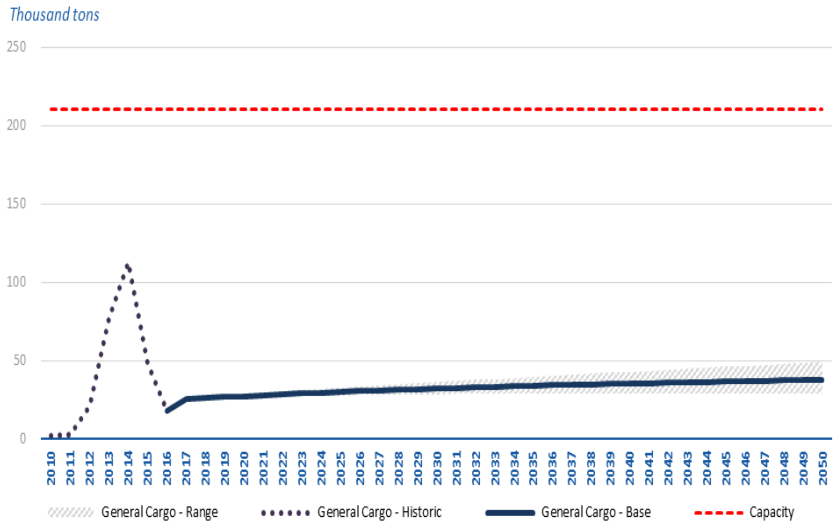


Figure 59: Demand Forecast – General Cargo



Assessment of vertical and horizontal integration

Port of Durban

Key Observations:

- **Port functions:** Durban provides modern port functions with the highest cargo volumes of the region. The port has a central role in the transport and logistics chain, with 65 percent of all South Africa's containers and liquid bulks passing through the port. Because of its relatively efficient port handling, strategic location, and good hinterland connections it has an enormous reach for transit cargoes to the landlocked countries.

- **Relationship between port and stakeholders:** The relationship between the port and its stakeholders is good. The eTheKwini Municipality (eTKM) and Transnet (TPT and TNPA) for the last 10 years have collaborated on dealing with the Port's impact on the city and its residents. The Transnet eTheKwini Municipality Planning Initiative (TEMPI) was established as a planning document between Transnet and eTKM, related to port–city infrastructure planning. As this document was mainly about planning, and not so much implementation, the TEMPI evolved to the current format, which is called the 'Transnet City Forum'. Furthermore, TNPA and TPT engage with port users through the Port Oversight Committees and are being checked on compliance with their performance targets.

- **Development Strategy of the Port:** The development strategy of the port is largely based on the autonomy of Transnet and its subsidiaries to make development plans. Furthermore, the developments are guided by South Africa's national transport planning documents. Due to Transnet's role as a railway authority, there is strong coordination on the development of hinterland links from the port.

- **Degree of vertical integration:** There is a strong degree of vertical integration of the chain in the Port of Durban. TNPA and TPT made substantial investments in IT and systems such as a port community system (smartPORTS system) and terminal operating systems (Navis N4). Logistics services are provided through a network of container depots and ICDs in Durban and in the Gauteng area. Logistics services for hinterland transport are currently to a large extent provided by road. A limited share of containers is moved directly by block trains to Gauteng, where the City-Deep ICD in Johannesburg is the destination. It is TPT's and Transnet's strategy to increase the share of boxes moved by rail.

- **Degree of horizontal integration:** the degree of horizontal integration of the Durban port sector is relatively high. TNPA is the national port authority of South Africa, and TPT serves as the main operator of container, general cargo, and RoRo terminals in the country. Private operators Bidfreight and Grindrod are also active in other African ports. Liquid bulk storage operator Vopak is also providing its services on a global level. Furthermore, Shell, Total, and BP are present as liquid bulk storage operators in the port. The logistics services providers in the port are also active in other ports in the region.

Proposed Key Actions:

- **Ensure a modal-shift:** The rail capacity is substantial: 11 block trains in each direction are possible per day, each taking 100 TEUs per train. The total rail capacity therefore is around 800,000 TEUs per year. This capacity is currently underutilised; modal shift policies should be considered.

- **Develop ICDs:** Ongoing projects that include the construction of Inland Container Depots (ICDs) need to be prioritized. One of these projects includes the development of an ICD on the western boundary of the city. This will serve as a location for stuffing and de-stuffing of containers and will reduce the pressure on the local road network. There could be a dedicated railroad or ICD access road connecting the port to this ICD.

- **Improve the port's road connections**: The current road network between the main highways and the port terminals is congested. eTKM and the Port of Durban need funding for the hinterland projects and road maintenance. The port could also control the queue of trucks on Bayhead road by imposing terminal appointment systems or promoting off-peak operating hours.

Port of East London

Key Observations:

- **Port functions:** East London is a relatively small port, with a total throughput of 2.1 million tons. It mainly focuses on facilitating the vehicle import and export of the adjacent Daimler (Mercedes Benz) factory. The logistics services in the port mainly relate to optimizing the supply chain of the factory.
- **Relationship between port and stakeholders:** The TNPA, the municipality of East London, and port users have a good working relationship. Issues are discussed on a regular basis in the local Port Consultative Committee that is compulsory for all participants. This committee seats TPT, TNPA, local government, provincial government, national government, lessees, cargo owners, terminal operators, shipping lines, and the South African Maritime Safety Association (SAMSA). All unresolved issues are passed on to the national Port Consultative Committee, chaired by the Minister of Transport.
- **Development Strategy of the Port:** The development strategy of the port is largely based on the autonomy of Transnet and its subsidiaries to make development plans. Furthermore, the developments are guided by South Africa's national transport planning documents. Due to Transnet's role as a railway authority, there is strong coordination on the development of hinterland links from the port.
- **Degree of vertical integration:** There is a strong degree of vertical integration of the chain in the port. TNPA and TPT made substantial investments in IT and systems such as a port community system (smartPORTS system) and terminal operating systems (Navis N4). Currently, a limited share of cargoes is moved by rail, as almost all cargoes are originating from or destined for the Mercedes-Benz factory directly next to the port. For a future coal export project, it is expected that dedicated rail services will be used in the port, resulting in 2.1 million tons of coal transported to the port by rail.
- **Degree of horizontal integration:** The degree of horizontal integration is relatively high. TNPA is the national port authority of South Africa, and TPT serves as the main operator of container, general cargo, and RoRo terminals in the country. Liquid bulk terminal operators (BP, Chevron, Engen, Total) operate terminals globally. Logistics service providers in the port are also active in other ports of Africa.

Proposed Key Actions:

- **Ensure a modal-shift:** Currently, almost all cargoes are handled by road, which is logical from the perspective that almost all cargoes are destined for the Mercedes-Benz factory that is located next to the port. To become an attractive port for the coal-export project, it is important that TNPA and Transnet Freight Rail prioritize the development of a railway bridge that can encourage the modal shift of road to rail, and enable large volumes of rail traffic to the port.
- **Ensure a diversified client-base:** The main risk for the future of the Port of East London would be that Mercedes-Benz starts to use other modes of transport to serve its factory (for example, benefitting from economies of scale that larger regional ports provide). To do this, it is important that TNPA's and TPT's marketing team in East London attract new cargoes to the port.

Port–city interface

Port of Durban

Durban is the third largest city in South Africa, after Johannesburg and Cape Town. The average population grew with about 1.4 percent between 2001 and 2017, to a total of 3.1 million people. The IMF predicts the South African population to grow with an average of about 1.6 percent per year up to 2022 (International Monetary Fund, 2017).

The eTKM and Transnet, for about 10 years, have been collaborating in dealing with the Port of Durban's impact on the city and its residents. The Transnet eTheKwini Municipality Planning Initiative (TEMPI) was initially established as a planning document between Transnet and eTKM, related to port–city infrastructure planning. As this document was mainly regarding planning, and not so much

implementation, the TEMPI evolved to the current format which is called the 'Transnet City Forum'. This forum, which seats stakeholders from Transnet, eTKM, and local residents, takes a more active role related to: master-planning for the port and city; port–city aspects regarding traffic, noise, pollution, and port induced littering; and balancing of community's requirements and the port's requirements.

The most important recent development related to the Port of Durban concerns the planned Durban Dig-out Port Project. This project is planned to be located about 10 km southwest of the existing port on the old Durban airfield site and is proposed to create additional port capacity in the Durban region and relieve the existing port facility. The project includes among other things, container berths, a new automotive terminal, liquid bulk terminal, and new road and rail connectivity. However, the proposed dig-out port is a 'no go' until at least 2030, as Transnet opts to implement short-term solutions. TNPA plans to extend the port's existing pier 1 and pier 2 to accommodate an additional 1.9 million containers.

Port Development Stage: Port Generation

Although the Port is surrounded by the city, the port is well-connected by rail and port access (bypass) road connections that are meant to mitigate the negative effects within the city. The port accommodates all types of specialized ships for the commodities handled and strives to minimize berthing time in the port. There is a clear separation of many of the cargo terminals. The Port is mainly operated as a public–public landlord port, with TNPA acting as the landlord authority, and Transnet Port Terminals (TPT) as the main operator. Overall, the port can be described as a fourth-generation port but can still be characterized as a third-generation port related to the limited port–city separation.

Key Observations:

- The Transnet City Forum, which seats stakeholders from Transnet, eTKM, and local residents, takes an active role related to: master-planning for the Port of Durban and the city of Durban; port-city aspects regarding traffic, noise, pollution, port-induced littering; and balancing the community's requirements and the port's requirements.
- Even though eTKM argues that there is collaboration on both sides and a shared interest of limiting the port's impact on the city, several challenges related to this partnership exist: implementation of the port and the city master plan is not moving ahead as fast as desired, mostly due to funding issues; and clear roles and responsibilities between eTKM and Transnet are sometimes lacking. Trends such as the cascading effect of container vessels, the increase of the port's throughput, and the modal split of the port, significantly impact the port–city interface. Communication between eTKM and Transnet on these topics, and their impact on the city needs to be improved.
- The main challenges which impact the port–city relation and the congestion in Durban, as identified by the Port of Durban and eTKM are:

1. The bulk of cargoes handled in the Port of Durban are destined for the Gauteng area (Johannesburg), which is 600 km away from the port itself. There is a major imbalance between demand for 40-foot boxes for imports (consumer goods) and 20-foot boxes for exports (minerals). Due to this, all stripping and stuffing activities take place in the Port of Durban's direct proximity, as transporting the empty containers back from the Gauteng is far too expensive. Consequently, all logistics companies are fighting for space near the port, or in the residential areas surrounding the Port of Durban. This causes significant congestion in the port's surroundings.
2. The current South African economy is not doing particularly well, and the tax level is relatively high for residents due to low tax base and high public-sector costs; therefore public funding is an issue. Private funding would normally occur via the introduction of toll roads or price level increases for the improved infrastructure; however, residents are not accepting that, because of the significant taxes they already pay to the government. Since the South African Ports Regulator is extremely strict, additional sources of income for terminal operators is problematic, as this automatically results in tariff ceilings being lowered.
3. There is a huge imbalance in the imports and exports of containers, as many imported full 40-foot containers are coming in, and full exports are done in 20-foot containers. This results in high volumes of

empty 40-foot containers needed to be exported, and high volumes of empty 20-foot containers needed to be imported. As the empty container depots are not connected to rail, these empty containers always need to be transported by road, increasing the congestion dramatically.

4. Around 70–80 percent of containers in Durban are stuffed or de-stuffed in the port's vicinity. Of the remaining 20–30 percent that move as containers to Gauteng, only 12 percent of them are moved by rail, while there is substantial railway capacity available for block trains to the hinterland. The rail connections currently only run between Durban and Johannesburg's City Deep inland container depot (ICD).
5. Overloading of trucks leaving the ports is a problem. When terminal operators load trucks either incorrectly (front or back of the trailer) or load two full 20' containers on one truck, the maximum axle weight is exceeded. This leads not only to safety issues, but also causes potholes in the roads. This issue has already resulted in the quality of the roads in the southern part of Durban having deteriorated drastically.

- Included in the master plan of the city is a 2nd access (bypass) road for the Port of Durban. However, a dedicated freight road has proven not to be feasible, as containers first need stripping and stuffing before being transported on this freight road. Consequently, eTKM and Transnet are looking into mixed passenger-and-freight traffic. Unfortunately, as mentioned before, public and private funding is difficult.
- Durban is currently the only port that offers environmentally differentiated port dues for specific liquid bulk tankers.

Key Recommendations:

- eTKM and the Port of Durban require assistance on ensuring funding for hinterland projects and road maintenance.
- Ongoing projects that include the construction of ICDs need to be prioritized. One of these projects includes the development of an ICD on the western boundary of the city. This should serve as a location for stuffing and de-stuffing of containers and should reduce the pressure on the local road network. There could be a dedicated railroad or a dedicated ICD access road connecting the port to this ICD. The queue of trucks on Bayhead road could also be controlled by imposing terminal appointment systems or promoting off-peak operating hours.
- The current narrow-gauge railway needs to be upgraded to accommodate the transportation of heavy loads. Also, train schedules need to be optimized to make rail transportation more cost-efficient.
- In the long run, the development of Durban Dig-Out Port is inevitable. The port needs additional capacity by around 2030. Developing the DDOP would require a full shift in the current port and the development of new port areas. This plan should be accommodated with urban regeneration projects and waterfront developments to transform the port areas that do not have a function anymore in the old port.

Port of East London

East London is South Africa's thirteenth largest city in terms of population. The population development in East London shows a strong growth pattern with a CAGR of about 2.4 percent between 2001 and 2011. The IMF predicts the South African population to grow with an average of about 1.6 percent per year up to 2022. (International Monetary Fund, 2017).

Transnet and the municipality of East London have a good working relationship. Issues are discussed on a regular basis in the local Compulsory Ports Consultative Committee, which includes TPT, TNPA, local government, provincial government, national government, cargo owners, terminal operators, shipping lines, and SAMSA. All issues for which a solution cannot be found are passed on to the national Compulsory Ports Consultative Committee, which is chaired by the Minister of Transport of South Africa.

Due to the recent drought (2016), the South African need for grain imports increased by almost 2 million tons. The Port of East London grain terminal therefore refurbished the grain elevator and rail connectivity to meet the import demands. The refurbishment resulted in significantly reduced logistics costs toward the hinterland; and also alleviated some of the road congestion that has raised concerns by residents because of the increasing amount of trucks transporting grain to

and from the East London port. In addition, Transnet made a 10-year capital investment and opportunity plan, including the deepening and widening of the port's approach channel, the replacement of the Buffalo Bridge, expanding the car terminal, and developing tourism and leisure activities along the riverbanks.

Port Development Stage: Port Generation

The Port of East London is built at the mouth of the Buffalo River and is surrounded by and integrated with the city of East London. Therefore, the expansion opportunities of the Port of East London are limited without having a substantial influence on the city. In addition, the port has multiple dedicated terminals with a functional separation for different cargo types, including containers, Ro-Ro, liquid bulk and grains. Moreover, due to its size and focus on specific cargo types, the port enables excellent turnaround times. Based on the port–city interface and its characteristics, the Port of East London can be best described as a third-generation port, even though the port and city are still much integrated.

Key Observations:

- One of the development plans for the Port of East London comprises the development of a new rail bridge over the Buffalo River. This development project is an import aspect for TPT to stimulate the migration of freight from road to rail in the port of East London.
- Congestion in East London does not pose a considerable problem, as most port volumes are related to the adjacent Mercedes Benz factory which has a dedicated road connection with the Port of East London.
- The Port of East London, together with the Buffalo City Municipality, are working on a large waterfront development project further upstream of the port. The waterfront is envisioned to include lock-an-go apartments, restaurants, and offices. In addition, the development plans stipulate the construction of a marina at the entrance of the port.
- With TNPA expecting limited growth for the Port of East London, port–city congestion issues are not likely to arise in the near future.

Key Recommendations:

- Prioritize the development of the railway bridge to encourage the modal shift of road to rail.
- Introduce environmental policies promoting cleaner vessels: variable port fees to incentivize the use of less-polluting vessels; regulation of truck emissions through truck retirement programs; or installation of facilities to cater for the cold ironing of vessels calling the Port of East London.