SUMATRA

For Competitive, Efficient, Quality and Safe Transport Services

Surface and Marine Transport Regulatory Authority
Mamlaka ya Udhibiti Usafiri wa Nchi Kavu na Majini

PORT PERFORMANCE INDICATORS AND BENCHMARKS

SUMATRA

July, 2009

EXECUTIVE SUMMARY

SUMATRA Act, 2001 requires the Authority to establish standards and subsequently monitor the performance of regulated goods and services. In fulfilling this function with regard to ports, this document on Port Performance Indicators and benchmarks for ocean and lake ports in Tanzania has been developed to serve as measures and standards of port services in the country.

In developing the indicators and benchmarks, the legal obligations to involve stakeholders and benchmarking with other regional ports as well as international practices were thoroughly observed. Review meetings, workshops, review of UNCTAD proposals, visitation to ports of Beira, Walvis Bay and Mombasa were key approaches adopted in this regard. Consequently, the developed tool can safely be said to meet legal requirements and to have taken into consideration capacity, needs and expectations of different stakeholders such as the regulator (SUMATRA), Tanzania Ports Authority (TPA), private ports operators, ship owners, importers and exporters both for seaports and lake ports.

A total of 24 performance indicators have been developed to facilitate general understanding of port performance trends which may signal need for actions to handle noted situation. These include 12 indicators which were benchmarked thus giving yardsticks of what is good and bad performance so that capabilities of managements of port authority and/or operators may be scientifically assessed. Benchmarked indicators include:

1. Ship turn-round time;
2. Waiting Rate;
3. Berth Occupancy;
4. Working Time over Time at Berth;
5. Dwell Time (containerized cargo);
6. Gang Productivity (Tons/gang-shift);
7. Ship Productivity (Tons/Ship-day);
8. Moves/hour (Net SSG);

9. Yard Density;
10. TEUs per Hector;
11. Compliance with ISPS Code requirements; and
12. Compliance with OSHA requirements.

Resulting indicators and benchmarks will serve as early warnings and prompt key players to take actions before ports and maritime sub-sector is rendered less functional. Performance indicators will also serve as a measure of competency levels of managers of Tanzania ports in meeting expectations of stakeholders.

It is noteworthy that the document would need review after some time to cope with dynamics of ports and maritime sub-sector; assessment of situation after every 3-5 years may thus be necessary.

In view of the aforesaid, the document stands to be generally acceptable and should be reasonably considered able to serve intended purposes of prompting superior port performances for development of ports and the maritime transportation sub-sector in Tanzania, for the time being.

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PORT PERFOMANCE INDICATORS AND BENCHMARKS

1.0 BACKGROUND

Section 6(1) of SUMATRA Act, 2001 requires the Authority to establish standards and subsequently monitor the performance of regulated goods and services. The Act states explicitly that the performance of the regulated goods and services has to be assessed with respect to levels of investment, availability of services, quality and standards of services, the cost of services, the efficiency of production and distribution of services.

In this regard establishment of standards of regulated ports services compels setting up benchmarks while monitoring of performance entails setting up of performance indicators and reporting system.

Performance Indicators are measures through which SUMATRA and other ports stakeholders will monitor and evaluate developments in the ports and related services and objectively suggest the plan for the future development.

On the other hand, benchmarking is a means by which a level of performance that is superior is specified. Such level of performance should be acceptable and achievable with a view of changing the way certain activities are done hence improving port performance; benchmarking is very useful to the ports administrators in the sense that it renders a structured approach to the search and emulation of best practices to achieve performance improvement. Benchmarking serves to:

(a.) Explaining situations to stakeholders (e.g. regulators, financiers, government);

(b.) Justifying an appropriate level of financing to the government;

(c.) Justifying an appropriate level of port charges to the regulator;

(d.) Providing a better understanding and forecasting of costs and revenues, leading to better predictability; and

(e.) Monitoring contractual performance

2.0 PROCESS OF SETTING UP PERFORMANCE INDICATORS AND BENCHMARKS

In 2007 the Authority initiated the process of setting up performance indicators and benchmarks. Considerations were made regarding the capacity and needs of different stakeholders i.e. the regulator (SUMATRA), Tanzania Ports Authority (TPA), other private ports operators, ship owners, importers and exporters. Key consultations in the process of establishing port performance indicators included the following:

2.1 SUMATRA/TPA Joint Review Session

The first joint review session, between SUMATRA and TPA, to assess the initial proposal of port performance indicators developed by SUMATRA was held on 21st February, 2007. Following the review, TPA headquarters circulated a copy of the proposed indicators to major ports in order to solicit views on relevancy of the proposed indicators, data availability and submission plan.

2.2 SUMATRA/TPA Workshop in Tanga

As a follow-up, in January 2008, SUMATRA organized a two day Workshop on port performance indicators and benchmarking in Tanga. The workshop was attended by thirteen (13) representatives from TPA headquarters and its four major ports of Tanzania. Participating ports were Tanga, Dar es Salaam, Mtwara

and Mwanza. Three of these (i.e. Tanga, Dar es Salaam and Mtwara) are sea ports and one (i.e. Mwanza) is an inland port in Lake Victoria.

The objectives of the workshop in Tanga were to

(a.) set groundwork for the development of basic set of port performance indicators

(b.) propose port specific benchmarks for selected port performance indicators

(c.) ascertain data availability in ports

(d.) agree on the data reporting system

2.3 Study of Other Major Ports in the Region

In April 2008, a delegation of three officials from SUMATRA conducted a study tour to two major ports in the region; namely the port of Beira in Mozambique and Walvis Bay in Namibia. The visit aimed at sharing experiences in performance monitoring and evaluation systems from selected major ports in the region. Equally important the visitation was also meant to ensure that the system for monitoring performance of ports in Tanzania, which was in early stage of its development, was consistent with other ports within the region.

2.4 Stakeholders Workshop in Bagamoyo

In June 2008, SUMATRA organized a workshop of stakeholders in Bagamoyo. The objective of the workshop was to elicit views, experience and expertise of stakeholders of the ports in order to comprehensively finalize the working document on port performance indicators and Benchmarking. The emphasis of the workshop was on sea ports of Dar es Salaam, Tanga, and Mtwara.

2.5 Stakeholders Consultation in Mwanza

In April 2009 SUMATRA consulted with stakeholders of port in Mwanza with a view to establishing port performance indicators and benchmarks relevant to the port. Various stakeholders were consulted for that matter. In particular the following stakeholders were consulted:

a) Tanzania Ports Authority (TPA) – Mwanza office;
b) Marine Services Company Limited (MSCL);
c) Tanzania Railways Limited (TRL); and
d) Private Port Operator – M/s Kitana

2.6 Stakeholders Consultation in Kigoma

Performance indicators and benchmarks for Kigoma Port were dealt with in May, 2009. About six major stakeholders of Kigoma port were consulted; these included:

a) Tanzania Ports Authority (TPA) – Kigoma office;
b) Private Port Operator – M/s MUAPI Ltd;
c) Representatives of ship owners;
d) Clearing and Forwarding Agents;
e) Tanzania Railways Limited (TRL) – Kigoma Station, Tabora Railway District;
f) Marine Services Company Limited (MSCL) – Kigoma Branch

3.0 PERFORMANCE INDICATORS

After in-depth consultations, a final set of port specific performance indicators was established. Generally, a total of 24 performance Indicators which measure the performance of ports in different aspects were established. In broad terms, established indicators could be categorized into four groups:

(i) **Physical indicators** - measuring how much cargo is moved past the port, how fast ships are serviced and cargo is transferred to other modes of transport.

(ii) **Factor productivity indicators** - providing information on labor and capita productivity.

(iii) **Economic indicators** - providing a picture of port finances and the charges to users.

(iv) **Safety indicators** - reflecting the state of port safety.

A list of established performance indicators is presented in Appendix I and a detailed list of required variables with their corresponding agreed submission plan is attached as Appendix II.

Along the process, basic definitions and interpretations for some of the performance indicators was also agreed. This agreement is critical if one is to make progress in benchmarking exercise, it brings about uniformity in the computations and interpretations of the indicators. Definitions of various indicators are presented in Appendix III.

4.0 BENCHMARKS

4.1 Benchmarking Methodology

It was agreed and indeed logical to benchmark performance indicators which are directly linked to processes that are within the powers (or influence) of the ports. Hence, not all proposed performance indicators were benchmarked. Furthermore, during the benchmarking process, the focus was on the output rather than the methods and practices.

In arriving at the agreed benchmarks, five basic steps were followed

i. Proposing initial benchmark values basing purely on best practices[1];

ii. Comparing and contrasting initial proposals with performance in other competing ports in the region;

iii. Reviewing the performance trend of the major coastal and inland ports on the targeted process for the past three years i.e. from January 2006 to June 2009. Thus validating initial proposals empirically. Data used during the review process is attached as Appendix IV;

iv. Assessing the possibility of the ports to achieve the proposed benchmarks given the past trends; and

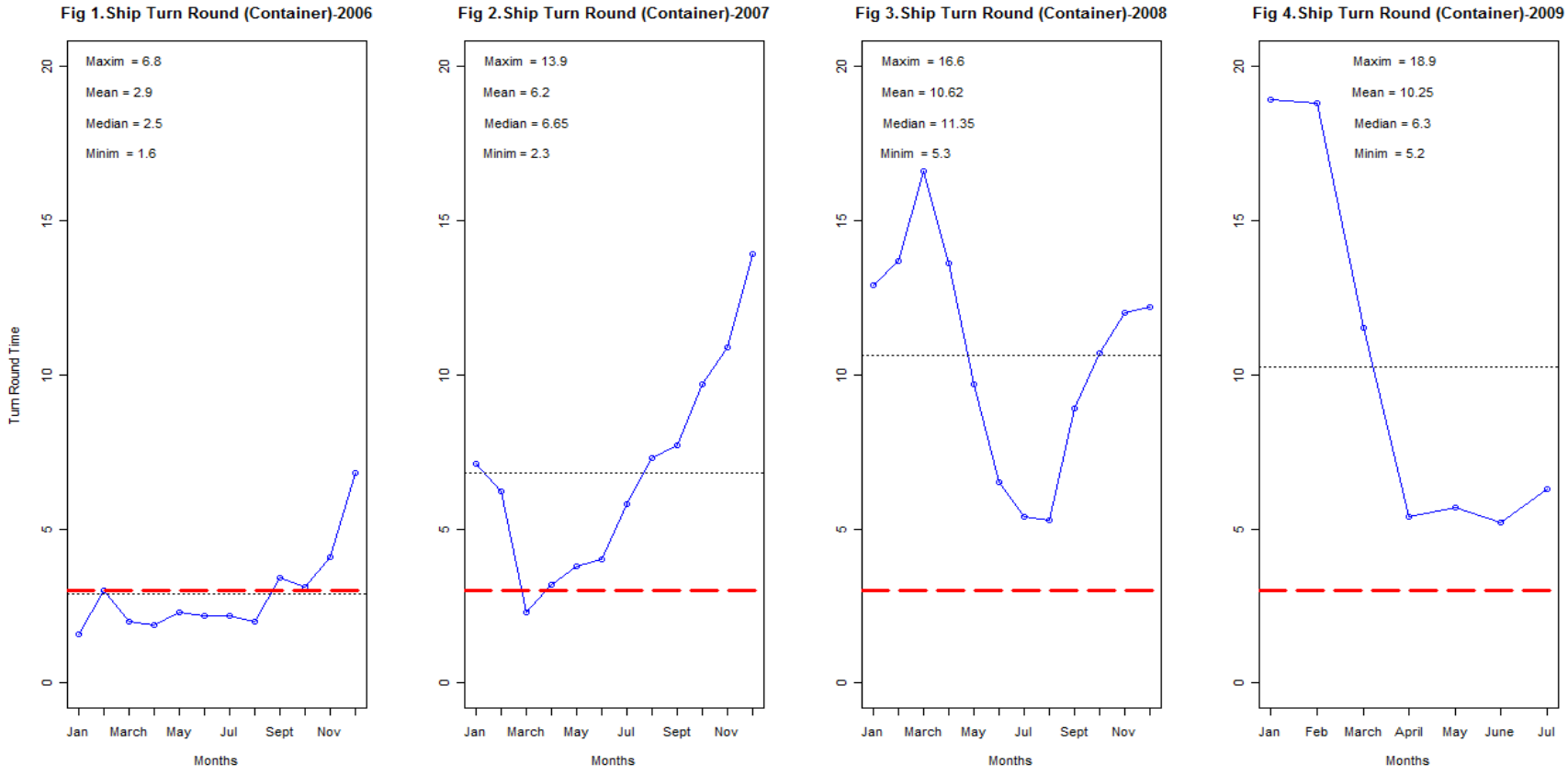
v. Setting the benchmark value;

Trend of performance for Dar es Salaam Port has been shown for the past three years. The trend has further been superimposed with the agreed benchmark to show both the ***superiority*** of the agreed benchmarks on the current trends and also the likelihood of the ports ***achieving*** the benchmarks.

[1] As opposed to empirical evidence

4.1.1: Review of Past Port Performance - Dar Es Salaam Port

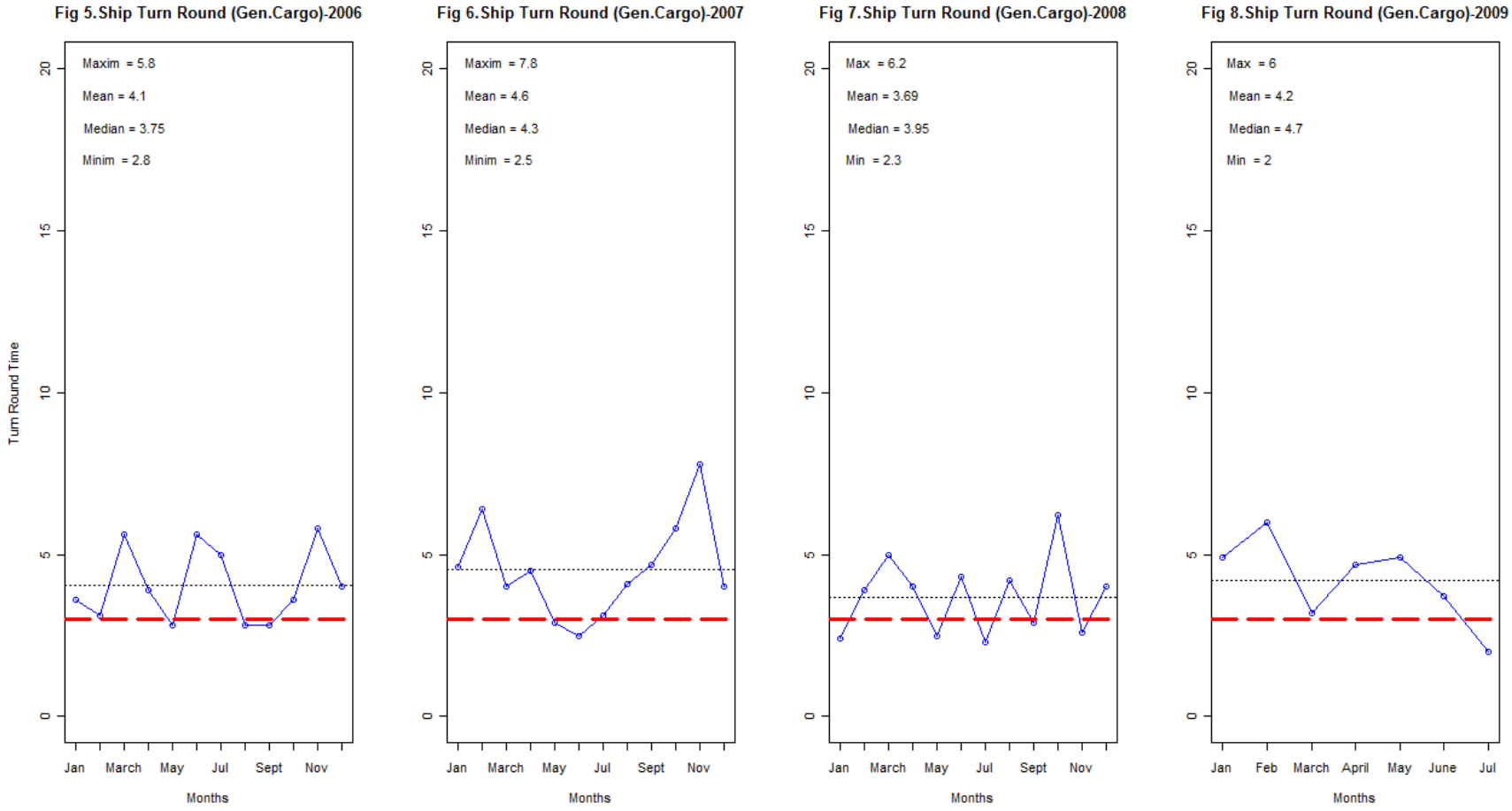
	Benchmarked Indicator	Benchmark
1	**Ship turn-round time**	
	Containerized vessels	3 days
	Trend	



Note: — — — Agreed benchmark

..... Mean value

	Benchmarked Indicator	Benchmark
1	**Ship turn-round time**	
	General Cargo Vessels	3 days
	Past trend	



Note: — — — Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
1	**Ship turn-round time**	
	Tankers	5 days
	Past trend	

Fig 9. Ship Turn Round (Tankers)-2006

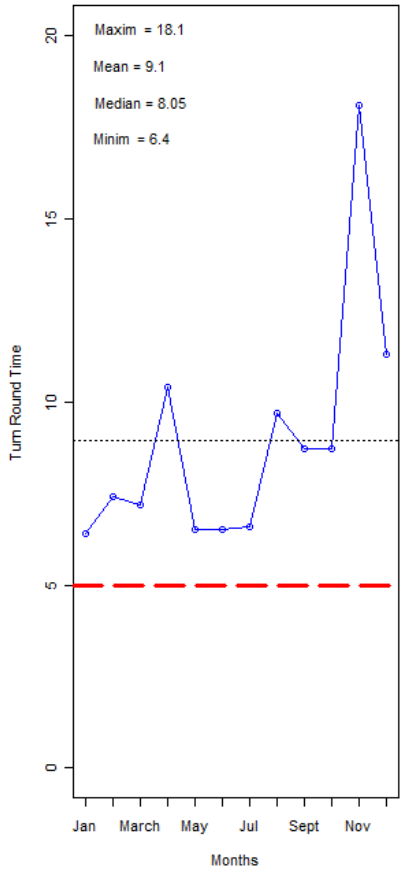


Fig 10. Ship Turn Round (Tankers)-2007

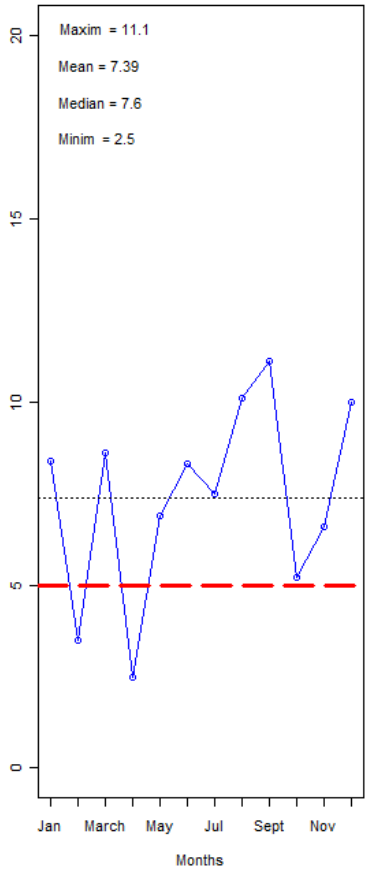


Fig 11. Ship Turn Round (Tankers)-2008

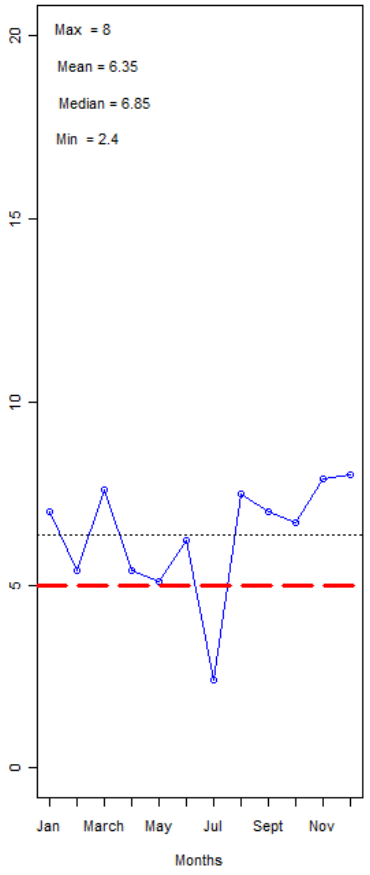
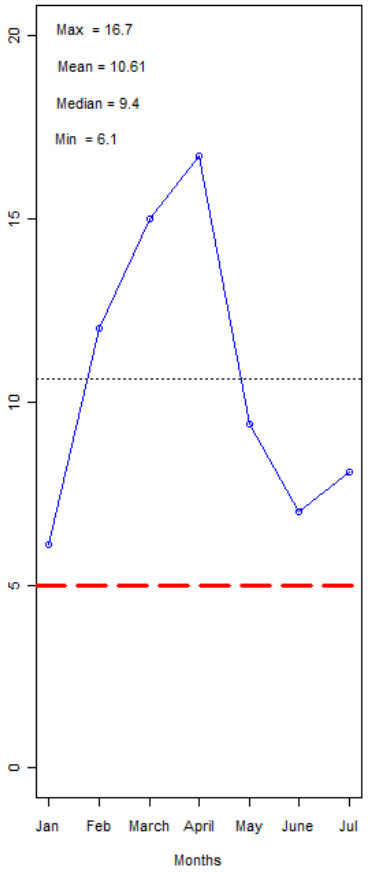


Fig 12. Ship Turn Round (Tankers)-2008



Note: — — — Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
2	**Waiting Rate**	
	Containerized vessels	Less than 1
	Past trend	

Fig 13.Waiting Rate (Containers)-2006

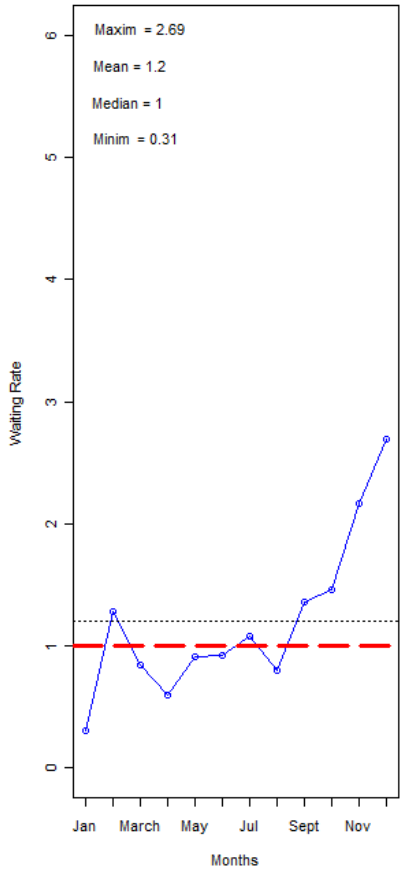


Fig 14.Waiting Rate (Containers)-2007

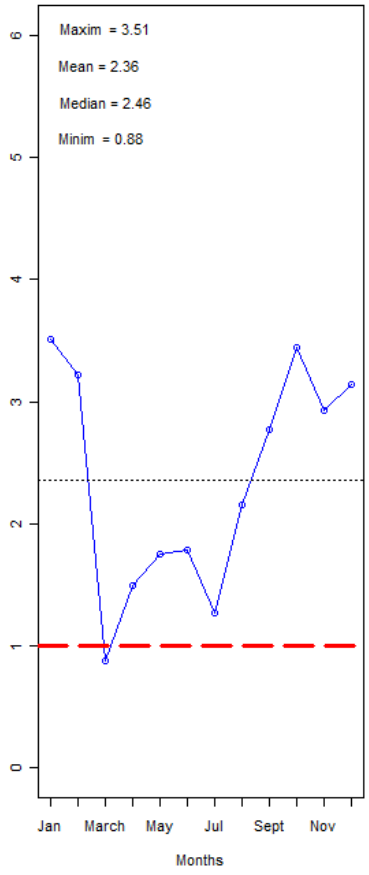


Fig 15.Waiting Rate (Container)-2008

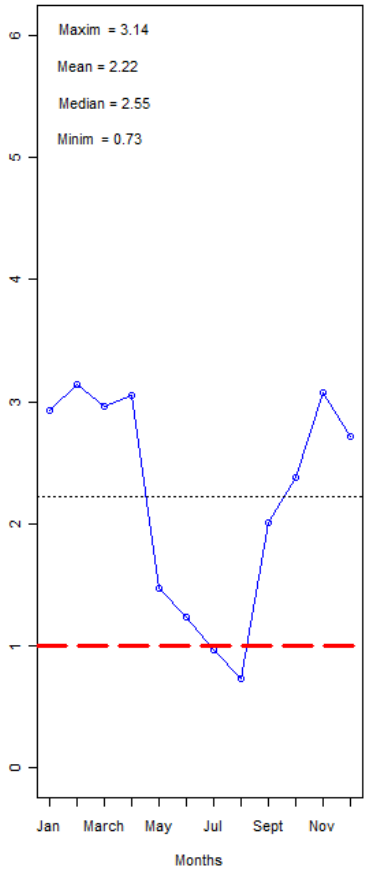
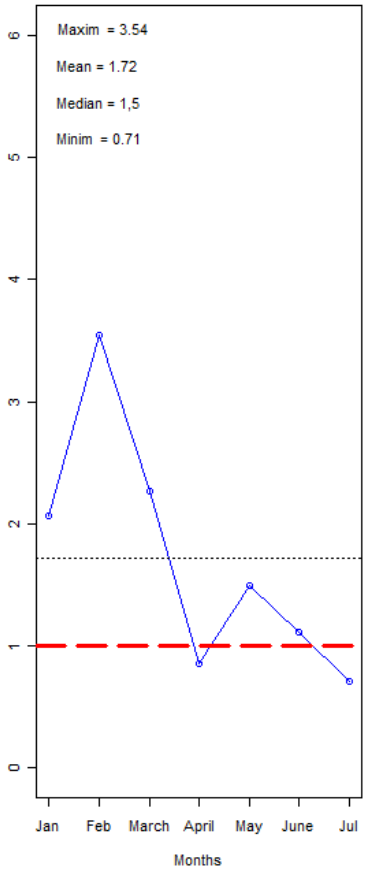


Fig 16.Waiting Rate (Container)-2009



Note: — — — Agreed benchmark

..... Mean value

	Benchmarked Indicator	Benchmark
2	**Waiting Rate**	
	General Cargo Vessels	Less than 1
	Past trend	

Fig 17.Waiting Rate (General Cargo)-2006

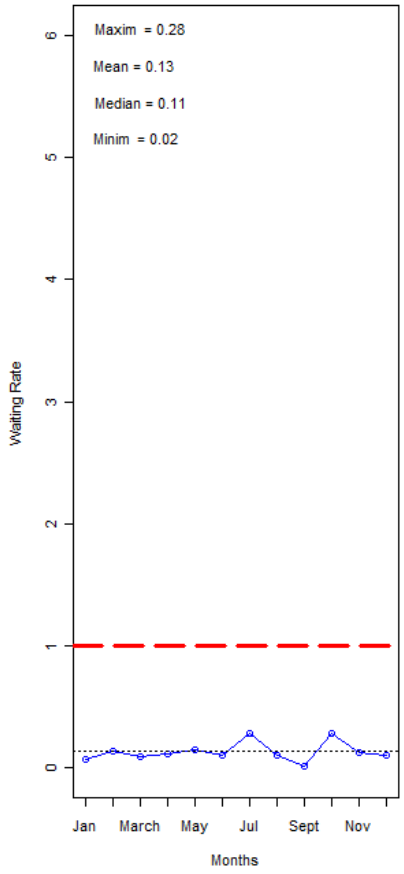


Fig 18.Waiting Rate (General Cargo)-2007

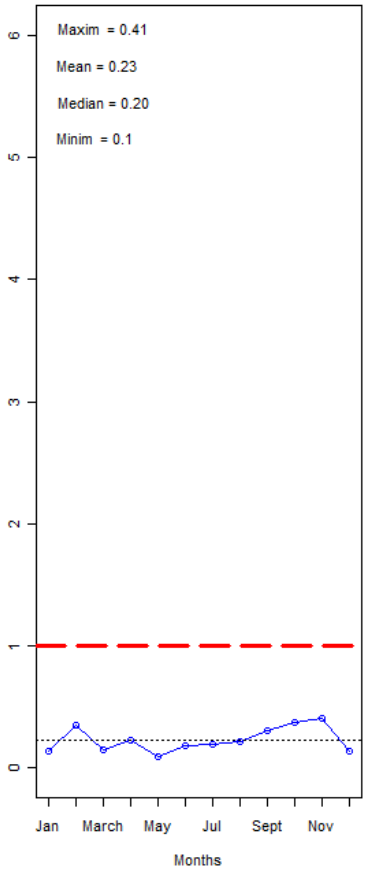


Fig 19.Waiting Rate (General Cargo)-2008

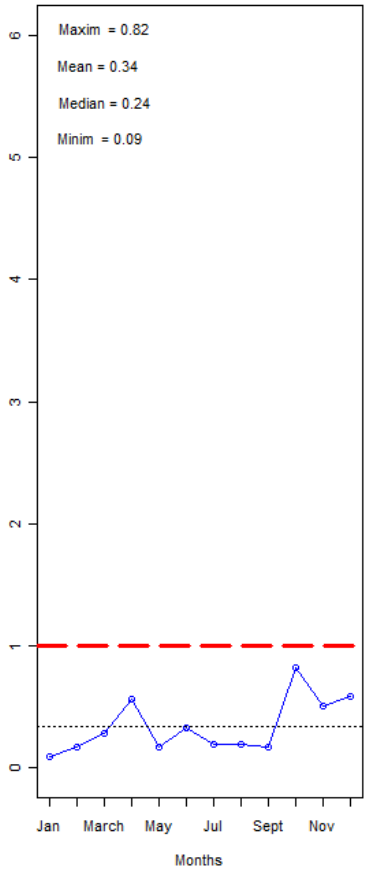
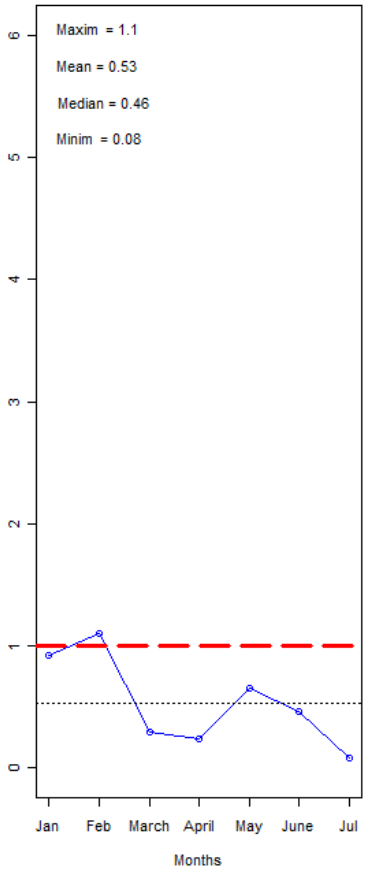


Fig 20.Waiting Rate (General Cargo)-2009



Note: ▬ ▬ ▬ Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
2	**Waiting Rate**	
	Tankers	Less than 1
	Past trend	

Fig 21.Waiting Rate (Tankers)-2006

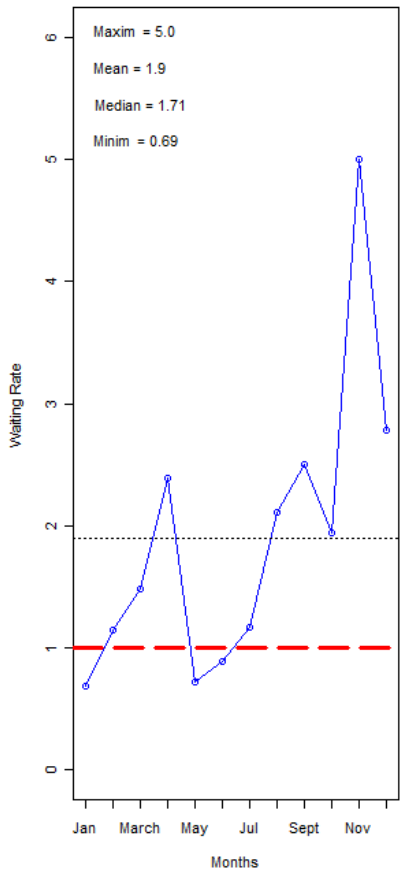


Fig 22.Waiting Rate (Tankers)-2007

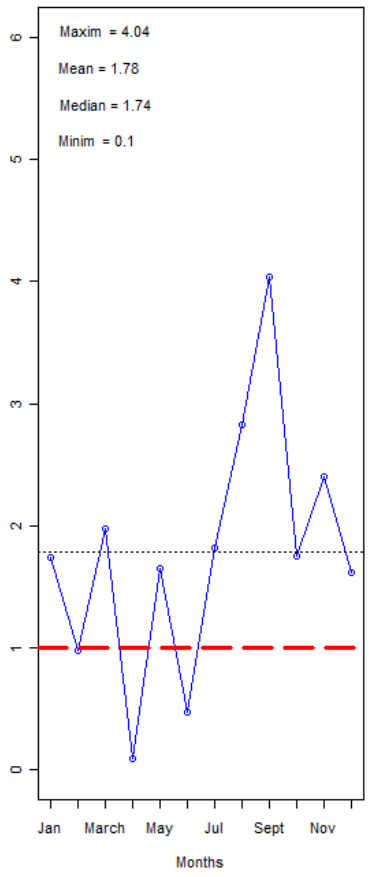


Fig 23.Waiting Rate (Tankers)-2008

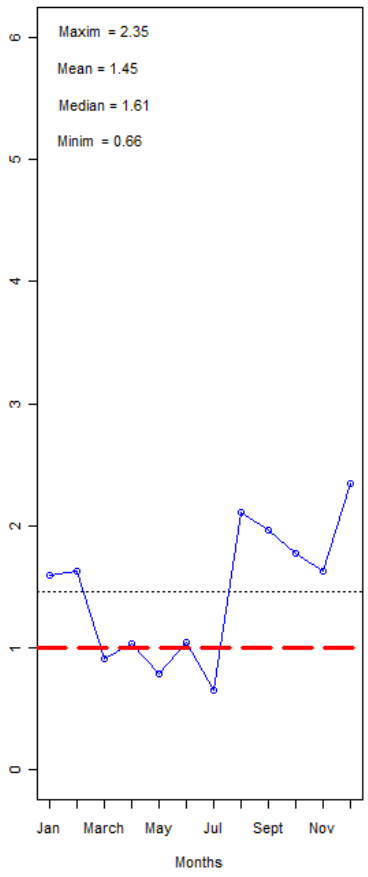
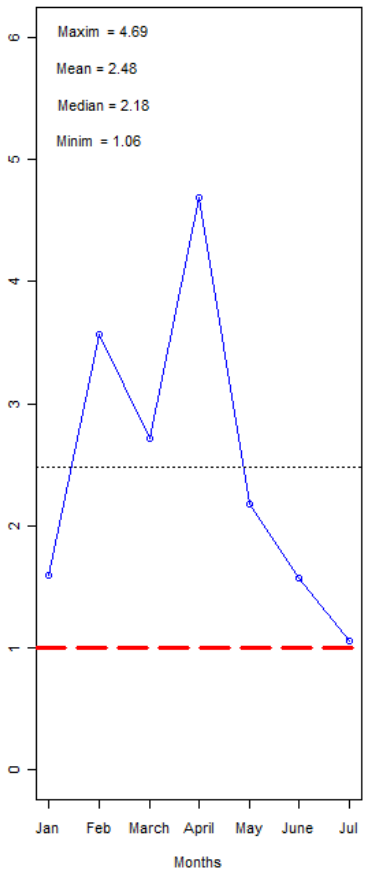


Fig 24.Waiting Rate (Tankers)-2009



Note: — — — Agreed benchmark

..... Mean value

	Benchmarked Indicator	Benchmark
3	**Berth Occupancy**	
	Container Terminal	Less than 60%
	Past trend	

Fig 25.Berth Occupancy (Container)-2006

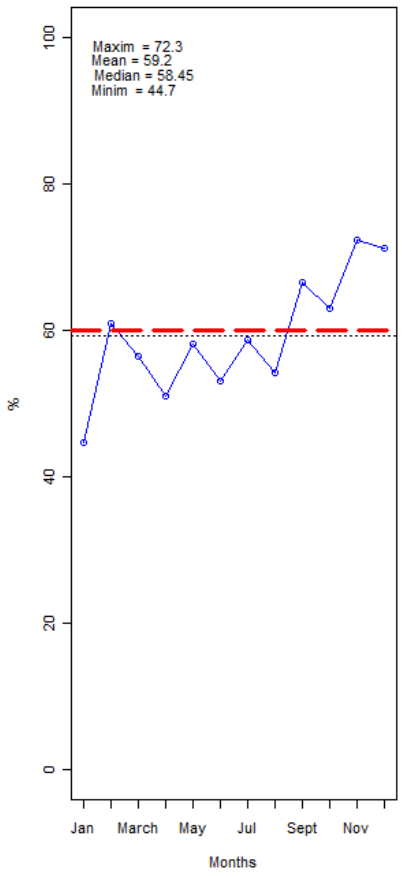


Fig 26.Berth Occupancy (Container)-2007

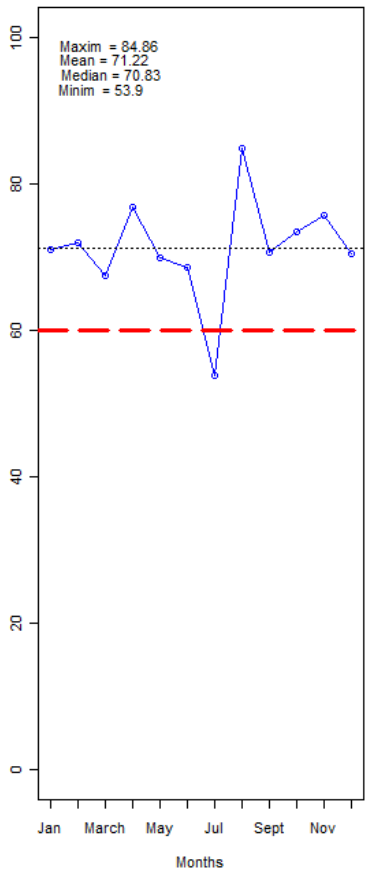


Fig 27.Berth Occupancy (Container)-2008

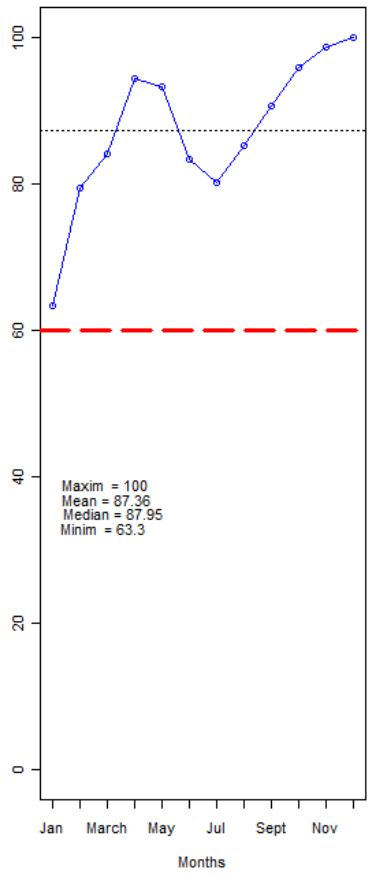
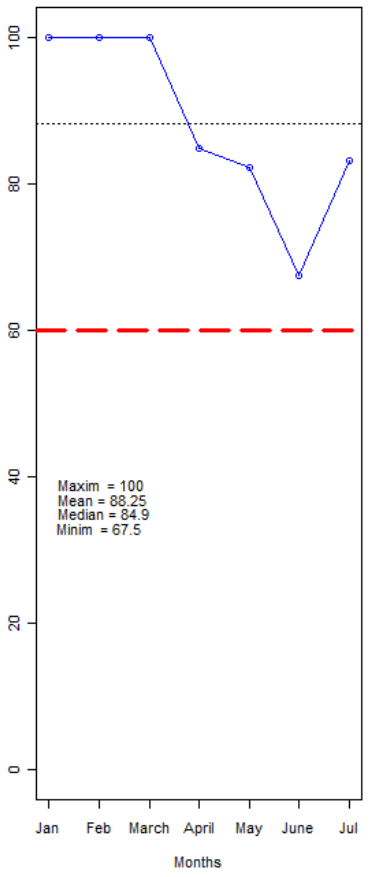


Fig 28.Berth Occupancy (Container)-2009



Note: — — — Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
3	**Berth Occupancy**	
	General Cargo Terminal	Less than 70%

Past trend

Fig 29.Berth Occupancy (General Cargo)-2006

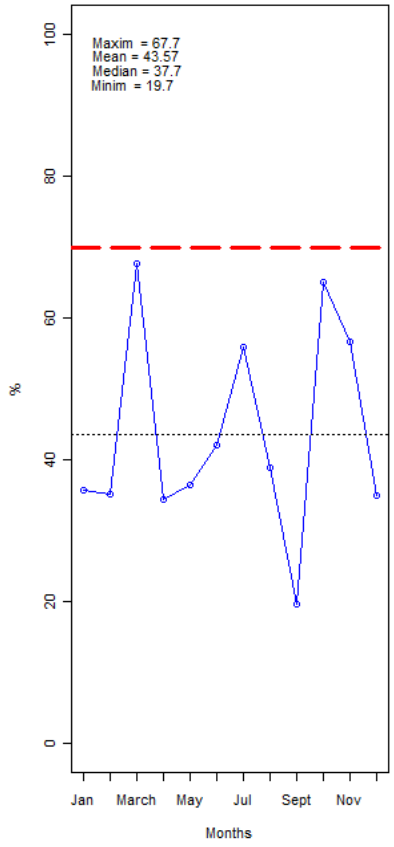


Fig 30.Berth Occupancy (General Cargo)-2007

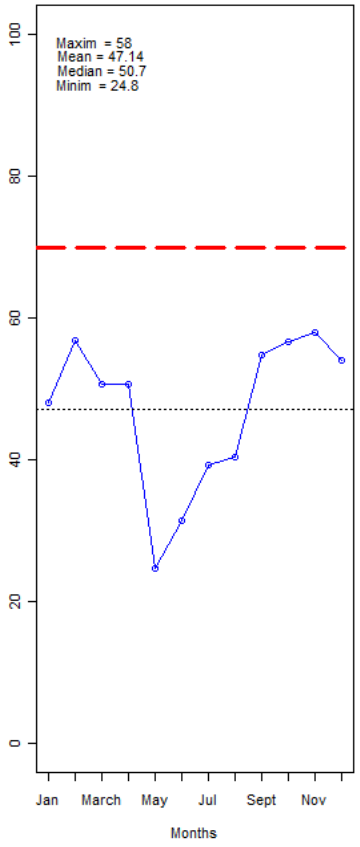


Fig 31.Berth Occupancy (General Cargo)-2008

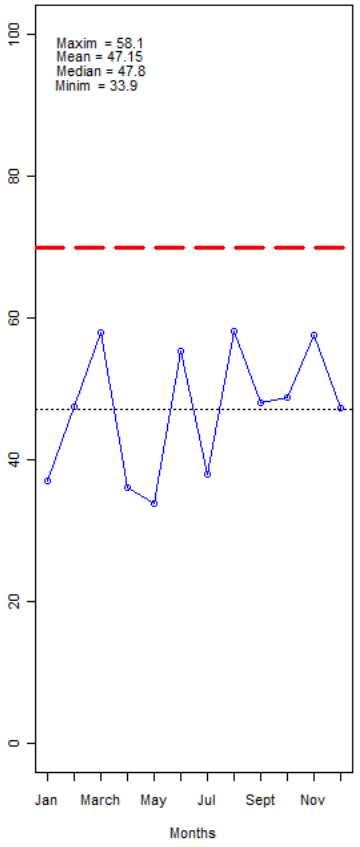
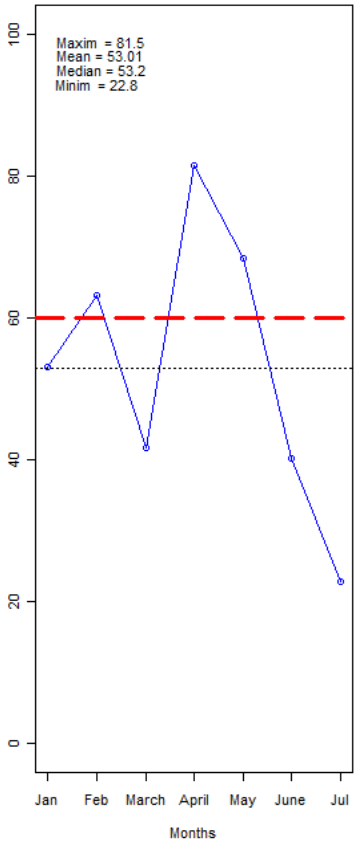


Fig 32.Berth Occupancy (General Cargo)-2009



Note: ▬ ▬ ▬ Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
3	**Berth Occupancy**	
	Oil Terminal	Less than 70%
	Past trend	

Fig 33.Berth Occupancy (KOJ I)-2006

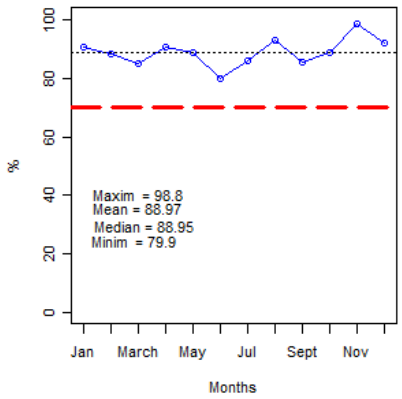


Fig 34.Berth Occupancy (KOJ I)-2007

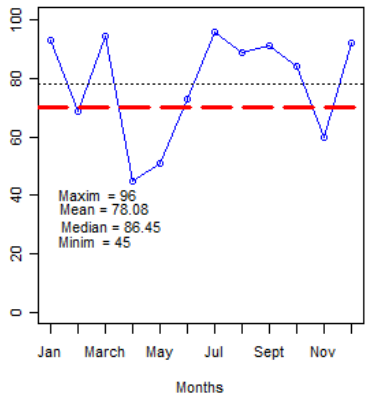


Fig 35.Berth Occupancy (KOJ I)-2008

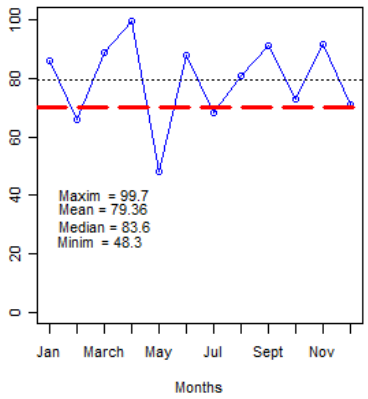


Fig 35.Berth Occupancy (KOJ I)-2009

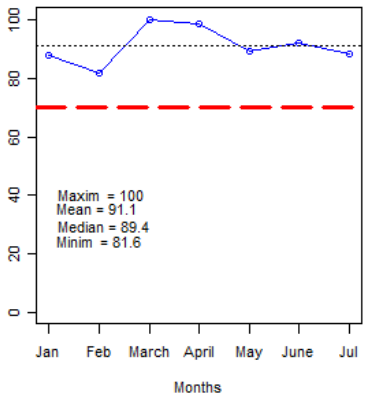


Fig 36.Berth Occupancy (KOJ II)-2006

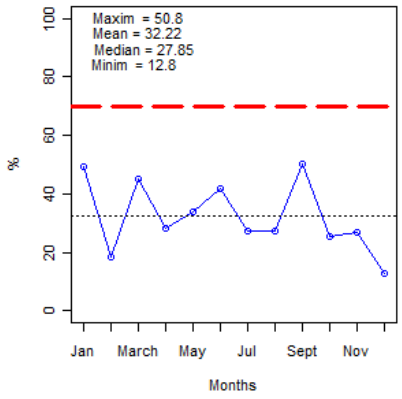


Fig 37.Berth Occupancy (KOJ II)-2007

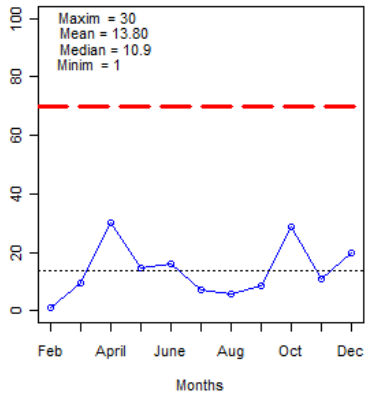


Fig 38.Berth Occupancy (KOJ II)-2008

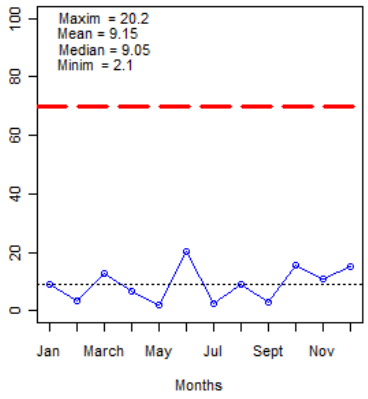
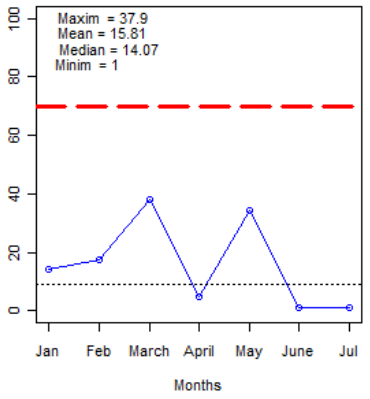


Fig 39.Berth Occupancy (KOJ II)-2009



Note: ▬ ▬ ▬ Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
4	**Working Time over Time at Berth**	
	Containerized vessels	Closer to 1
	General Cargo Vessels	Closer to 1
	Tankers	Closer to 1

Past trend: Containerized Vessels

Fig 40.Working Time/Time at Berth (Container)-2006

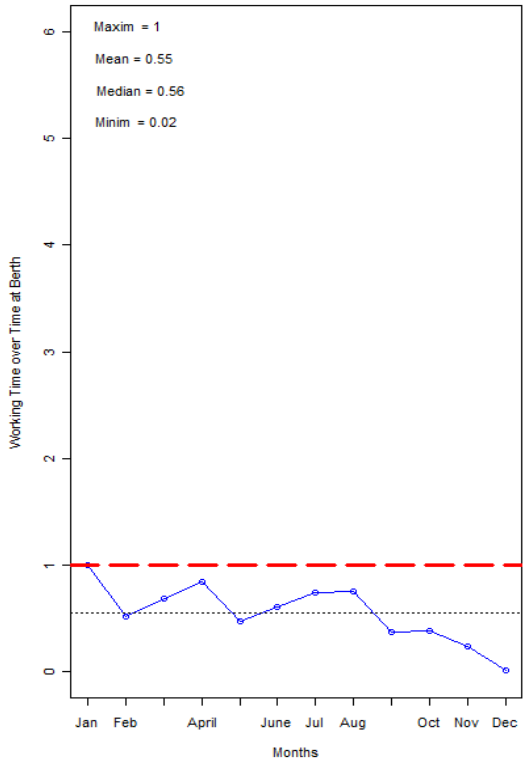


Fig 41.Working Time/Time at Berth-2007

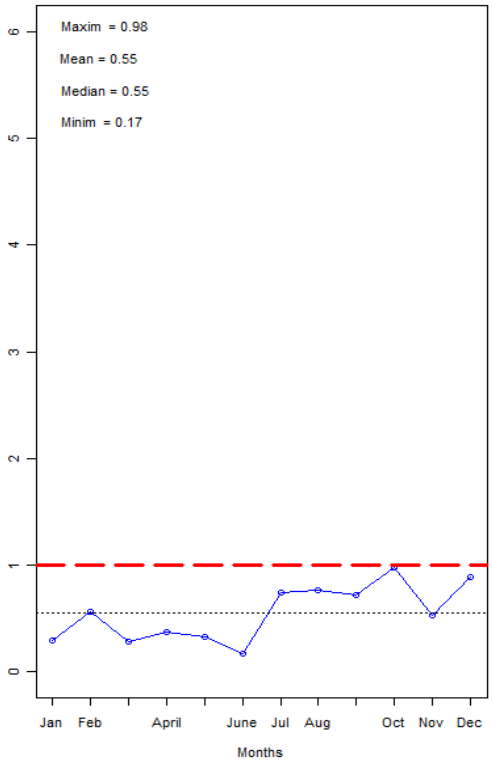
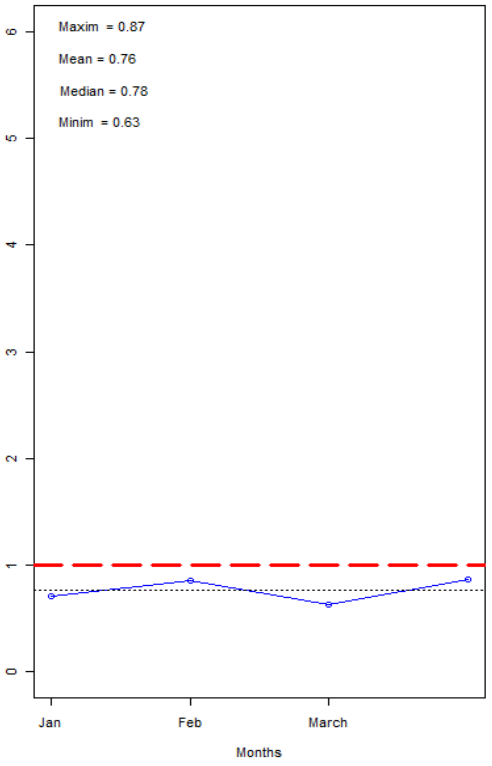


Fig 42.Working Time/Time at Berth-2008



Note: Agreed benchmark

Mean value

	Benchmarked Indicator	Benchmark
5	**Dwell Time (Containers)**	
	Imports	7 days
	Past trend	

Fig 43.Imports Dwell Time (Containers)-2006

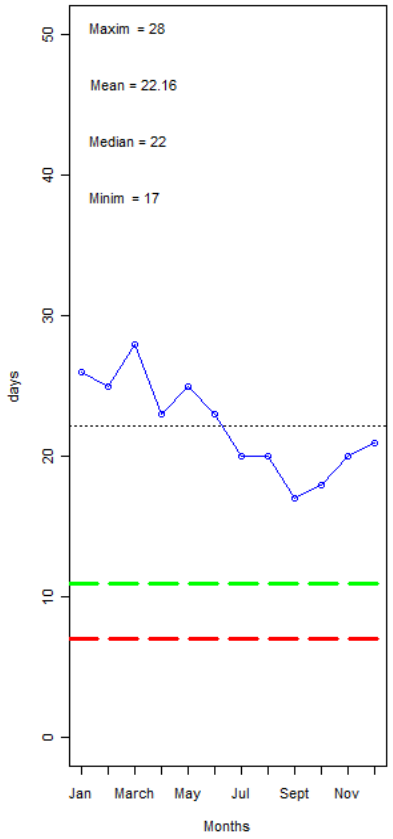


Fig 44.Imports Dwell Time (Containers)-2007

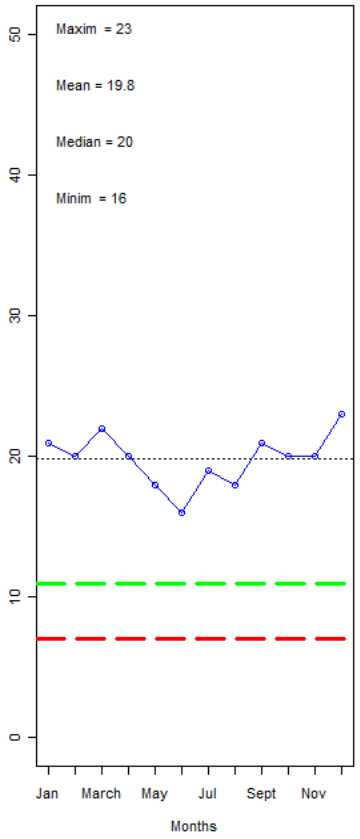


Fig 45.Imports Dwell Time (Containers)-2008

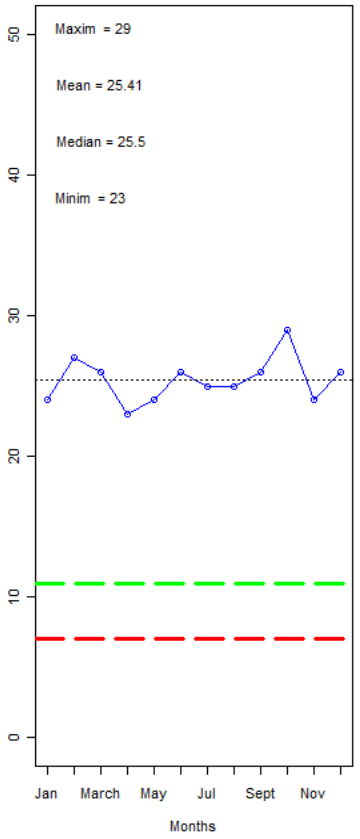
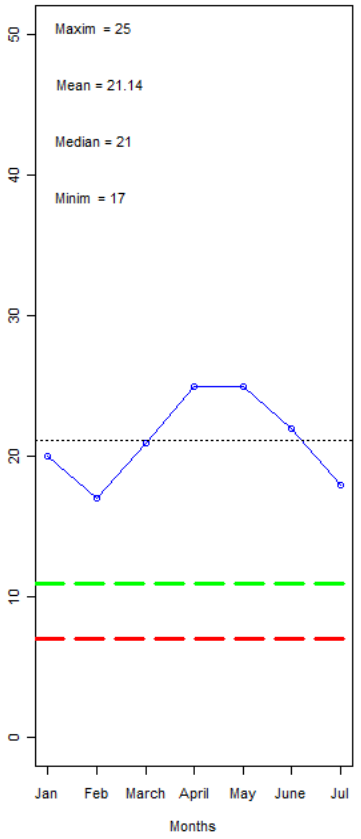


Fig 46.Imports Dwell Time (Containers)-2009



Note: Agreed benchmark

Design capacity

Mean value

	Benchmarked Indicator	Benchmark
5	**Dwell Time (Containers)**	
	Exports	4 days

Past trend

Fig 47.Exports Dwell Time (Container)-2006

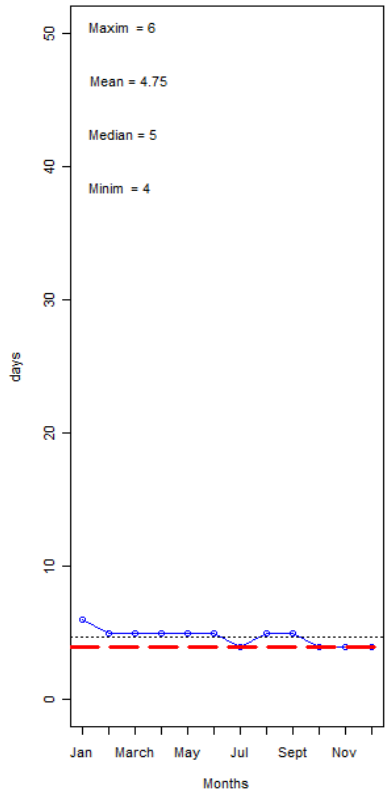


Fig 48.Exports Dwell Time (Container)-2007

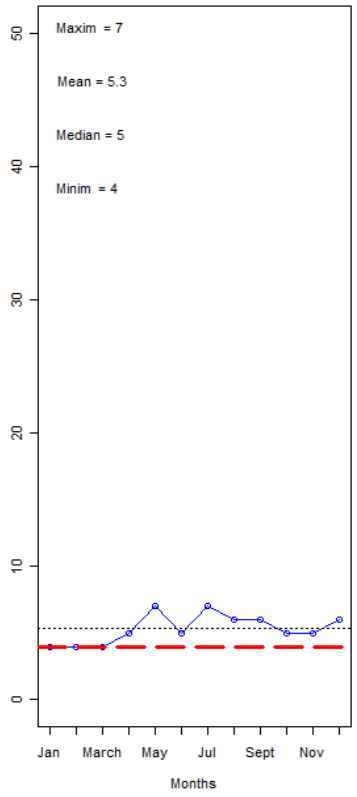


Fig 49.Exports Dwell Time (Container)-2008

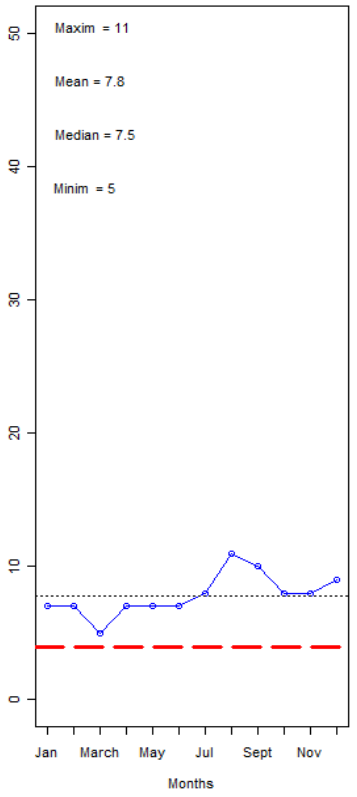
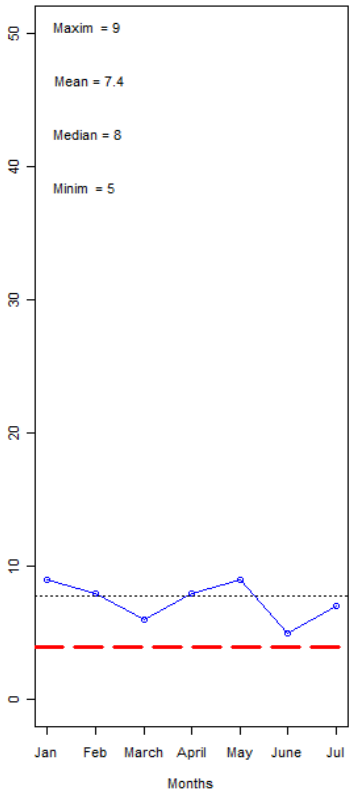


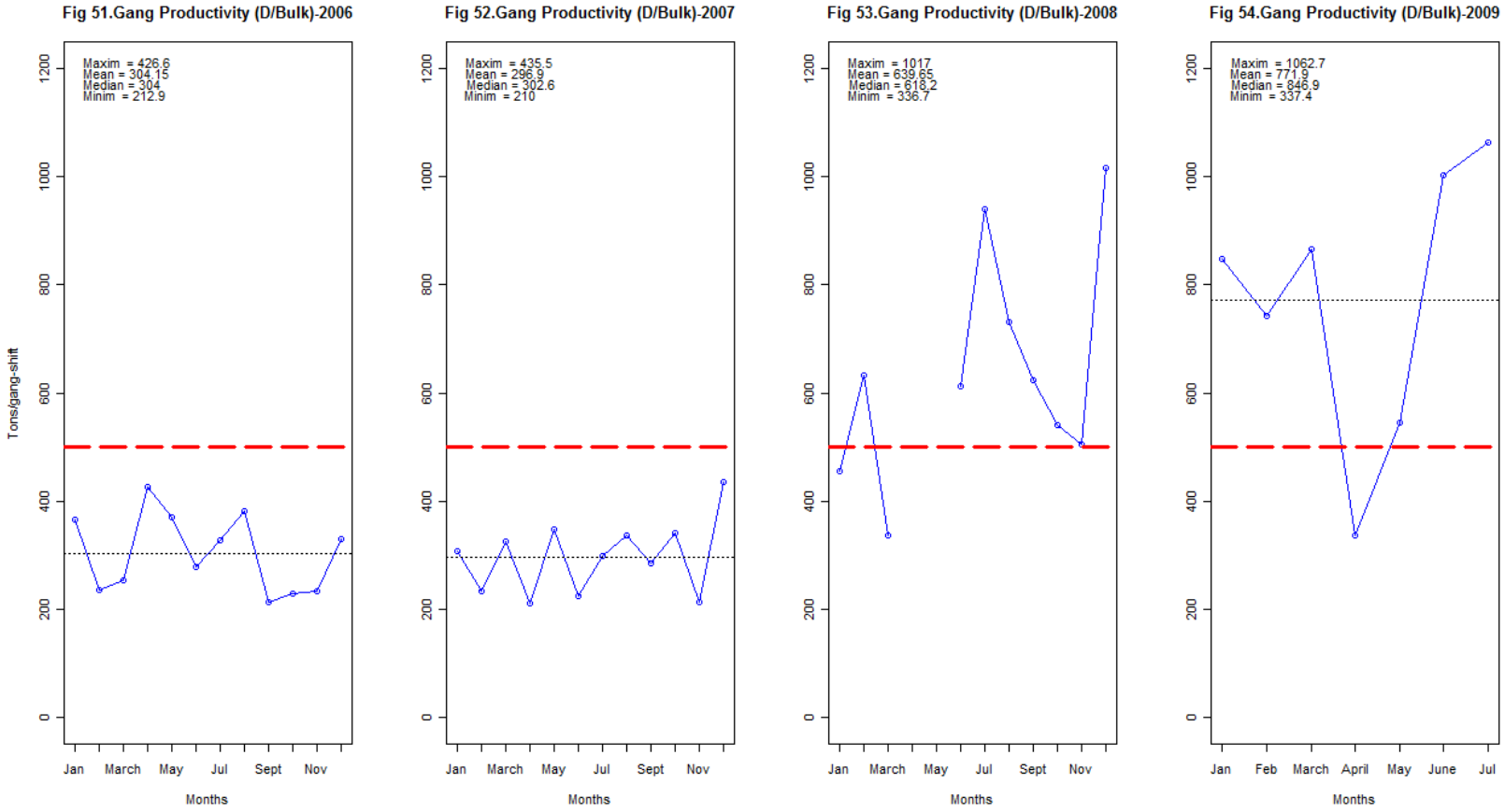
Fig 50.Exports Dwell Time (Container)-2009



Note: Agreed benchmark

Mean value

	Benchmarked Indicator	Benchmark
6	**Gang Productivity (Tons/gang-shift)**	
	Dry Bulk Cargo	500 tons/gang-shift
	Past trend	



Note: ▬ ▬ ▬ Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
6	**Gang Productivity (Tons/gang-shift)**	
	General Cargo	400 tons/gang-shift
	Past trend	

Fig 55.Gang Productivity (B/Bulk)-2006

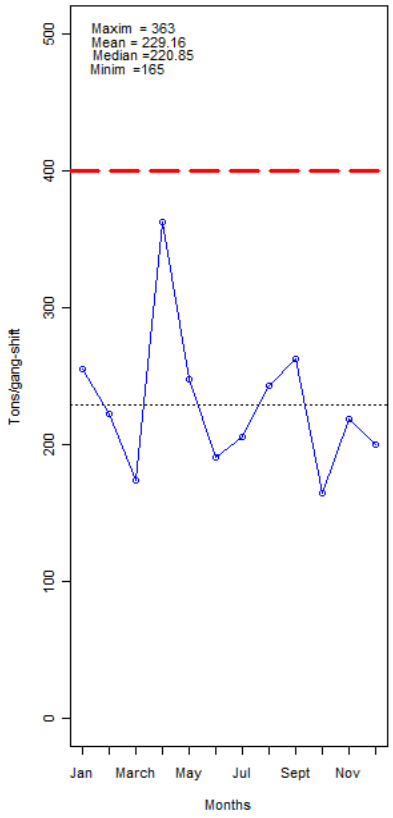


Fig 56.Gang Productivity (B/Bulk)-2007

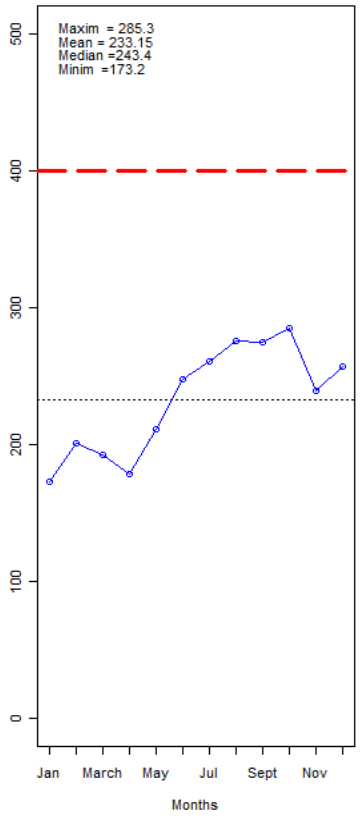


Fig 57.Gang Productivity (B/Bulk)-2008

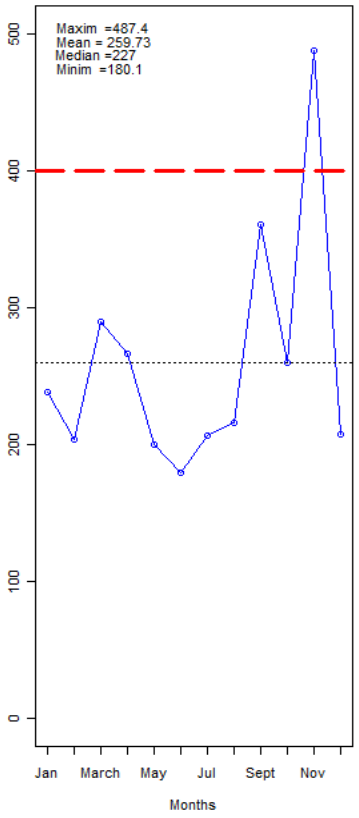
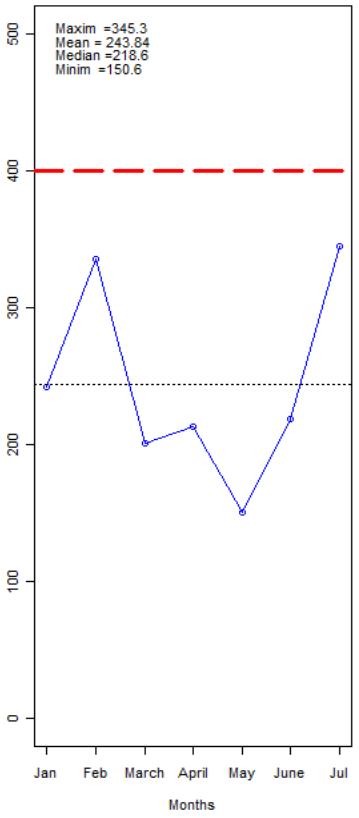


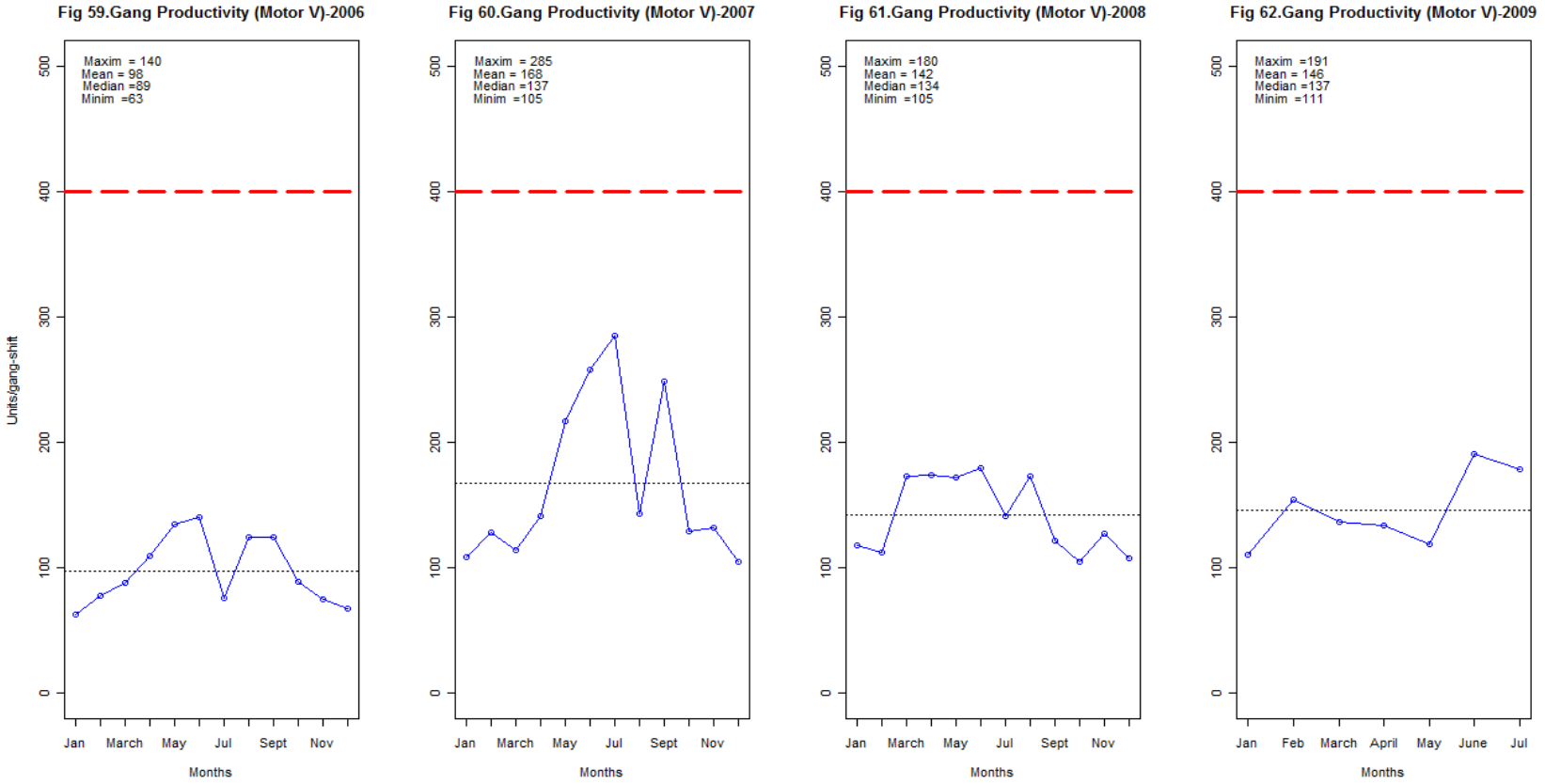
Fig 58.Gang Productivity (B/Bulk)-2009



Note: Agreed benchmark

Mean value

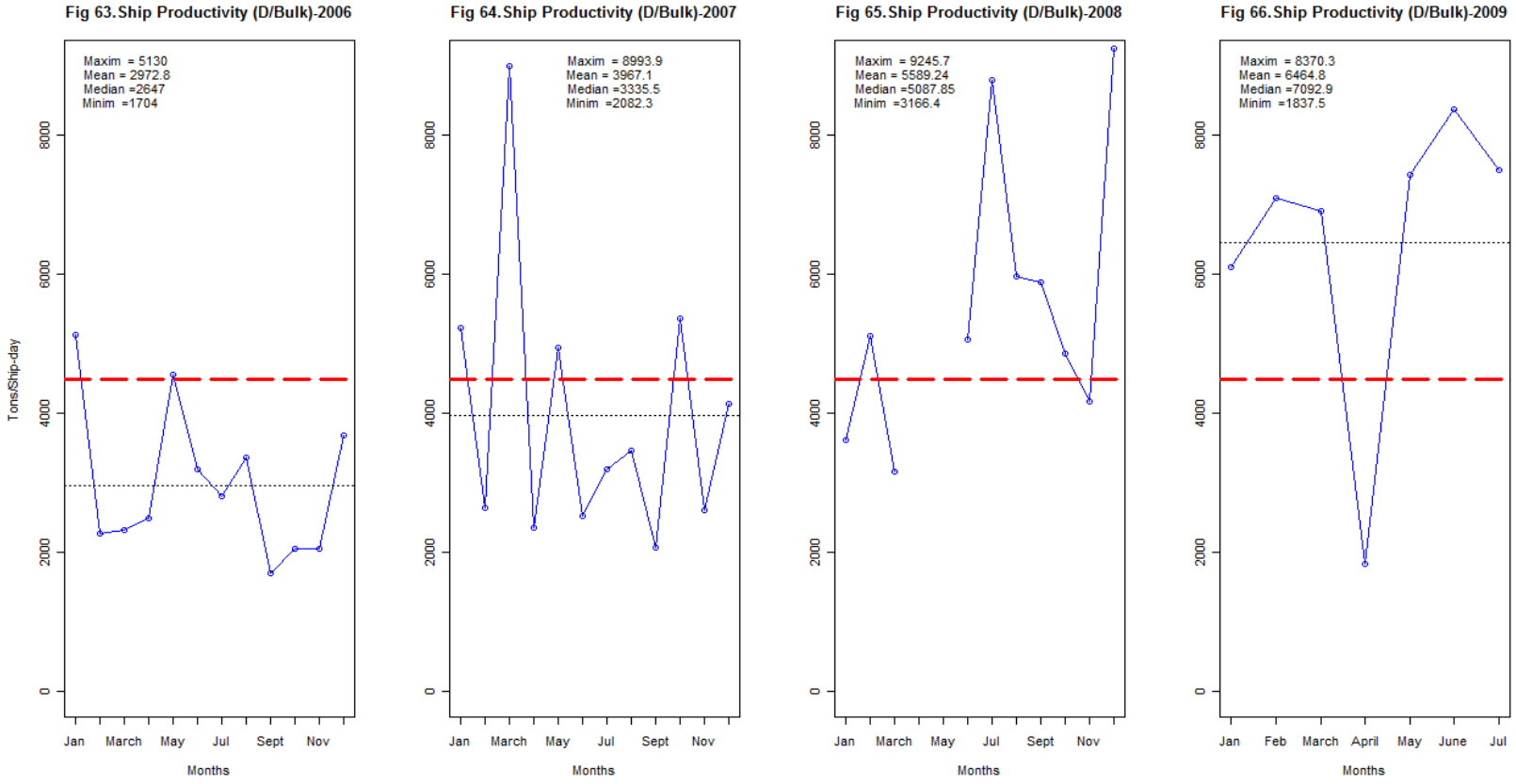
	Benchmarked Indicator	Benchmark
6	**Gang Productivity (Tons/gang-shift)**	
	Motor Vehicles	400 units/gang-shift
	Past trend	



Note: — — — Agreed benchmark

····· Mean value

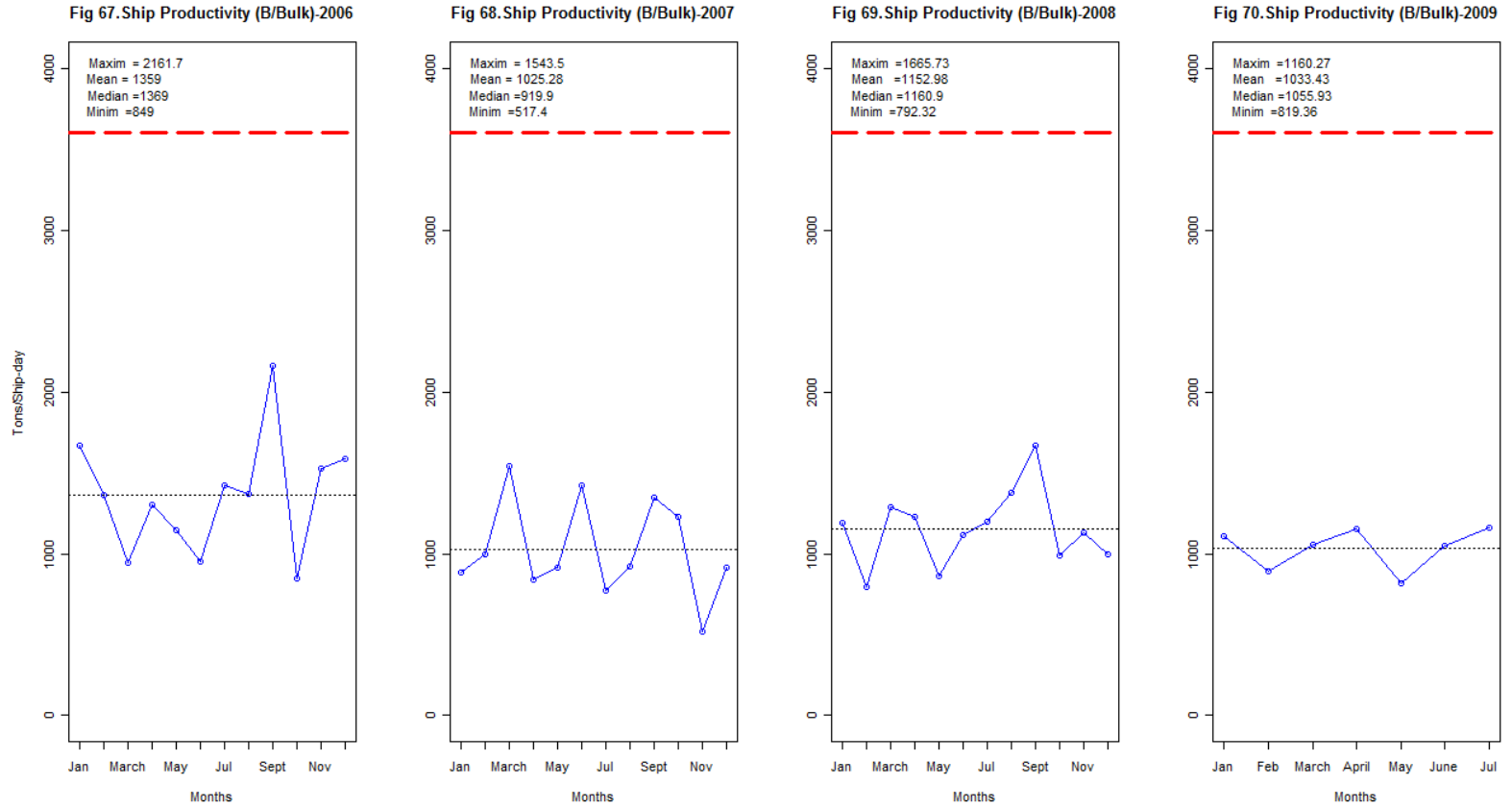
	Benchmarked Indicator	Benchmark
7	**Ship Productivity [Tons/Ship-day]**	
	Dry bulk cargo	4500 tons/ship-day
	Past trend	



Note: Agreed benchmark

Mean value

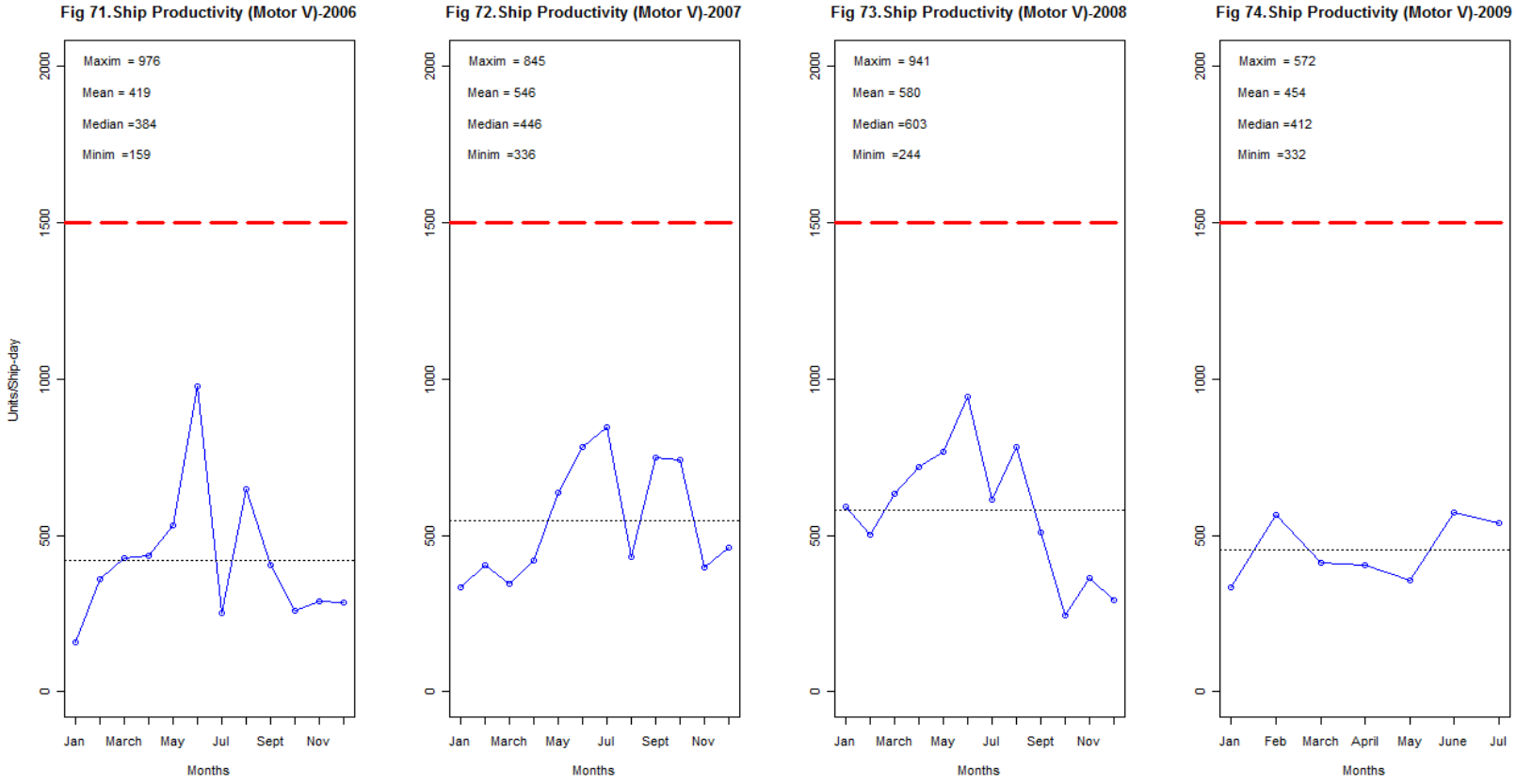
	Benchmarked Indicator	Benchmark
7	**Ship Productivity [Tons/Ship-day]**	
	General cargo	3600 tons/ship-day
	Past trend	



Note: — — — Agreed benchmark

····· Mean value

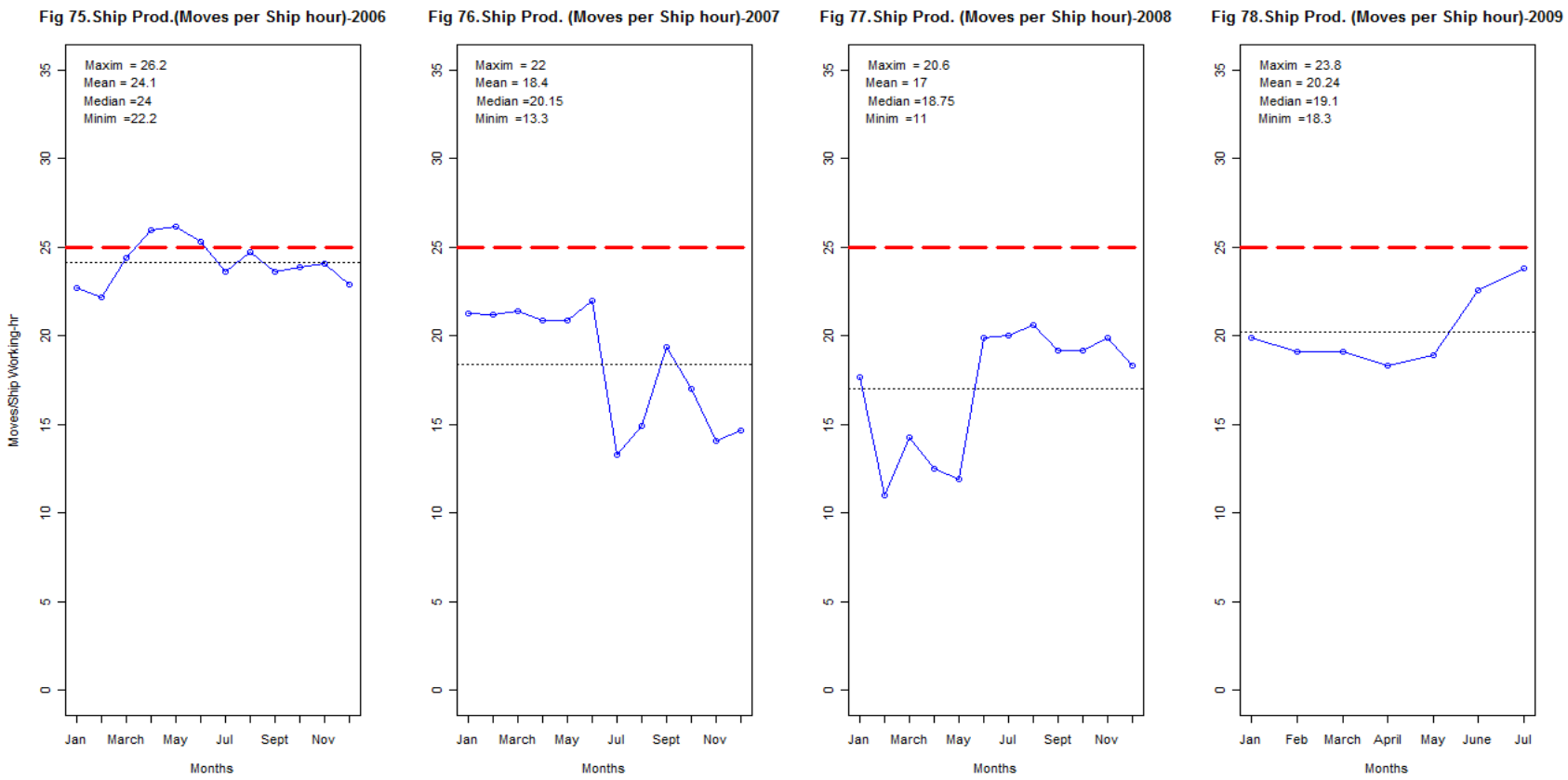
	Benchmarked Indicator	Benchmark
7	**Ship Productivity [Tons/Ship-day]**	
	Motor vehicles	1500 units/ship-day
	Past trend	



Note: Agreed benchmark

Mean value

	Benchmarked Indicator	Benchmark
7	**Ship Productivity [Tons/Ship-day]**	
	Moves per ship working hour	25
	Past trend	

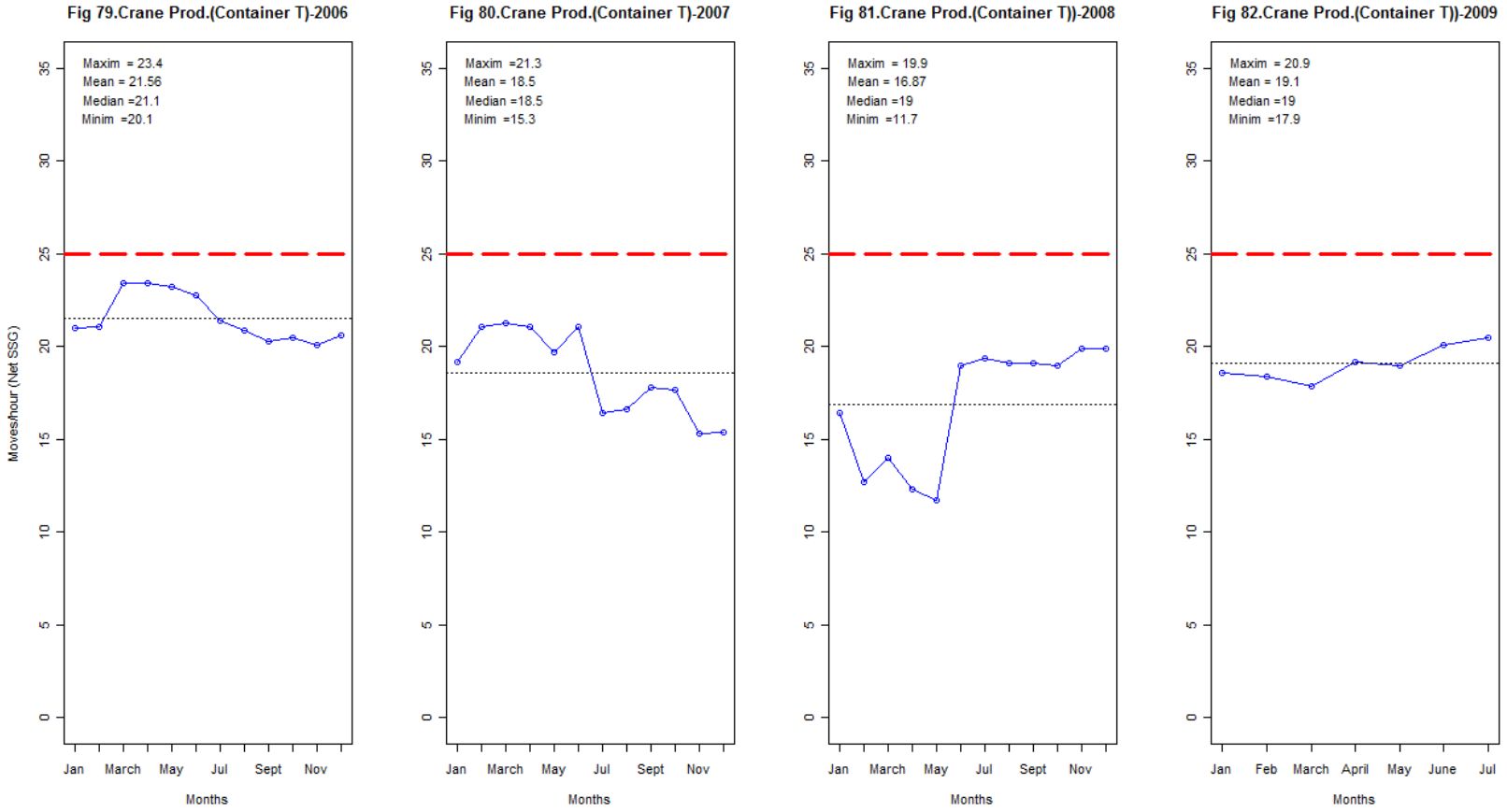


Note: — — — Agreed benchmark

····· Mean value

	Benchmarked Indicator	Benchmark
8	**Crane Productivity**	
	Moves/hour (Net SSG)	25

Past trend



Note: ▬ ▬ ▬ Agreed benchmark

····· Mean value

4.2 Agreed Benchmarks

Agreed port specific benchmarks are given in Section 4.2.1 to 4.2.5.

4.2.1: Benchmarks for Dar es Salaam Port

Sno	Benchmarked Indicators	Benchmark
1	**Ship turn-round time**	
	Containerized vessels	3 days
	General Cargo Vessels	3 days
	Tankers	5 days
2	**Waiting Rate**	
	Containerized vessels	Less than 1
	General Cargo Vessels	Less than 1
	Tankers	Less than 1
3	**Berth Occupancy**	
	Container Terminal	Less than 60%
	General Cargo Terminal	Less than 70%
	Oil Terminal	Less than 70%
4	**Working Time over Time at Berth**	
	Containerized vessels	Closer to 1
	General Cargo Vessels	Closer to 1
	Tankers	Closer to 1
5	**Dwell Time (containerized vessels)**	
	Imports	7 days
	Exports	4 days
6	**Gang Productivity (Tons/gang-shift)**	
	Dry Bulk Cargo	500 tons/gang-shift
	General Cargo	400 tons/gang-shift
	Motor Vehicles	400 units/gang-shift
7	**Ship Productivity [Tons/Ship-day]**	
	Dry bulk cargo	4500 tons/ship-day
	General cargo	3600 tons/ship-day
	Motor Vehicles	1500 units/ship-day
	Moves per ship working hour	25
8	Moves/hour (Net SSG)	25
9	Yard Density	Below 65%
10	TEUs per Hector	1500
11	Compliance with ISPS Code	Port facility security assessed and reviewed
		Port facility security plans Developed / reviewed
		Qualified Port Facility Security Officers employed
		Budget provided for Port facility security officers
		Participation of Port facility officers in national exercises at appropriate intervals
		Carrying out drills at appropriate intervals
12	Compliance with OSHA requirements	Obtaining Annual OSHA compliance certificate
		Existence of port safety committee (s)
		Existence of written safety and health policy

4.2.2: Benchmarks for Tanga Port

Sno	Benchmarked Indicators	Benchmark
1	**Ship turn-round time**	
	Containerized vessels	1.5 days
	General Cargo Vessels	1.5 days
	Tankers	2 days
	Passengers	1 days
2	**Waiting Rate**	
	Containerized vessels	0
	General Cargo Vessels	0
	Tankers	0
3	**Berth Occupancy**	
	Stream Berth	Less than 8.5%
	Quay Berth	Less than 70%
4	**Working Time over Time at Berth**	
	Containerized vessels	Closer to 1
	General Cargo Vessels	Closer to 1
	Tankers	Closer to 1
5	**Dwell Time (containerized vessels)**	
	Imports	7 days
	Exports	7 days
6	**Gang Productivity (Tons/gang-shift)**	
	Dry Bulk Cargo	300 tons/gang-shift
	General Cargo	250 tons/gang-shift
7	**Ship Productivity [Tons/Ship-day]**	
	Dry bulk cargo	1800 tons/ship-day
	General cargo	1200 tons/ship-day
	Moves per ship working hour	8
11	**Compliance with ISPS Code**	Port facility security assessed and reviewed
		Port facility security plans Developed / reviewed
		Qualified Port Facility Security Officers employed
		Budget resources provided for Port facility security officers
		Participation of Port facility officers in national exercises at appropriate intervals
		Carrying out drills at appropriate intervals
12	**Compliance with OSHA requirements**	Obtaining Annual OSHA compliance certificate
		Existence of port safety committee (s)
		Existence of written safety and health policy

4.2.3: Benchmarks for Mtwara Port

Sno	Benchmarked Indicators	Benchmark
1	**Ship turn-round time**	
	Containerized vessels	1 days
	General Cargo Vessels	2days
	Tankers	1 days
	Passengers	1 days
2	**Waiting Rate**	
	Containerized vessels	0
	General Cargo Vessels	0
	Tankers	0
3	**Berth Occupancy**	
	General Cargo/Container Terminal	Less than 60%
	Oil Terminal	Less than 60%
4	**Working Time over Time at Berth**	
	Containerized vessels	Closer to 1
	General Cargo Vessels	Closer to 1
	Tankers	Closer to 1
5	**Dwell Time (containerized vessels)**	
	Imports	2 days
6	**Gang Productivity (Tons/gang-shift)**	
	General Cargo	250
7	**Ship Productivity [Tons/Ship-day]**	
	General cargo	2250
8	**Compliance with ISPS Code**	Port facility security assessed and reviewed
		Port facility security plans Developed / reviewed
		Qualified Port Facility Security Officers employed
		Budget resources provided for Port facility security officers
		Participation of Port facility officers in national exercises at appropriate intervals
		Carrying out drills at appropriate intervals
9	**Compliance with OSHA requirements**	Obtaining Annual OSHA compliance certificate
		Existence of port safety committee (s)
		Existence of written safety and health policy

4.2.4: Benchmarks for Mwanza Port

Sno	Benchmarked Indicators	Benchmark
1	**Ship turn-round time**	
	Containerized vessels	2 days
	General Cargo Vessels	2 days
	Tankers	1 days
	Passengers	1 days
2	**Waiting Rate**	
	Containerized vessels	0
	General Cargo Vessels	0
	Tankers	0
3	**Berth Occupancy**	
	General &Container Terminal	Less than 60%
	Oil Terminal	Less than 60%
4	**Working Time over Time at Berth***	
	Containerized vessels	Closer to 1
	General Cargo Vessels	Closer to 1
	Tankers	Closer to 1
5	**Dwell Time (containerized vessels)**	
	Imports	7 days
6	**Gang Productivity(Tons/gang-shift)**	
	General Cargo	160
7	**Ship Productivity [Tons/Ship-day**	
	General cargo	320
8	**Compliance with ISPS Code**	Port facility security assessed and reviewed
		Port facility security plans Developed / reviewed
		Qualified Port Facility Security Officers employed
		Budget resources provided for Port facility security officers
		Participation of Port facility officers in national exercises at appropriate intervals
		Carrying out drills at appropriate intervals
9	**Compliance with OSHA requirements**	Obtaining Annual OSHA compliance certificate
		Existence of port safety committee (s)
		Existence of written safety and health policy

4.2.5: Benchmarks for Kigoma Port

Sno	Benchmarked Indicators	Benchmarks
1	**Ship turn-round time**	
	Containerized vessels	2 days
	General Cargo Vessels	2days
	Tankers	1 days
	Passengers	1 days
2	**Waiting Rate**	
	Containerized vessels	0
	General Cargo Vessels	0
	Tankers	0
3	**Berth Occupancy**	
	General Cargo/Container Terminal	Less than 60%
	Oil Terminal	Less than 60%
4	**Working Time over Time at Berth***	
	Containerized vessels	Closer to 1
	General Cargo Vessels	Closer to 1
	Tankers	Closer to 1
5	**Dwell Time (containerized vessels)**	
	Imports	7 days
6	**Gang Productivity (Tons/gang-shift)**	
	General Cargo	160
7	**Ship Productivity [Tons/Ship-day**	
	General cargo	960
8	**Compliance with ISPS Code**	Port facility security assessed and reviewed
		Port facility security plans Developed / reviewed
		Qualified Port Facility Security Officers employed
		Resources provided for Port facility security officers
		Port facility officers participates in national exercises at appropriate intervals
		Drills carried out at appropriate intervals
9	**Compliance with OSHA requirements**	Availability of Annual compliance certificate
		Existence of port safety committee
		Existence of written safety and health policy

5.0 CONCLUSION

Performance Indicators and benchmarks presented in this report are a result of a series of workshops and consultations among stakeholders. Throughout the process, an attempt has been made to ensure that the problem at hand, establishment of port performance indicators and benchmarks, was systematically studied. Moreover, the most sensitive part of the process, involvement of stakeholders, has been thoroughly observed. Several workshops organized along the process were well attended and the composition was balanced in terms of representation of key stakeholders of the port community. Therefore the established benchmarks to a greater extent captured the needs and expectations of a wider-spectrum of ports' users.

As earlier said, the benchmarking process focused on the outputs. It is therefore important that ports realign their internal processes, methods and practices so as ensure that they deliver the expected outputs as expressed by the benchmarks.

It is therefore expected that the Authority and other ports' stakeholders will use the developed tools to monitor and evaluate developments in the ports sub-sector and objectively suggest the plan for the future development.

6.0 Appendices

Appendix I

A1. Agreed Performance Indicators

1 Ship Turn-round time
2 Waiting rate
3 Berth Occupancy Rate
4 Working time over time at berth
5 Dwell time - Containerized cargo
6 Gang Productivity (Tons/gang-shift)
7 Ship Productivity (Tons/ship-day)
8 Moves per crane-hour
9 Charges per TEU
- Stevedoring charge per TEU
- Shore handling charges per TEU

10 Total Income over tonnage handled
11 Total Expenditure over tonnage handled
12 Operating surplus over total tons
13 Modal Split (cargo delivery by modes)
14 Imports - General Cargo traffic (MT)
15 Exports - General Cargo traffic (MT)
16 Imports - General Cargo (MT) - by Country
17 Exports - General Cargo (MT) - by Country
18 Number of passengers carried
19 Number of TEUs handled
20a Number of ship calls (by type of Cargo, LOA and Draft)
21 Compliance with ISPS Code
22 Compliance with OSHA requirements
23 Yard Density
24 Number of TEUs per Hectare

Appendix II

A.2 Detailed Data Submission Plan

	REQUIRED DATA	DATA Submission Plan indicated by a shade				
		Weekly	Monthly	Quarterly	Semi-Annually	Annually
1	**Ship Turn-round time**					
	Tankers	☐	■	☐	☐	☐
	General Cargo Vessels	☐	■	☐	☐	☐
	Container Vessels	☐	■	☐	☐	☐
2	**Waiting rate**					
	General Cargo terminal	☐	■	☐	☐	☐
	Container terminal	☐	■	☐	☐	☐
	Oil terminal	☐	■	☐	☐	☐
3	**Berth Occupancy Rate**					
	General Cargo terminal	☐	■	☐	☐	☐
	Container terminal	☐	■	☐	☐	☐
	Oil terminal	☐	■	☐	☐	☐
4	**Working time over time at berth**					
	General Cargo terminal	☐	■	☐	☐	☐
	Container terminal	☐	■	☐	☐	☐
	Oil terminal	☐	■	☐	☐	☐
5	**Import Dwell time - Containerized cargo**					
	Imports (TEUs)	☐	■	☐	☐	☐
	Exports (TEUs)	☐	■	☐	☐	☐
	Empties (TEUs)	☐	■	☐	☐	☐
	Transshipment (TEUs)	☐	■	☐	☐	☐

	REQUIRED DATA	DATA Submission Plan indicated by a shade				
		Weekly	Monthly	Quarterly	Semi-Annually	Annually
6	**Gang Productivity**					
	Dry bulk cargo (Tons/gang-shift)					
	Break bulk (Tons/gang-shift)					
	Motor vehicles (Units/shift)					
7	**Ship Productivity**					
	Dry bulk cargo (Tons/ship-day)					
	Break bulk (Tons/ship-day)					
	Motor vehicles (Units/ship-day)					
	Moves/ship working hour					
8	**Moves per crane-hour**					
9	**Charge per TEU**					
	Stevedoring charge per TEU					
	Shore handling charges per TEU					
10	**Modal Split**					
	Cargo delivered by Road					
	Cargo delivered by TRL					
	Cargo delivered by TAZARA					
11	**Total Income**					
12	**Total expenditure**					
13	**Operating surplus**					

	REQUIRED DATA	DATA Submission Plan indicated by a shade				
		Weekly	Monthly	Quarterly	Semi-Annually	Annually
	OTHER INDICATORS TO BE SUBMITTED	Agreed Submission Plan indicated by a black shade				
14	**Imports - General Cargo traffic (MT)**					
	Dry cargo	☐	■	☐	☐	☐
	Liquid cargo	☐	■	☐	☐	☐
	Transshipment	☐	■	☐	☐	☐
15	**Exports - General Cargo traffic (MT)**					
	Dry cargo	☐	■	☐	☐	☐
	Liquid cargo	☐	■	☐	☐	☐
	Break bulk	☐	■	☐	☐	☐
16	**Imports - General Cargo (MT) by Country**					
	Local	☐	■	☐	☐	☐
	Zambia	☐	■	☐	☐	☐
	DRC	☐	■	☐	☐	☐
	Burundi	☐	■	☐	☐	☐
	Rwanda	☐	■	☐	☐	☐
	Malawi	☐	■	☐	☐	☐
	Uganda	☐	■	☐	☐	☐
	Others	☐	■	☐	☐	☐
17	**Exports - General Cargo (MT) by Country**					
	Local	☐	■	☐	☐	☐
	Zambia	☐	■	☐	☐	☐
	DRC	☐	■	☐	☐	☐

	REQUIRED DATA	DATA Submission Plan indicated by a shade				
		Weekly	Monthly	Quarterly	Semi-Annually	Annually
	Burundi	☐	■	☐	☐	☐
	Rwanda	☐	■	☐	☐	☐
	Malawi	☐	■	☐	☐	☐
	Uganda	☐	■	☐	☐	☐
	Others	☐	■	☐	☐	☐
18	**Number of passengers carried**					
	Embarked	☐	■	☐	☐	☐
	Disembarked	☐	■	☐	☐	☐
	Transit	☐	■	☐	☐	☐
19	**Number of TEUs handled**					
	Imports	☐	■	☐	☐	☐
	Exports	☐	■	☐	☐	☐
	Empties	☐	■	☐	☐	☐
	Transshipment	☐	■	☐	☐	☐
20a	**Number of ship calls by type of Cargo**					
	Deep Sea - General cargo	☐	■	☐	☐	☐
	Deep Sea - Bulk liquid	☐	■	☐	☐	☐
	Deep Sea - Ro/Ro	☐	■	☐	☐	☐
	Deep Sea - Containerized					
	Cellular	☐	■	☐	☐	☐
	Non Cellular	☐	■	☐	☐	☐
	Feeder	☐	■	☐	☐	☐

	REQUIRED DATA	DATA Submission Plan indicated by a shade				
		Weekly	Monthly	Quarterly	Semi-Annually	Annually
	Barges	☐	■	☐	☐	☐
20b	**Number of ship calls by LOA**					
	Up to 200 meters	☐	■	☐	☐	☐
	Above 200 meters	☐	■	☐	☐	☐
20c	**Number of ship calls by Draft**					
	Up to 9.5 meters	☐	■	☐	☐	☐
	9.6 meters - 10.5 meters	☐	■	☐	☐	☐
	Above 10.5 meters	☐	■	☐	☐	☐
20d	**Number of ship calls**					
	Coastal - Dry cargo	☐	■	☐	☐	☐
	Coastal - Bulk liquid	☐	■	☐	☐	☐
	Coastal - Passenger	☐	■	☐	☐	☐
21	**Compliance with ISPS Code**	☐	☐	☐	☐	■
22	**Compliance with OSHA requirements**	☐	☐	☐	☐	■
23	**Yard Density**	☐	■	☐	☐	☐
24	**Number of TEUs per Hectare**	☐	■	☐	☐	☐

Appendix III

A3. Glossary of Terms

Indicator **Ship Turn - Round Time**

Comments This is the total time a vessel spends at a port, from entrance to exit. It is calculated from the time of arrival to the time of departure (i.e. buoy-to-buoy time) excluding time lost due to ship own convenience. Traditionally, Ship turn-round time is expressed in days. Recent improvements though, have made it to be expressed in hours.

In its basic form, ship turn-round time does not mean much, as the length of stay of a vessel is influenced by (a) the volume of cargo, (b) the facilities made available and (c) the composition of the cargo itself. Thus it is necessary to break the basic ship turn-round time down into turn-round time for tankers, general cargo and container vessels.

Indicator **Waiting Rate**

Comments Waiting rate is given as the ratio of two parts of ship turn-round time; (1) time at berth and (2) time outside i.e

$$\text{Waiting Rate} = \frac{\text{Time Spent Outside Berth}}{\text{Time Spent At Berth}}$$

This indicator provides information about congestion problems at the port. A high value indicates that ships must spend a significant part of their time at port waiting for a berth space to be available. Thus requirement that waiting rate should be less than 1 seeks to ensure that vessels spend more time at berth than outside (waiting time).

NOTE: Waiting Time refers to the time between ship documented Arrival and Berthing time.

Indicator **Berth Occupancy Rate**

Comments Represents a percentage of time that berths are in use by ships. The indicator is calculated as

$$\text{Berth Occupancy Rate} = \frac{\text{Total Ship Time at Berth} \times 100}{\text{Number of Berths} \times 360}$$

Berth Occupancy Rate is a useful indicator for obtaining an estimate of the level of port's activity. A high value for berth occupancy rate shows that a port is busy most of the time but only if the turnaround time is low. Otherwise, the port could be regarded as a very inefficient port, whose users spend too much time berthed but not serviced.

NOTE: the above formula assumes data submission plan of 1 year. Incase data submission is monthly, then 360 in the denominator should be adjusted to reflect the number of days in that particular month

Indicator **Working Time over Time At Berth**

Comments Calculated as follows

$$Working\ Time\ Over\ Time\ at\ Berth = \frac{Working\ Time}{Time\ at\ Berth}$$

A value close to 1 indicates that a ship is serviced for most of the time it spends in the port. A smaller value indicates that a ship is idle most of the time that is berthed.

Indicator 5 **Cargo Dwell Time**

Comments This is the time elapsed since when the cargo is unloaded from a ship until it exit the port, or vice versa. It is measured in days. The smaller the value of the indicator, the higher the efficiency of the port.

A high value for this indicator points towards cargo management problems; such problems could be

[i.] Poor performance of administrative services such as customs procedures and/or other mandatory inspections

[ii.] Poor coordination between importers/exporters and surface modes of transport.

While cargo dwell time is a very important indicator for shippers, it is even crucial to those dealing with perishable goods e.g. vegetables, fruits and fish.

With introduction of ICDs, it will be advisable to disintegrate dwell time into dwell time at ICDs and Port/terminals. The move will encourage ports/terminals to push containers to ICD immediately after their discharge in order to achieve the set benchmark. In so doing the port will be fluid and ICDs will be used efficiently.

Indicator **Tons per Gang-shift**

Comments This is a measure of labor productivity.

NOTE: When making comparison across ports it is important to ensure that the ports conditions are similar e.g. the size of the gang and shift duration. Likewise, one should do that for equivalent type of cargo, type of equipment employed as labor productivity is greatly influenced by capital stock of the port.

Indicator **Moves per Crane-Hour [Gross]**

Comments This indicator evaluates the productivity of the main equipment for cargo loading and unloading.

NOTE: Again, in order to make comparison across ports, one should

guarantee some homogeneity on the type of cranes.

Indicator **Tons [or units] per Ship-Day**

Comments This gives an idea of the total productivity of a port in cargo handling. A reduced value for the index will indicate low efficiency due to imposition of longer times on ships.

Indicator **Moves per Ship-Day**

Comments This gives an idea of the total productivity of a port in handling. Containers. Similarly, a reduced value for the index will indicate low efficiency due to imposition of longer times on ships.

Indicator **Charge per TEU**

Comments This is becoming an international benchmark. However local conditions over some particular cost (such as labor charge) may vary considerably but still using the indicator on a regional basis is permitted and recommended.

Indicator **Total Income[2] over Tonnage Handled**

Comments Measures how much income is generated by handling a unit ton. It is calculated as

$$\frac{Total\ \text{Income}}{\text{Total Tons Handled}}$$

Indicator **Total Expenditure over Tonnage Handled**

Comments This is a measure of expenses incurred in handling a unit ton. It is calculated as

$$\frac{T\text{otal Expenditure}}{\text{Total Tons Handled}}$$

Indicator **Operating Surplus over Tonnage Handled**

Comments This is a measure of how much surplus is fetched by a unit ton handled by the port. It is calculated as

$$\frac{O\text{perating Surplus}}{\text{Total Tons Handled}}$$

Indicator **Containers Handled (TEU)**

Comments This is a measure of seaport traffic as measured by number of Twenty-Foot Equivalent Unit (TEU)

Indicator **General and Bulk Cargo Handled (tons)**

Comments This is a measure of seaport traffic. Total tonnage of all non-containerized

[2] *Or Expenditure*

freight which is imported or exported by sea.

Indicator **Passengers Carried Through Waterways**

Comments This shows the extent to which waterways serve people in terms of travelling. It indicates the importance of marine transport in meeting travelling needs and also the need for safety and security measures to be taken

Indicator **Yard Density**

Comments The Yard Density measures how effective the port space is used. The objective of the indicator is to entice port operators to efficiently utilize yard (stacking) space in line with pre-specified yard capacity

Indicator **TEUs per Hector**

Comments The Number of TEUs per Hector measures how effectively the port uses the land.

Indicator **Compliance with International Ship and Port Security (ISPS) Code**

Comments ISPS Code deals with security procedures at the port. Ports are obliged to follow security requirements as specified in the code. Compliance to ISPS code is audited annually by the IMO implementing agents; in this case SUMATRA.

Indicator **Compliance with Occupational Safety and Health (Dock Work) Convention, 1979 (C.152)**

Comments The Convention addresses safety of people and operations in ports. It deals with protection against accidents. Specifically, the convention

(a.) Specifies the duties in respect of occupational safety and health of persons and bodies.

(b.) Takes necessary measures, including the provisions of appropriate penalties, to enforce the provision of the convention

(c.) Provide appropriate inspection services to supervise the application of the measures to be taken in pursuance of the convention.

Appendix IV

A4. Data Used in Reviewing Dar es Salaam Port Performance

INDICATOR	UNIT	YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Berth Occupancy Rate - CONTAINER TERMINAL	%	2006	44.7	60.9	56.5	51	58.1	53.1	58.8	54.3	66.6	63	72.3	71.2
		2007	71	71.9	67.5	76.75	69.9	68.6	53.9	84.86	70.66	73.54	75.7	70.4
		2008	63.3	79.5	84.1	94.3	93.3	83.28	80.2	85.3	90.6	95.9	98.63	100
		2009	100	100	100	84.9	82.2	67.5	83.2					
Berth Occupancy Rate - GENERAL CARGO	%	2006	35.7	35.1	67.7	34.5	36.5	42.1	55.9	38.9	19.7	65.1	56.7	35
		2007	48	56.9	50.7	50.7	24.8	31.4	39.3	40.5	54.7	56.7	58	54
		2008	37	47.6	58	36.1	33.9	55.4	38	58.1	48	48.8	57.6	47.3
		2009	53.2	63.17	41.8	81.5	68.4	40.2	22.8					
Berth Occupancy Rate - KOJ I	%	2006	90.6	88.3	84.9	90.6	88.9	79.9	86.2	93.1	85.4	89	98.8	92
		2007	93	68.8	94.4	45	51	73	96	88.6	91	84.3	60	91.9
		2008	86.2	65.8	88.8	99.7	48.3	88	68	81	91	73	91.6	71
		2009	88	81.6	100	98.5	89.4	92	88.2					
Berth Occupancy Rate - KOJ II	%	2006	49.1	18.2	45.1	28.4	33.6	41.9	27.3	27.3	50.4	25.6	27	12.8
		2007	1	9.3	30	14.8	16	7	5.6	8.73	28.5	10.9	20	
		2008	9.1	3.5	12.6	6.5	2.1	20.2	2.3	9	3	15.8	10.8	15
		2009	14.07	17.59	37.9	4.72	34.4	1	1					
Dwell Time -	Days	2006	6	5	5	5	5	5	4	5	5	4	4	4

INDICATOR	UNIT	YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EXPORT		2007	4	4	4	5	7	5	7	6	6	5	5	6
		2008	7	7	5	7	7	7	8	11	10	8	8	9
		2009	9	8	6	8	9	5	7					
Dwell Time - IMPORT	Days	2006	26	25	28	23	25	23	20	20	17	18	20	21
		2007	21	20	22	20	18	16	19	18	21	20	20	23
		2008	24	27	26	23	24	26	25	25	26	29	24	26
		2009	20	17	21	25	25	22	18					
Gang Productivity - BREAK BULK	Ton/gang-shift	2006	255.4	222.9	174.1	363	247.6	190.6	205.4	243.5	263	165.1	218.8	200.5
		2007	173.2	200.7	192.8	178.5	211.5	247.8	260.7	275.8	275.1	285.3	239	257.4
		2008	238.2	203.6	290	266.6	199.9	180.1	207.2	215.8	360.7	259.7	487.4	207.6
		2009	241.8	335.8	201.2	213.6	150.6	218.6	345.3					
Gang Productivity - DRY BULK	Ton/gang-shift	2006	367.1	236.2	253.3	426.6	371.7	279.9	328.1	381.5	212.9	229.3	233	330.2
		2007	307.1	233.5	324.8	210.9	348.1	225.2	298.2	337.8	286.1	342.5	213.2	435.5
		2008	455.8	632.8	336.7	NA	NA	612.5	940.3	732	623.9	540.3	505.2	1017
		2009	846.9	742.8	865.4	337.4	545.6	1002.8	1062.7					
Crane Productivity - CONTAINER TERMINAL	Moves/hour	2006	21	21.1	23.4	23.4	23.2	22.8	21.4	20.9	20.3	20.5	20.1	20.6
		2007	19.2	21.1	21.3	21.1	19.7	21.1	16.4	16.6	17.8	17.7	15.3	15.4

INDICATOR	UNIT	YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		2008	16.4	12.7	14	12.3	11.7	19	19.4	19.1	19.1	19	19.9	19.9
		2009	18.6	18.4	17.9	19.2	19	20.1	20.5					
Ship Productivity - [Moves per Ship hour]	Moves/ship Working- hour	2006	22.7	22.2	24.4	26	26.2	25.3	23.6	24.7	23.6	23.9	24.1	22.9
		2007	21.3	21.2	21.4	20.9	20.9	22	13.3	14.9	19.4	17	14.1	14.7
		2008	17.7	11	14.3	12.5	11.9	19.9	20	20.6	19.2	19.2	19.9	18.3
		2009	19.9	19.1	19.1	18.3	18.9	22.6	23.8					
Gang Productivity - MOTOR VEHICLE	Units/gang-shift	2006	63	78	88	110	135	140	76	125	125	89	75	68
		2007	109	128	114	141	217	258	285	143	249	129	132	105
		2008	118	112	173	174	172	180	141	173	122	105	127	108
		2009	111	154	137	134	119	191	179					
Ship Productivity - MOTOR VEHICLE	Unit/gang-shift	2006	158.7	360.7	428.6	436	531.1	975.8	253	646.8	406.7	261	289.1	284.4
		2007	335.7	406.8	346.5	421.2	638.2	780.7	844.7	429.5	747.7	742.4	398.8	461.9
		2008	590.8	502.4	632.4	720.2	767.6	941.2	615.4	782.9	508.5	244	364.8	293
		2009	332.3	564.7	412.1	403.5	356.6	572	537.6					
Ship Productivity - BREAK BULK	Ton/ship-day	2006	1672.3	1366.1	946.3	1304.3	1145.4	955.6	1423	1372.8	2161.7	849	1526.6	1585.1
		2007	883.5	997.1	1543.5	837.6	914.2	1424	771.5	923.2	1344.4	1230.3	517.4	916.7
		2008	1193	792.32	1290.8	1228.5	865.12	1114.8	1196.4	1380.1	1665.7	985.91	1128.8	994.44

INDICATOR	UNIT	YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		2009	1106.9	891.6	1055.9	1151.1	819.36	1049	1160.3					
Ship Productivity - DRY BULK	Ton/ship-day	2006	5130.3	2276	2329.5	2488.6	4564.6	3197.5	2806.7	3372.2	1704.5	2055.7	2062.3	3685.8
		2007	5242	2654.1	8993.9	2363.2	4944.2	2529.9	3196.4	3474.7	2082.3	5368.2	2616.9	4139.4
		2008	3613.6	5111.2	3166.4	NA	NA	5064.5	8794.5	5980.9	5881.3	4859.8	4174.5	9245.7
		2009	6104.3	7092.9	6911	1837.5	7441.4	8370.3	7496.5					
Ship Turn-round Time - CONTAINER TERMINAL	days	2006	1.6	3	2	1.9	2.3	2.2	2.2	2	3.4	3.1	4.1	6.8
		2007	7.1	6.2	2.3	3.2	3.8	4	5.8	7.3	7.7	9.7	10.9	13.9
		2008	12.9	13.7	16.6	13.6	9.7	6.5	5.4	5.3	8.9	10.7	12	12.2
		2009	18.9	18.8	11.5	5.4	5.7	5.2	6.3					
Ship Turn-round Time - GENERAL CARGO	days	2006	3.6	3.1	5.6	3.9	2.8	5.6	5	2.8	2.8	3.6	5.8	4
		2007	4.6	6.4	4	4.5	2.9	2.5	3.1	4.1	4.7	5.8	7.8	4
		2008	2.4	3.9	5	4	2.5	4.3	2.3	4.2	2.9	6.2	2.6	4
		2009	4.9	6	3.2	4.7	4.9	3.7	2					
Ship Turn-round - OIL TERMINAL	days	2006	6.4	7.4	7.2	10.4	6.5	6.5	6.6	9.7	8.7	8.7	18.1	11.3
		2007	8.4	3.5	8.6	2.5	6.9	8.3	7.5	10.1	11.1	5.2	6.6	10
		2008	7	5.4	7.6	5.4	5.1	6.2	2.4	7.5	7	6.7	7.9	8
		2009	6.1	12	15	16.7	9.4	7	8.1					

INDICATOR	UNIT	YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Waiting Rate - CONTAINER TERMINAL	ratio	2006	0.31	1.28	0.84	0.6	0.91	0.92	1.08	0.8	1.36	1.46	2.17	2.69
		2007	3.51	3.22	0.88	1.49	1.75	1.79	1.27	2.16	2.77	3.44	2.93	3.14
		2008	2.93	3.14	2.96	3.05	1.47	1.24	0.97	0.73	2.01	2.38	3.08	2.72
		2009	2.07	3.54	2.27	0.86	1.5	1.11	0.71					
Waiting Rate - GENERAL CARGO	ratio	2006	0.07	0.14	0.09	0.12	0.15	0.11	0.28	0.11	0.02	0.28	0.13	0.11
		2007	0.14	0.35	0.15	0.23	0.1	0.18	0.19	0.22	0.31	0.38	0.41	0.14
		2008	0.09	0.17	0.29	0.57	0.17	0.33	0.19	0.19	0.17	0.82	0.51	0.59
		2009	0.92	1.1	0.3	0.24	0.65	0.46	0.08					
Waiting Rate - OIL TERMINAL	ratio	2006	0.69	1.15	1.48	2.39	0.72	0.89	1.17	2.11	2.5	1.94	5	2.78
		2007	1.74	0.98	1.98	0.1	1.65	0.47	1.82	2.83	4.04	1.75	2.4	1.62
		2008	1.6	1.63	0.91	1.04	0.79	1.05	0.66	2.11	1.97	1.77	1.63	2.35
		2009	1.6	3.57	2.72	4.69	2.18	1.57	1.06					
Working Time Over Time at Berth - CONTAINER	ratio	2006	1	0.52	0.69	0.85	0.48	0.61	0.74	0.76	0.38	0.39	0.24	0.02
		2007	0.3	0.57	0.29	0.38	0.33	0.17	0.74	0.77	0.72	0.98	0.53	0.89
		2008	0.71	0.86	0.63	0.87								