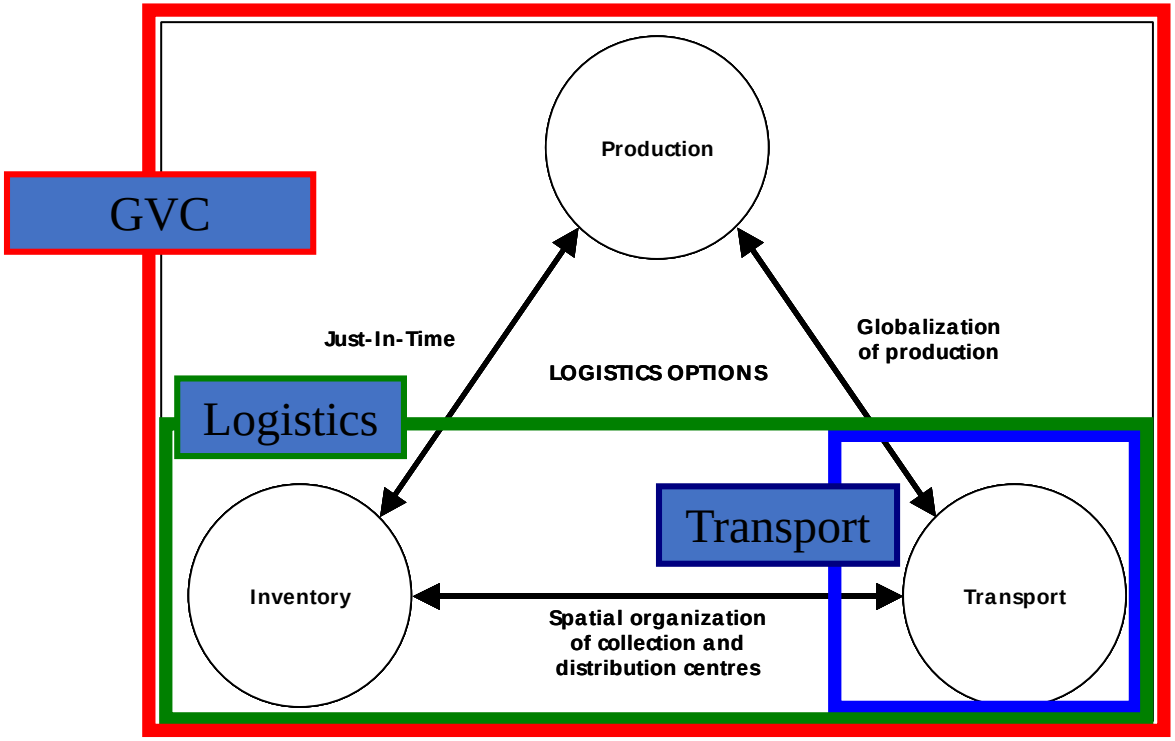
Transport data and lessons learned from UNCTAD's research

Trade Negotiations and Commercial Diplomacy Branch

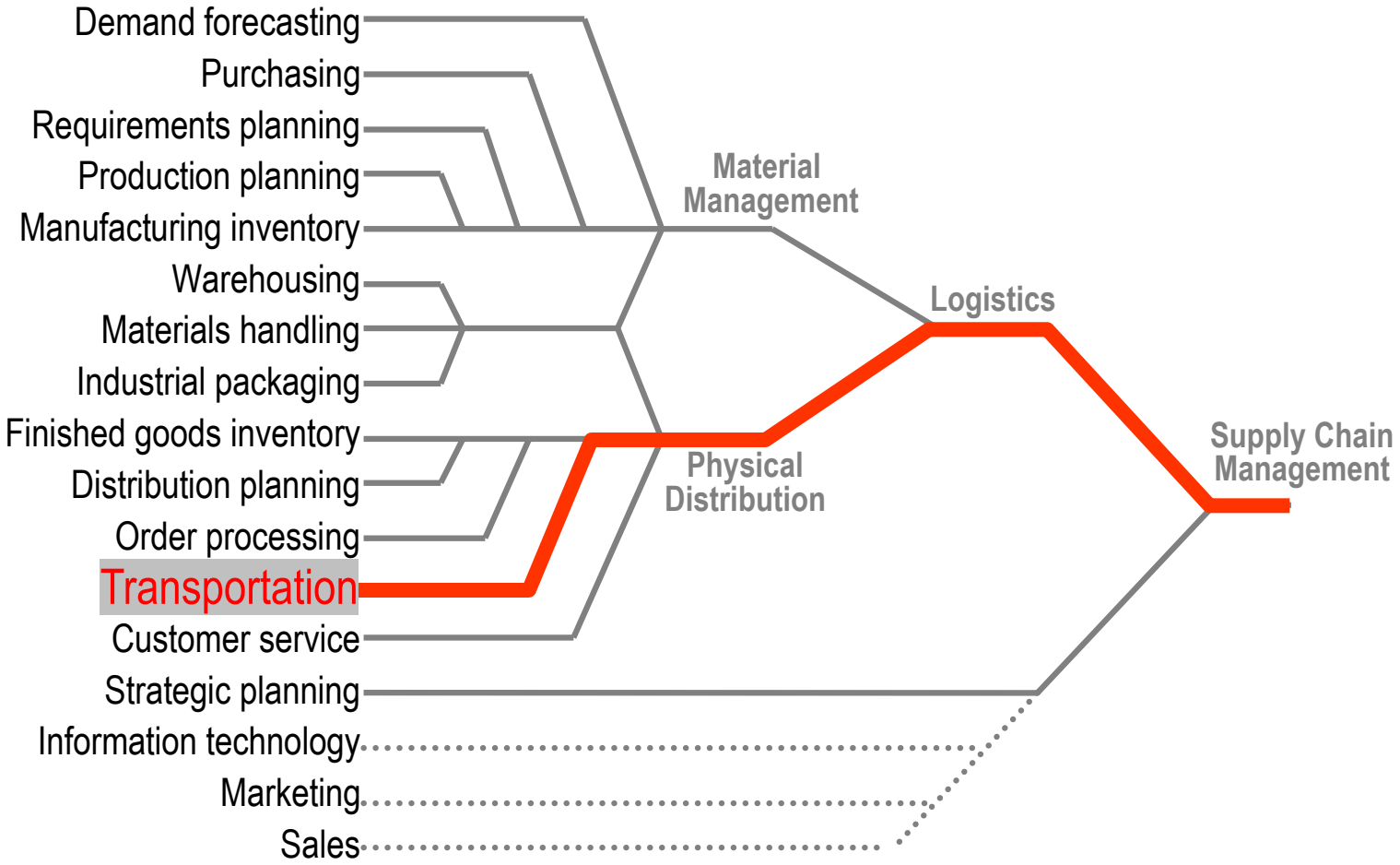
Contents

1. Transport and the Global Value Chain
2. Who collects the data and where is it available
3. Way to the Ocean
4. Dry Ports

The Global Supply Chain



Source: "Logistics Management", IML, Lausanne



Source: David, P. (2004)

The Global Supply Chain

Buying agents
Road/Rail/Canal
Operator
Freight forwarder
Consolidator
Bank

COUNTRY OF ORIGIN

SYSTEM EFFICIENCY

90% x 90% = 81%

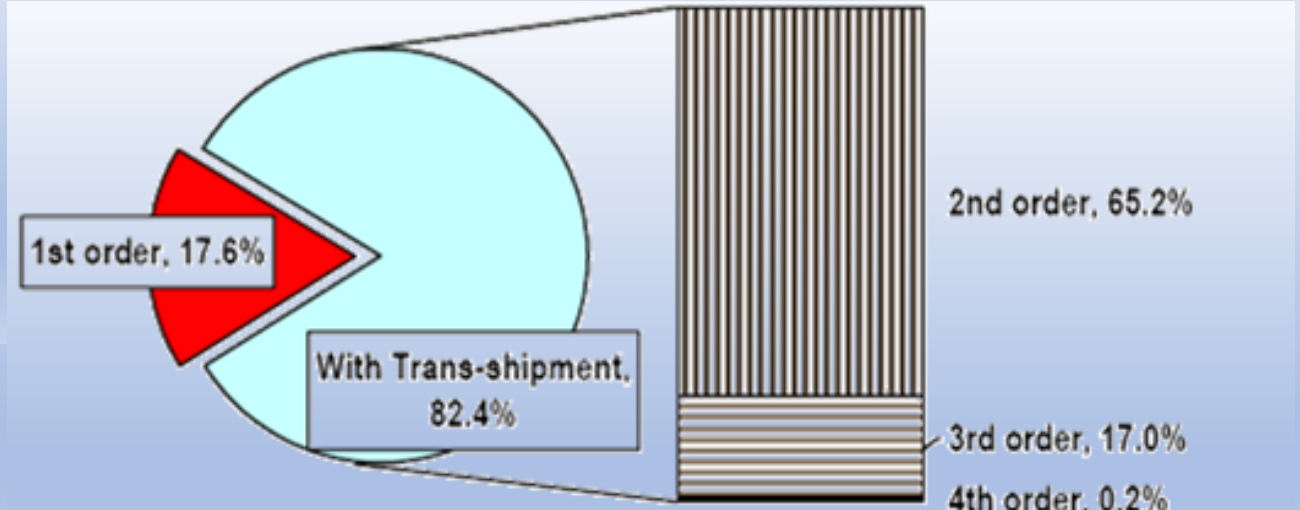
90% x 90% x 90% x 90% x 90% = 59.05%

Marine carrier | Port Operator | Customs | Agents | BUYER

Custom House brokers
De-Consolidators
Road/Rail/Canal Operator
Bank

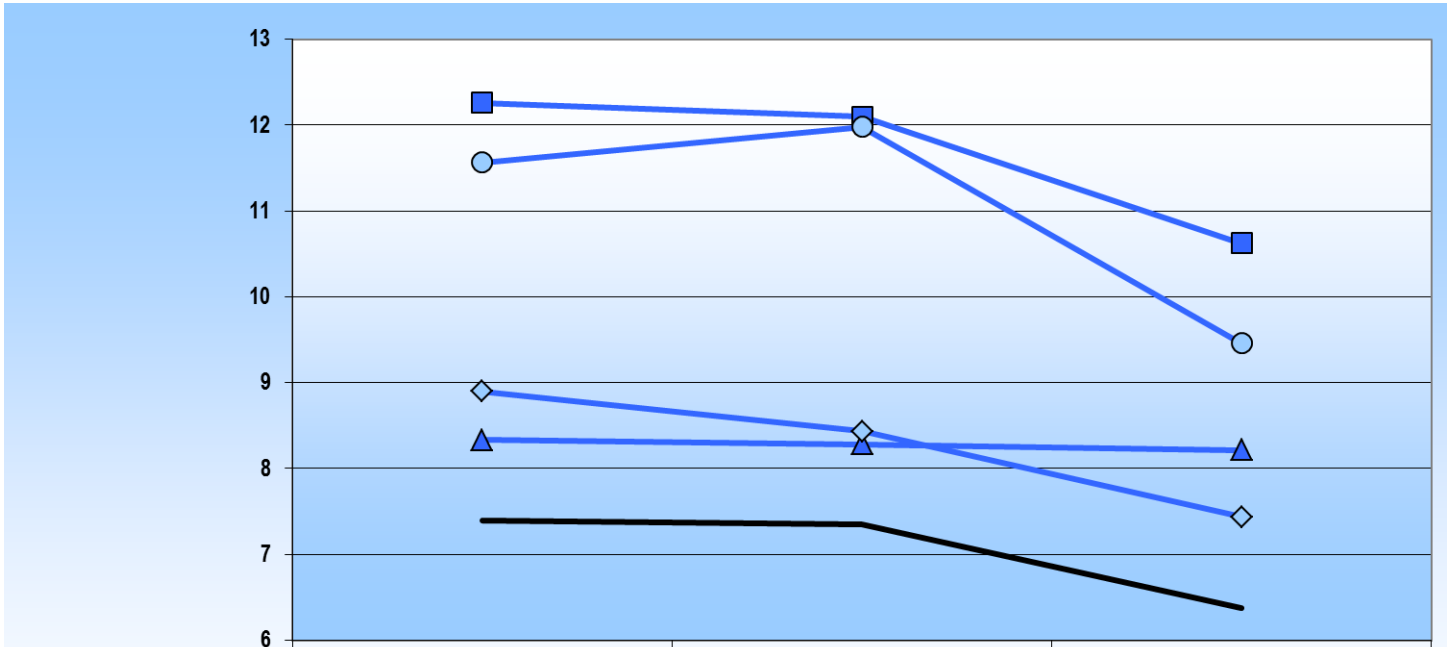
Connectivity

162 x 161 pairs of countries are connected by direct services.



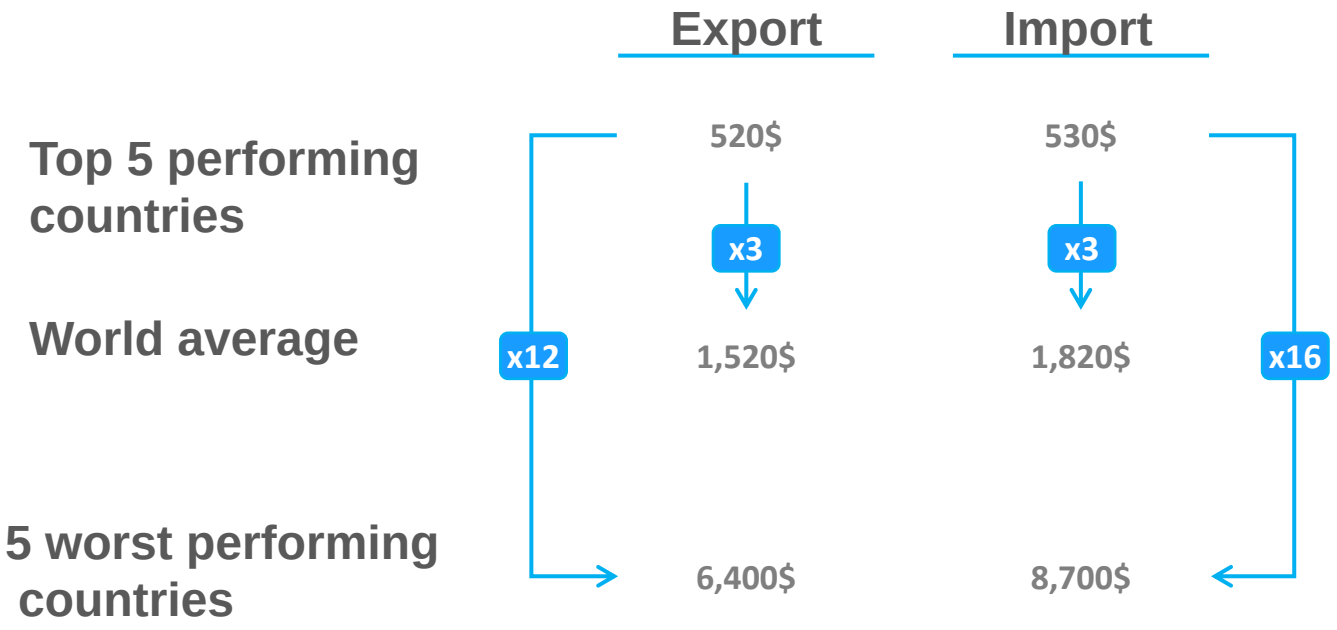
Source: UNCTAD, based on data from Containerization International

Trends in transport costs



	1980s	1990s	2000s
Developing Africa	'12.3	'12.1	'10.6
Developing Oceania	'11.6	'12.0	'9.5
Developing America	'8.3	'8.3	'8.2
Developing Asia	'8.9	'8.4	'7.4
Developed economies	'7.4	'7.3	'6.4

Quantifying costs - importing and exporting a TEU



Source: Doing Business 2015

Shipping as a GVC

1. Building
2. Owning
3. Registration
4. Operation
5. Scrapping

6. Financing
7. Classification
8. Insurance services (P&I)
9. Seafarers
10. Container terminal operators

World Shipping as a GVC

Republic of Korea and China: 72%

1. Building	2. Owning	3. Registration	4. Operation	5. Scrapping

6. Financing

7. Classification

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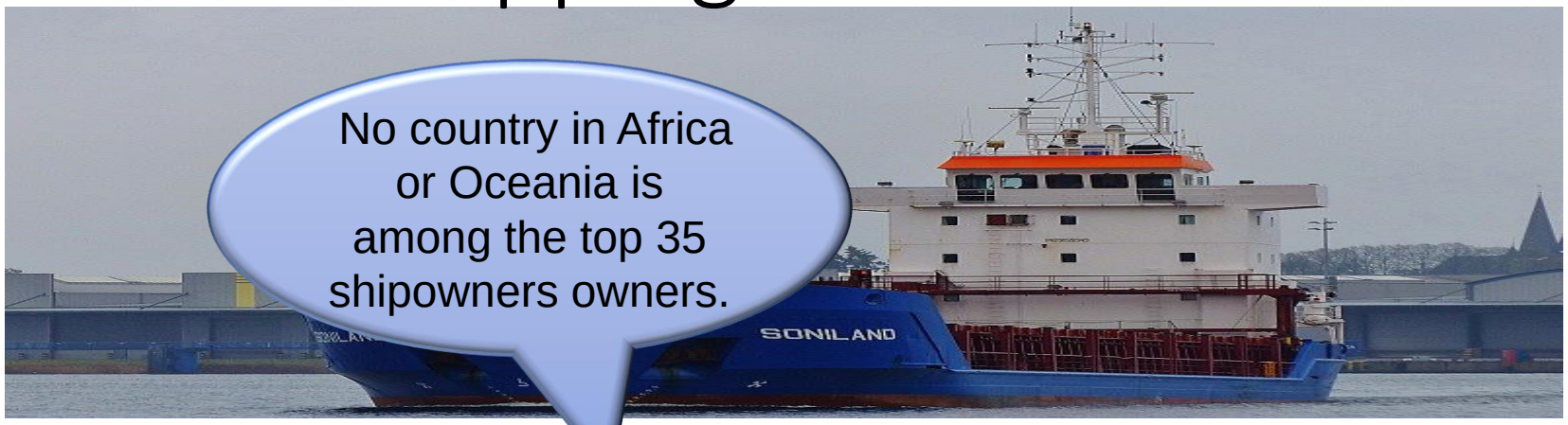
9. Seafarers

10. Container terminal operators

World Shipping as a GVC



No country in Africa or Oceania is among the top 35 shipowners owners.

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World Shipping as a GVC

Most services provided by developed countries

1. Building	2. Owning	3. Registration	4. Operation	5. Scrapping
6. Financing				
7. Classification				
8. Insurance services (P&I)				
9. Seafarers				
10. Container terminal operators				

World Shipping as a GVC

Philippines, China, Indonesia
25% of officers

1. Building
2. [illegible]
3. Registration
4. Operation
5. Scrapping

6. Financing
7. Classification
8. Insurance services (P&I)
9. Seafarers
10. Container terminal operators

World Shipping as a GVC

Hong Kong, Netherlands, Singapore, UAE 46%

1. Building
2. Ow
3. Registration
4. Operation
5. Scrapping

6. Financing
7. C ssification
8. Insurance services (P&I)
9. Seafarers
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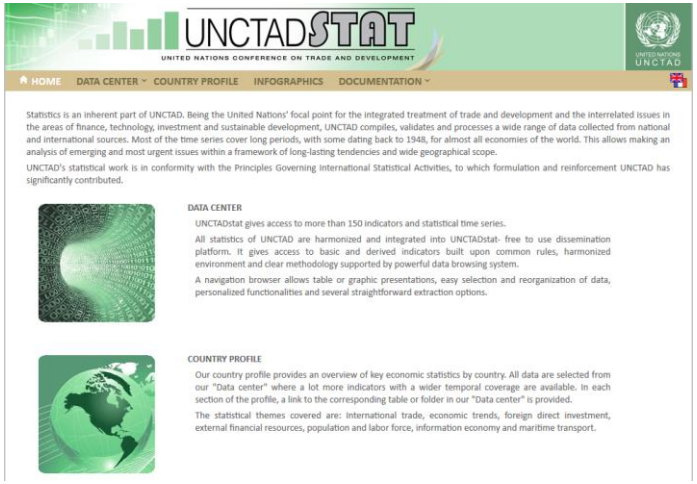
UNCTAD – Transport Data

- World Seaborne Trade
- Port Traffic
- World Merchant Fleet
- Liner Shipping Connectivity Index



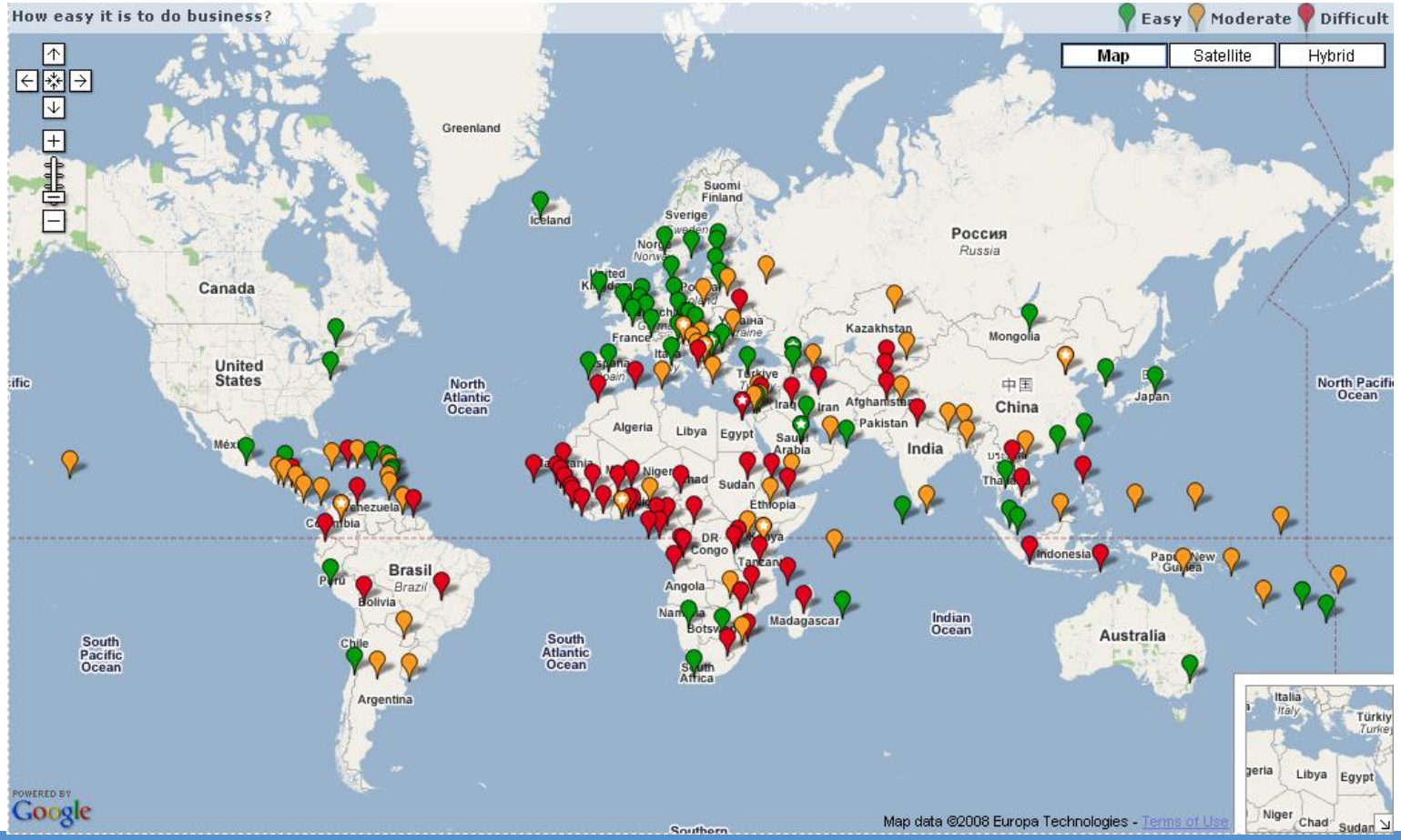
- http://unctadstat.unctad.org/EN/

UNCTAD - LSCI

- Africa
- 1. Morocco 71.5
- 2. Egypt 70.3
- 3. South Africa 40.1
- 4. Djibouti 37.0
- 5. Togo 35.9

- China 187.8

World Bank



Source: http://www.doingbusiness.org/

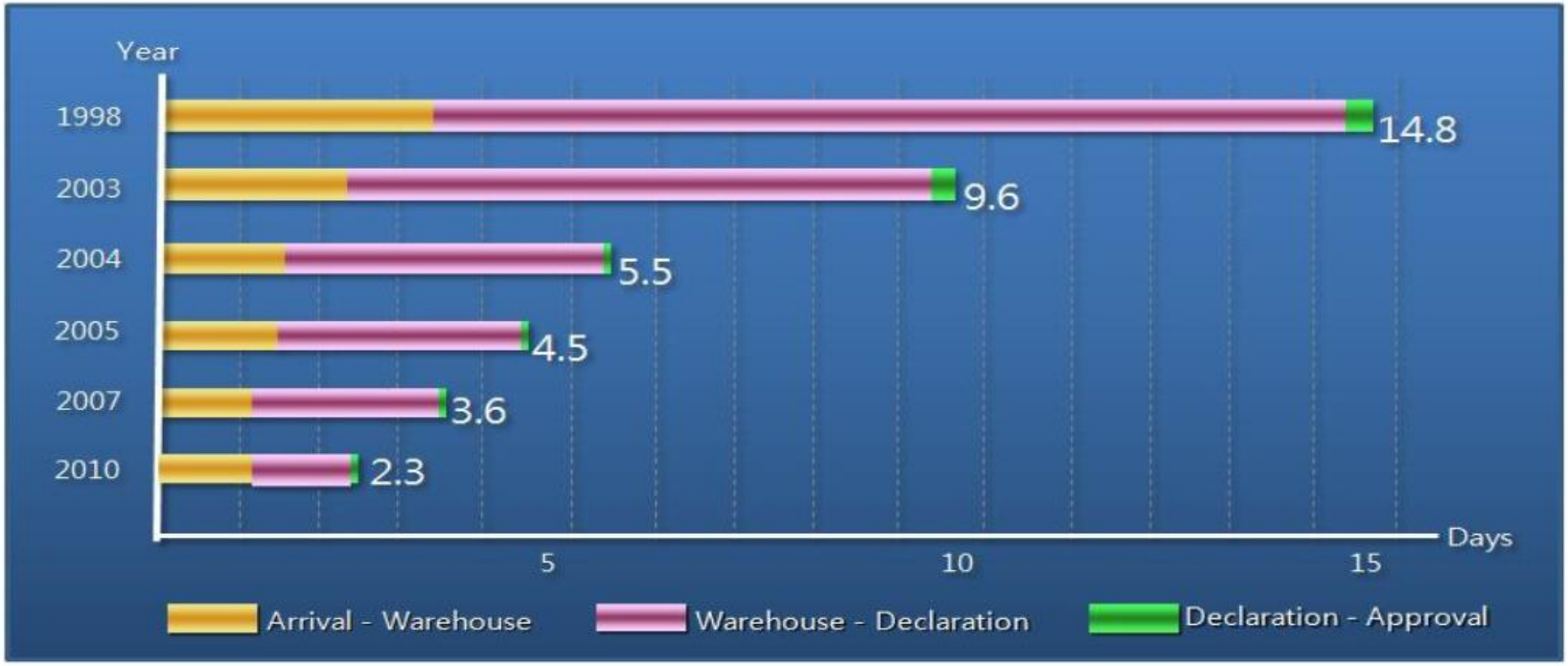
World Bank - LPI

Country	Year	LPI Rank	LPI Score	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
Saudi Arabia	2018	55	3.01	2.66	3.11	2.99	2.86	3.17	3.30
Brazil	2018	56	2.99	2.41	2.93	2.88	3.09	3.11	3.51
Rwanda	2018	57	2.97	2.67	2.76	3.39	2.85	2.75	3.35
Colombia	2018	58	2.94	2.61	2.67	3.19	2.87	3.08	3.17
Bahrain	2018	59	2.93	2.67	2.72	3.02	2.86	3.01	3.29
Philippines	2018	60	2.90	2.53	2.73	3.29	2.78	3.06	2.98
Argentina	2018	61	2.89	2.42	2.77	2.92	2.78	3.05	3.37
Ecuador	2018	62	2.88	2.80	2.72	2.75	2.75	3.07	3.19
Kuwait	2018	63	2.86	2.73	3.02	2.63	2.80	2.66	3.37
Iran, Islamic Rep.	2018	64	2.85	2.62	2.77	2.76	2.84	2.77	3.36
Serbia	2018	65	2.84	2.60	2.60	2.97	2.70	2.79	3.33
Ukraine	2018	66	2.83	2.49	2.22	2.83	2.84	3.11	3.42
Egypt, Arab Rep.	2018	67	2.82	2.60	2.82	2.79	2.82	2.72	3.19
Kenya	2018	68	2.81	2.65	2.55	2.62	2.81	3.07	3.18
Malta	2018	69	2.81	2.70	2.90	2.70	2.80	2.80	3.01

Source: https://openknowledge.worldbank.org/bitstream/handle/10986/29971/LPI2018.pdf

WCO – Time Release Study

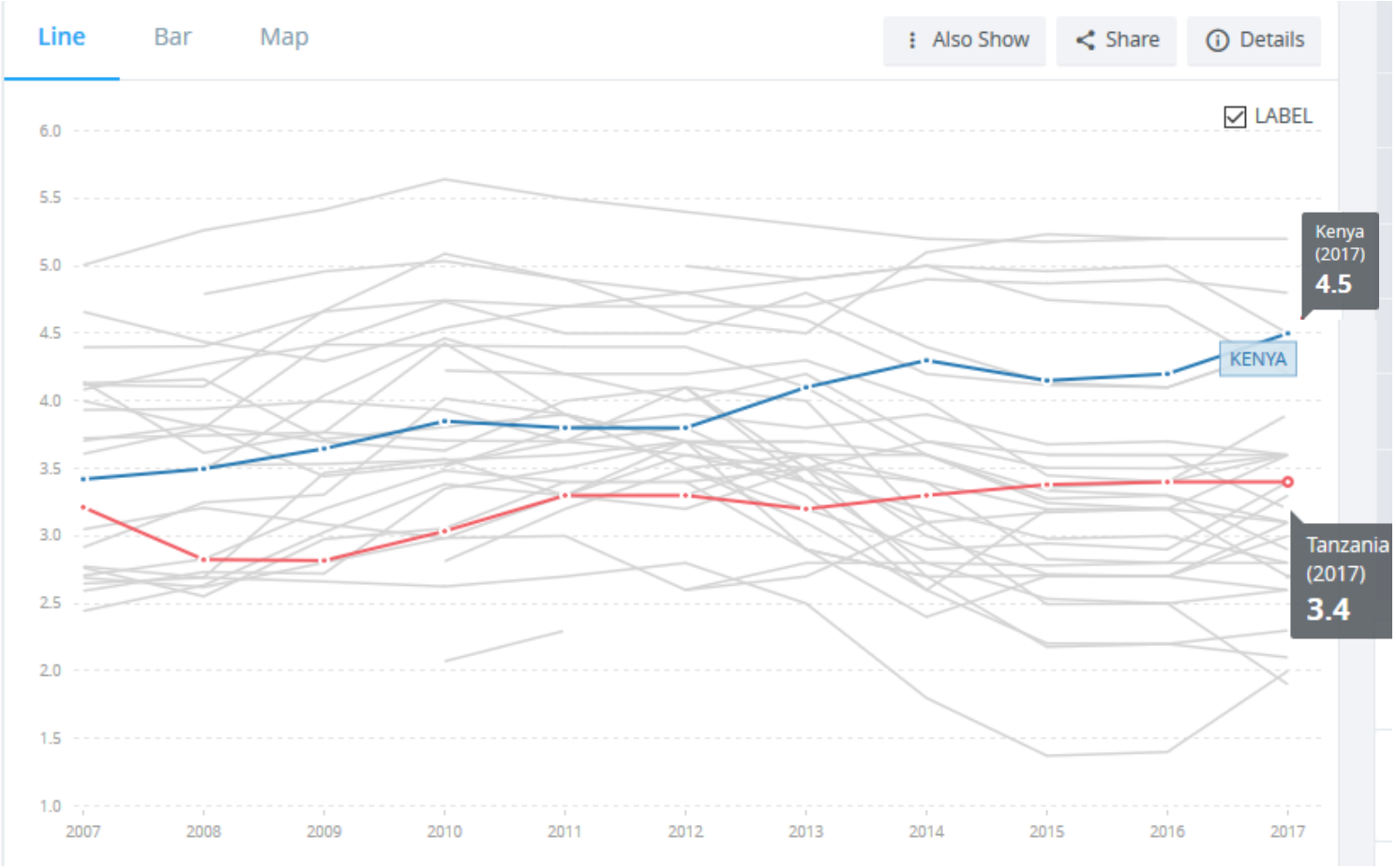
Taking measures to resolve the bottlenecks diagnosed



http://www.wcoomd.org/en/Topics/Facilitation/Instrument%20and%20Tools/Tools/Time%20Release%20Study

WEF

- Port quality index



Namibia 5.2
South Africa 4.8
Kenya 4.5
Seychelles 4.5
The Gambia 4.4

World 4.063

Ethiopia 2.7

Djibouti no data
Somalia no data
Sudan no data

https://data.worldbank.org/indicator/IQ.WEF.PORT.XQ?locations=DJ

World Economic Forum, Global Competiveness Report.

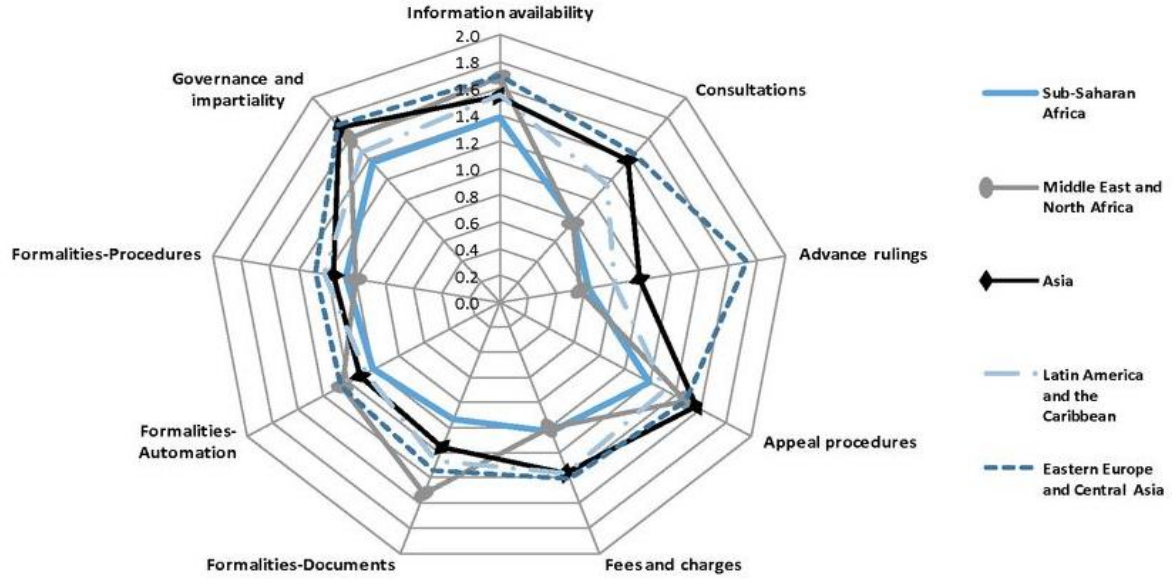
2017-Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards)

WEF data available at World Bank

https://data.worldbank.org/indicator/IQ.WEF.PORT.XQ?contextual=region&locations=KE&view=chart

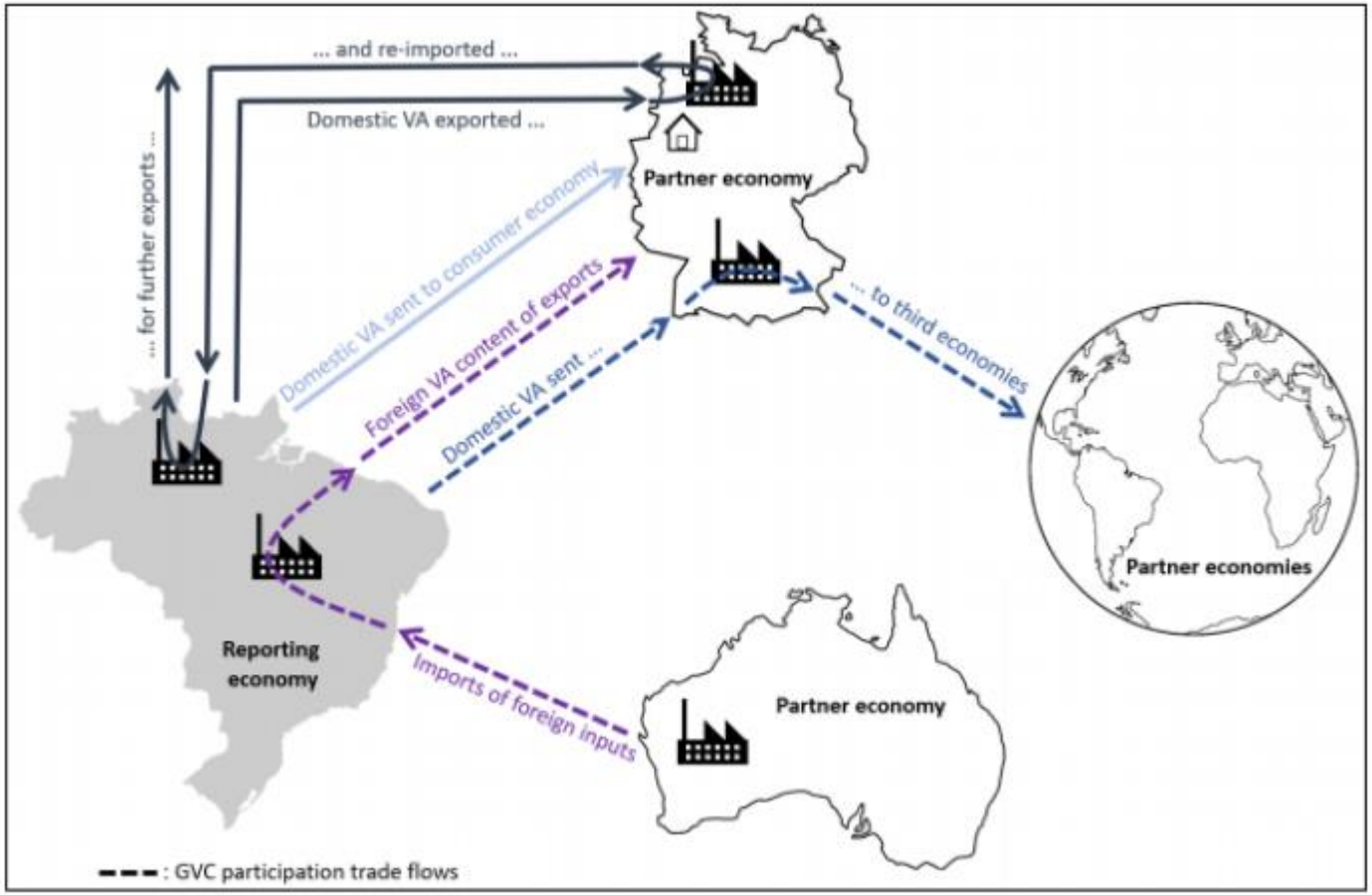
OECD – Analysis Trade Facilitation by region

Figure 4. TFIs and geographic country groups

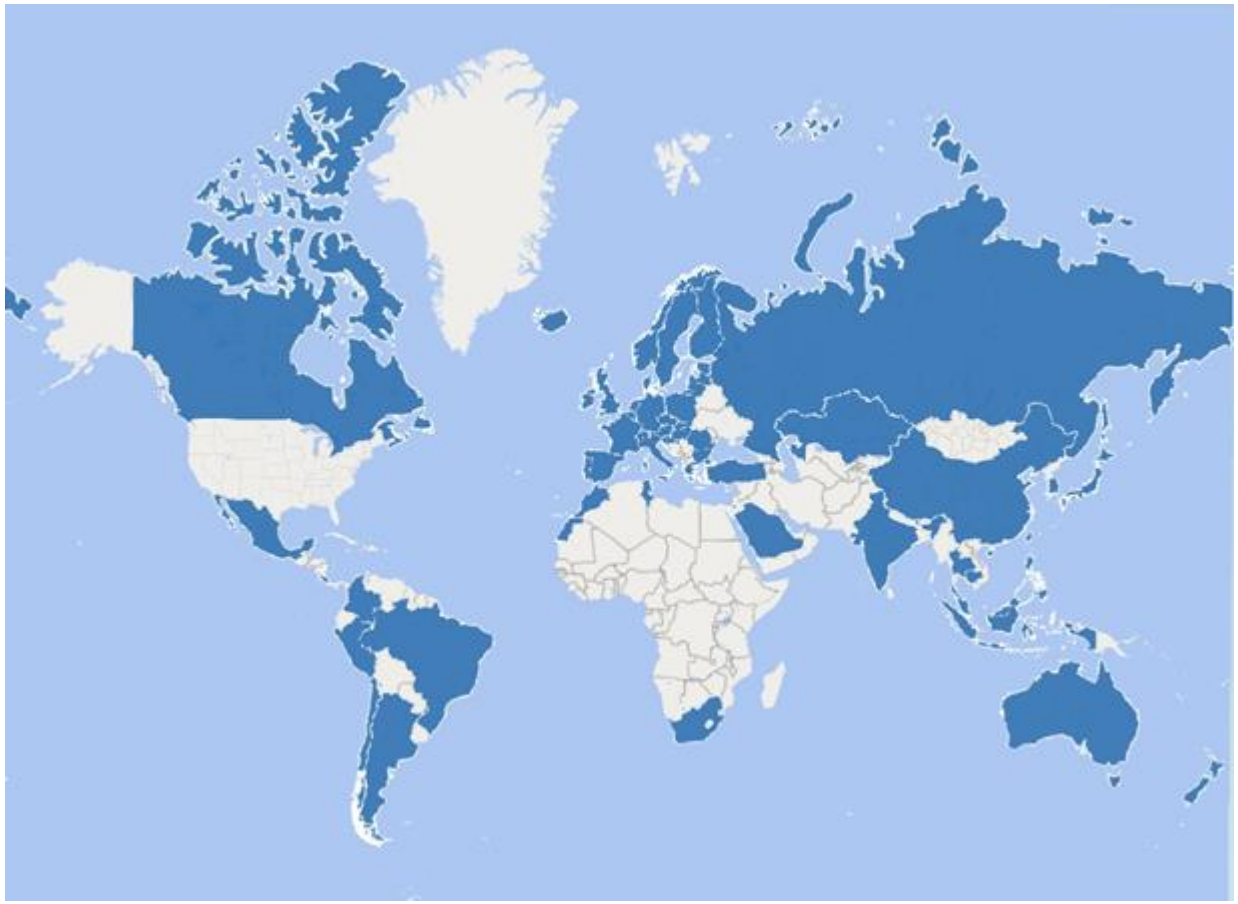


Note: The TFIs values range between 0 and 2, where 2 corresponds to the best performance. The values indicate the average TFI performance by country group.

WTO – OECD TiVA



WTO – OECD TiVA database countries



World Food Programme

The United Nations World Food Programme (WFP) logistics base in Las Palmas de Gran Canaria is preparing a shipment of 11,500 tonnes of sorghum for Djibouti and its subsequent distribution in humanitarian operations in East Africa.

23 November 2018

UN Regional Commissions

United Nations
Economic Commission for Europe

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

United Nations
Economic Commission for Africa

CEPAL Comisión Económica para América Latina y el Caribe

UNECE

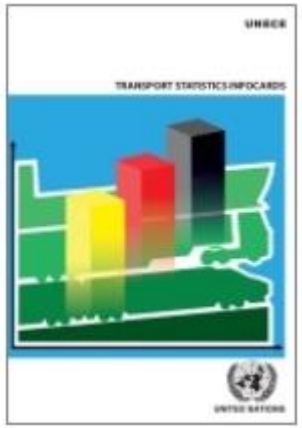
UN Transport Conventions and Agreements per country

Working Party on Transport Statistics (WP.6)

Transport

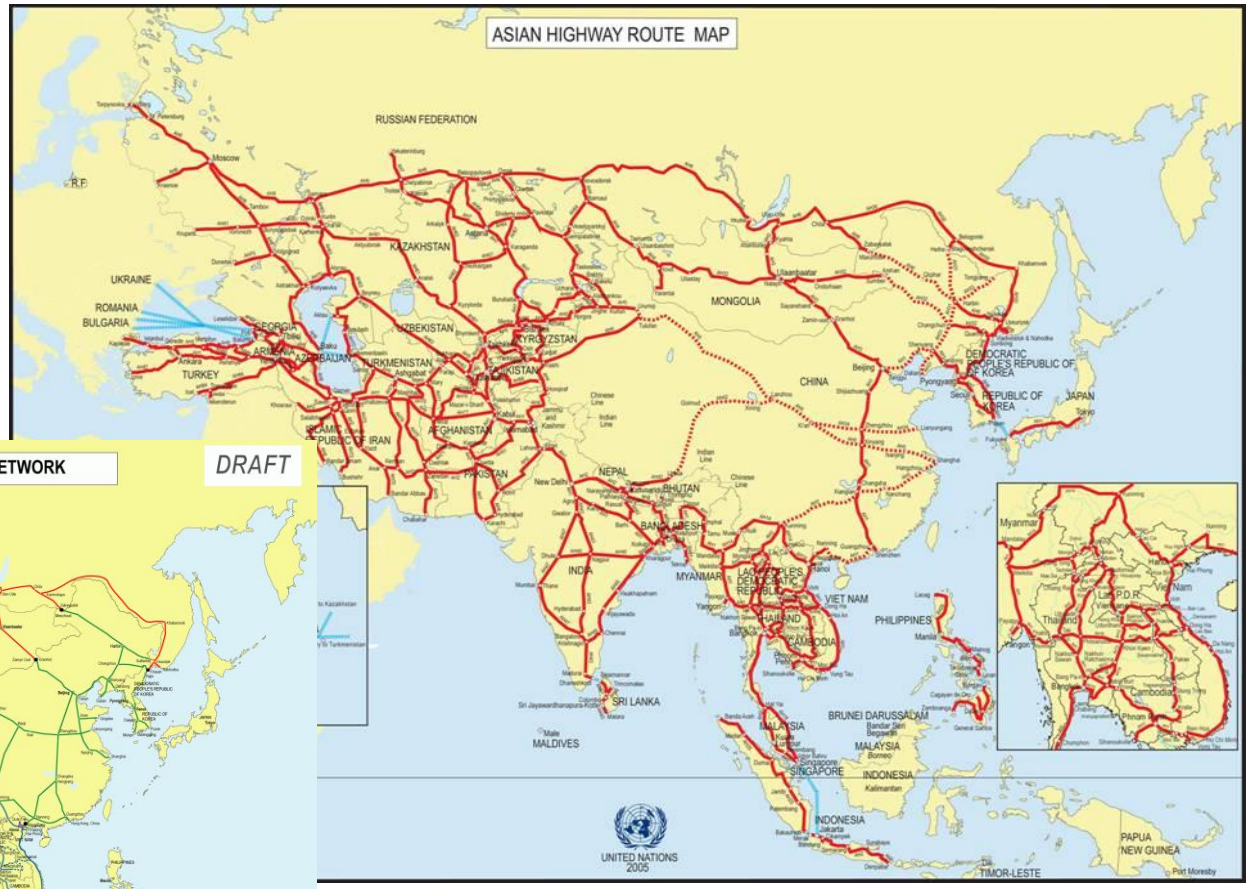
Road Safety
Road Traffic
Road Vehicle Fleet
Railway Traffic
Railway Safety
Railway Vehicles
Inland Waterway Vessels
Inland Waterway Traffic
Oil Pipeline Transport
Transport Infrastructure
Railway Employment (discontinued)

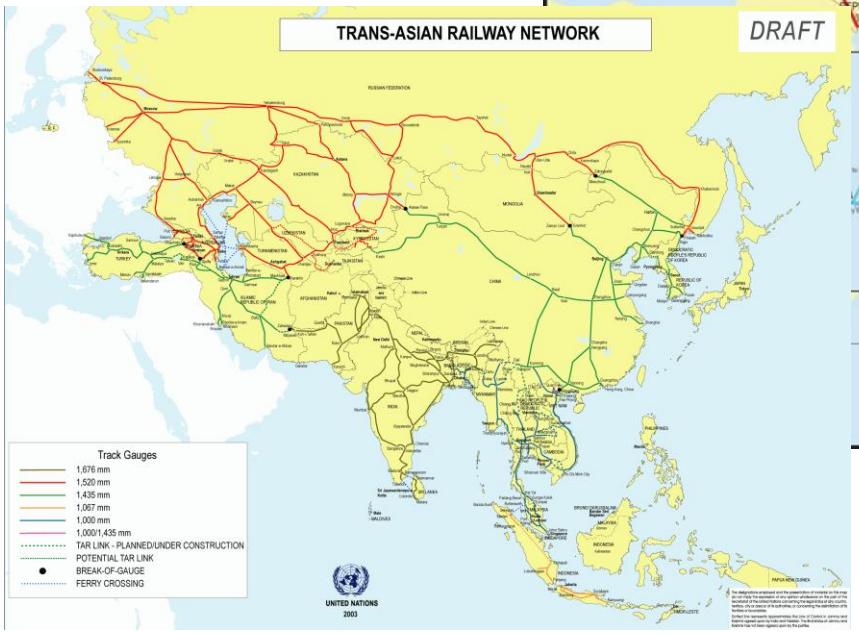
Provides key data to inform the Inland Transport Committee (ITC) on developments in the inland transport sector and facilitate the work of other Working Parties and individual member States. For this purpose, each year the secretariat prepares country profiles (**Infocards**)

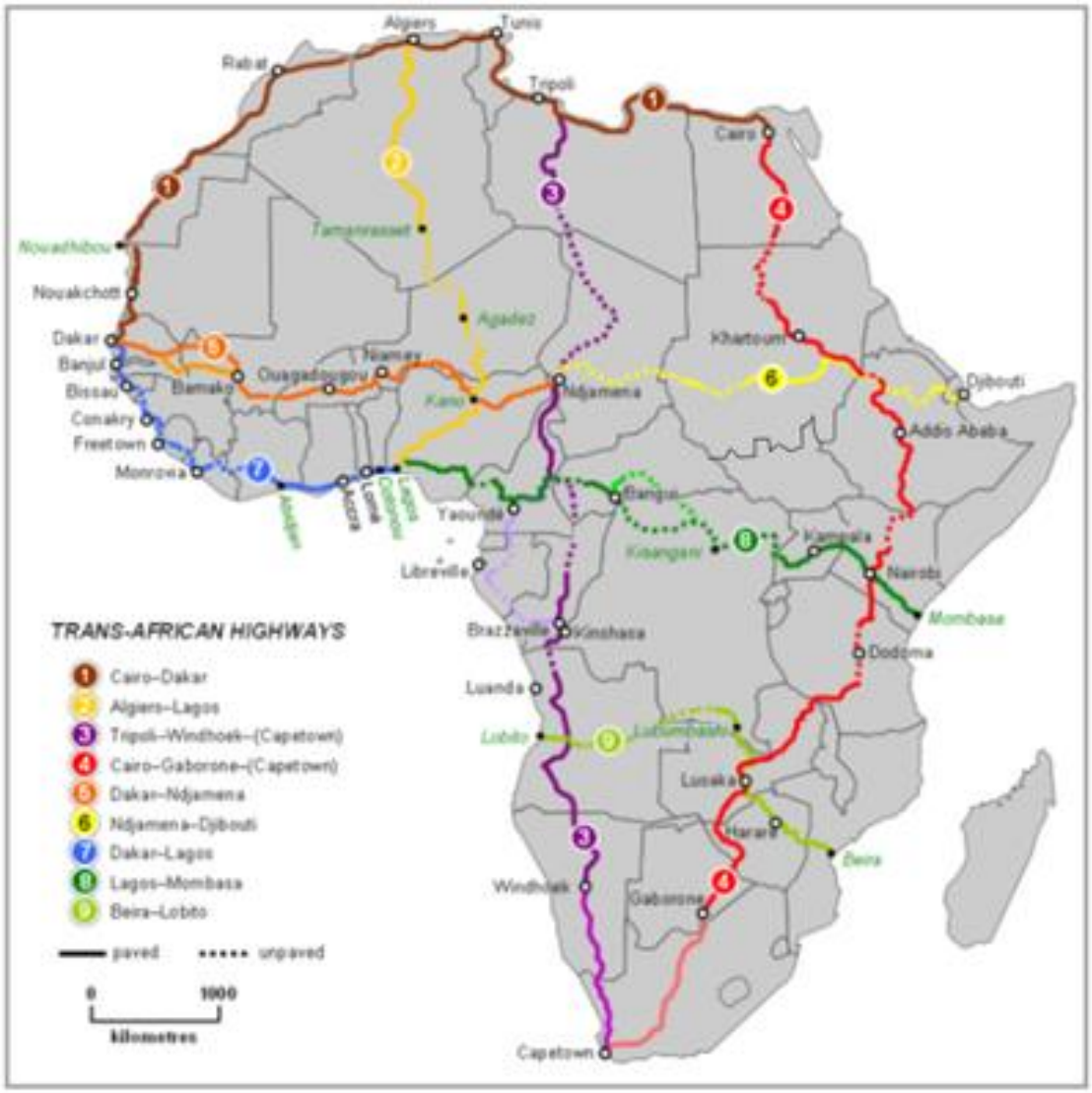


https://w3.unece.org/PXWeb/en

UNESCAP

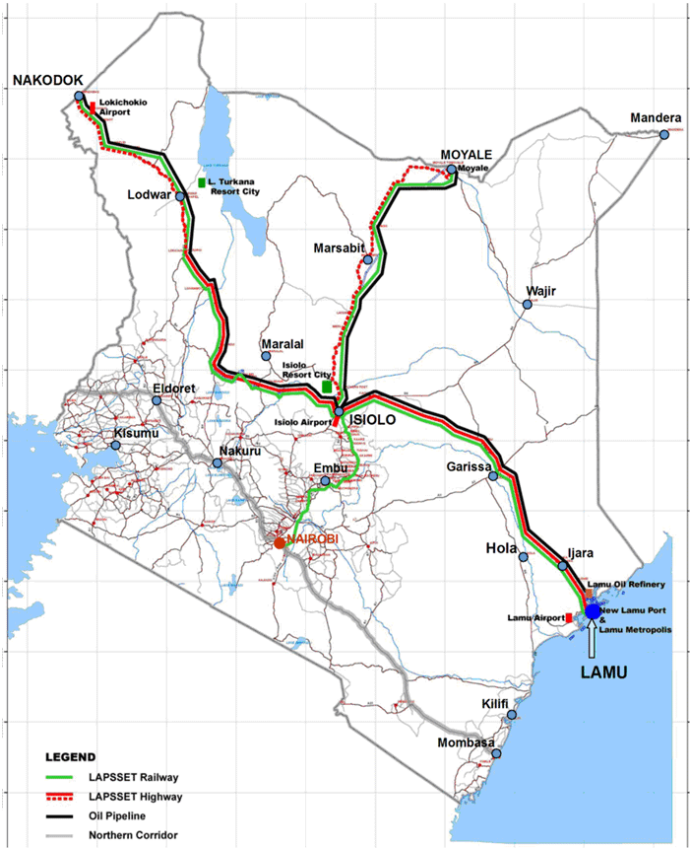

ASIAN HIGHWAY ROUTE MAP
RUSSIAN FEDERATION
R.F.
Moscow
KAZAKHSTAN
UKRAINE
ROMANIA
BULGARIA
GEORGIA
ARMENIA
AZERBAIJAN
TURKEY
UZBEKISTAN
TURKMENISTAN
KYRGYZSTAN
TAJIKISTAN
AFGHANISTAN
ISLAMIC REPUBLIC OF IRAN
PAKISTAN
MONGOLIA
CHINA
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA
REPUBLIC OF KOREA
JAPAN
Tokyo
NEPAL
BHUTAN
BANGLADESH
INDIA
MYANMAR
LAO PEOPLE'S DEMOCRATIC REPUBLIC
VIET NAM
THAILAND
PHILIPPINES
SRI LANKA
Male
MALDIVES
BRUNEI DARUSSALAM
MALAYSIA
SINGAPORE
INDONESIA
PAPUA NEW GUINEA
TIMOR-LESTE
Port Moresby
UNITED NATIONS
2005


TRANS-ASIAN RAILWAY NETWORK
DRAFT
Track Gauges
1,676 mm
1,520 mm
1,435 mm
1,067 mm
1,000 mm
1,000/1,435 mm
TAR LINK - PLANNED/UNDER CONSTRUCTION
POTENTIAL TAR LINK
BREAK-OF-GAUGE
FERRY CROSSING
UNITED NATIONS
2003


Algiers
Tunis
Rabat
Tripoli
Cairo
Tamanrasset
Nouadhibou
Nouakchott
Agadez
Dakar
Banjul
Bissau
Bamako
Ouagadougou
Niamey
Kano
Ndjamena
Khartoum
Djibouti
Conakry
Freetown
Monrovia
Addis Abeba
Abidjan
Lagos
Douala
Bangui
Yaounde
Kisangani
Kampala
Libreville
Nairobi
Mombasa
Brazzaville
Kinshasa
Dodoma
Luanda
Lobito
Lubumbashi
Lusaka
Harare
Beira
Windhoek
Gaborone
Capetown
TRANS-AFRICAN HIGHWAYS
1 Cairo–Dakar
2 Algiers–Lagos
3 Tripoli–Windhoek–(Capetown)
4 Cairo–Gaborone–(Capetown)
5 Dakar–Ndjamena
6 Ndjamena–Djibouti
7 Dakar–Lagos
8 Lagos–Mombasa
9 Beira–Lobito
paved
unpaved
0
1000
kilometres

ECA

Changing landscape

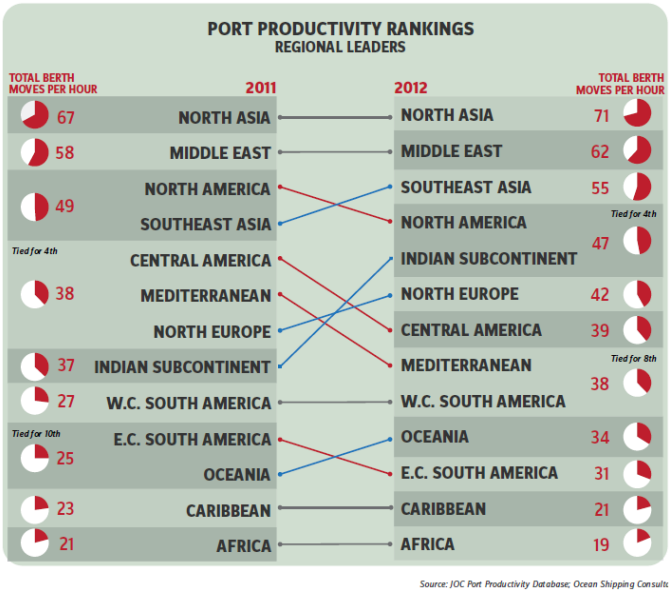


Lamu Port and Lamu-Southern Sudan-Ethiopia Transport Corridor

ECLAC

- Exports of goods by Broad Economic Categories: Transport equipment and parts and accessories thereof
- Maritime World Transport
- Modal distribution of the means of transport Transport supply in Latin America and the Caribbean and major routes (deployed vessels)
- Transport Supply in Latin America and the Caribbean and Major Routes (TEU capacity)

Private sector analysis

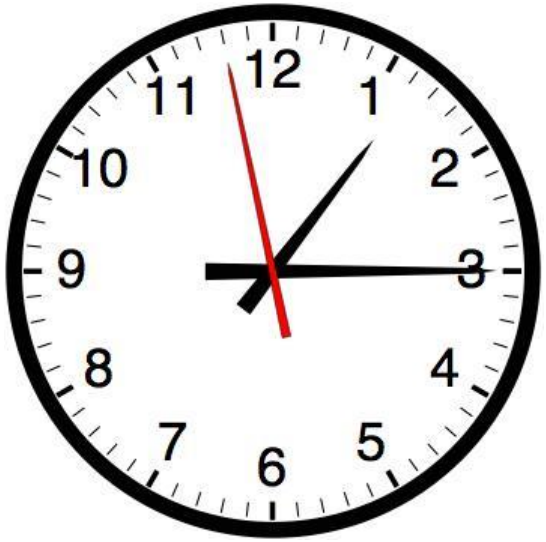


- Journal of Commerce

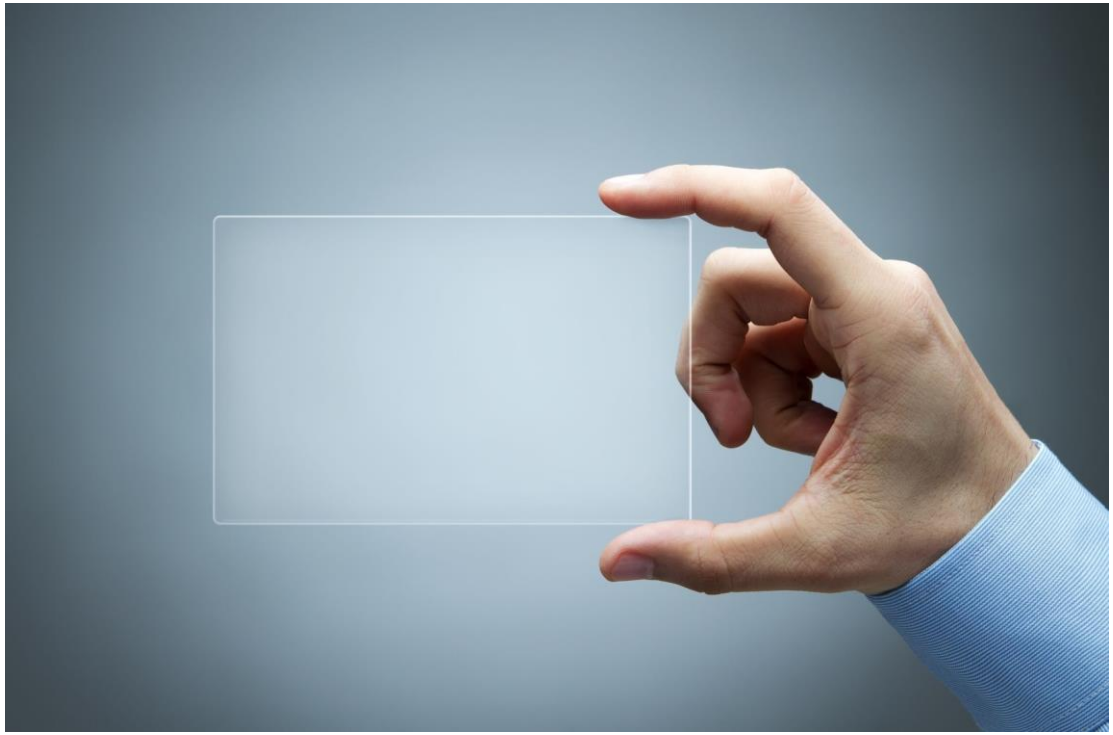
Operational Efficiency

- E.G.:
  - Cargo dwell time
  - Crane moves ph
  - Loading/discharging volume ph
  - Ship turnaround time
    - Time in port
    - Time at berth

Two most import things



Transparency matters



Make a commitment to publish regardless of the numbers

The data should ideally be in one place

- Raw data should be freely downloadable and open to interpretation by anyone
  - Including academia
- Best practices can quickly be identified

UNITED NATIONS
UNCTAD

- Investment targets can be identified
- Ports can thus advertise their best light e.g. “the most efficient port in the south west”

But it can be global or regional

"Count what is countable: Measure what is measurable.
What is not measurable, make measurable."

Galileo (1564 – 1642)

Ad Hoc Experts Meeting on Development of Transport Observatories

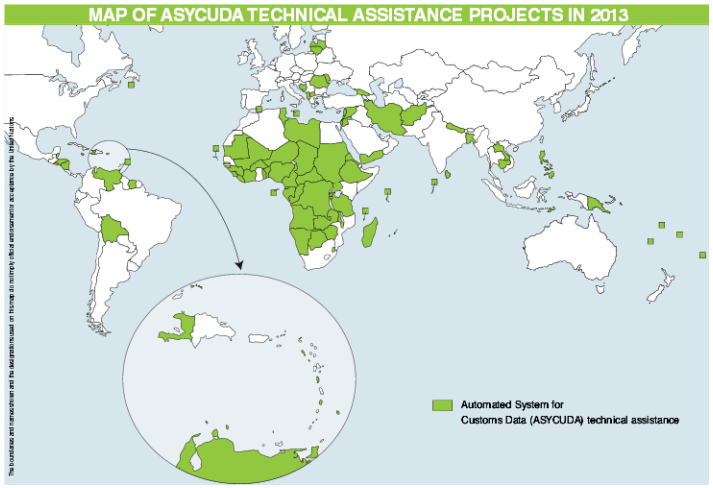
25 October 2013
Geneva, Switzerland

Why hasn't it been done?

- Ports don't want to be publically compared
- Ports can do their own *ad hoc* private studies when they need.
- The long term benefit of being compared don't outweigh the immediate cost (embarrassment).
  - Similar to sustainable transport issues
- The positive arguments for are too weak: e.g.
  - Lowering transport cost (for port users/end users)
  - Identifying investment areas
  - Identify best practices
- Governments don't want their country rankings shown (e.g. LPI)

A different approach (controversial)

- Present in 90+ countries ASYCUDA data could be used as a proxy for cargo dwell time….
- This would require a country's agreement… hence it does not exist!



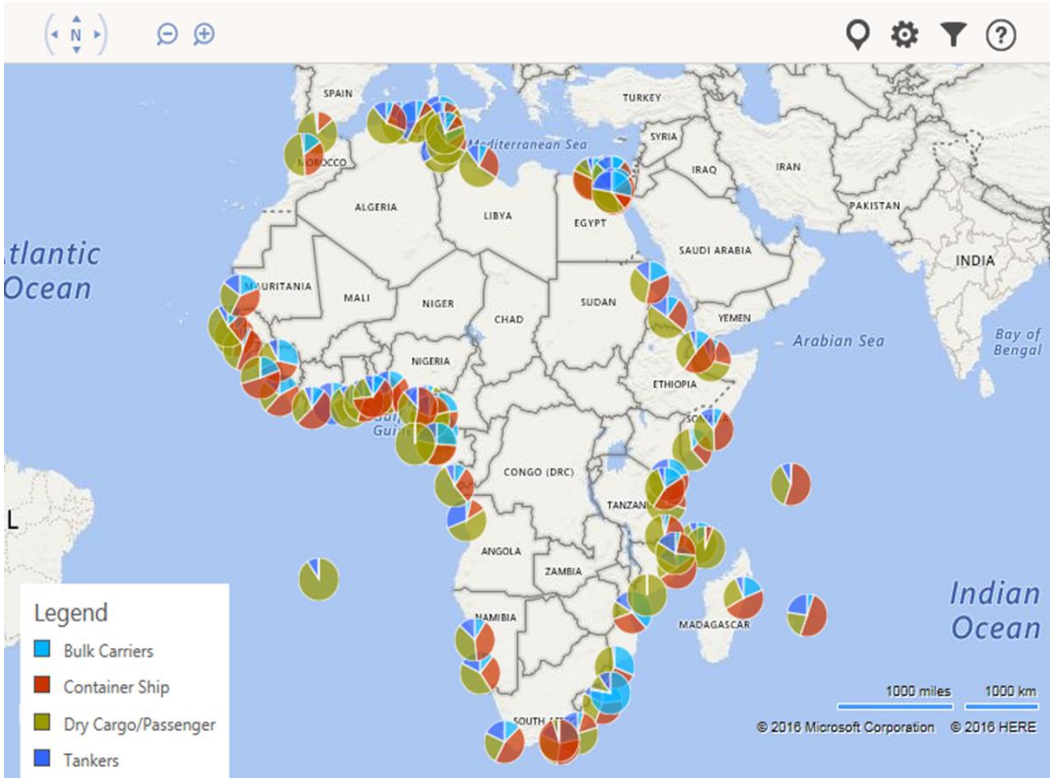
Average time bulk vessels spend waiting for, and alongside, a berth by country (2015)

	2014				2015			
Row Labels	Sample Size	Quanity (tonnes in '000s)	Average of Waiting (days)	Average of Working Time (days)	Sample Size	Quanity (tonnes in '000s)	Average of Waiting (days)	Average of Working Time (days)
Australia	4 438	455 907	5.50	10.95	2 461	517 066	4.52	5.55
Brazil	1 533	252 707	6.44	12.08	1 537	258 899	5.17	2.04
Canada	151	17 779	5.08	2.58	36	3 327	2.33	2.69
China	599	76 347	3.73	2.74	1 470	183 976	1.81	2.42
Colombia	48	4 838	1.75	0.82	213	19 304	0.36	1.95
India	2 302	163 729	3.96	10.68	1 865	124 192	2.28	3.63
Indonesia	2 609	182 875	2.55	4.06	281	19 430	2.99	4.05
Korea, Republic Of	..	..	..	..	167	19 145	2.64	3.75
Netherlands	51	7 416	0.12	2.78	72	8 947	1.09	2.59
South Africa	..	..	..	..	994	89 376	2.32	2.33
Taiwan, Republic of China	..	..	..	..	107	8 858	0.68	3.40
United States	188	13 819	4.74	2.31	55	5 129	1.51	1.63
Grand Total	**11 925**	**1 176 315**	**4.53**	**8.80**	**9 258**	**1 257 650**	**3.46**	**3.86**

Source: UNCTAD secretariat, derived from data supplied by Wilhelmsen Ships Service (2016)
Note: *".." indicates data unavailable*

Source: Review of Maritime Transport, 2016

Port Calls in the Africa Region (2015)



The AIS data represents 73 ports located in 37 countries.

Source: UNCTAD secretariat, derived from AIS data supplied by MarineTraffic (2016)

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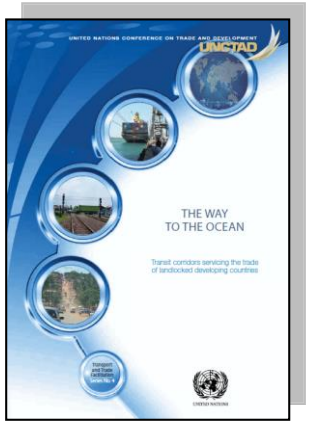
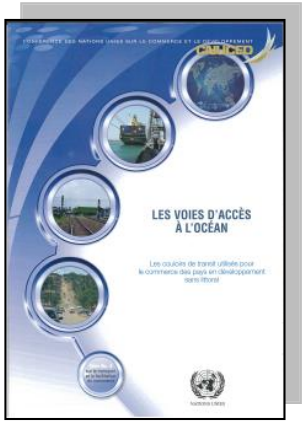
The way to the Ocean

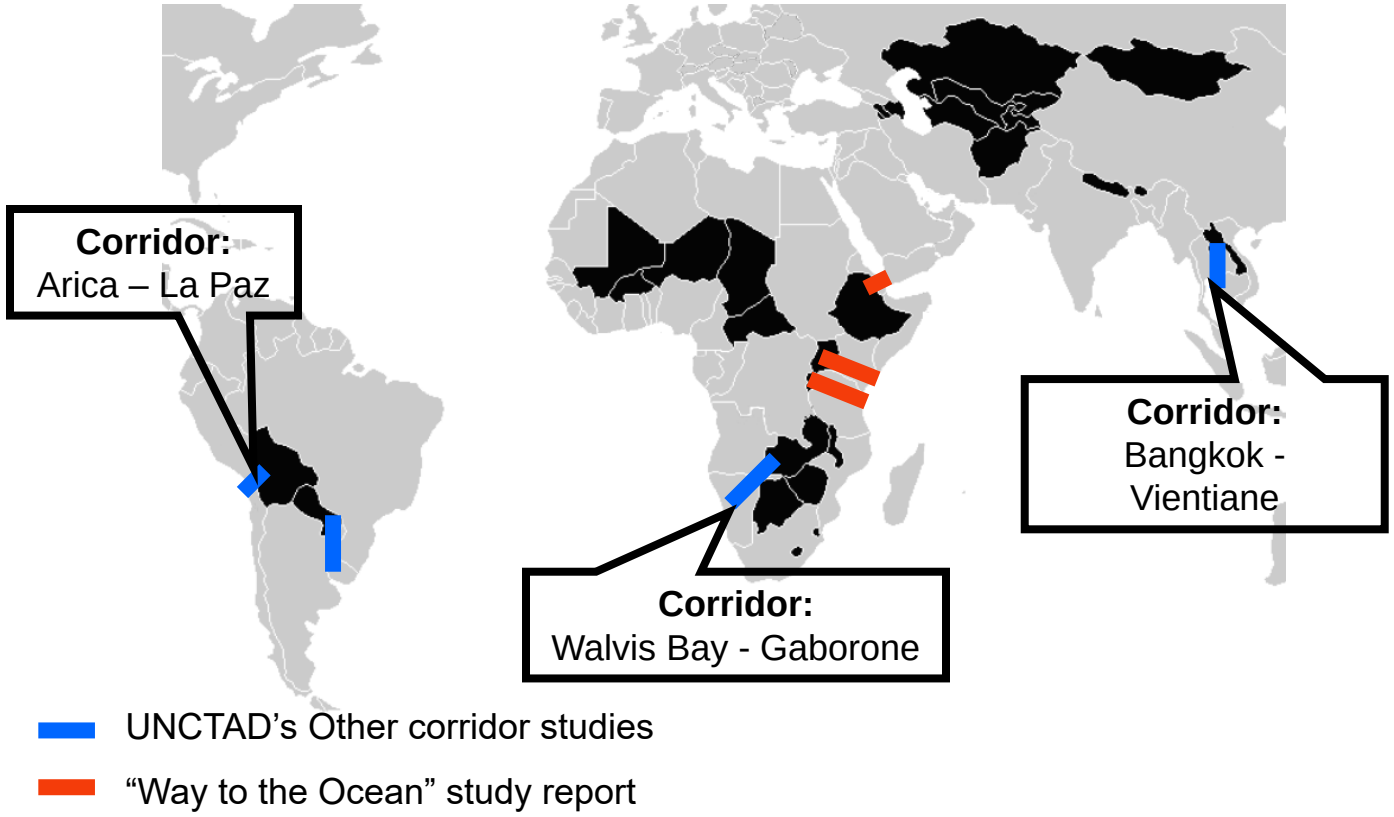
Transit corridors servicing landlocked developing countries trade





Available in English, French and Russian

Various corridor studies organising stakeholders into clusters

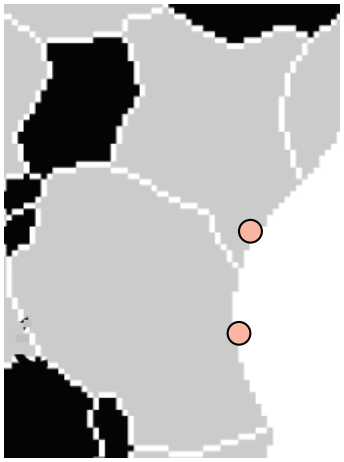


Different types of Landlockedness

Long land distance and low volumes of trade

Versus

Short land distance and high volume of trade



The LLDC is a small customer for the port (<5%)

Versus

LLDC – the main customer for the port (>85%)

Examples of other regions

- East Africa- Almost 90 % of the international trade of Burundi, Rwanda, and Uganda is handled by the port of Mombasa, but combined this represents not more than 15 per cent of the port's traffic.

- West Africa - Around 75 % of the international trade of Burkina Faso and Mali transits through Abidjan (Côte d'Ivoire), yet this figure represents only 10 per cent of total traffic at the port.

- Asia - The majority of Nepal's foreign trade transits through only one port (Kolkata) and shippers are therefore "captive" customers. [1]

•[1] Malakar SB (2009). Presentation to the UNCTAD Ad Hoc Expert Meeting on Transit Ports Servicing Landlocked Developing Countries, 11 December 2009.

Trade imbalances

- When trade is imbalanced one party (usually the importer) subsidizes the other (usually the exporter).

- E.G. it costs twice the price to import goods from Côte d'Ivoire to the East Coast of the United States than it does to import goods to the West Coast of the United States from Japan (both countries are equidistant from the United States).[1]

- Because trade between the United States of America and Japan is more balanced, importers and exporters share more equally the costs of providing liner services.

[1] Hummels D and Skiba A (2002). A virtuous circle? Regional tariff liberalization and scale economies in transport. Purdue University, West Lafayette.

Lessons learned

- The three corridors considered in this report share similarities :
  - They are served by a single major port that accounts for over 90% of the host transit country's imports and exports;
  - LLDCs also rely heavily upon these ports;
  - Import volumes are far greater than export volumes;
  - Rail connections are poor, albeit with improvement plans underway;
  - There is overreliance upon road transport and no inland waterway connection to ports.

Recommended Course of Action (abridged)

1. Reliance and cooperation
   - Build trust (e.g. replace ownership with trust)
   - Engage with Multiple stakeholders (e.g. build corridor management arrangements)
2. Critical mass
   - Establish small consolidation centre (LCL)
   - Improve finance (e.g. infrastructure, release of bonds, etc.)
3. Operational needs and tailored arrangements
   - Improve transport reliability and predictability

Contents

1. Transport and the Global Value Chain
2. Who collects the data and where is it available
3. Way to the Ocean
4. Dry Ports

Dry ports in different locations have differing roles

- Nearby dry ports
  - relieve congestion within seaports thereby allowing more cargo to enter/exit the port/country
- Distant dry ports
  - In addition to relieving congestion by taking cargo from the seaport but their role should also be focused upon feeding cargo to the seaport (exports).
    - Must be located at a transport modal change point (rail/IWT).
    - Must have cargo consolidation facilities

Tanzania

- The Port of Dar es salaam experienced congestion caused by:-
  - Insufficient container storage space
  - Long container dwell times
  - Sharp increase in container volumes.
  - Roads were not fully paved resulting in long travel times
  - Poor inland transport especially railway systems.
  - Low availability of locomotives and rolling stock

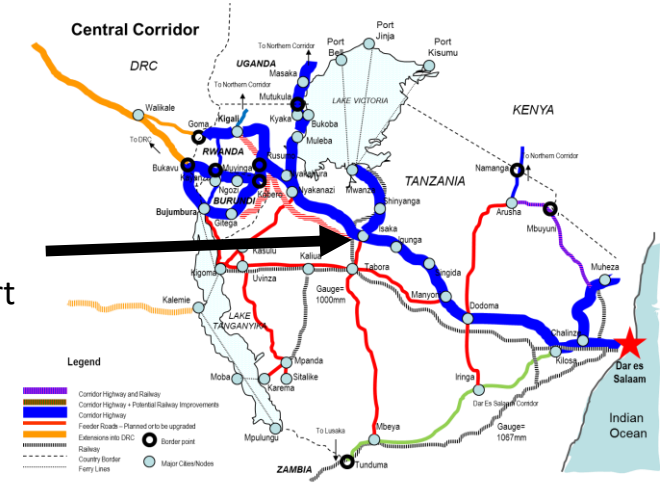
Local “dry ports”

- 5 local dry ports to ease space within the port
- Cargo (mainly cars) are driven by road
- Import, ownership, tax paid documents and license plates issued here.
- Port area now able to accommodate more cargo

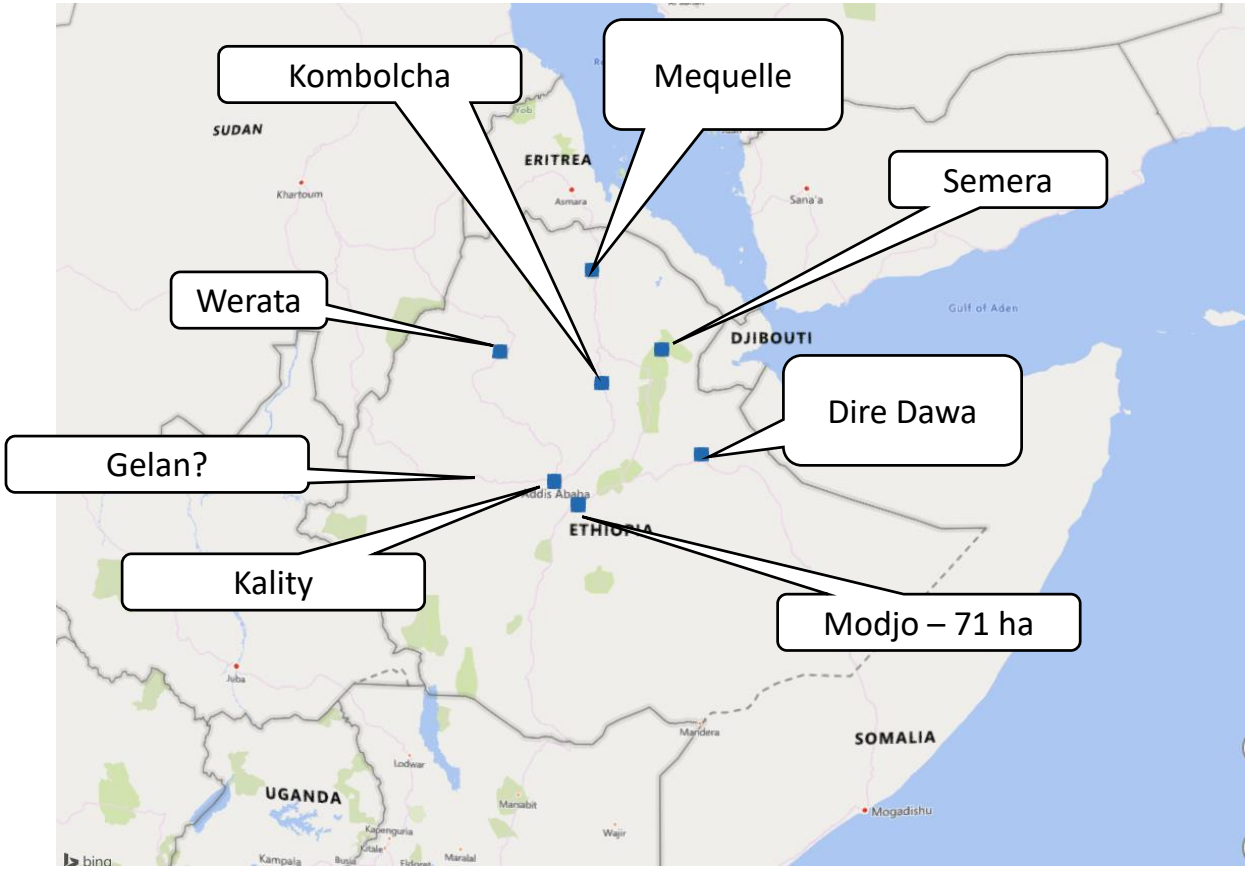
Distant dry port (Isaka)

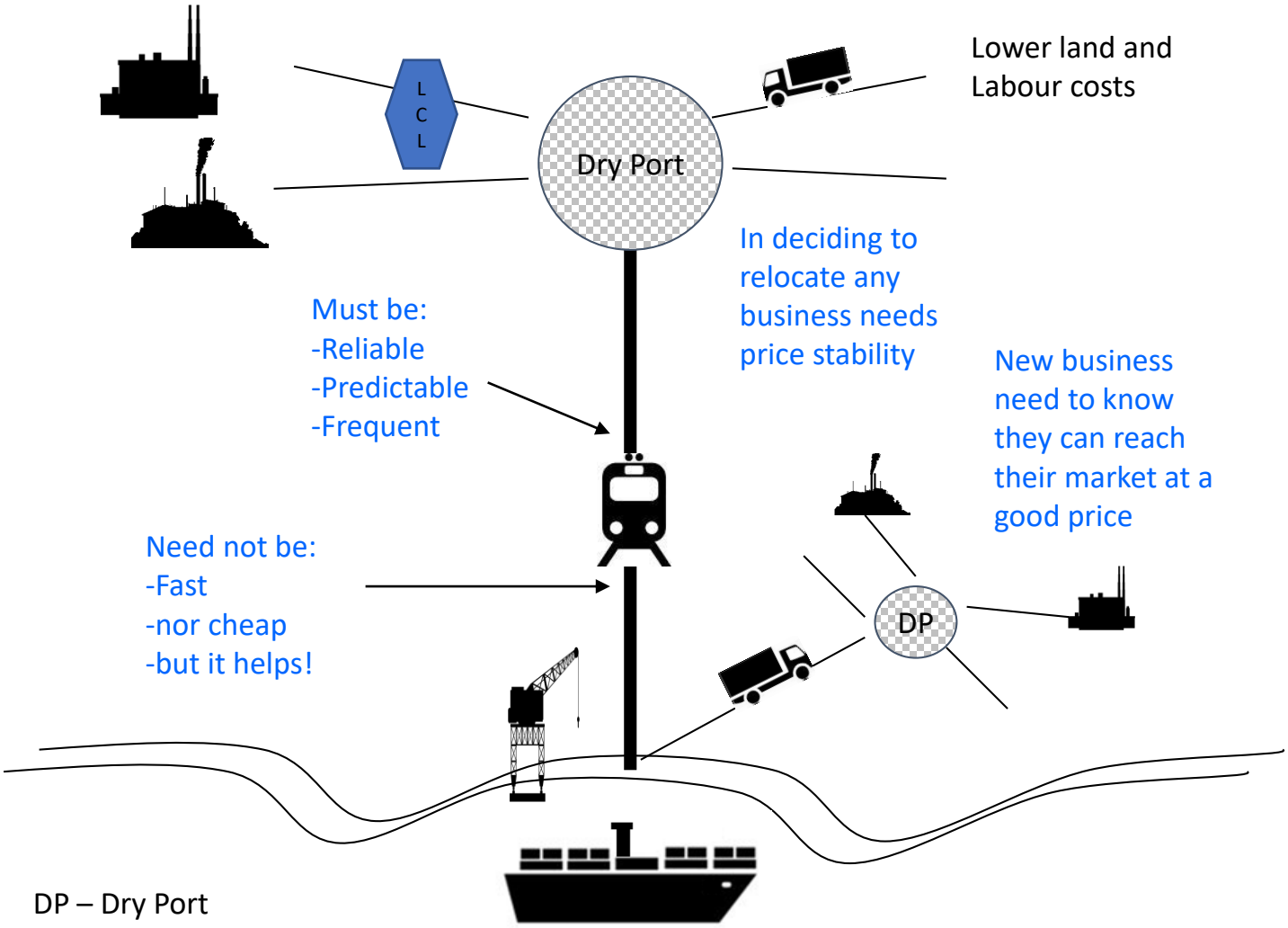
- 982kms by rail from Dar es Salaam with onward road connection to Burundi, Rwanda and Uganda.
- Exports arrive by truck and then loaded on train to be taken to the port.
- Cargo is mainly imports

Isaka
Dry Port



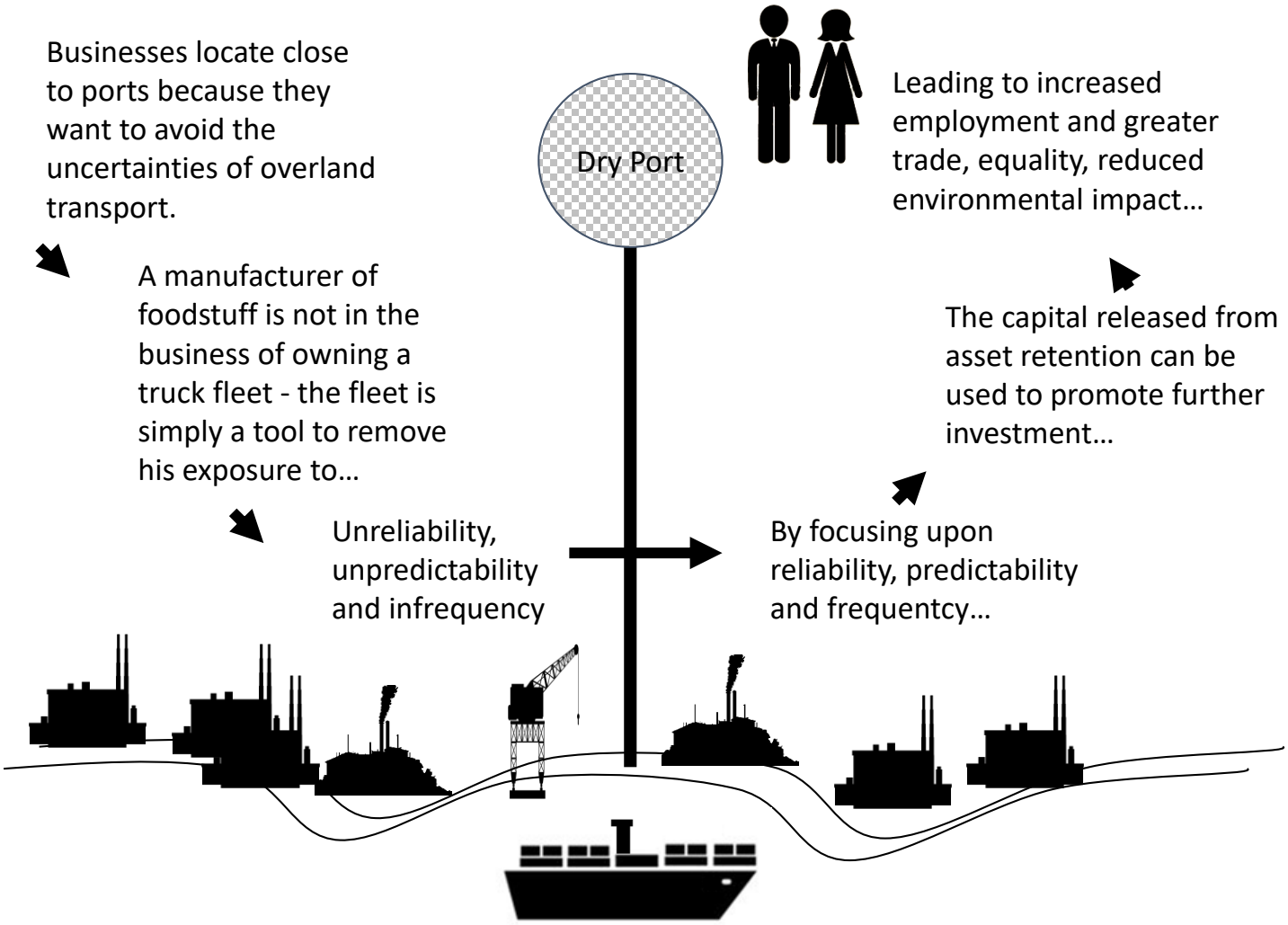
Ethiopian Dry Ports





DP – Dry Port

LCL – Less than a container load


Businesses locate close to ports because they want to avoid the uncertainties of overland transport.
A manufacturer of foodstuff is not in the business of owning a truck fleet - the fleet is simply a tool to remove his exposure to…
Unreliability, unpredictability and infrequency
Dry Port
By focusing upon reliability, predictability and frequentcy…
The capital released from asset retention can be used to promote further investment…
Leading to increased employment and greater trade, equality, reduced environmental impact…

How to address unreliability, unpredictability and infrequency ?

- Undertake research
  - Listen to the users concerns
- Understand the underlying issues
  - Competing government demands (public services/private)
  - Cultural change (safety first, record keeping-reviewing)
  - Finance (viability/sustainability)
  - Define priorities (trade/passengers/environment etc.)
- Gather political and institutional support
- Develop a multi-stakeholder plan