



الأكاديمية العربية للعلوم والتكنولوجيا والنقل البحري  
Arab Academy for Science, Technology & Maritime Transport

MRCC



# IMPROVED PORT EFFICIENCY THROUGH INTEGRATED LOGISTICS VALUE CHAIN APPROACH

INTERNATIONAL MARITIME TRANSPORT & LOGISTICS CONFERENCE

MARLOG 5, ALEXANDRIA, EGYPT

13 – 15 MARCH 2016

MS. NOZIPHO MDAWE – PMAESA, SECRETARY GENERAL



PMAESA



If one does not know to which port  
one is sailing, no wind is favorable.

Lucius Annaeus Seneca



**PMAESA**

# Outline

- The global picture
- PMAESA Introduction, Activities & Areas of Focus
- Egypt a brief look and stats
- Need for efficiencies in ports
- Case study: Hunter Valley Coal Chain Coordinator (HVCCC)
- Challenges for Ports and Corridors in Africa
- What influences the efficiency of ports?
- Way forward



# Growth in Population and Urbanisation



**Population in Africa expected to double by 2050**

Europe =	7.432	8.501	9.725	11.213	= 1.13%
Africa =	1.216	1.679	2.478	4.387	= 2.25%
Asia =	4.436	4.923	5.267	4.889	= 1%
Europe =	0.738	0.734	0.707	0.646	= 0.06%

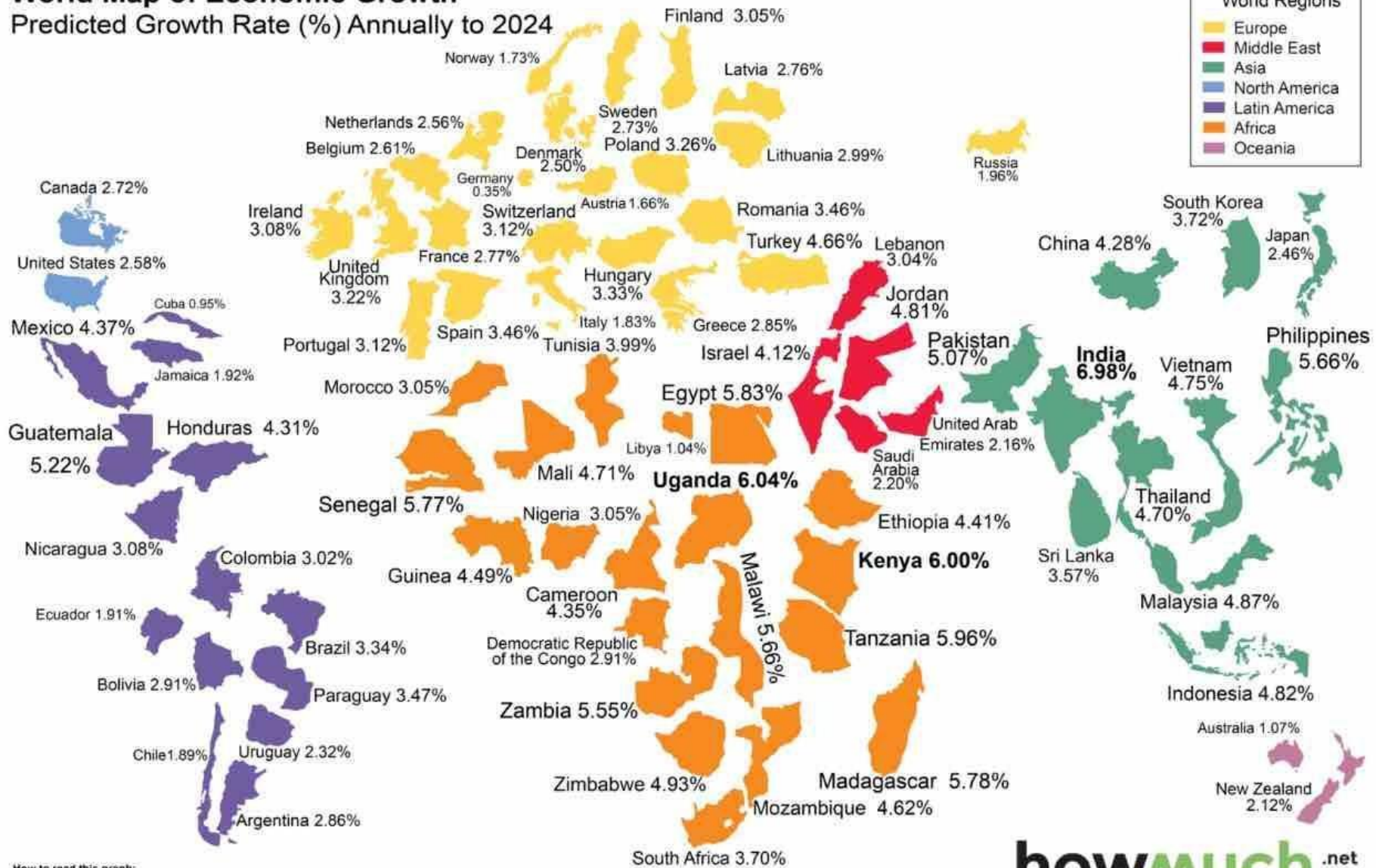
Area	2015	2016
World	3.2	3.5
Developed Markets	2.2	2.0
Developing Countries	4.4	4.9
China	6.9	6.3, then 4.8 in 2020



Source: worldometers; 2016 and Goldman Sachs Investment Research, 2016

# World Map of Economic Growth

## Predicted Growth Rate (%) Annually to 2024



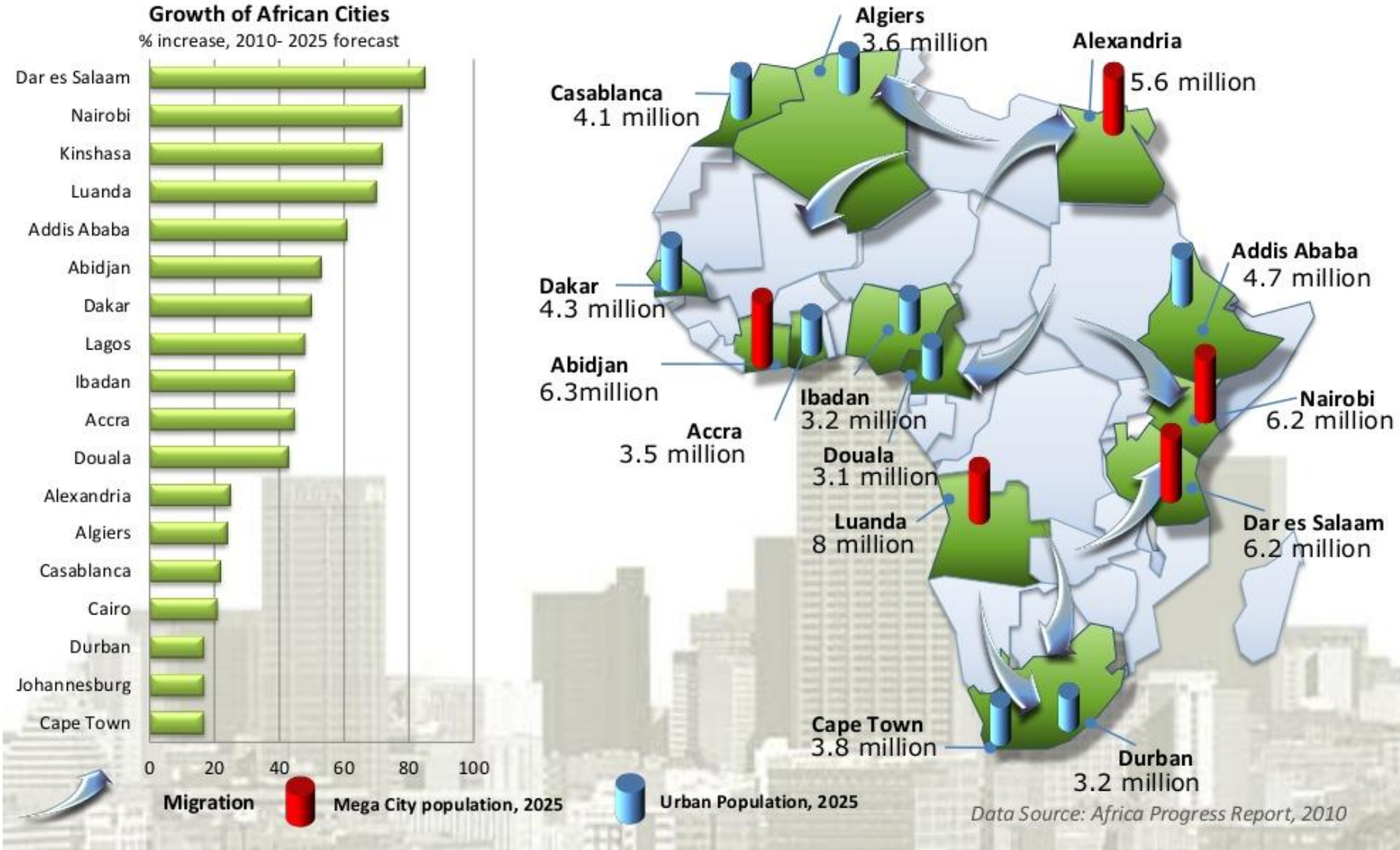
**How to read this graph:**  
 Countries appear bigger as their predicted growth rate is higher e.g. India.  
 Conversely countries that have a low growth rate appear smaller, e.g. Germany.

howmuch.net



PMAESA

# Mega Cities will increase by 25% by 2025; at an average growth rate of 3.4%, 1.2 billion people, 60% of Africa's population, will be urbanised by 2050



- The share of Africans living in urban areas is projected to grow from 36 percent in 2010 to 50 percent by 2030.
- Ports and Waterways are pivotal to this growth
- Impact on efficiencies if no joint

# Pan-African Association for Port Cooperation (PAPC)

## UAPNA Members

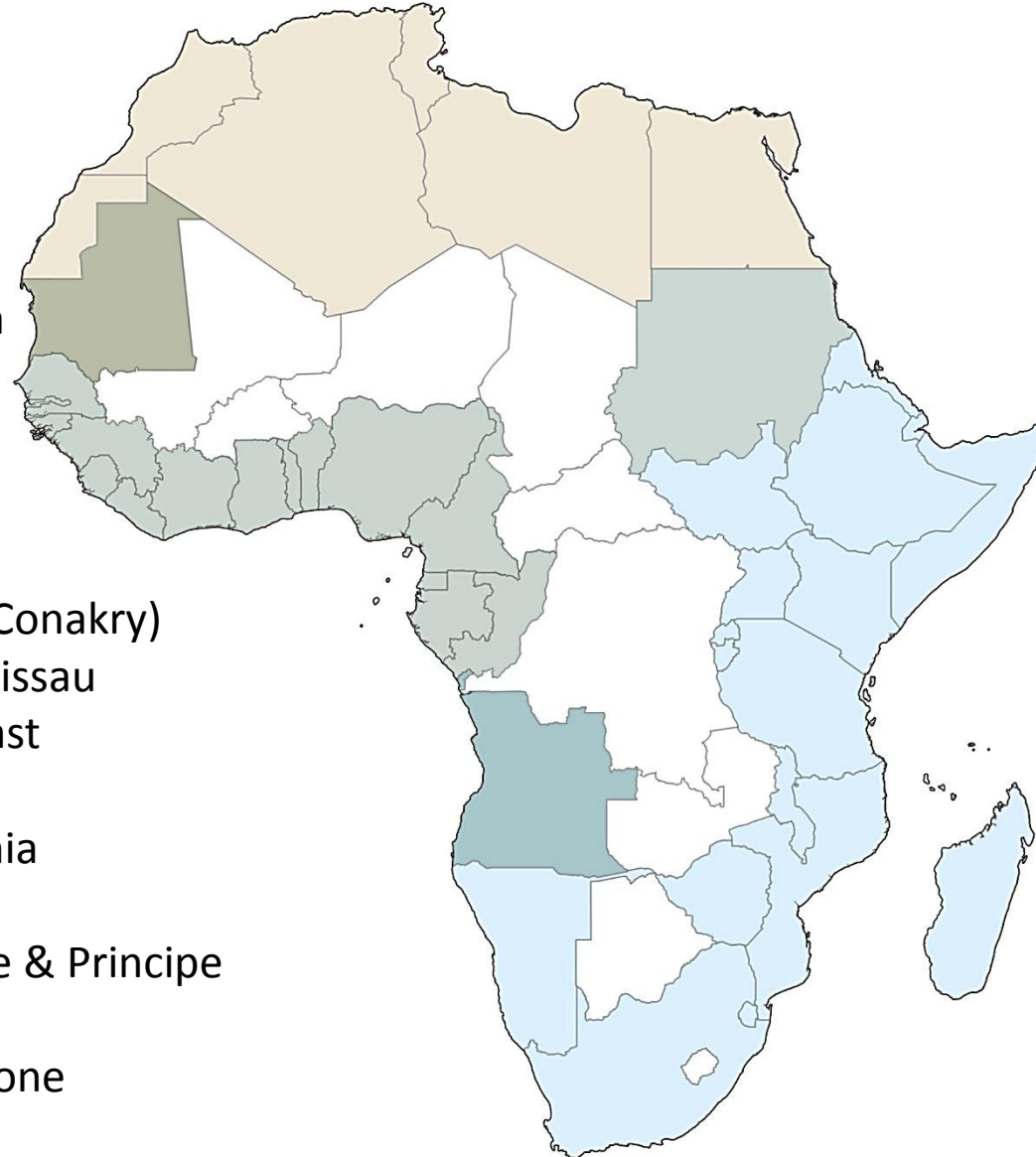
Algeria	Morocco
Egypt	Sudan
Libya	Tunisia
Mauritania	Western Sahara

## PMAWCA Members

Angola	Guinea (Conakry)
Benin	Guinea Bissau
Cameroon	Ivory Coast
Cape Verde	Liberia
Congo	Mauritania
Equatorial Guinea	Nigeria
Gabon	Sao Tome & Principe
Gambia	Senegal
Ghana	Sierra Leone
	Togo

## PMAESA Members

Angola	Rwanda
<b>Botswana</b>	Seychelles
Burundi	Somalia
Djibouti	South Africa
Eritrea	South Sudan
Ethiopia	Sudan
Kenya	<b>Swaziland</b>
Madagascar	Tanzania
Malawi	<b>Uganda</b>
Mauritius	Zambia
Mozambique	Zanzibar
Namibia	Zimbabwe



### Legend:

- PMAESA Region
- PMAWCA Region
- UAPNA Region

Shaded areas imply membership to 2 associations



# PMAESA Introduction

- Established in 1973 under the auspices of the United Nations Economic Commission for Africa (ECA),
- A non-profit, inter-governmental organization made up of Port Operators, Government Line Ministries, Logistics and Maritime Service Providers and other port and shipping stakeholders from the Eastern, Western and Southern African and Indian Ocean regions,
- Has 25 countries under its jurisdiction, including Lesotho,
- It represents 23 of the 26 African Free Trade Zone Countries,
- Governed by the council and the board of directors





# PMAESA Objectives

- Strengthen relations among stakeholders
- Promote regional cooperation and integration
- Promote trade facilitation
- Influence policy framework
- Platform for exchange of information, ideas and benchmark
- Works towards improving conditions of operation and management of ports in its region of coverage with a view to enhance their productivity
- Maintain relations with other port authorities or associations, regional and international organizations and governments of the region to hold discussions on matters of common interest
- Co-ordination and facilitation of activities
- Create knowledge and awareness

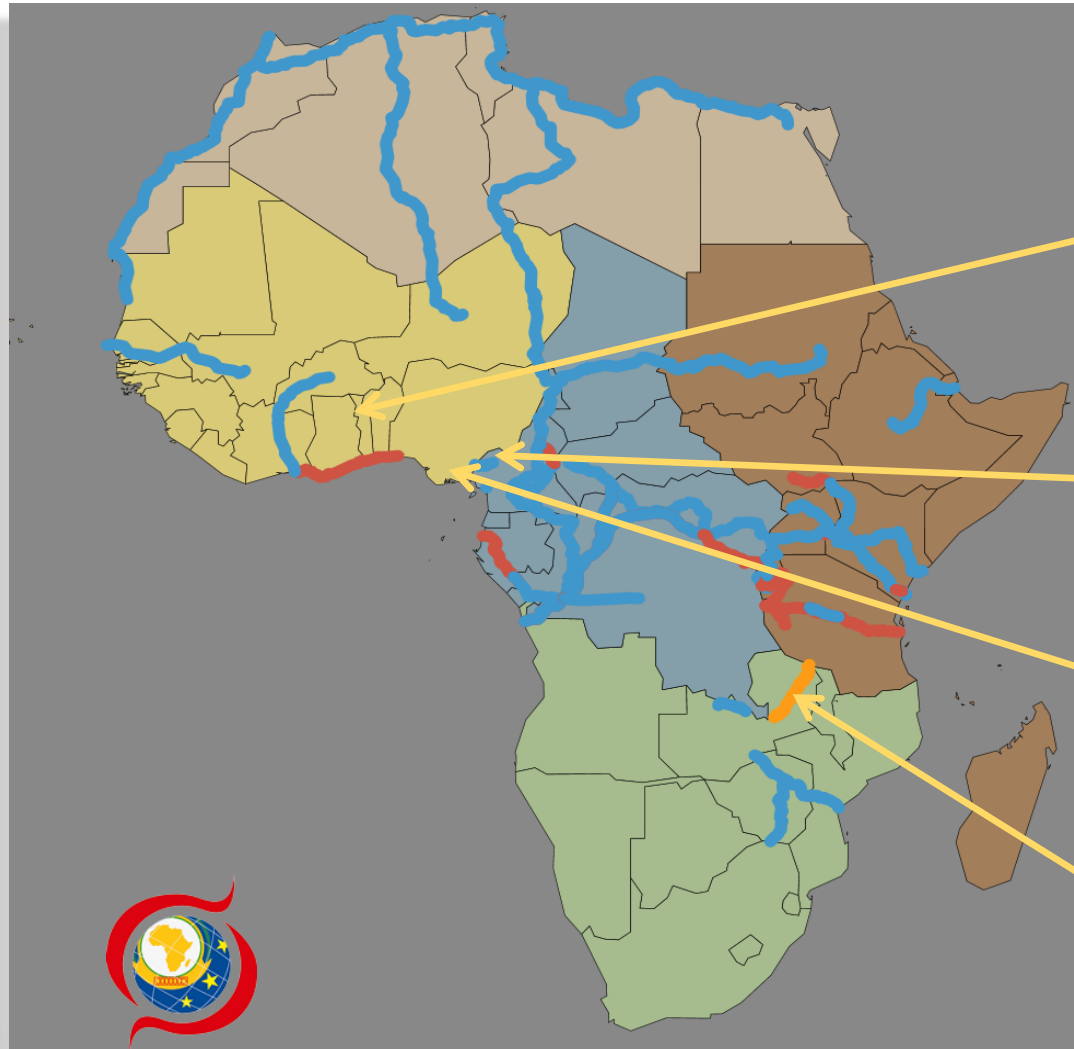


# Focus areas

1. Standardisation, collation and harnessing of information – two pronged project
2. Provide competence and expertise to members – certification of dry ports
3. Collaborative relationships – MoU's and joint Initiatives
4. Safety and security of the Ports – Waterways and Dry Ports
5. Enhancement and standardisation of Port Operations – Waterways, Dry and Sea Ports
6. Maritime competence development, emphasis on women
7. Create awareness and drive initiatives for Blue Economy – Strategy development
8. Promotion of the tourism – cruise and aquaculture
9. Influence policy framework – Development of white paper on Transport Policy
10. Alignment of initiatives to drive the achievement of:
  1. AIMS 2050, Agenda 2063, JEAC Strategy
  2. SRCM business plan 2013-2017
  3. Tripartite Agreement
  4. UN Almaty Programme of Action (Addressing special needs of landlocked developing countries)



# Transport overview



- Niger river delta basin
- **Strengthening Regional Basin Organisations (RBOs)**

- Second bridge on the Niger River
- Nigeria-Cameroon cross over bridge
- Serenje – Nakonde Road Rehabilitation (Tanzania-Zambia)
- **Aviation Safety (SIASA II)**



Source: VPiC, Virtual PIDA, Information Center

**PMAESA**

# Egypt: a brief look

- Ancient Egyptian had trade routes through the Red Sea, importing spices from the "Land of Punt" (East Africa) and from Arabia
- It's geographical location lends an important aspect to the maritime transport sector. Overlooking both the Mediterranean and Red seas linked by the Suez Canal, Egypt realized its role at an international level.
- Commercial Ports: 15
- Specialized: Mining - 15, Petroleum – 11, Tourist – 5, Fishing – 21
- Numerous infrastructure investment programmes.



# Egyptian Maritime Sector: Figures

## Comprises Egyptian Fleet

Container Vessel = 1    Bulk Carrier = 11    Oil tankers = 14    General cargo = 10

## Jan - Dec 2015 Cargo Throughput Statistics

	Import	Export
Cargo (000 tons)	93,461	39,113
Containers (millions - nos)	3.22	3.21
	Arrival	Depart
No. of Passengers	514,887	576,643

Source: MTS, Egypt



# Efficiencies in ports is good for...

- Global competitiveness
- National and regional economic growth
- Response to market evolution and urban growth
- Growing demand for smooth flow of goods and services
- Development of competence
- Job creation and prosperity
- Confidence, financial and “long term” political stability

Thus Investment in Infrastructure Development



**PMAESA**

# Corridor Development in Africa

Key Takeaway: Southern Africa to take the lead in developing trade corridors in the short-term

1

Southern Africa will drive trade corridor implementation in the **short-term**

Timeframe: 2020

2

Southern and East Africa will connect, ramping up trade in the **medium-term**

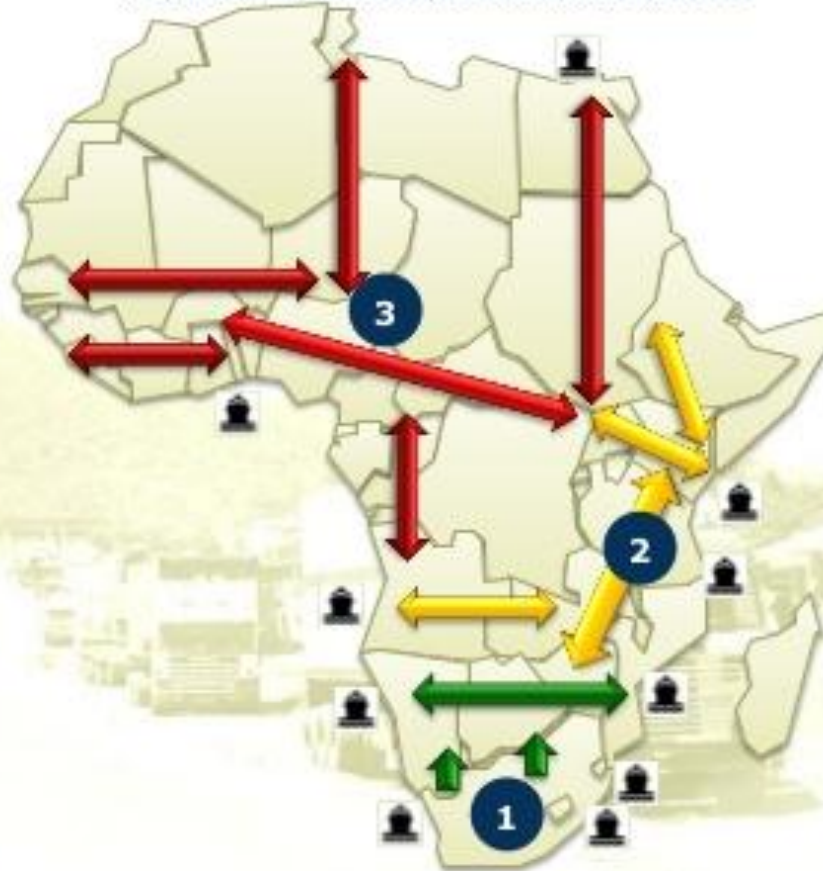
Timeframe: 2030

3

West and North will lag significantly in corridor development and implementation

Timeframe: 2040+

Key Corridor Developments, Africa, 2012



## Southern Africa:

- Walvis Bay Corridor
- Maputo Corridor
- Trans Caprivi Corridor
- Trans Kalahari Corridor

## Southern & East Africa:

- Northern Corridor
- Central Corridor
- LAPSSET Corridor
- Lobito Corridor
- Beira Corridor
- Nacala Corridor

## West & North Africa:

- Dakar - Lagos Corridor
- Dakar – Ndjamena
- Cairo – Dakar
- Algiers - Lagos

Trade is predicted to evolve in three distinct phases, positioning East Africa as a key trade hub in the medium term

Source: Hypenica

PMAESA

# Corridors – Crucial for growth

Sub-Saharan African Trade Corridors – what does their development mean for trade?



What are the threats to this growth?

- Slow down of the Chinese Economy
- Plummeting Commodity prices
- Energy crisis in Southern Africa
- Famine

African trade volumes are expected to **Triple** by 2030, driven by improved transportation infrastructure in East and West African



# Challenges facing African Port Authorities

Institutional	Regulatory	Finance/Investment
<ul style="list-style-type: none"><li>• Containerization revolution made urban based port infrastructure of early and mid-20th century outdated;</li><li>• Container shipping required large amounts of land for transshipment and storage.</li><li>• Inability to cope with new mandates or emerging roles e. g: role of shipping in a larger transport chain.</li></ul>	<ul style="list-style-type: none"><li>• Lack of integration of intermodal transport systems threatening established jurisdictions, complicating planning &amp; governing tasks</li><li>• In areas of overlapping hinterland there is little or no collective action between seaports.</li><li>• Poor implementation of existing regulations.</li></ul>	<ul style="list-style-type: none"><li>• Containerization required massive reinvestment in port facilities and harbor areas globally.</li><li>• Conflicting value chain investment priorities in developing countries</li><li>• Urbanisation priorities competing with intermodal infrastructure development</li></ul>



# Challenges facing African Transport Corridors

Institutional	Operational	Other Challenges
<ul style="list-style-type: none"><li>• Poor involvement of private sector in corridor management</li><li>• Lack of sustainable funding mechanism from stakeholders</li><li>• The silo mentality when it comes to taking a value chain approach</li><li>• Poor Capacity alignment – Infrastructure and Human Capital</li><li>• Poor Resources Integration</li></ul>	<ul style="list-style-type: none"><li>• Poor awareness by public authorities of the wider impact their actions have on international supply chains and its consequences for the wider economy</li><li>• Poor understanding between public and private sectors</li><li>• Poor vertical communication between borders and headquarters,</li><li>• Poor implementation Transit transport facilitation instruments</li></ul>	<ul style="list-style-type: none"><li>• Private sectors low compliance and understanding of trade laws and regulations,</li><li>• Border post lack office space, regular unreliable power and internet connectivity, low staffing and poor parking areas</li><li>• Lack of horizontal inter-agency collaboration</li><li>• Lack of a professional knowledge based service culture at the borders</li></ul>

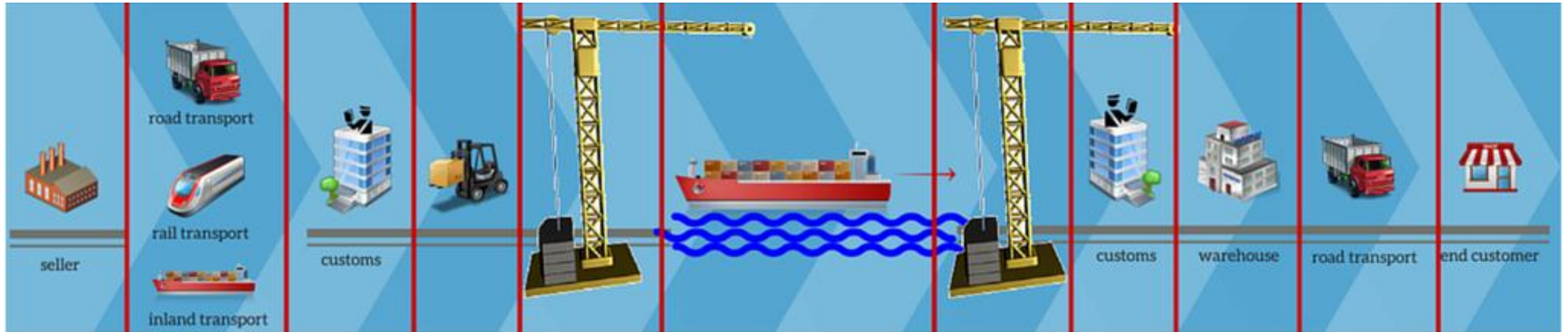
# Efficiencies in Ports are influenced by

- Physical layout of the port e.g. Port of Mombasa (creek or channel) or Doraleh Container Terminal (deep sea based)
- Infrastructure investment programmes:
  - **Hard:** infrastructure to increase cargo off-take, dredging, upgrade of cargo handling equipment
  - **Soft:** Capacity alignment, policy and regulatory reforms, governance restructuring, investment in ICT to cut costs.
- Level of private sector engagement and participation
- Size and type of vessels calling at the port
- Continuous improvement – operational processes, six sigma principles
- Smart Port enablers – technology, integration of systems, safety and security, etc



# Value chain approach

- Feeder principles both land and sea side
- Smart Ports - Integration of corridor network and ports (sea ports and dry ports)
- Value add activities at every node
- Developing trade transit corridors
- Decisions and efficiencies of one actor of the chain impacts all others



# Case Study - HVCCC

## A non-profit organisation



**Background:** To manage a constrained coal supply chain; different rail and port terminal operators

**Purpose:** Develop and manage integrated (total supply chain) planning and execution monitoring

**Responsibility:**

- Infrastructure capacity expansion planning
- Managing efficiency through improved scheduling practices, optimizing the rail network, managing stockpiles and throughput at the export ports

**Benefits:**

- A custom-built technology platform that is accessible to all stakeholders, real-time, to have visibility of operations (everyone has the same view at the same time)

# Case Study: HVCC – Infrastructure

## Loading Terminals

The coal export facilities in HVCC consist of two coal loading terminals, located on either side of the South Channel of the Hunter River:

- Kooragang Coal Terminal (KCT), on Kooragang Island
- Carrington Coal Terminal (CCT) in the suburb of Carrington

## Infrastructure:

- CCT has a ship loading capacity of 25 Mtpa. It has berth space for two vessels and ship loading facilities that operate at 2,500 tonnes per hour (tph). CCT is able to accept coal deliveries by either road or rail.
- KCT has a ship loading capacity of 108 Mtpa. It has berth space for four vessels and ship loading facilities which can operate at 10,500 tph. KCT is able to accept coal deliveries by rail only.
- KCT has been undergoing expansion due to demand since inception

# Case Study: HVCC - Operations

## Distribution of loading between Carrington Coal Terminal (CCT) and Kooragang Coal Terminal (KCT) is dependent on a number of factors:

- 'Capesize' class vessels usually berth at KCT due to their larger size. But handled at CCT.
- 'Handysize' class vessels are loaded at CCT also due to their size. 'Panamax' class vessels may be loaded at either KCT or CCT.
- Coal to be delivered by road may only be delivered to CCT, therefore any vessels which are to be loaded with road coal must be loaded at CCT.
- If vessel to be loaded is 'geared' then it will usually be scheduled to berth at CCT, as ship loaders at CCT are smaller and are easily able to move in & about equipment on the vessel deck.

# Location of the port also plays a role in efficiency



Deep sea situation; accommodates 2 mega box carriers – dock, discharge/load and go



The channel is a potential bottle neck if its turning basin is unable to accommodate several vessels; needs pilotage





# Container ports are most efficient



The world's top container ports have deep harbors capable of handling mega-ships with capacities of 8,000 20-foot-equivalent units and larger.

Frequent calls by big ships generate huge container volumes, and the busiest ports handle those vessels more efficiently than second-tier ports



**PMAESA**

# What is the way forward?

- 1. Harness the Blue Economy:** Using marine-based economic development which will lead to improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.
- 2. Diversification of activities:** moving away from reliance on supply of raw material and fast-track industrialization & regional integration efforts.
- 3. Formation of Sea Ports Corridors:** Vessels of different sizes should focus on calling at specific ports due to capacity available



# What is the way forward? (continued)

4. Promote Cruise Tourism as a way to foster economic growth
5. Promote the creation of Dry Ports which may reduce pressure on port facilities; may form inland trade hubs or Export Processing Zones (job creation).
6. Encourage intra-African trade which will lead to investment in land-based corridor infrastructure.
7. Invest in ICT to reduce trade barriers and costs of moving goods and services.
8. Engage in stronger Public Private Partnerships.



# Thank You For Your Attention



**PMAESA**