

Logistics Review of Beira and Nacala Corridors

DRAFT FINAL REPORT

Corridor Performance

Beira, Mozambique

26TH June 2012



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Agenda



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Introduction

Logistic analyses on performance of
transportation network

Measurable indicators

Transport modes



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Measurement of efficiency indicators (three variables)

1. Time

2. Costs

3. Reliability



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Transit time

Port transit time

Driving time

Border time



Transit time

Total transit time for import transit 20' container (2011)						
Route	Distance (km)	Transit Time				Port Transit time %
		Dwell time	Driving time	Border	Total	
Beira-Chimoio-Tete	632	15	1		16	94%
Beira-Chimoio-Machipanda	285	15	0.5		15.5	97%
Beira-Chimoio-Machipanda-Mutare	559	15	1	1	17	88%
Beira-Chimoio-Machipanda-Mutare-Harare	288	15	0.5	1	16.5	91%
Beira-Chimoio-Machipanda-Mutare-Bulawayo	726	15	2	1	18	83%
Beira-Chimoio-Machipanda-Mutare-Harare-Chirundu-Lusaka	965	15	2.5	2	19.5	77%
Beira-Chimoio-Tete-Cassacatiza/Chanida-Lusaka	1480	15	3	0.5	18.5	81%
Beira-Chimoio-Tete-Zóbue/Mwanza-Blantyre	812	15	1.5	0.5	17	88%
Beira-Chimoio-Tete-Dedza-Lilongwe	950	15	1.5	0.5	17	88%
Beira-Chimoio-Tete-Zóbue/Mwanza-Blantyre-Lilongwe	1220	15	2.5	0.5	18	83%
Beira-Chimoio-Machipanda-Mutare-Harare-Chirundu-Lusaka-Ndola	1372	15	3	2	20	80%
Beira-Chimoio-Machipanda-Mutare-Harare-Chirundu-Lusaka-Kitwe	1372	15	3	2	20	80%
Nacala-Nampula-Milange-Blantyre	1150	16	3	0.5	19.5	80%
Nacala-Nampula-Milange-Blantyre-Lilongwe	1600	16	3.5	0.5	20	78%

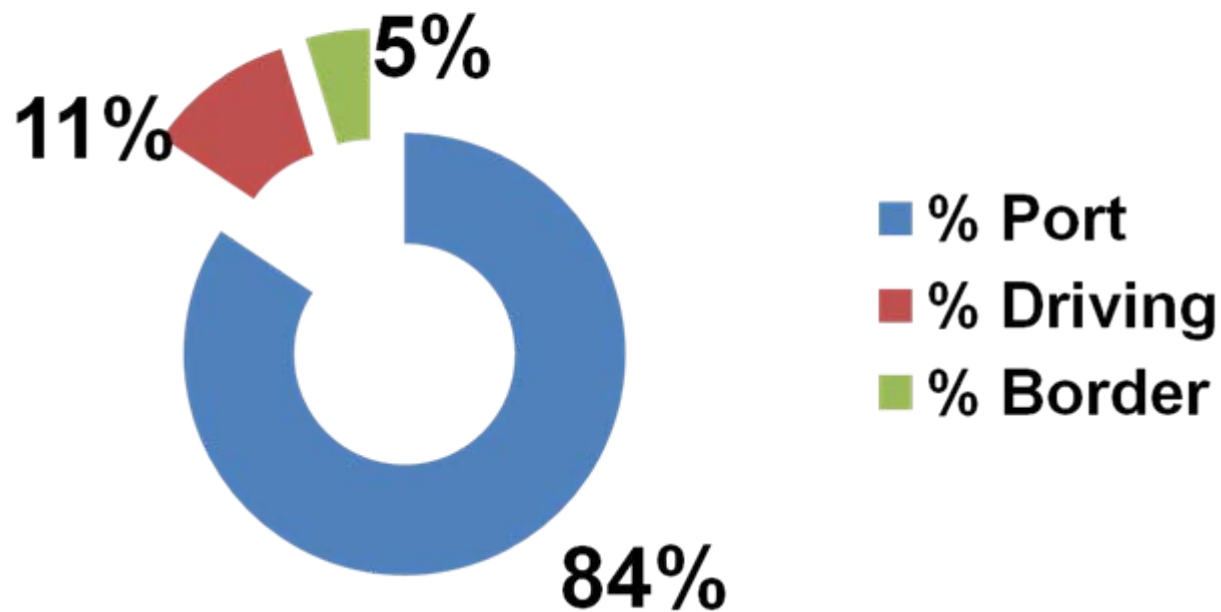
Source: ANE, Comptroller, GDN, Transporters, Clearing and Forwarding Agents at Beira and Nacala

Transit time

Contribution to Transit time in Percentage				
Route	Distance (km)	Percentage (%)		
		Port	Driving	Border
Beira-Chimoio-Tete	632	94%	6%	
Beira-Chimoio-Machipanda	285	97%	3%	
Beira-Chimoio-Machipanda-Mutare-Harare	559	88%	6%	6%
Beira-Chimoio-Machipanda-Mutare	288	91%	3%	6%
Beira-Chimoio-Machipanda-Mutare-Bulawayo	726	83%	11%	6%
Beira-Chimoio-Machipanda-Mutare-Harare-Chirundu-Lusaka	965	77%	13%	10%
Beira-Chimoio-Tete-Cassacatiza/Chanida-Lusaka	1480	81%	16%	3%
Beira-Chimoio-Tete-Zóbue/Mwanza-Blantyre	812	88%	9%	3%
Beira-Chimoio-Tete-Dedza-Lilongwe	950	88%	9%	3%
Beira-Chimoio-Tete-Zóbue/Mwanza-Blantyre-Lilongwe	1220	83%	14%	3%
Beira-Chimoio-Machipanda-Mutare-Harare-Chirundu-Lusaka-Ndola	1372	75%	15%	10%
Beira-Chimoio-Machipanda-Mutare-Harare-Chirundu-Lusaka-Kitwe	1372	75%	15%	10%
Nacala-Nampula-Milange-Blantyre	1150	82%	15%	3%
Nacala-Nampula-Milange-Blantyre-Lilongwe	1600	80%	18%	3%
Nacala-Nampula-Cuamba-Mandimba/Namwera-Liwonde-Blantyre				
Nacala-Nampula-Cuamba-Mandimba/Namwera-Liwonde-Lilongwe				
AVERAGE		84%	11%	5%

Source: ANE, Cornelder, CDN, Transporters, Clearing and Forwarding Agents at Beira and Nacala

Logistic Share of Total Transit Time



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Cost chain analyses

Transport prices or freight rates and tariffs are dependent on several factors including,

- Return cargo
- Cargo types
- Commercial practices/discounts
- Seasonal demand



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Cost chain analyses

Logistic costs

- Port clearing charges
- Trucking charges
 - Route costs
- Railage charges
- Border costs



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Cost chain analyses

Port charges

- Cargo handling charges at port
 - Shipping lines
 - Port operators
 - Customs
 - Plant and health services
 - Security
 - Clearing and forwarding



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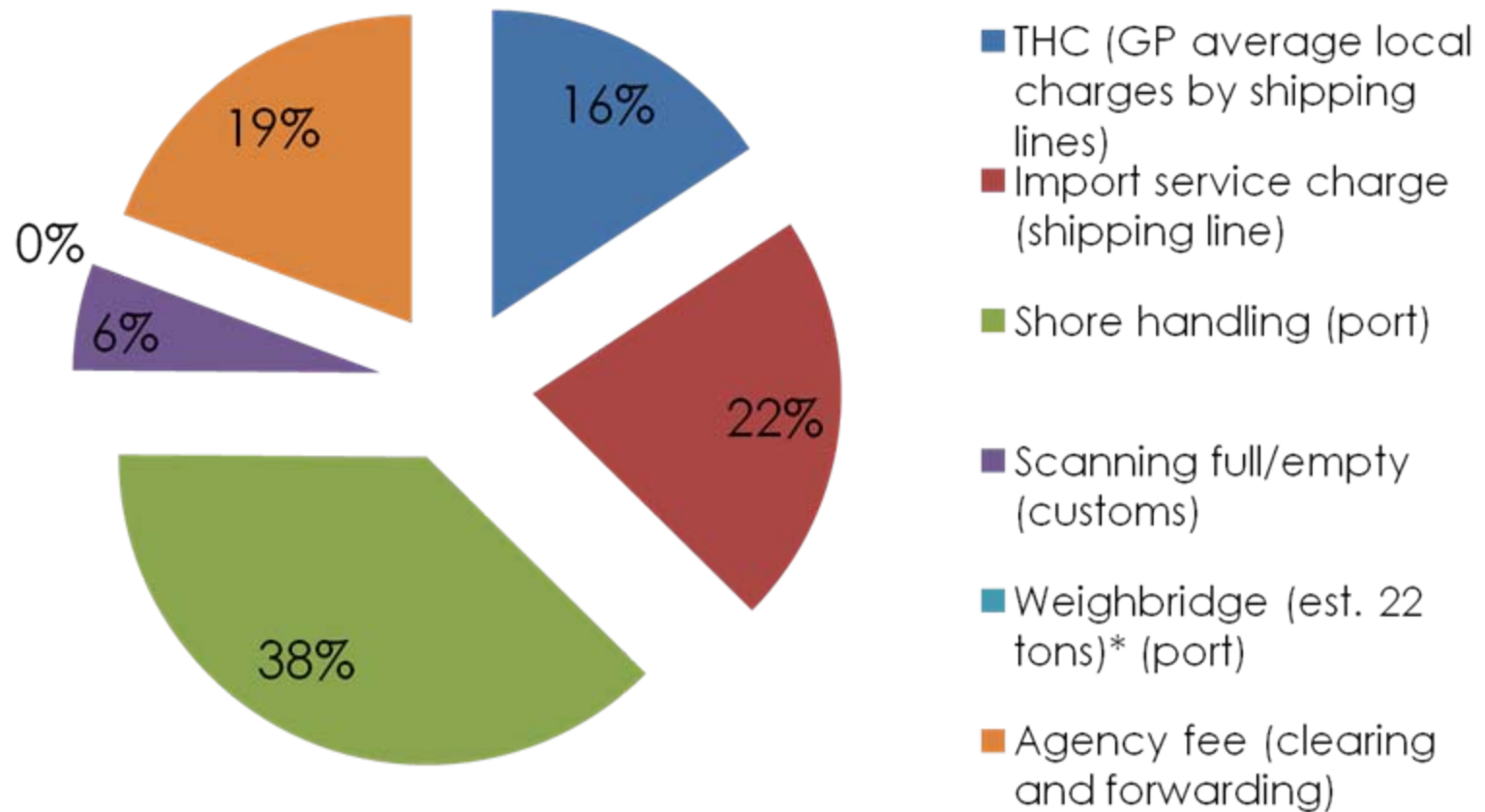
Port charges

Clearing Charges for a 20' foot import container at Beira and Nacala ports (US\$)

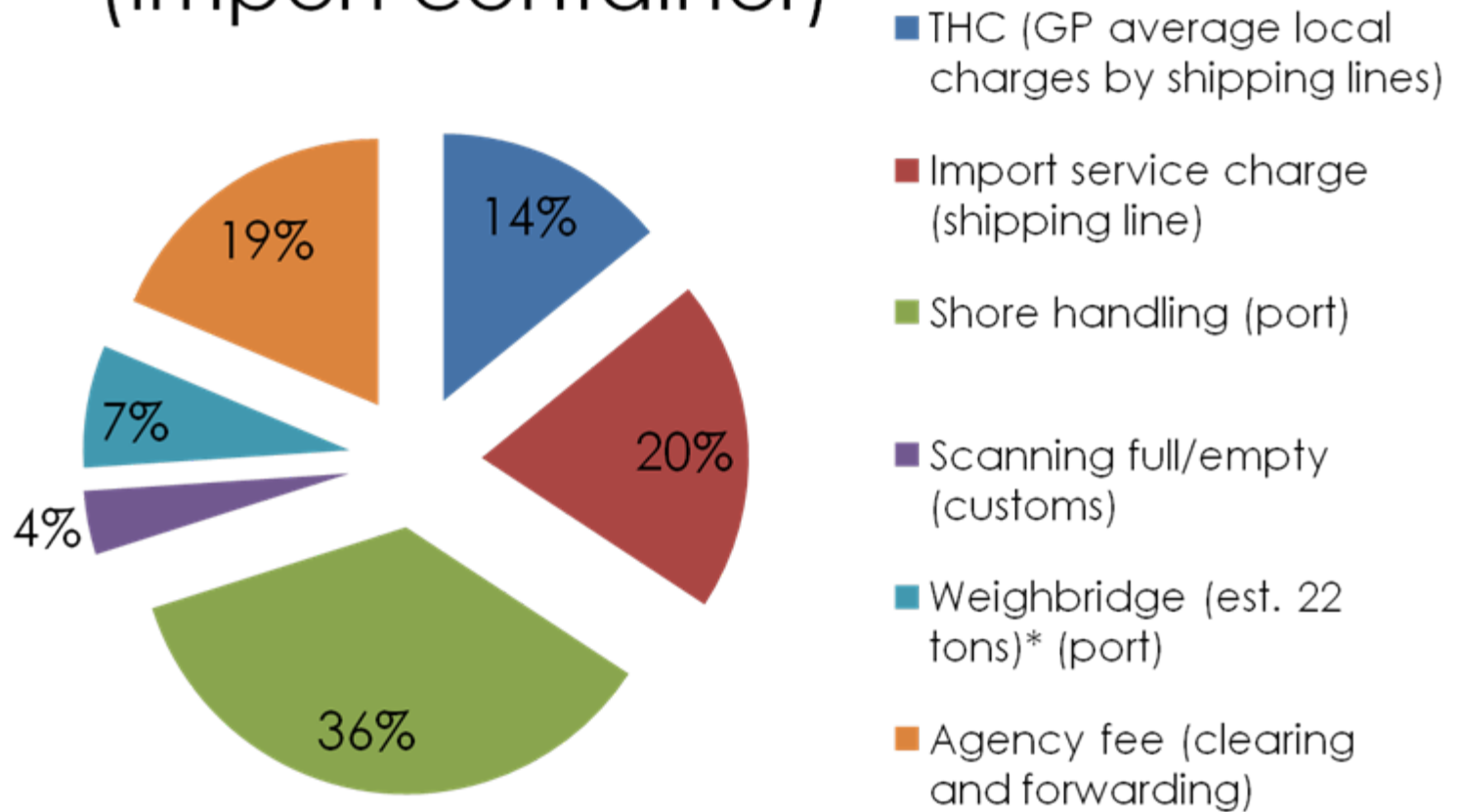
Clearing charge	Beira port	Nacala port
Average THC (GP) (shipping line)	98	91
Shore handling (port)	235	231
Import service charge (shipping line)	135	130
Scanning full (customs)	25	25
Weighbridge (estimated 22 tons)	0	48
Agency fee (clearing and forwarding)	120	120
TOTAL	623	645



Beira port clearing charges (import container)



Nacala port clearing charges (import container)



Clearing Charges for a 20' foot import container at Beira and Nacala ports (US\$)

Clearing charge	Beira port	Nacala
Average THC (GP) (shipping line) ¹	98	91
Shore handling (port) ²	235	231
Import service charge (shipping line)	135	130
Scanning full (customs)	25	25
Weighbridge (estimated 22 tons) ³	0	48
Agency fee (clearing and forwarding)	120	120

Notes 1: Average local charges for various shipping lines for a General Purpose (GP) 20' container

2: Shore handling for containerized fertilizer

3: Weighing is random at Beira, but all cargo is weighed at Nacala



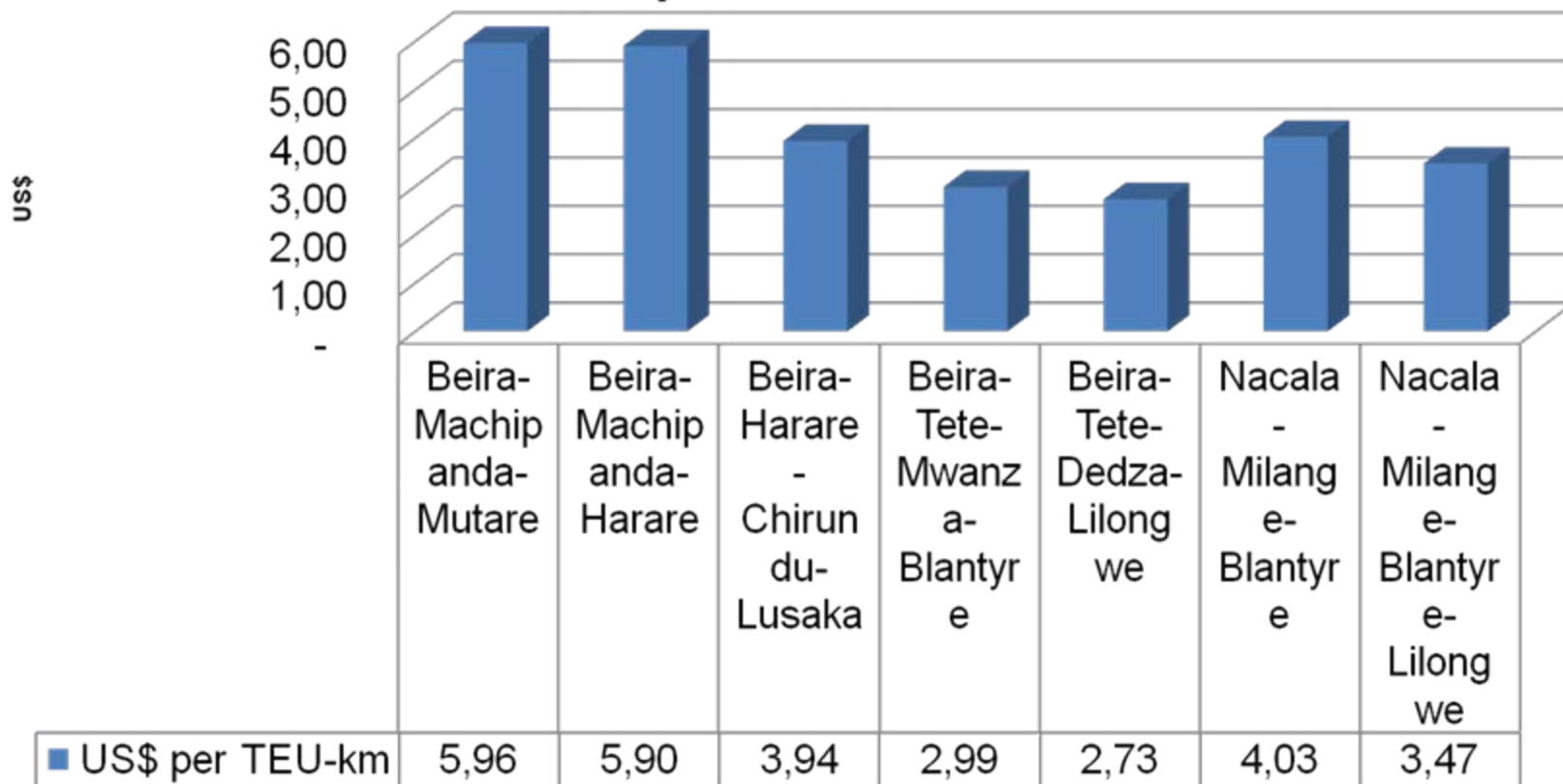
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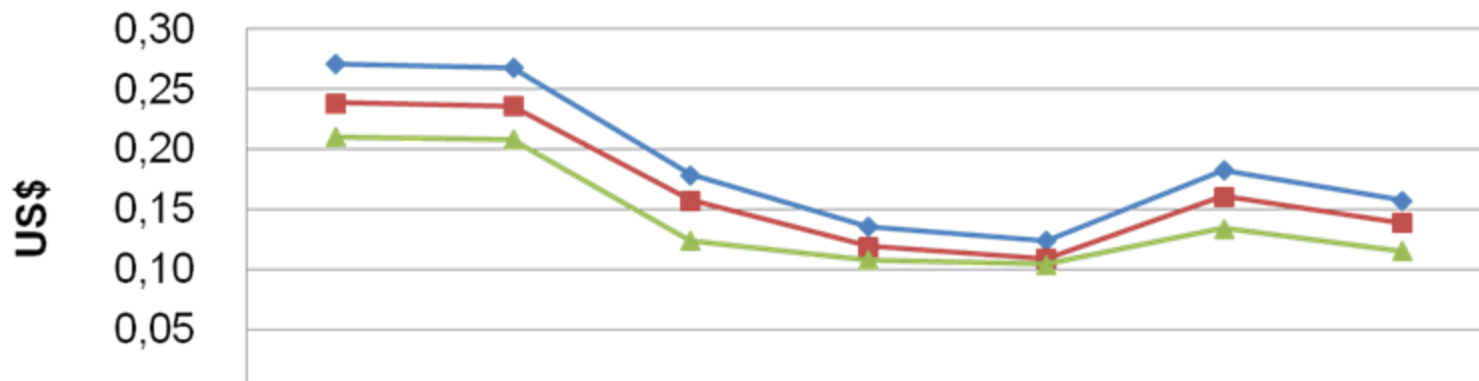
Trucking charges

Route cost per TEU-km for Containers



Trucking charges

Route cost per ton-km for break-bulk



	Beira-Machipanda-Mutare	Beira-Machipanda-Harare	Beira-Harare-Chirundu-Lusaka	Beira-Tete-Mwanza-Blantyre	Beira-Tete-Dedza-Lilongwe	Nacala-Milange-Blantyre	Nacala-Milange-Blantyre-Lilongwe
◆ 20' (22 tons)	0,27	0,27	0,18	0,14	0,12	0,18	0,16
■ 40' (25 tons)	0,24	0,24	0,16	0,12	0,11	0,16	0,14
▲ Break-bulk, 30 tons truck load	0,21	0,21	0,12	0,11	0,10	0,13	0,12



Corridors comparison

Average trucking costs for 20' foot import container transit

Corridor	Average cost per ton-km (US\$)			Average US\$ per TEU-km
	20' (22 tons)	40' (25 tons)	Break-bulk, 30 tons truck load	
Beira	0.18	0.16	0.13	3.90
Nacala	0.17	0.15	0.12	3.75
Average	0.17	0.15	0.13	3.83



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Comparative Analyses

Comparison of trucking charges for 20' container, 22 tons				
Origin	Destination	Distance (km)	Tariff/trucking (US\$)	US\$ per TEU-km
Mombasa	Juba (via Nimule)	1,723	5,714	3.32
Maputo	Johannesburg	550	1,120	2.04
Dar es Salaam	Kigali	1,486	3,972	2.67
Dar es Salaam	Bujumbura	1,542	4,122	2.67
Mombasa	Kigali	1,700	6,500	3.82
Mombasa	Nairobi	430	1,300	3.02
Mombasa	Kampala	1,170	3,000	2.56
Mombasa	Bunjumbura	2,000	8,000	4.00
Beira	Harare (via Machipanda/Forbes)	559	2300	4.11
Beira	Lusaka (via Machipanda & Chirundu)	965	3800	3.94
Beira	Lusaka (via Cassacatiza/Chanida)	1480	4600	3.11
Beira	Blantyre (via Zóbue/Mwanza)	870	2600	2.99
Beira	Lilongwe (via Dedza/Calomue)	988	2700	2.73
Nacala	Blantyre (via Milange)	1150	4630	4.03
Nacala	Lilongwe (via Milange)	1600	5556	3.47

Border costs

Border charges							
Route	Border	Border Charges applicable (US\$)					
		Toll fees (road user charge)	Insurance	Carbon tax	Vehicle entry permit	Port health	TOTAL, US\$
Beira-Harare	Machipanda/Forbes	180	60	25	25	25	315
Beira-Blantyre	Zóbue/Mwanza	66	50	0	30	0	146
Beira-Lilongwe	Dedza/Calomue	52	50	50	30	0	182
Beira-Lusaka	Cassacatiza/Chanida	300	95	50	0	25	470
Beira-	Machipanda/Forbes and Chirundu	480	155	75	0	50	760

Rail Haulage Costs

Railway tariffs on 20' foot and 40' foot Container in US\$

	Distance (km)	US\$ per Container		Cost per ton in US\$, loaded		US\$ per TEU-km	US\$ per FEU-km
		20' foot	40' foot	20' foot	40' foot	20' foot	40' foot
Beira-Machipanda	319	465	930	21.14	33.21	1.46	2.92
Nacala-Cuamba-Lichinga	795	762	1859	34.64	66.39	0.96	2.34
Nacala-Blantyre	799	1435	2865	65.23	102.31	1.80	3.59
Nacala-Lilongwe	988	1936	3867	88.00	138.09	1.96	3.91



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Rail Haulage Costs

Railway tariffs for Break-bulk in US\$

	Break-bulk US\$ per ton		US\$ per ton-km, break-bulk	
	Fertilizer	Rice/ wheat	Fertilizer	Rice/ wheat
Beira-Machipanda	31.5	29.4	0.10	0.09
Nacala-Cuamba-Lichinga	75.2	49.4	0.09	0.06
Nacala-Blantyre	80.14	80.14	0.10	0.10
Nacala-Lilongwe	96.58	96.58	0.10	0.10



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SPECIAL EXPORT TERMINAL AT NACALA

- The Government of Mozambique, through the General Director of Customs, issued a service order (No. 04/GD/DGA/2012) of 18th January 2012 requiring operations related to exports through Nacala Port to be carried out at a special export terminal for customs control.
- The terminal started custom operations on 21st September, 2011
- January 2012, started with local export cargo by road.
- NCL & AFRICA, Import and Export Lda (private operator), owns the export terminal.



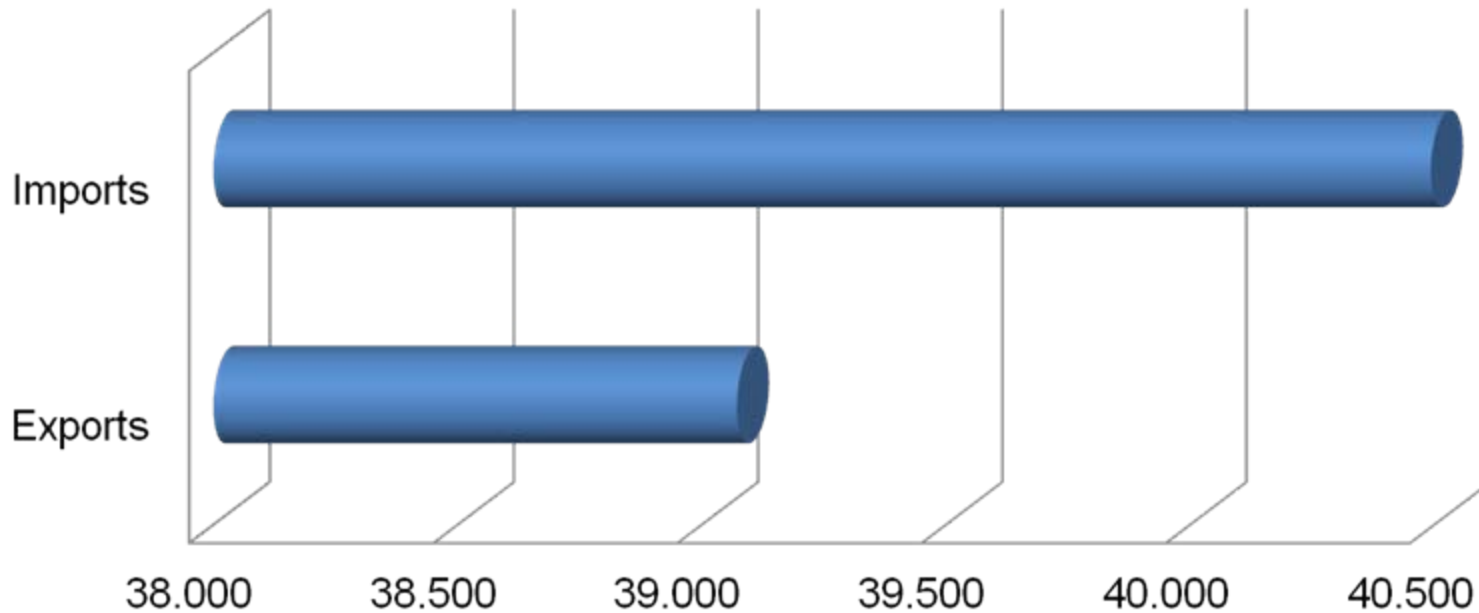
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SPECIAL EXPORT TERMINAL AT NACALA

Container Traffic at Nacala Port in TEUs, 2011



	Exports	Imports
■ 2011	39.072	40.493

Note: Total TEUs excludes transshipments and restow



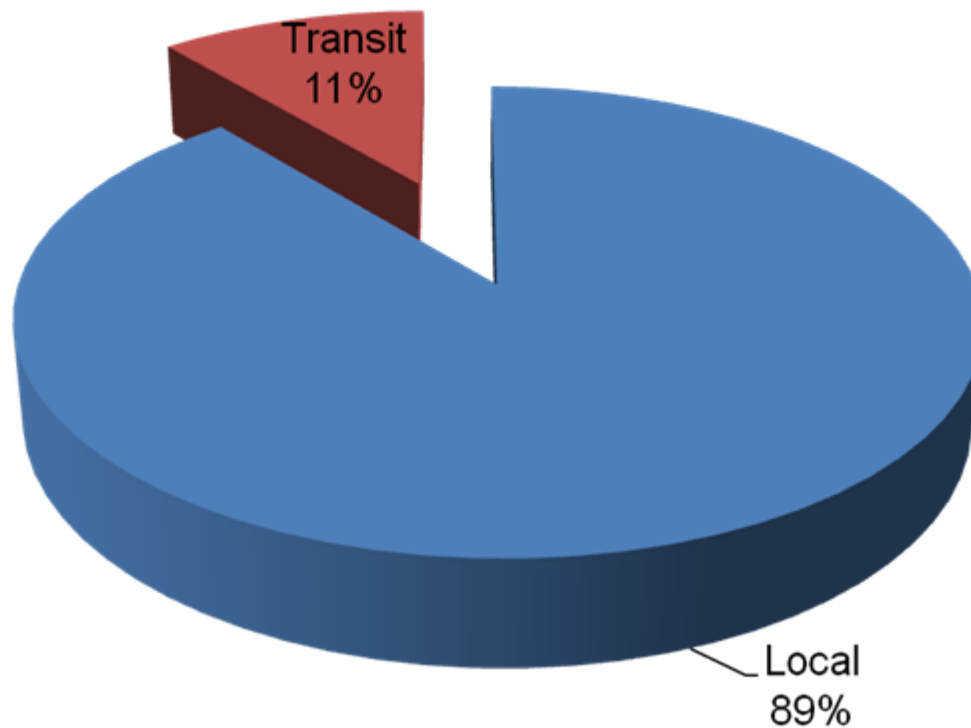
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SPECIAL EXPORT TERMINAL AT NACALA

Nacala Exports TEUs, 2011



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Container freight station (CFS) benefits typically include:

- Reduced transport costs through increased vehicle efficiency
- Improved cargo delivery time through reduced dwell time
- Increased saving by shifting cargo handling
- Minimizing corridor risks: business, economic risk
- Increasing business activities & employment
- Reducing sea port congestions
- Increased beneficial impacts on local & regional economic activities
- Provides truck parking space/stations & cargo handling facilities
- Offers benefits to users, regional economy & national development



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Comparison of NCL Export Terminal and Nacala Port Charges, 2012

Activity	NCL	Nacala Port	Variance	Variance (%)
Terminal handling				
20 foot	284 ¹	197	87	44%
40 foot	511	355	156	44%
Storage per day:				
Free period	3	7	4	
Daily rate between 4-15 th day (NCL)				
20 foot	10			
40 foot	18			
Daily rate on 16 th day and after (NCL)				
20 foot	14			
40 foot	25			
Daily rate on 8th day and after (Nacala port)				
20 foot		7		
40 foot		12		



Analyses indicate that:

- NCL handling charges are US\$87 and US\$156 higher than Nacala Port's handling charges for 20' foot and 40' foot containers
- NCL handling charges are 44% more expensive in both containers categories



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Other costs

- Cross-haulage to port
- Scanning
- Weighing
- Shore handling
- Stevedoring
- Local shipping line charges
- Other costs – security, standards



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Additional logistic movements/costs

- Organize and hire a truck to uplift the empty boxes from the relevant shipping line to NCL export terminal and ground the empty boxes;
- Hire a truck to load break bulk cargo from shippers warehouse and offload into NCL warehouse, where the cargo will be inspected by customs and then stuffed into container;
- Arrange a truck to haul the full and sealed boxes from NCL terminal to the port terminal.



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Other concerns

- Risk of cargo contamination when mixing break-bulk consignments of several shippers;
- Limited handling capacity for many consignments, and in particular large volumes. This may lead to backlog handling which may accrue storage charges.
- Lack an integrated management system
- Inadequate handling equipment



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Key recommendations

- Export terminal market access by opening registration to other market participants to avoid monopoly.
- Create competition to ensure optimal service level and competitive prices.
- Establish key performance indicators and relevant statistical requirements to measure the operation efficiency of the export terminals created.

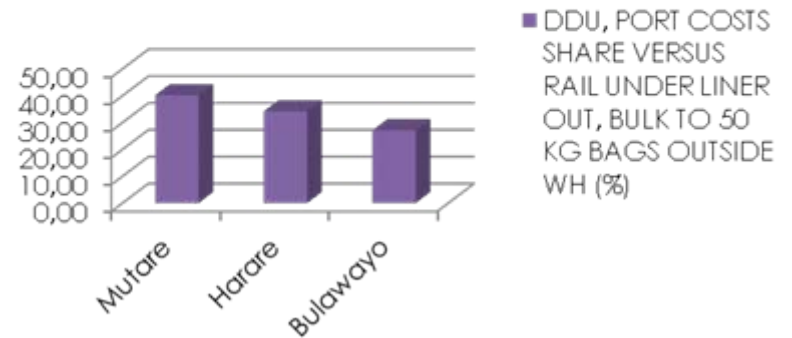
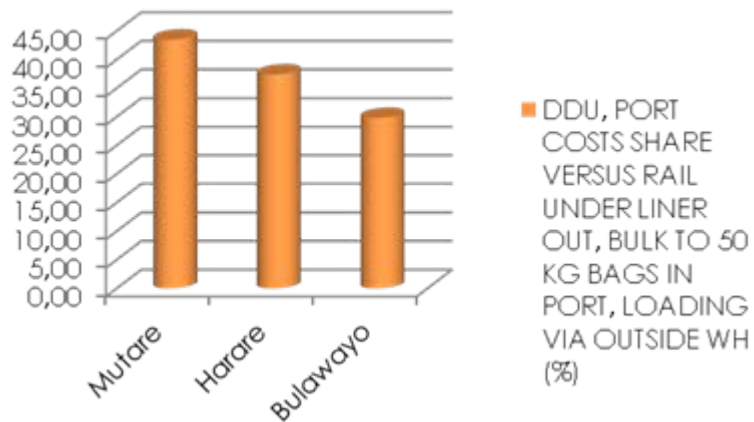
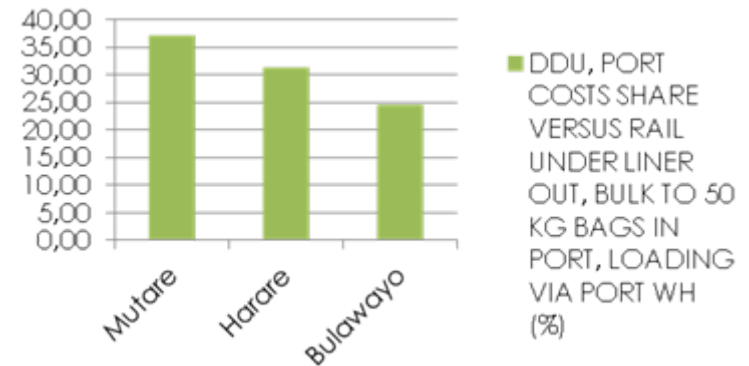
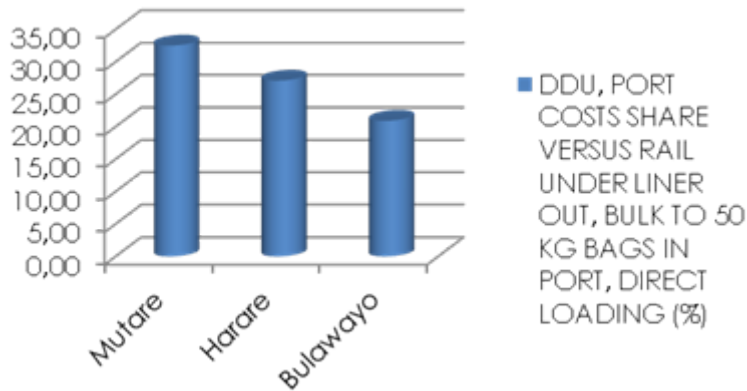


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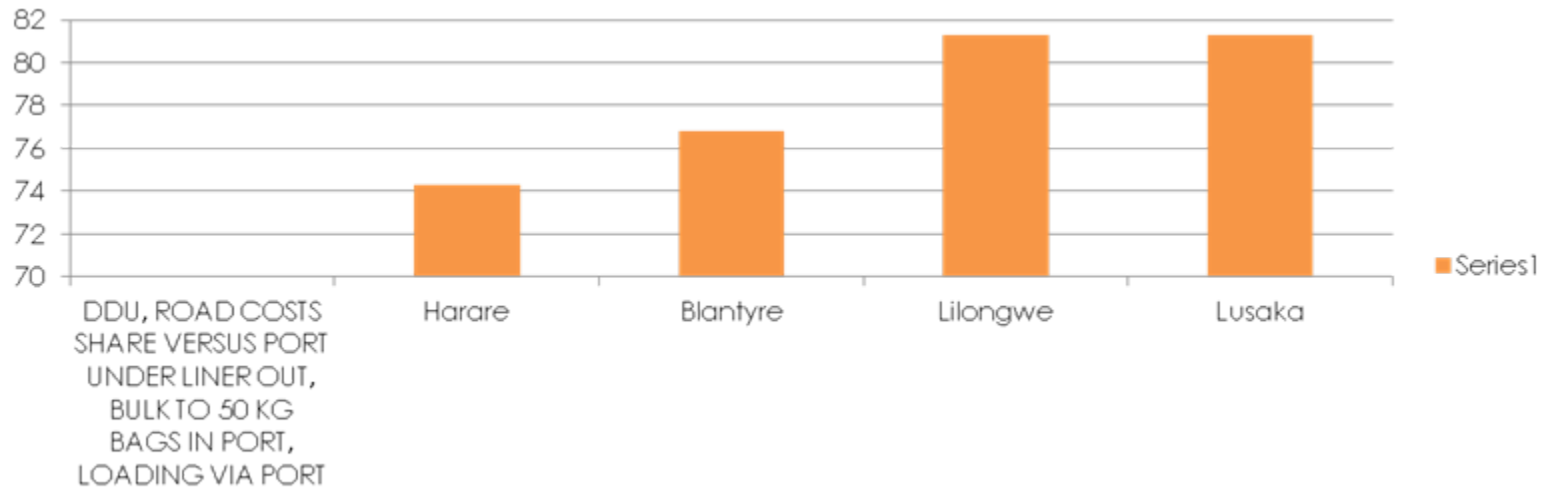
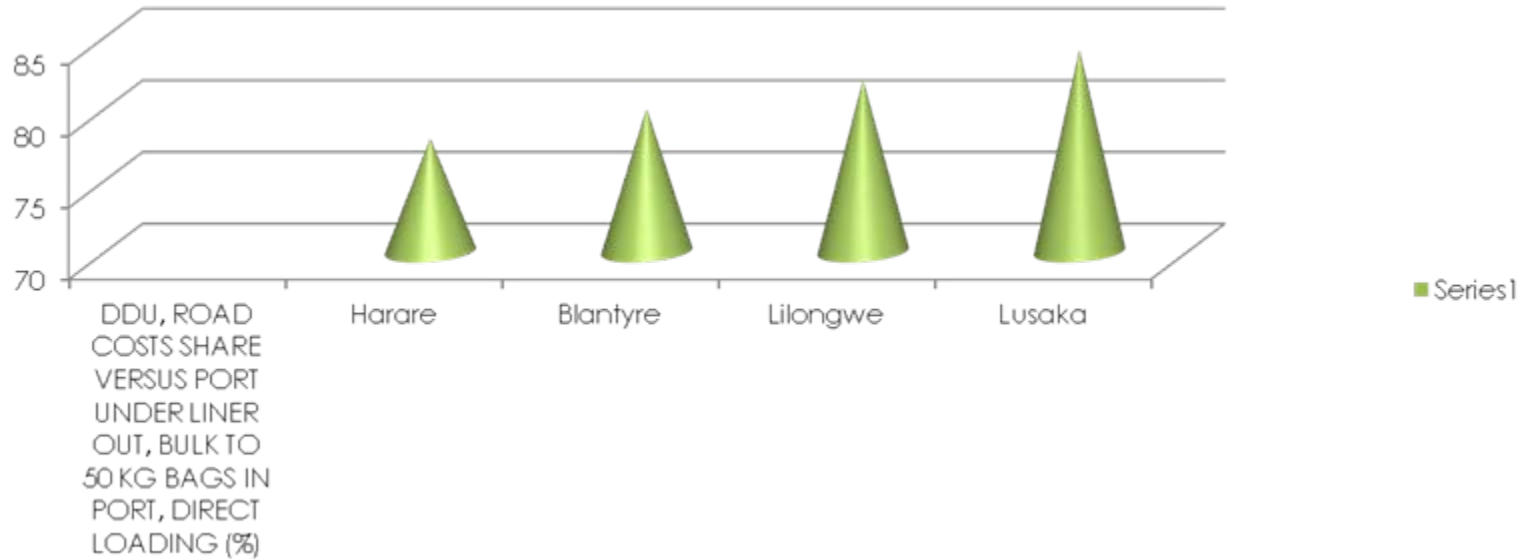
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LINER OUT COSTS, PORT VERSUS RAIL



LINER OUT COSTS, ROAD VERSUS PORT



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THE END

Thank you



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