Shipping and the Port Sector

in Sub-Sahara Africa

By the Swedish Maritime Administration for the

Swedish International Development Cooperation Agency (Sida)

Department for Environment, Climate Change and Sustainable Services

Alf Brodin

Department of Maritime Policy and Public Affairs

Reporting date: 2009-10-15

Publishing date: 2010-01-15

Sida

SWEDISH MARITIME ADMINISTRATION

Cover picture:
Container cranes from the world's largest manufacturer ZPMC about to be taken ashore, to support the rapid expansion of container handling in sub-Sahara Africa - a process described in Chapter 4.

This document has been produced with the financial assistance of the Swedish International Development Cooperation Agency (Sida). The views herein shall not necessarily be taken to reflect the official opinion of Sida. The document has been published as a part of the agreement of cooperation between Sida and the Swedish Maritime Administration.

Norrköping 2009-10-15

Sida

SWEDISH MARITIME ADMINISTRATION

Table of Contents

List of Tables:

List of Figures:

Fact Boxes:

Preface

The intention of this report is to cover general aspects of shipping, but with a strong emphasis on factors that will have an influence on Africa. It has focus on the shipping industry of coastal countries of sub-Saharan Africa, i.e. countries that do not border the Mediterranean Sea.

The report covers not only the size of shipping activities, maritime transport work related to trade, but also the impact on the environment and climate change caused by shipping. In line with the Swedish presidency of the EU and the extra emphasis in climate change before the upcoming Copenhagen meeting in December, there are separate discussion related to African shipping and climate change.

As will be shown in various ways in this report, the involvement of shipping on the African sub-continent remains small. In Sweden, as in many coastal sub-Saharan countries, maritime transport is estimated to handle about 90% of international trade, demonstrating a similar strong dependence on shipping for foreign trade. In many parts of the world, the increasing volumes of cargo shipped are being carried by larger ships that can carry more cargo on each voyage. In this way also many developed countries face, what can appear to be a contradictory tendency, with cargo volumes increasing more rapidly than the number of port calls. A tendency that continue to put pressure on ports to increase their capacity to be able to handle ever larger ships.

There is also a strong similarity between Sweden and many African countries when it comes to the lack of domestic ownership and control over the ships that carry foreign trade. However, shipping has for a very long time been one of the most international activities, if not the most international, in the world. Statistically, Africa holds a respectable position. However, there is only one African country among the 35 largest ships registries in the world; Liberia. Of the just over 3.000 ships in the Monrovia based Liberian register, representing over 10% of the world fleet, there are not one single domestic owner registered and it is unlikely that any of the ships will ever visit their flag country. Due to this concentration of the African fleet, statistical comparisons between Africa and other continents, as well as for countries within the continent, becomes distorted.

African cargo handling by ship is still, although increasing evidence indicates a slow change, directed to and from ports on the African sub-continent directly to ports in other continents. Internal trade remains small and so does internal shipping. When figures for intra-continental trade do go up, and theses volumes are often shipped, it is mostly being carried on small second hand ships. This is in contrast to the quality of ships sailing from Africa, making calls in ports in Europe that generally are of a considerably better standard.

An ever larger number of bigger ships that call at African ports, and especially the rapid development of oil handling, has put increasing pressure on many African coastal waters. More shipping activities in coastal waters and larger volumes handled in ports, in countries with limited surveillance capacity of ports and ships, dramatically increases the risk of accidents and of degradation of the coastal environment. Risks that can be expected to keep augmenting as the number of sub-standard ships that are allowed to trade in the region increase. Although costal pollution does see its most dangerous sources on land, from sewage, leakage from farming and industrial processes, ports and shipping activities along with oil prospecting and oil production cause major problems locally.

Along many coastal areas oil prospecting is taking place and new wells have started production off-shore. Production is now on line from deep waters, and prospecting is going on further into deeper waters. The deeper and more complicated the drilling, extraction and transport of oil becomes the higher the risk will become.

Several domestic-, regional- as well as overseas-organisations works to maintain and rebuild damaged coastal environments. The best coastal environment is the one never affected by pollution or other forms of degradation. To sustain a good environment the pre-emptive work of e.g. the IMO has a strong focus on quality shipping and minimum-level regulations that signatory countries to its conventions must accept to follow. Many African states have signed numerous of the IMO conventions that prescribe a precautious attitude in port operations and handling visiting ships in its ports. This includes e.g. binding rules about waste treatment and reception facilities for various kinds of ships wastes; like residual oils and garbage. A stricter follow-up would not only improve the environment locally, but would also send a strong awareness signal to the whole local transport community.

A follow-up is also made here in relation to the sub-Saharan countries and the normative work of the UN shipping organization IMO. This has been based on the status of the different conventions that are in any of the three stages of agreement at IMO; not signed by enough countries to enter into force, on their way to be implemented or have entered into force[1].

The sources used here have been retrieved from different branches of the UN system, like the International Maritime Organization (IMO), as well as other shipping circles. In an attempt to make the report more up-to-date information from both African and international business press during the past year has also been included.

**Figure 0	Map of Sub-Sahara Africa**

---

[1] This is a simplification as there are several ways for a country to adopt a convention and for a convention to enter into force. This process is described in more detail at www.IMO.org; then click "*Conventions*" on the left banner.

Executive Summary

As shown in various ways in this report the involvement of shipping on the African sub-continent remains small, but is increasing. In other parts of the world, like Sweden, the increasing volumes of cargo shipped is being carried by ever larger ships that can carry more cargo on each voyage. In this way many developed countries face, what can appear to be a contradictory tendency, with cargo volumes going up while the number of port calls increase less. In Sweden maritime transport is estimated to handle about 90% of international trade and most countries in Africa show a similar high dependence on shipping for their foreign trade.

Shipping, i.e. the ownership of the ships that carry merchandise, has become one of the most international activities in the world. Statistically Africa holds a position in this respect that is sizeable. However, there is only one African country that holds a position among the 35 largest ships registries in the world; Liberia[2]. Out of 3,000 ships in the Monrovia based Liberian register, representing over 10% of the world fleet, there are not one single domestic owner registered, with such a large concentration of the African fleet to Liberia all statistical figures becomes distorted.

African shipping is still, although increasing evidence indicates a change, directed to and from the continent with connections to ports abroad. The internal trade remains small and so does internal shipping. When figures for intra-continental trade do go up, and theses volumes are often shipped, it is mostly being carried on small second hand ships[3]. The quality of ships sailing from Africa, and that call in ports in Europe or other countries of the developed world, are generally of a considerably better standard than ships that trade locally. The increasing number of large ships that call at many African ports, and especially the rapid development of oil handling, has put increasing pressure on many African coastal waters. More shipping activities in coastal waters and larger volumes handled in ports increases the risk of accidents and of degradation of the coastal environment. Risks that will increase dramatically if a larger number of ships trading in the region are sub-standard. However, costal pollution does not arise exclusively from shipping activities, industrial processes and, particularly and increasingly so in many parts of Africa, from oil prospecting and production[4]. Production in the Nigerian river delta has been going on for many years placing Nigeria as the biggest African producer with a production over 100 mty. However, the oil capital Port Harcourt has during July 2008 seen rivalling rebel groups fighting in the streets of the city and a 20% fall in production has been registered. Some of the rebel attacks have caused considerable damage to the environment through the leakage of oil and chemicals. Under such a situation a cleaning-up operation is seldom considered. Along several African coastal areas an increasing share of the oil findings, and new production wells, have been established off-shore. Examples of countries where production or exploration has started off-shore are Angola, Ghana and Kenya.

---

2 All ships of the world must be registered in a country where the owner has to follow the local regulations in addition to the minimum standards set out in international conventions. In later years many developed countries have opened-up for ship owners to register their ships in an *"open"* register (e.g. Denmark and Norway) where regulations are generally similar to the national register apart from the origin of the crew that could often come from any country in the world in the open register It should also be noted that the administration of the *Liberian International Ships & Corporate Register* is US based (www.liscr.com).

3 Small Scandinavian coasters, small cargo / tanker ships for coastal traffic, are often, at the end of their lifecycle, sold on to smaller shipping companies in Africa.

4 Compensation for damages to the costal environment caused by oil cargoes spilt from vessels is compensated for by the International Oil Pollution Compensation Fund (1992), but this coverage does not include spills that come from offshore oil production facilities or oil storage installations.

The frequency of follow-up of the quality of domestic and visiting foreign ships in line with the internationally recognised standardised port state controls, and in line with the demands stipulated in IMO convention, is often low in Africa[5]. In addition there are also binding rules about waste treatment and various reception facilities for ships wastes of different kinds. Regulations where a stricter follow-up, and the availability of reception facilities in the ports, would not only mean an improved environment locally, but would also send a strong signal about compliance in the shipping community and transport community. To make long term improvements in this area possible, improved maritime training will be needed. A stricter implementation and follow-up on just a few conventions would considerably reduce the stress and risk of damage to the coastal environment. The latest major amended and implemented convention that has been ratified and introduced is the ISPS Code – as an amendment to the SOLAS Convention. Full implementation of the ISPS Code would greatly enhance not only security at sea near the coast and in ports and surrounding areas. Better surveillance and increased controls will indirectly also lead to risk reduction, which is undoubtedly positive also for the environment. It is highly essential that attention is given to area's that show a higher degree of risk exposure like ports, where related services should meet international standards for ships inspections, for security and efficiency.

The port sector, where the African involvement in international shipping is the strongest, is a sector where domestic control over investments is crucial for public acceptance, but also the existence of structural and regulatory capacities to maintain and enforce international maritime standards. Improvements achieved in these respects are therefore certain to bring considerable benefits back to these countries.

It was mentioned initially that shipping is probably the most international business undertaking, but also container handling in ports is getting increasingly internationalised. With the appearance of container handling and the increasing investments in ships and special handling equipment in ports, efficiency in operations has become a key issue. Sufficient investment resources are generally not available for cash strapped port agencies in African countries and hence, there are often few other alternatives available than to offer long term concessions to international port operators. There are numerous examples of this in Africa where an increasing number of ports have been commissioned for as long as 27 years to international operators.

In line with the Swedish emphasis on climate change a separate study has been included about the costs and benefits that could be foreseen if Kenya, as an example, would introduce a reduction to the use of high sulphur bunker oil inside the Extended Economic Zone. The study sets the estimated consumption by ships inside this area to about 221 000 tonnes, and the additional costs that this would lead to (in the mid-level scenario) to USD 178 million, in addition to the USD 92 million already spent of fuel at mid 2009 prices. In cost per tonne handled in the port of Mombasa this can be translated to about USD 10 per tonne. With the advantage of less pollution and longer lives of its citizens to compensate for this additional cost, it remains a decision of the government to evaluate the pros and cons of such a decision.

[5] One example is The Paris MOU (Memorandum of Understanding) on Port State Control of which most countries in Europe are members (27 participating Maritime Authorities) has agreed to implement a harmonized system of Port State Control.

1. General Introduction

There appear to be a constant need to handle ever larger volumes of cargo in international transport and international trade. This is basically generated by a continued growth in world population and a continued international integration. During the 12 past months, from mid 2008, the problem has been the opposite with a continued decline. General figures often used indicate that a 4% decline in GDP results in a fall of 8% for trade and 15 - 20% for transport. In some countries, and regionally in others, the transport sector appears to have had a much sharper downturn. (ITF 2009). Also the African continent is getting increasingly engulfed by this trend, although the initial decline was smaller.

At the same time there has never been as many hungry in the world as during 2009 – probably above one billion, according to FAO. If so, one in every six in the world is hungry or do not have enough food, which is more than ever. About 60% of the billion extremely poor are to be found in Asia and some 25% in sub-Sahara Africa. A number that is estimated to have increased by over 100 million during 2008 – 2009; as a result of the global economic recession. A development that makes the first of the Millennium Development Goals even harder to achieve (reducing the number in extreme poverty to 400 million by 2015). The current development stands out in contrast to the progressed made during the 1980s and 1990s. According to FAO, the current trend is not the result of a falling supply of food, but more the result of that food-prices have risen by 25% between 2006 and the end of 2008. This at the same time as foreign direct investments in developing countries are expected to fall by a third as a result of the economic recession, while remittances, that are increasingly important for some poor countries, are expected to fall by at least 10%.

The trend for Africa is problematic. Africa was the home of under 9% of the world's population 1975, in 1990 this figure had surpassed 10% and by 2005 it had reached 14%. During these same 30 years world population has grown by 45% while the population in Africa has grown by 80%, or about twice the speed of the world average. In other parts of the world, with a lower growth of the population, GDP-growth/capita has outgrown Africa which cannot keep up with other regions of the world. Africa has generally seen GDP grow during the most years, but has not kept up with the OECD group of countries and especially not with comparable economies in Asia (WB Database 2009). However, there are especially two particularities to consider when discussing the economic future of SSA. First, about 60% of the combined GDP in the region is generated in South Africa and Nigeria alone[6]. These two countries, that share more than half the region's economy, together hold less than 20% of the region's population.

This lagging behind for Africa has taken place at the same time as world trade has been going through a dramatic change in both its structure and its direction. The content of trade has been moving towards an ever higher percentage of high value goods where trade is taking place with both inputs and ready-made products. This has led to a diversification of the number of trade partners as a result of increasing specialisation among suppliers. Overall these tendencies have led to that more cargo will have to be moved between increasing numbers of destinations. The implication for transport from this development is that a larger share of traded goods lends itself

[6] Despite the fact that Nigeria holds the largest population in Africa with 145 million and South Africa 47 they constitute only some 20% of the SSA population in 2007 of 800 million. With a GDP of USD 0.46 trillion and USD 0.29 for South Africa and Nigeria respectively, they constitute about 60% of the combined SSA GDP of USD 1.25 trillion in 2007 (World Bank 2009).

well to containerisation. It is also so that the increasing number of origins and destinations has meant that connections south – south, as well as the trade volume, have seen an increase.

When comparing African foreign trade with Asian foreign trade there are certain observations that can be made. The GDP/person in Asia is four times larger than in Africa, but the involvement in world trade is more than ten times that of Africa. Not only so, but the geographical structure of trade is very different indeed. While the most important partner for Asia is internal Asian trade, where about 55% of imports originate and exports are destined. That same share for Africa is in the range of 10%. The Asian dependence on Africa is only about 2% for both imports and exports, while the African dependence on Asia is 20% in both directions. The largest Asian dependence outside of its own region is an above 20% dependence on North America for its export, while the African dependence on Europe remains above 40% for both its import and export. Despite this dependence on Europe, the value of the African export to Europe is below 25% of the value of the Asian export to Europe. One reason for this imbalance is of course history and geography, but the percentage of manufacture in the export for Asia to Europe is 85% while over 60% of the African export is fuel and mining products. In the overall export the African share for food-products is about 10%, which is not too different from the Asian export share for the same product category; which is about 6%. The importance of international trade has continued to increase over time, and has continued to show growth figures beyond those of GDP. OECD GDP has increased by about 45% between 1994 and 2006, while seaborne trade has increased near 70%, or 40% more.

The food segment could serve as an example of a sector where an ongoing restructuring is taking place. An ever larger share of what is traded is non-traditional elaborated products, pushing down the share held by un-processed basic food commodities. A shift in product mix that also requires a similar shift in available means of transport. It can be expected that these more elaborated products are both more sensitive and of higher unit value. Additionally, for its competitiveness this new product mix will probably require the fulfilment of stricter buyer's standards (private and national/EU) in terms of e.g. packing, delivery terms and hygiene. To allow domestic business communities to fulfil such demands will also require increased capacity and efficiency from the authorities like customs and veterinary services. To make such a turnaround possible will in many cases require assistance, in the form of e.g. aid for trade, to fulfil and better uphold standards while managing international trade. International assistance that can improve the handling of trade and transport by reducing overall costs and aligning procedures better to reigning international agreements[7]

To make a country competitive in international trade its export products must be able to reach their destination at competitive prices and with a reliable frequency. This becomes increasingly important as there is a clear logistic tendency to hold ever lower levels of inventories in all lines of business. As a consequence there are general concerns about the robustness of supply chains that include Africa because of the lack of capacity and alternatives. Countries and ports served by only one cargo carrier for most destinations make the cargo owner over-dependent on just one transport supplier. In this situation the organisation and capacity of the national and regional transport system often limits the development potential for a country. The high share of freight cost in foreign trade (see e.g. Figure 4.1), often higher than tariffs, and poor infrastructure makes the situation difficult for many countries. Especially for the many land-locked countries there is a serious network problem, with weak or insufficient linkages between national and international

[7] The level of development assistance given to Sub-Saharan Africa differs widely. In GDP/capita terms the development aid received was USD 350/capita in The Republic of Congo during 2007, but only USD 7/capita in Cote d´Ivoire (ADI 2007).

systems. Already the physical linkage between inland-areas and ports can in many cases appear both weak and insufficient, but the administrative inefficiencies among state agencies add to this problem. When this situation is combined with the above mentioned tendencies, the situation for many African countries appear complicated, but becomes particularly problematic for land-locked countries.

It is important to remember that the maritime sector, that will remain in focus here, cannot be restricted to the operation of shipping and vessels. Seaports and the all the different kinds of services that are provided in and near these ports are an as important aspect of shipping. Shipping is neither a stand-alone activity and must be seen as a combination of shipping, port operations and all the service operations necessary to secure the operation, including road and railway access to ports. As is shown in other parts of this report, the assets in the shipping sector possessed by SSA states is practically in its totality restricted to seaports and related services. As will be discussed in later sections, restrictions to develop this sector further are most often found in organisational patterns outside of the sector. As a result of this, ports, and the situation in and around ports, are given a generous coverage here.

It is set without doubt that Sub-Saharan Africa would benefit immensely from better coordination of infrastructure development. That is better port infrastructure in conjunction with road and rail system development, to better support the development of transport corridors that extends across borders into landlocked countries (see also 4.2 for a more detailed discussion)[8]. However, the current African reality is that crude oil constituted more than half the export value in 2006. Much as a result of the rapid development seen in recent years in the oil sector, about 60% of foreign direct investments in 2005 were directed towards oil exporting countries.

As shown here from a number of perspectives the African transport situation is problematic. This leaves the environmental discussion related to transport issues in a defensive position. In an already struggling sector it becomes difficult to find acceptance for even well documented arguments. Still, work in this field is ongoing through local ministries supported by a number of organisations, with UNEP as one of the principals. Also IMO has initiated a wide number of initiatives and has through its training program (ITCP) held a considerable number of courses in support of the local maritime administrations. Support is needed in various fields where the implementation of already signed maritime conventions has not been fulfilled or has never really taken-off. The maritime sector remains problematic, especially for the least developed countries on the continent. Thirty three out of forty eight UN-defined, Least Developed Countries (LDC's), can be found in Africa. In addition to the fact that twelve of these countries are landlocked and three more are Small Island LDC's.

It is positive that several regional organisations are already active in this field, and especially so the regional port and transport organisations. However, the lack of funding is chronicle and often ambitious programs have not come to be acted upon, more than symbolically, thus far. At the same time there is an augmenting race going on in the field of oil production, coming further and further off-shore into deeper and deeper waters. The problems caused by oil-extraction in the River Niger delta in Nigeria should be alarming enough as to the kind of problems near uncontrolled oil extraction can cause.

[8] The World Bank is funding the Sub-Saharan Africa Transport Policy Program (SSATP) program that is working in this field.

With each week that passes during the summer of 2009 new statistics have been presented that could be interpreted as signs of that a gradual recovery of growth in the world economy could be under-way. That is despite the fact that a lot of information is negative and that unemployment is still on the rise in many of the world's leading economies.

Over the last five years average economic growth among African nations has been above 5% it is now expected to shrink to about 2.8%. Despite this, with more fragile economies and often less political stability than in developed countries, some African countries are worse affected at the same time as the individual differences between countries is much bigger. The main reason for the slowdown in Africa is falling prices for its raw-material rich export and lower demand also for other products (OECD 090512). Many of the governmental economic support packages that have been introduced in Sweden, the EU, the US, China and elsewhere have all focused a considerable part of the intended investments in different infrastructure projects. Project that will, although indirectly, generate demand for various African raw materials. Some bullish industry figures insist that, amid such gloom, now is the time to invest in ports, ships, trains and trucks that will be delivered or completed just as world demand is again approaching a peek.

2. The Situation for the Industry

2.1. Involvement in International Shipping

World merchant fleet had reached 1.12 billion dead weight tons (dwt) in early 2007. A stunning growth of over 7% in one year, with still undelivered tonnage on order of about 40% of the existing fleet. Still, by mid 2009, it is too early to tell what the real outcome in actual deliveries will be of this gigantic order-book as the number of cancellations is considerable. Measured by ownership, developing countries controlled about 31%, developed countries 66% and the remaining 3% was controlled from economies in transition. About 2/3 of all ships in the world fly a foreign flag and not the flag of the state from where the ship is owned.

Over the last three decades the world has seen a tremendous increase in the use of containers as carriers of cargo in world trade. The rapid growth in container handling is well demonstrated in Table 2.1 where the container fleet has grown by a factor 13 over 17 years. This has happened while the "*General Cargo*" and the "*Oil Tanker*" fleets have remained more or less stable, while "*Other*" kinds of ships and the Dry Bulk fleets have approximately doubled.

By type the youngest ship type are container ships, with an average of 9 years, and with only 13% being over 20. In the rapidly growing container segment, and the most modern of the fleet types, the African ownership stands at it lowest; 0.15% of the world fleet. General cargo vessels are traditionally the oldest type of vessel with an average of 17 years with near 50% of the ships being over 20 years old. Out of the ships owned by developing countries the average age for all ships is about 12 years, which is near average for the world fleet[9]. It is noteworthy that also when broken down by ship type the average age for each type falls within one year of the average for the world fleet. However, this is based on country of registration which dramatically improves the figures for developing countries.

Table 2.1. World Fleet by Ship Category (1/1 2007; million dwt)

	1980	1990	2000	2007
Other	31	49	49	69
Container	11	26	98	145
General Cargo	116	103	92	105
Dry Bulk	186	235	321	391
Oil Tanker	339	246	336	407

Source: Review of Maritime Transport 2008, p. 33

Table 2.2 show the world fleet in relation to the domicile of the owners which accentuates a strong concentration of ownership. The six most important owner nations control over 55% of world fleet in dwt terms and slightly more in number of ships. These nations all have the fact in common that they generally own large ships and have a very large share of their fleet registered under foreign flags, with the three largest all being among the ones with the highest percentage registered abroad.

[9] Average age should in principle only be seen as a way to evaluate a fleet as the sea worthiness of a ship is not determined by its age but, to a much higher degree, by maintenance by the owners and by the certification given to it by the classification society.

Table 2.2. Fleet Ownership; for Six Biggest and 35 Biggest
(1/1 2008 in 1 000 dwt (includes ships > 100 GT))

	Number	Total dwt	% of world	Foreign flag dwt	Foreign %
1. Greece	3 115	174 471	16.8	118 804	68.0
2. Japan	3 515	161 102	15.6	150 126	92,8
3. Germany	3 208	94 222	9.7	79 634	84,5
4. China	3 303	84 872	8.2	50 530	59.5
5. Norway	1 827	46 872	4.5	32 689	69.7
6. United States	1 769	39 828	3.8	19 528	49.0
25. Sweden	365	6 918	0.7	5 159	74.6
Total 1 -> 35	32 256	990 003	95.4	666 371	App. 67

Source: Review of Maritime Transport 2008, p. 39

As can be seen in Table 2.2, about 2/3 of all merchant ships in the world carry the flag of a state other than country of ownership. A percentage that has been on the increase over a long period of time with a world average standing at 41% in 1989, reaching 61% in 1999, and since 2006 the world average has remained stable at 67%.

The fleet of the world demonstrates a strong concentration to a small number of countries, no matter if it is calculated in ownership terms or flag state. In ownership terms the 35 most important nations control over 95% of the fleet, the six most important nations control near 60% of the dead weight. More or less the same share as controlled by the six most important flag states that control about 55% of the world fleet.

Table 2.3. Fleet Registration; Six Biggest, 35 Biggest and World
(1/1 2008 in 1 000 dwt (includes ships > 100 GT))

	Number	Tot. dwt x 1 000	% of world	Average size	% domestic
Panama	7 616	252 564	22.6	33 162	0
Liberia	2 173	117 519	10.5	55 081	0
Greece	1 394	61 384	5.5	41 560	0
Bahamas	1 422	59 744	5.3	42 014	92
Marshall Isl.	1 079	59 600	5.3	54 330	26
Hong Kong	1 238	59 210	5.3	47 827	39
China*	3 816	37 124	3.3	9 728	99
Total 1 ->35	64 418	1 033 035	92.4	16 036	32
World	97 481	1 117 779	100	11 467	34

* China has been included, instead of Singapore and Malta that have bigger fleets (4.9% and 4.0% respectively) because China stands out as owner of a very large share of Hong Kong ships.

Source: Review of Maritime Transport 2008, p. 46 and further.

When discussing the foreign registration of a ship, as in Table 2.3, this only show the percentage of world fleet registered in another country, but not the true ownership. To just indicate that there is a clear link between the largest owner nations in the three largest flag states, the six most important owners in these international registers are shown in Table 2.4. As can be seen there are one or two dominant owners in each of the three most important flag states. Greece being among the two biggest owners in all three registers, with Japan owning more than half of the ships flying the flag of Panama. That the US ownership is biggest in the Bahamas register is perhaps not an as big surprise as the large German ownership of the ships from Liberia. As a contrast it must be mentioned that the fleet controlled by developing countries in Africa represents about 0.5% of the world fleet[10].

Table 2.4. Nationality of 6 Largest Owners in Three Major Open-registers
(1/1 2008; 1 000 dwt)

	Panama			Liberia			Bahamas		
Owner	Number	dwt	%	Number	dwt	%	Number	dwt	%
Greece	511	22 211	9	360	21 916	20	209	12 229	23
Japan	2 236	123 046	54	114	6 729	6	67	4 156	8
Korea	302	16 594	7						
China	501	20 411	9						
Hong Kong	137	6 622	3						
Taiwan	296	10 220	5	84	6 282	6			
Germany				770	35 330	33	48	2 711	5
Russia				90	7 760	7			
Saudi Arabia				24	6 062	6	19	3 479	7
United States							115	4 595	9
Norway							254	6 262	12

Source: Review of Maritime Transport 2008, p. 50

As can be seen in Table 2.5, outside of Liberia, there are only five nations with more than 500 ships in their registers and only nine with more than 100. These ten nations are still being the flag states for more than half of all African ships, although the average size is often small. These countries domination in the container is near complete with only three countries controlling over 95% of the ships. A perspective on the total dead-weight for ships owned from Africa is given by the fact that it is only slightly larger than the fleet controlled from Norway in the Bahamas register.

[10] Ownership, as well as "*control*" is not always possible to establish very precise. If the company registered as owner of a ship is German, the actual owners of that company might well be foreign, or could be a shared ownership between several nations. In the same way a ship on a long time charter will be counted as "*controlled*" by the country chartering it, but also as registered in its flag state; i.e. in international statistics such a ship will probably be counted twice.

Table 2.5. African Countries with 100 Ships Registered Ship Type
(1/1 2008; 1 000 dwt)

Flag	Total	Oil/tank	Bulk carrier	General Cargo	Container	Other
Algeria	744	26	204	55	0	458
Comoros	1 045	273	198	501	5	68
Egypt	1 703	508	679	311	58	148
Ethiopia	159	9	0	150	0	0
Libya	97	13	0	57	0	27
Morocco	336	113	0	28	72	124
Nigeria	626	477	13	26	0	111
Seychelles	243	156	0	57	0	30
Sierra Leone	588	101	17	418	18	34
South Africa	117	0	0	0	30	87
Total 10	5 658	1 676	1 111	1 603	183	1 087
Total Africa	6 357	1 762	1 145	1 808	183	1 459
Total World	1 117 779	407 881	391 127	105 492	144 655	68 624

Source: Review of Maritime Transport 2008, p. 175 - 179

Total seaborne world trade in 2007 came to about 8 bn tonnes. The work to move this cargo between ports measured in ton-miles, the sea borne transport work in the world, came to 32,900 billion ton miles in 2007[11]. A figure that is three times the transport work performed in the world in 1970 of 10,600 billion ton miles. However, the rise in transported work has been unequal in-between cargo categories. The most important product, crude, has seen a doubling, a tripling for oil products and slightly more for iron ore, while the total transport work for coal has increased nearly seven times over. Something that, in the case of crude, derives from the fact that the volume is constantly increasing, but also that many new findings have been made close to consumer areas. In the case of coal the large increase in transport work is due to a combination of the close-down of smaller local findings, increasing volumes, but also the fact that shipping distances from large coal and iron ore findings in e.g. Australia and Brazil to consumers in the developed world has increased dramatically.

At the end of their life-time ships will most often end-up on the beaches of India, Bangladesh and Pakistan to be demolished. The average age of a ship sent to demolitions is from 32 years for general cargo ships and then falling by approximately a year per category, for tankers, dry bulk, to containerships that get demolished after having turned 28. However, the volumes sent to demolition vary greatly depending of the freight rates paid in the market. In 2002 over 3.5% of the world fleet was sent for demolition while in 2006, a year of high rates and despite the fact that a lot of new-buildings entered the market, only 0.6% of world fleet was demolished. Demolition figures that should be compared to the delivery figure for new ships in 2007 that corresponded to 7% of fleet size. The total stock of orders for new ships in early 2008 stood at over 10 000 ships with a combined dead weight of near 500 million dwt; i.e. over 40% of the existing fleet. However, as cancellations and postponements have been frequent it remains doubtful how much of the order-volume that will actually result in deliveries.

[11] Ton-miles is a measure for transport work – one ton transported one mile corresponds to one ton-mile. An alternative measure is loaded ton only, but this does not measure the work performed in transporting the cargo loaded. Conservative shipping circles uses tonmiles, but it could as well be expressed in tonkm.

2.2. The Current Situation in Shipping

At the time of collecting the latest available statistics, which internationally was for 2007 and domestically for 2008, the economic situation still looked different. The indications of that hard times were to come had started to appear in late summer of 2008 and the result for the last quarter of 2008 and first of 2009 was depressing in most lines of business. That was both in economic terms and in cargo turnover. Economic recession had started to bite hard on the shipping industry. The tide has not changed since and the global economic recession has resulted in sharp reduction in cargo volumes worldwide.

The shipping industry entered 2009 in a state of crisis. All shipping sectors had been hit hard, with the dry-bulk sector struggling to recover from a plunge in November 2008 that took the Baltic Dry Index to a nine year low[12]. The first months of 2009 have seen a huge amount of capacity changes in the industry, including the lay-up of vessels. In general carriers have responded to the global economic downturn by radically altering capacity, slower steaming and changes in frequencies. In addition to this many shipping companies have responded with job cuts, increase in freight rates appears to be a must after rates have plummeted sharply in the months since the downturn started. In the case of Africa the downturn in volumes has been smaller than for most other destinations.

In the container sector as much as 10% of capacity is said to have been taken out of service. The worlds largest container line, Maersk, has already laid off nearly ¼ of its employees in the last 18 months having seen cargo volumes shrink, although not as much as the number of employees. A big loss is expected for the line, both for 2009 and 2010, after the biggest loss ever during Q1 2009. To cover increasing costs the company, and several of its main competitors, has announced that price hikes will have to be made on the main routes. Such announcement is of course a different thing than to find an understanding among customers for such a change in times of recession. One of few positive signs for the shipping sector over the last twelve months has been sharply falling bunker costs during much of 2009.

Some believe that shipping lines are not doing enough to counteract the global recession. If rates will continue to go down, the industry remains in serious trouble. That the industry is currently sailing on deep waters is shown by the fact that the spot rates for a 40-foot container from Hong Kong to Los Angeles fell to a new low of USD 950 in May 2009, or down by 53% from an average of USD 2,040 a year ago (Drewry 2009). In addition to the existing problems for the sector London-based Drewry Shipping Consultants has predicted that container capacity will grow by 8% this year and 10% in 2010. As a result the industry could see combined losses of USD 20 billion before interest and tax in 2009, compared with a 5 billion profit in 2008. As a result some operators can be expected to fail during 2009 or 2010. Also companies in the service sector to shipping has been hit by reduced traffic and the Panama Canal has offered "*empty-ship*" rates until the end of September for containership carrying less than 30% of capacity (Panama Canal 2009). Not only the Panama Canal has seen its earning fall dramatically, just as it is about to start a major widening and deepening of the canal. The same has happened to the Suez Canal that has seen traffic and incomes fall sharply compared to a year ago. In a situation when also these, the very biggest of the service operators, and simultaneously a major part of national economies in these two countries, have been hit, the same has of course happed to 1,000s of smaller service companies of all kinds in ports of the world.

[12] BDI is a London based trading platform for shipping capacity – in futures as well as for real shipments.

Is Stability coming ?
During the early autumn months of 2009 it can be heard from some companies that the economic slump appears to have bottomed out. That is something else than an indication of direct recovery, but only that the fall appears to have reached its lowest point is seen as positive. If so, a development that would at least allow ship owners and port operators a chance to catch their breath. Even if this judgement is not fully correct the situation is a far cry from the catastrophic drop in business that signified the start of 2009. A period when many sectors were in fear of a near meltdown. But stability is very different from recovery. Cargo volumes may have stopped shrinking, but that does not mean growth is about to resume. Demand for consumer goods and cars are likely to remain sluggish while unemployment remains high for a long time to come. Furthermore, the initial banking crisis may also largely have passed, but credit is still hard to obtain and many households will continue to reduce their debt levels before coming back to the stores for some "*retail therapy*". Ship owners will need to keep a very tight lid on costs if they are to clear-up their finances and eventually return to the black. Supply will remain a constant worry as ship delivery figures are worrying, and especially so in the container and bulk segments where order-lists are especially long. So those ships already taken out of service, or earmarked for scrapping, will hardly see a reprieve.

The future is still at a distance, and more stable conditions simply mean that some sort of floor has been reached — not that any green shoots of growth and/or recovery have been spotted.

2.3. A Positive East African Example

The discussion about shipping in Africa above was an attempt to give a perspective of the continent in a global perspective. In the following discussion the perspective is instead a country, in this case Kenya.

During 2007 the Kenya Maritime Authority (KMA) carried out a watercraft census and baseline survey. It indicated that the total number of vessels operating, in both coastal and inland waters of Kenya, was over 19,000. Out of these most are not registered with the authorities and are therefore not controlled. An all too frequent situation in both Kenya and Africa as a whole, that leaves both individuals and vessels, most often smaller, to be misused by careless owners (KMA 2009).

Kenya, as most countries, has since long had a maritime transport regulations in place, but also regional regulations in co-operation with neighbouring countries. With a constantly changing market and ongoing globalisation, legislation, slowly but surely, becomes outdated. After having seen its previous Merchant Shipping Act in place for over 40 years a new Merchant Shipping Act 2009 was passed by the parliament in February and signed by President Kibaki in June 2009. This represents an important achievement after numerous past attempts to update the regulatory framework in Kenya's maritime transport sector had failed. With the previous Act in place since 1967 the new Act will better represent current day needs and from that point of departure become more understandable. A country with a legislation that better represents what it is set to regulate, will become more attractive to both domestic and international investors. At the same time the KMA foresee that the Act will greatly improve the possibility for the KMA to follow-up on the obedience of e.g. sea safety regulations and vessel inspections (KMA and AllAfrica 090622)

Another important change that can take place as soon as the Act has been properly amended is to improve maritime education in Kenya. Until then higher education in the maritime sector has not

been available domestically for Kenyans. The country of choice for education in this field has been Tanzania, but in the near future also Kenya is expected to fulfil the IMO requirements for international standards of education. Tanzania and Kenya are both members of International Maritime Organisation (AllAfrica 090803).

A maritime policy is there to promote trade by maritime transport, creation of domestic employment, generation of incomes from tax, the protection of life at sea including the local environment. Although maritime transport can appear to be a relatively limited activity only the five different fields mentioned above indicate the diversity. Not only has domestic legislation to follow local traditions and specific needs, in addition to this there is a considerable number of international conventions in this field that have to be complied to. The 25 IMO conventions that Kenya has adopted, when fully implemented, will overarch both domestic and regional legislation. However, the ratification of international conventions and their inclusion into national regulation generally has no effect on domestic sectors when it comes to the balance between different transport sectors and tax regimes. Conventions usually have a focus towards the care of the environment and to reduce formalities and the costs related to maritime transport. In the newly adopted Merchant Marine Act related agreements, like IMO conventions and Triplate agreements with neighbouring countries, have become better incorporated. An effort in legislative work that has been concluded in Kenya, but remains to be done in many African countries.

When it comes to inland shipping Kenya, together with Tanzania and Uganda, share the largest inland water in Africa, and the third largest in the world; Lake Victoria[13]. After Uganda joined IMO, as its 169th member during the summer of 2009, they are now all members. The agreement is a tripartite agreement that set uniform standards in regard to transport on the shared inland waters. In addition there is an agreement on the sustainable development of the Lake Victoria basin. This agreement institutionalises a shared vision among signatories in the region about the future use of the lake.

2.4. Maritime Training

Manning – an African and a World-wide Problem

In several African countries campaigns have started to recruit young people into shipping as more and more manning agencies have started to look for crews in Africa. With an ever increasing number of ships in the world registered in open registers, it has followed that also job-opportunities onboard these ships spread to practically all nation of the world that offer any kind of shipping related education. That the prospect to find a position in the shipping industry in the near future is well demonstrated by the number of new ships on order that is the largest ever (see also 2.1). Up until the last months of 2008 it still looked like no-one in the world, qualified to work onboard a merchant ship and that wanted to sail, would not find work. The more qualified a person is the higher is the demand as well as the payment level. Estimations from 2008 have suggested that world ship owners could face a shortage of as many as 80 000 officers by 2012. However, as recession has struck so has the interest among owners to cancel ships already on order. As a result it is currently not easy to tell for the near future how demand will balance supply of sailors.

However, the African maritime industry is at a crossroad of opportunities and threats. There are opportunities in the rapidly growing economy in the oil and gas sector, but also seaborne trade.

[13] Worlds largest lakes: 1. Caspian Sea 371,000 km2; 2. Lake Superior 82,000 km2; 3. Lake Victoria 69,000 km2; 6. Lake Tanganyika 33,000 km2; 9. Lake Malawi(Nyasa) 30,000 km2. *Note: In water volume Lake Tanganyika is seven times Lake Victoria.*

For any African country to effectively support a domestic shipping sector, calls for adequate manpower supply backed by long term strategies. To achieve this a strong political will is needed to support such a process which long term can domesticate considerable sums from the shipping industry or transfers home from sailors on foreign ships.

The maritime industry has improved its performance when it comes to the training of seafarers, and there is a need for continued training and manpower development, following shifts in technology. This is positive as only qualified manpower can make the industry move forward. In line with this, and as mentioned in section 2.3, the new Kenyan Merchant Shipping Act from 2009 will make it possible for Kenya to issue international, IMO accepted, certificates to seafarers that have received their training in e.g. Kenya. Lacking this capacity Kenya has in recent years been relying on Tanzania to train seafarers. The educational demand in Tanzania remains high and no lack of students is expected if fewer from Kenya will show up in the classrooms (The East African 090809).

Maritime education in East Africa is a saga similar to what happens in West Africa. Kenya, as discussed above, has been forced to send its future sailors to Tanzania and in the same manner as Nigeria has sent students to Ghana. It falls on the Nigerian Maritime Administration and Safety Agency (NIMASA) to develop maritime training and it shall provide not less than five percent of its revenue for the Maritime Academy of Nigeria (MAN) (Daily Independent 090507). However, MAN has not received this funding in recent years and instead the Regional Maritime University (RMU) in Accra, Ghana's capital, has become the preferred educational institute. Despite of this the NIMASA has launched a Nigerian Seafarers Development Programme to address the short to medium term manpower requirements of the maritime sector. Lack of financial support in later years has forced MAN to reduce its spending on both equipment and students. In the current situation, when education and equipment has fallen behind the required standards, increased spending will be needed to catch-up. The difficulty for MAN to achieve international certificate standards has increased due to the lack of Nigerian ships. During the years of a Nigerian National Shipping Line, which has been liquidated, MAN could place cadets to server there mandatory time of often one year onboard for a certificate[14].

2.5. Piracy – a Major Shipping Problem in Certain Areas

Piracy against merchant ships is something that in previous years was not very frequent and has primarily happened in the Malacca Strait off Singapore or in the South China Sea. It appears that most attacks have been organised from smaller Indonesian islands, or from disputed islands in southern Philippines; i.e. from island not fully controlled by the central government. With the development of lighter, faster and more manoeuvrable boat-types, the reach of attacks has increased too far off-shore and has made attacks increasingly difficult to prevent. The development of much improved aids for navigation has in this case not been only positive, as it also helps potential pirates to identify potential victims and determine their position, speed and destination.

14 Maritime schools offer higher education for **deck officers:** master mariner (ship captain), chief mate and officer on watch; **Engineers**: chief engineer, second engineer, officer on watch, marine electricians. On the rating level there are: boatswain, motormen, nautical caterers, able seamen, welder and greaser. Examples of other academic maritime educations are; naval architect, ship building technologist and marine surveyors. Required time onboard for a certificate depends on position.

As indirectly indicated above the base-areas used by pirates is an area where the central government do not have full administrative control. Additionally some areas are already seeing other conflicts developing, or have been long running, which has made the possession of fire arms into a common good. As a consequence it could be difficult to distinguish what is pure robbery and what is a political conflict that uses piracy as one way of financing the ongoing conflict. A common factor in all the areas where piracy can be found today is poverty and corruption, which make it possible to recruit willing hands and easily cover-up actions, if and when needed.

Sending a ship into what is considered to be a terrorist area or war-zone increases cost for all parties concerned. This comes from longer sailing routes to avoid the area and wages to crews that multiply several times over. In this respect it makes no difference if this is related to Gulf of Aden, Nigeria or other war zones. As an example of the costs incurred, a cargo owner that send a ship into the Gulf of Aden, on its way to or from the Suez Canal, insurance costs have increased 20 fold. One year ago the insurance cost stood at about 0.05% of the cargo value and has in less than six months reached 0.1% (Lloyds List 090625). An increase that can appear as a small figure, but considering that nearly 20,000 vessels are carrying some 700 million tonnes of cargo past Somalia, almost 10% of the estimated tonnage carried by global shipping, the sum-upped costs becomes considerable.

Somalia
In the United Nations in June 2008, the President of Somalia, Abdullahi Yusuf, stated that to fight piracy in the waters off Somalia is beyond the country´s *"present means and capacities"*. Since 2006 several international navy vessels have been stationed on patrol in international water outside Somalia under a UN resolution. In some cases these have been able to see off attacks against merchant ships by pirates. With a Somali coastline of near 2,000 km it is probably more a coincident if a foreign navy ship happens to be within striking distance when an attack occurs.

With the waters off Somalia not having been controlled by a functioning government since the early 1990s, the area has developed into what probably is the most law-less waters on the globe. Many argue that the rise of piracy in Somalia has been partly caused by the death of the local fishing industry and the need for former fishermen to find a new way to make a living. With no coastguard or navy to chase-off foreign trawlers, years of illegal fishing from foreign fleets has practically vacuumed the coastline of fish. In addition to this, some claim that the area has been used to illegally dump toxic-waste which has aggravated the situation further. Attacks have occurred 100's of miles off the coast from small speed-boats making no difference as to kind of ships that are being attacked. Anything from large to small ships, tankers as well as private sailing boats, but also ships carrying relief aid aimed for UNHCR in Somalia have been attacked. The release of numerous ships and their crews, unhurt, at least physically, has been achieved with probable payments of ransoms. With cash money delivered to Somalia having served as the only acceptable argument thus far for pirates to release a hijacked ship. Experts see a risk in premiums paid to hijackers will go up further when fewer ships are taken over, which will make the pirates become more vicious and hold out for more money (Africa Business Daily 090422).

The two most written about ships seized off Somalia were probably the Ukrainian ship Fanaia in September 2008, loaded with ammunition and in addition to that 30 battle tanks, or alternatively the Saudi Arabian 300 000 dwt brand new tanker Sirius Star. Both these ships have since been released after a ransom was paid[15]. With a limited African ownership of larger merchant ship the

[15] The BBC homepage, at the time, showed a film clip of a money bag being dropped onto Sirius Star prior to its release.

direct effect has been limited and pirates are probably also less prone on targeting ships with African ownership which assumed limited capacity to pay a ransom. Despite this there have been at least two cases where hijackings have had direct effects on African countries. In April 2009 a ship carrying 1,500 vehicles with final destination Uganda was hijacked. Ransom is still to be paid, but it has been discussed if the pirates would prefer to keep the vehicles and sell them in the local market (Financial Times 090403). In another incident all the electrical wires destined for Tanzania and a power project for villages in the Coastal region has been delayed following the seizure of a ship off Somalia (Xinhua 090613).

Source: Google Maps and drawing by author

Figure 2.1. Coastline of Somalia and Position of Hijacked Super Tanker
(the ship´s position was 750 km south east Mombasa)

Somali Piracy Key Fact
-- In 2008 there were 293 incidents of piracy against ships worldwide, +11% compared to 2007.
-- In 2008, there were 111 incidents including 42 vessels hijacked in the Gulf of Aden and off the coast of Somalia (attacks in the region trebled compared to 2007).
-- During the first six months of 2009, there have been 31 successful hijackings, 78 ships have been boarded, from in all 143 attempted attacks. During these six months 561 crewmembers have been taken hostage, 19 injured and 6 of these have been killed.
-- With awareness campaigns from the shipping community the success rate has fallen sharply, compared to the July – September period in 2008, when 26 out of 48 attacked ships were hijacked.
Sources: International Maritime Bureau Piracy Reporting Centre/Lloyds List
(Values have been slightly rounded as different sources give different number for incidents)

Nigeria

In the mid 1980's Nigeria was the world's piracy hotspot, but then attacks slowly sized. During this decade a steady rise in the number of attacks and violence by armed gangs in the Niger Delta region has put Nigeria back in focus. Nigeria has a similar background as Somalia with its war-torn and often troubled history since independence from British colonial rule half a century ago.

In previous sections the problems with rebel groups in the River Niger delta has been discussed en-passant. The area has for a long time proved problematic with attacks against oil installations and with a new phenomenon that includes kidnapping of foreign workers in the oil industry for ransom. An activity that, again, has escalated during the last few years. Over the years, this ongoing conflict with constant incidents have come to cost Nigeria billions of dollars in lost export revenues at the same time as 100s of lives have been lost. To determine to what extent the development is caused by greed, how much of the delta that has become lawless land or if the conflict is a fight for a good cause is probably impossible to say. What is clear though is that economic burden for both the nation and the local communities, but also for the environment and not least for international shipping, is very high.

Piracy attacks off Nigeria is posing a mounting threat to international shipping, but has been overshadowed by events off the Horn of Africa. Unlike near Somali, where pirates have seized crew and vessels solely to extort ransom payments, attacks on shipping off Nigeria have been a mix of theft and politically-motivated violence.

According to the London Club, The Movement for the Emancipation of the Niger Delta (MEND) was behind only five of 35 incidents involving shipping and offshore installation during the first half of 2009. However, MEND set ablaze an oil terminal and a tanker in Lagos in July 2009, killing five people, and days earlier seized a chemical tanker and crew some 20 nautical miles off the Niger Delta. The first attack from MEND that was staged outside of the delta area. As a result Shell, Chevron and Agip have together shut down around 300,000 bbd of production for seven weeks in response to sabotage (Lloyds List 090716).

Timeline for Oil Conflict in Nigeria / Ogoniland

1953 – First oil-prospecting team arrives in Nigeria.
1958 – First Nigerian oil is struck in Ogoniland.
1990 – Movement for the Survival of Ogoni People (Mosop) is formed with Ken Saro-Wiwa as its president.
1993 – Over 300 000 gather to protest against the neglect of Shell and the Government.
1993 – Shell pulls out of Ogoniland.
1994 – The conflict widens and military is sent in to restore order.
1994 – Four community leaders killed by a mob of youths. Mosop leadership is arrested.
1995 – Saro-Wiwa and eight others trailed and later executed. Widespread international condemnation of the government.
2003 – 2008 International attention shifts to MEND armed conflicts in other delta areas
2008 – Shell removed as operator in Ogoniland, but remains licence holder.
2009 – Shell accepts to pay USD 15 million in settlement to the executed, but deny any wrongdoing.

Source: BBC Africa – June and July 2009

3. The International Interest in Africa

3.1. International Visits to Africa

The past few years, and especially during 2009, has seen a number of visits to Africa by presidents and other high rank officials from the major states of the world.

The most prominent and with wide publicity was the visit of President Obama in 2009. A visit by the President that by many was seen as a part of a major US initiative to show renewed interest in Africa. However, it is not only the US that has turned it interest to Africa recently. Also for China and Russia, along with the US, there are clear connection between the countries high ranking officials choose to visit and the interest these countries have in good relations to that particular country. An interest that can often be identified in the form of oil, gas or other raw materials, alternatively the visited country could become a possible market for armament. A common link between different countries interests is that transport and port issues will play an important role materialise whatever is agreed.

US interest in Africa.
In July 2009 President Obama visited Ghana, as the first country Sub-Saharan Africa after his election. In the same manner as he in June made a policy statement towards the Muslim world when he visited Egypt, he made a similar policy statement towards Africa when in Accra. Being of Afro-American decent, and with his father from Kenya, it was of considerable symbolic importance that he visited Africa early during his presidency. Overall his visit was by many seen as a part of a major US initiative to show a renewed interest in Africa. In his speech he promised renewed US efforts to support developing counties which included a new support package of USD 510 million for Africa. During late July and early August 2009 the US minister of Foreign Affairs, Hillary Clinton, made a seven day follow-up tour to five important countries in Africa with a special focus on development and security.

The renewed US interest in Africa could be seen as a result of a rapidly increasing trade with the African continent. During 2008 US – African trade increased by near 30%; with exports approaching USD 20 bn and imports 90 bn. Although the variety in trade is on the increase, crude oil imports constitute near 80%of imports from Sub-Sahara Africa[16].

Russian interest in Africa
The Russian president Medvedev visited four counties in Africa; Egypt, Nigeria, Namibia and Angola, during a tour of the continent in June 2009[17]. Also the Soviet Union used to have a very active Africa policy, but this path has not been possible for Russia to follow as they have had a busy agenda with internal problems over the last 15 years. However, President Medvedev now admits that Russia has nearly lost out in Africa, but still has a considerable interest in e.g. Nigerian gas fields and uranium findings in Namibia. In these sectors Russia is among the largest producers in the world and have accumulated considerable operating experience in oil- and gas fields, uranium mines as well as uranium based power generation (Moscow Times 090615).

[16] Over 75% of African export to the US falls under the African Growth and Opportunity Act, but petroleum dominates and leaves only USD 5 bn of other items, with cars from South Africa being the single most important product out of this.

[17] All the countries visited received considerable support during Soviet years, with the exception of Nigeria. The countries previously given support, but not visited this time, were Sudan, Ethiopia, Somalia and Mozambique.

Chinese interest in Africa
Over the last decade Chinese interest for the African continent has blossomed. Innumerous contracts have been signed with many different countries involving considerable sums for the delivery of various raw-materials, but most often oil. Chinese workers are currently building roads, railways, ports, luxury hotels, sports arenas and other infrastructure all around Africa.

Presenting itself a developing country with no colonial past, China has long been able to be a country that holds a better understanding of the situation in other developing countries. Developing countries on their part have seen China as an important helping partner against demanding western countries. However, with such widespread presence activities have come to resemble that of a colonial power. Chinese companies take over raw-material resources, build infrastructure that only profit their own interests, sell imported products so cheaply that it kills-off local industry, and have started to acquire large areas of farmland. At the same time China never questions soft issues anywhere, and has no problem in supporting dictatorship, like being e.g. the by far biggest foreign economic actor in Sudan, and is always a ready and liberal arms exporter.

From an African perspective it is probably so that it is especially interesting to see the up-swing in investments that can be seen in China at the same time as business contacts have intensified over the last few years. This at the same time as China is expected, with its strong economic growth, to by 2010 surpass Japan that is currently performing poorly economically, as the world's second largest economy. The value of the shares at the Shanghai Stock Exchange has already passed that of the shares of the Tokyo Stock Exchange, but remains lower valued than New York. A sign that China is also catching-up on the US could be that for the first time, during the first half of 2009, the Chinese production of cars superseded that of the US (The Independent 090719)

From a Chinese perspective Africa is much more a potential and quickly expanding market than a region in need of development support, where the latter is closer to the OECD perspective on Africa.

There are of course 1,000s of other organisations, outside of these three, that take an interest in the development of Africa from various points of departure. There is no ambition here to cover all organisations related to the shipping sector, but just to give a summary of the activities of the most important; the International Maritime Organisation – IMO.

3.2 The Current Situation

West African Transport Patterns
For the smaller and strategically placed countries a well administrated transport sector could assume an important role in the national economy. One African country to see an increasing role for itself in the future regional transport system is Nigeria. Role model countries in this respect are the likes of Singapore and Dubai that have, through an exceptional development of their ports, managed to make the port and the transport sector an important money generator for the national economy. In the case of Nigeria *"the transport sector could come to be second only to oil"* if its ports could position themselves as hubs for the Gulf of Guinea countries[18]. In the Ministers plans for the near future transport will play an important role, but it is also necessary to secure that ports minimize pollution and to attract foreign investments into the sector (Daily Trust 090130).

[18] Statement by the Minister of Transport Alhaji Ibrahim Isa Bio (quoted in The Daily Trust 090130)

A long term vision is always possible to realize, but it will take time, strong state support in addition to supportive infrastructure. In the case of Nigeria much needs to be done outside of the port and shipping sector to materialize this. It will be necessary to rehabilitate both existing railways and construct new ones apart from major efforts inside the road sector. Existing ports need to be expanded, security improved and much work needs to be done to minimise pollution at the ports. During such a process there is an arbitrage between how much the state should try to influence such a process through investments and regulation or allow the private sector to develop and shoulder a larger responsibility.

Although visions about the future are necessary for development, there are many down-to-earth problems that remain to be solved. Road accidents is just one example of this where the costs incurred, also for a small country like Ghana, come to large sums. An estimation by The Ghana Shippers Council (GSC), has estimated that the cargo transporting business loses a USD 165 million yearly due to accidents and from the fact that haulers, as in many other poor countries, frequently ignore the axle load limits and carry considerable overload on their trucks (ghanashipperscouncil 2009). A conduct that in each individual case can appear harmless, but the wear and tear on roads from a truck is already, without overload, some 500 times that of a car. The wear and tear of a truck with an axel-load far above the allowed could come correspond to many 1000 times that of a car and leads to severe damage to the foundation of the road. In a recent UNCTAD study the cost of improving the basic road network between countries in Africa has been set to USD 32 bn (UNCTAD 2009). An investment that over a period of 15 years could come to generate increased trade in the range of USD 250 bn for the same group of countries. Indirectly the role of road cargo transportation in the facilitation of trade inside an economy could not be over-emphasised, since it in Africa remains the main mode of transport for imports and exports to and from cargo ports.

East African Transport Patterns

The transport patterns in East Africa, as elsewhere in the world, are constantly changing and the coastal countries compete to serve as transit countries. A considerable number of land-locked countries border and are to partly dependant on the two coastal, Kenya and Tanzania; Sudan, Uganda, DR Congo, Rwanda, Burundi and Malawi. Between the two coastal countries, and especially its ports, there is constant completion to serve as transit ports/countries for as much as possible of the hinterland. As in most other parts of Africa both pipeline and railway links are few and much of the long distance transport is being carried by truck. Here distances are considerable and the journey from Mombasa to Kampala is 1,500 – 1,700 km and some 3 – 4 days by truck. To make such a journey by a loaded 17 ton truck is at a cost of USD 5.000 (East African 090706). Compared to the train trucking is more expensive, but a round trip to Kampala for a container on a truck is less than 10 days while the same journey takes two weeks by train (ibid).

The two main ports, Mombasa in Kenya and Dar es Salam in Tanzania, have a capacity of 22mty and about 10 mty respectively. Of the two Dar es Salam has improved its position much due to the problems that arose during the political unrest in Kenya in 2008, when a considerable numbers of trucks en-route to Uganda were raided and burnt. There has also been special transit charges levied in Kenya that have been looked upon as unfair in Uganda.

Attempts from the port in Mombasa to modernise its cargo handling and to introduce a cargo-tracking system has so far not been particularly successful and has not helped to convince customers. If successful applied such a system would allow customers, also in neighbouring countries, to monitor the progress of handling and clearing their consignments in the port and underway.

Kenya has been one of many countries in Africa that have not been able to proceed with necessary reform as a result of outdated laws. In early 2009 a New Maritime Act as adapted that will mark a significant turning point in attempts to regulate Kenya's maritime transport sector. With a comprehensive and modern legal regime for merchant shipping in place, replacing a Merchant Shipping Act from 1967, which can better incorporate changes that has taken place over the last 40 years. One such problem the new law is expected to regulate is to allow entrepreneurs to buy ships as assets with access to funds from banks and other financial institutions

Provisions in the Act now address competitiveness and the service industry in the maritime sector, an area that has been a major problem to both local traders and consumers. It will also pave the way for new legislation to improve maritime safety, security and training. Legislative coverage that is necessary in line with increased needs for marine pollution prevention and the preservation of the marine environment. Shipping in Kenyan waters has also seen the effects on international and domestic shipping from piracy in neighbouring Somalia and armed robbery that have become serious threats

To all parties that are involved in the administrative handling of cargo, like freight forwarders and agents of different kinds, the One-Stop-Shop to declare and clear goods has long proved to be an attractive dream. In the ideal situation a *one-stop-shop* or *single-window-entry* as it has also been called, appears to be an attractive solution. The idea behind this is that all documentation regarding a cargo shipment should only be entered once and then what is necessary information for each party concerned could be accessed from e.g. the Maritime Administration. Currently, also in ports in most developed countries, information about a shipment has to be entered to several authorities and other service operators. That is if systems have been modernised to handle information electronically, if not so, documents in several copies are still in use and have to be stamped. As a result of the somewhat chaotic situation in many African ports, importers and agents are suffering from delays and frustrations in clearing goods at the ports. The time wasted in the clearing of goods is paid for by someone; which in the end is the consumers. Much of the root to the problem comes from the valuation of goods that is made by both exporters as well as importers, but the value set is questioned by the customs. That is in addition to other administrative and paper handling problems in the ports often puts the custom service in focus (Financial Times 090119).

3.3. IMO in Brief[19]

The first international agreements related to international shipping actually dates back to the later years of the 1900th century. The first agreements with a wider acceptance followed after the disastrous sinking of the passenger line Titanic in 1912. The Safety of Life at Sea (SOLAS) convention, despite having been re-written several times since its first signing, was the first such agreement. Since the first meeting of IMO in 1959, some 60 conventions have been adopted. In

[19] A short presentation of the IMO has been included as Appendix 2.

addition to these there are literally hundreds of codes, guidelines and recommendations, governing just about every stage of shipping from the design, construction, equipment and operation of ships to the training of seafarers, or from the drawing board to beyond the moment of scrapping.

The conventions of the IMO are generally based on years of negotiations inside the different committees, and the early authorisation of the assembly, prior to having been finalised for approval by the Council. Once agreed the conventions are then subject to a formal signing ceremony to finalise the negotiations. In the next stage different member states will have to sign on to the convention to make it enter into force. In most cases this will require a certain number of countries to do so or alternatively flag state countries representing a certain percentage of the world fleet, to make a convention enter into force. As a result, some conventions that were agreed to many years back have still not been ratified by a sufficient number of countries to enter into force[20]. Using the latest agreed convention about ships scrapping to exemplify this process, where the documents will be open for signature at IMO one year from September 1 2009. To enter into force the convention must be signed by at least 15 states that represent no less than 40% of the world merchant fleet by gross tonnage.

The adherence to internationally recognised IMO conventions, although several countries have signed a convention, often remains low in Africa[21]. Despite having signed these IMO conventions many have not been implemented properly and / or the administrative capacity does not exist in many countries to follow-up on the obedience in accordance with the required international standards. In an attempt to estimate the domestic standard of countries the IMO has developed a self assessment scheme where each country can do a domestic follow-up on its own standards. In a second step it is also possible to apply for an external assessment, a process that can be compared to a peer-review, of the administrative standard of a country. So far it is only the most developed countries that have applied for such examinations.

3.4. IMO Participation in the African Environment

It is well known that in many parts of Africa the physical environment, including land, air and waters, is not being given the attention necessary to create a sustainable environment. In the field of environmental protection the IMO is contributing sustainability through the many different instruments available. These are spanning from MARPOL 73/78, and with it the possibility to protect special areas and particularly sensitive sea areas, to the implementation of control of e.g. harmful aquatic organisms in ballast water. IMO has also participated extensively in the process to implement the NEPAD related programs on marine pollution prevention, training of trainers for maritime security, flag state implementation courses, seminars on inland waterway navigation and port state control enforcement. Special mentioning should be made of the support to African countries through IMO's regional support offices located to Kenya, Ghana and Cote d'Ivoire that are there to help African countries respond to the threat of marine pollution and, among other purposes, to establish a better port state control regime in the region.

---

[20] Although ratified has been used here, there are several methods to express consent to become bound to a convention: signature, ratification, acceptance, approval and accession. To increase the speed of approval it has become increasingly common that acceptance is "tacit – i.e. the country in question "is not against". Further details of the process see www.imo.org under "Conventions"

[21] On July 12 2009, Uganda deposited an instrument of acceptance of the Convention on the IMO, as amended, to become the 169th member state and the 42nd from Africa; with a further three being associate members.

The most striking problems are generally the treatment of land based sewage and waste that have a strong impact on both land and coastal waters. The degradation is ongoing and much damage is also being caused by the transport sector. As has been shown in previous parts, the direct African involvement in shipping is the strongest in the port sector, which is an activity that from an environmental point of view fall in-between many definitions. It is a waterfront activity, although it is conducted on land, but ports are still the destination for all visiting ships. Sometimes the international character of shipping creates difficulties as to foreign ownership and the slow implementation of regulations. In the African setting it is instead so that the full implementation of the internationally agreed conventions would mean a considerable enhancement of the local situation. As was discussed and exemplified in Chapter 2.3, as well as below, the interpretation of rules can vary greatly between nations, but their implementation is undoubtedly a considerable step forward. However, the combination of deficiencies in the knowledge among local maritime agencies of how to apply international conventions and generally weak national administrations makes implementation difficult.

Many African countries find it increasingly difficult to interpret the technical work of the many specialized committees and sub-committees of IMO that continuously develop/update existing legislation and introduce new regulations. The result can for some appear to be a comprehensive body of international conventions, although supported by hundreds of recommendations governing every facet of shipping, but with few in the Maritime Ministry /Department of a country with the right background it can instead appear overwhelming. In total there are currently 47 continental African countries and six additional island stats of which 42 are members of the IMO. Out of these, Zimbabwe has signed nothing else than the IMO Convention (founding IMO), so has Uganda (but is member only since 2009) but also the SUA (Suppression of Unlawful acts against safety of shipping), the same for Guinea Bissau, despite being member since 1977. In addition to these another 11 countries have adopted less than five conventions. However, there are also several countries that are not members of the IMO, but that still have signed on to conventions. Burundi is one such example having adopted the Facilitation Convention (facilitation of international maritime traffic) and Niger the SUA Convention. Out of the 61 conventions eight have no African country as signatory with a further 15 having been signed by less than five. Statistics do not always tell the full truth and out of the countries not members, and that have not signed on to conventions, are only land-locked countries in central and south-central Africa. The country to have adopted the most conventions is Liberia (40), Egypt (36) and Sierra Leone (30) with the most developed country on the continent, South Africa, only fourth, having adopted 29.

However, there are also examples of contradictory behaviour with coastal states that have not signed any part of the perhaps most basic of the conventions, SOLAS (safety of life at sea), like Cameroon and Guinea Bissau. For the MARPOL Convention (prevention of pollution from ships), there are still countries like Seychelles and Republic of Congo that have not signed any of the five different protocols. At the same time all five MARPOL protocols have been signed by only three countries; Liberia, Sierra Leone and Benin. Surprisingly many of the African IMO members, 24, have signed the FAL Convention (facilitation of international maritime traffic). Despite this, the reporting of the status of operations, in especially the port sector in many African countries, and with Nigeria well covered here, indicate that the much of the putting into practice of the convention remains to be achieved.

Somewhat surprising examples of non-adaptation, can be the OPRC Convention (oil-spill response and preparedness) where some that can appear to take obvious advantage, and being oil

producers, have not signed the convention. Two such examples could be Equatorial Guinea and Ghana, but it appears as surprising that the country with an as extensive coastline as South Africa has not signed the convention. Increasingly, along several coastal areas in Africa, the oil findings and new production wells have been established off-shore. Prospecting and extraction of oil are obvious threats to the marine environment as are land based industrial activities in combination with shipping. Oil activities have been dramatically increasing in many parts of Africa, and in some locations little costal pollution has been generated while in other parts the damage has been horrendous. Production in the Nigerian river delta has been on-going for many years while production has just started off-shore in several countries where Angola and Ghana are just examples. In Angola, production has started from wells at near 1,000 meter deep water, and prospecting is ongoing in over 2,000 meter deep waters with risks mounting[22].

In Nigeria rivalling rebel forces have even staged open armed street fighting in the oil capital Port Harcourt during 2008. Rebel groups have claimed that they have capacity to close down exports from the largest oil and gas terminal at nearby Bonny Island. A majority of the installations are located up-stream in the river delta, i.e. in the same delta that allows easy refuge for rebels. Many rebel attacks over the years have caused large leakages of both chemicals and oil, in addition only to frequent production leakages, causing heavy damage to the environment. In the hostile environment of the river delta it has become extremely difficult to fight pollution. How damaging a spill is often difficult to estimate as it has empirically been shown that there is no strict correlation between the size of the accident, e.g. the volume of oil spilled, and the damage it will cause. Instead the damage depends strongly on circumstances like location, time of year, weather situation, presence of animals and birds in the area at that given moment in addition to several other independent factors.

Already 1992 the IMO established the International Oil Pollution Compensation Fund that compensate for damages to the costal environment caused by oil cargoes spilt from vessels. However, this coverage does not include damage caused by offshore oil production facilities or oil storage installations. Compensation for such spills, and how to establish the damage caused by such spills, must be regulated in the contracts signed between the state and the oil companies when the prospecting or production rights are negotiated.

3.5. The IMO Areas of Special Interest

Numerous analysis of the problems in Africa reveals that high transport costs, in combination with lacking capacity and co-ordination, has continuously slowed down economic development, and especially so in land locked countries. Although high transport costs were recognised as a problem when preparing the Millennium Development Goals, no specific target was set in this respect. To make it possible to follow development towards the fulfilment of the Millennium Development Goals 18 defined targets and 48 indicators were established. There is no specific target to be reached for marine transport, neither for transport in general, as these were to be incorporated into regional and country programs.

22 Shell currently holds the world record at the Perdido Project (which translates to “lost”) in the Gulf of Mexico where a well drilled at 2,800 meters below sea level has been put into production (Subsea 2009). A technique that is on its way to move over to Africa.

The IMO's Technical Co-operation Programme (TCP), however, has set a target to reduce maritime poverty by half until 2015. A target that is indirectly in line with the first target of MDG – eradicate extreme poverty and hunger. This is to be obtained by fulfilling the developing assessment criteria that has been worked out as a way to measure the situation in this sector among IMO member countries. By making use of the IMO voluntary audit scheme an IMO Maritime Poverty/Prosperity Index can be worked out for a country, taking into consideration the point of departure. This evaluation scheme can then be used to identity in which sectors development assistance is required to meet the conditions needed for a sustainable economy. The four main categories where assessments are made to set out the national level are; Institutional Efficiency, Human Efficiency, Economic Efficiency and Environmental Efficiency. To identify best practices against which to measure standards the African Peer Review Mechanism is used. Many African countries incur unnecessarily high maritime transport costs, often at a level more than twice developed countries, measured as a percentage of import value (see also the discussion in Chapter 4.2 and Figure 4.1). The measurable target set in this respect is to reduce the difference in freight rate between developed and developing countries by 50% until 2015.

In later years Small-Island Developing States (SIDS) and the Least Developing States (LDS) have been given increased attention by IMO. The first group is uniquely dependent on maritime transport for all forms of non-airborne transport relations with their outside world, while the second group needs access to reliable maritime transport to facilitate trade with overseas markets for their export. Therefore the cost and efficiency of shipping services, including those provided by ports and overland transport routes to reach these ports, have a significant impact on the economies of these two groups of countries.

Search and Rescue / Safety at Sea

Since a common African policy was decided at a conference in Italy in 2000, Africa's Search and Rescue (SAR) capability has been developed through regional co-operation rather than at a national level. The active work on this policy started with the approval of the IMO Council in 2004 for the establishment of an International SAR Fund for technical co-operation activities related to SAR along the African coast. Since 2004 IMO has been actively contributing to the setting-up of regional Maritime Rescue and Co-Ordination Centres (MRCC´s) in Africa in an attempt to reach full coverage of the African coast line. The purpose of an MRCC is to coordinate rescue activities of vessels in distress in the territorial waters of countries making up the zone. The intention is that a number of centres set up from Morocco to Somalia should be able to give full coverage of the coastline. In 2006 a first IMO sponsored regional MRCC came into operation in Mombasa, Kenya, with the second MRCC being launched in June 2008, based in Lagos, Nigeria. In May 2009 the latest IMO sponsored centre in Monrovia Liberia started operation. The MRCC in Monrovia was the third out of the planned five centres and 26 national sub-centres that will be established. The opening of a centre in Monrovia is especially promising as it should co-ordinate a partly war-torn part of Africa which in addition to Liberia includes Cote d'Ivoire, Ghana, Guinea and Sierra Leone. To make this possible Liberia, in early 2009, ratified the IMO's Search and Rescue Convention (Tradewind 090505). Liberia now not only takes on a sizeable SAR responsibility in geographical terms, but is the home of the world's second largest shipping registers.

From the centres in Monrovia and Lagos it's a long way to Mombasa in Kenya. Along this coastline there are three centres in South Africa, but still there is some distance to go until the full shore-line of Africa is under the surveillance from a regional MRCC. Despite these now six, there are plans to establish another centre in West Africa while EU-support has been sought to establish a centre in Morocco.

3.6. The ISPS Code

The International Ship and Port Facility Security Code (ISPS Code) is a set of measures to enhance the security onboard ships and in ports. The ISPS Code is not a new convention, it is instead a part of the Safety of Life at Sea (SOLAS 1974) Convention and has been implemented through chapter X1-2; "*Special measures to enhance maritime safety*". Because ISPS has become a part of the SOLAS convention it is now compulsory for all the 148 signatory countries and governments have to implement it. The various measures that must be introduced as a result of the implementation of the ISPS Code have been mentioned en-passant in previous chapters. The Code has been developed in response to the threats to ships and port structures in the wake of the 9/11 attacks.

How well prepared are then most African countries when it comes to the implementation of the provisions laid forward by the code? The variation is considerable as to how well the code has found acceptance in the legislative process among the individual countries on the continent. A majority has so far not enacted, or amended existing legislation to give effect to the new provisions. Some countries have come-up with interim solutions where decrees or executive orders have been issued that are in line with what is required in the Code. Some countries have used existing shipping legislation or other legislation issued to amend the SOLAS Convention. There are also countries who have initiated a revision and consolidation of all maritime related legislation with the intention to incorporate the ISPS requirements in the new legislation (see also 2.3 for an example).

For all parties concerned, and for the validity of decisions, both taken and about to be taken, it would be better to have the regulations included in the national legislation. This because the Code defines duties and responsibilities for various bodies of the government concerned. In some countries national committees have been established that are to deal with security related issues. Thus, also to co-ordinate between agents of the government to be able to deal with port and shipping related questions. In some countries security committees include representatives from the government, local authorities and business circles.

The approach taken to just the definition of the geographical extension of a port is different from one country to the other. Some have divided the port area into several areas and rated each of these, while others have been more inclusive in their approach and included areas outside of the now fenced port area[23]. In the same way there has not been a strict approach in the direction of the waterfront which has lead to that there is an unclear end to the port facility. Some have identified anchorage and approaches to be included while other states include also single point moorings and floating production storage offloading units as port facilities. Units that, in some cases, can be located 100s of kilometres offshore on deep waters. As a result of the difference in approach to the implementation of the code co-ordination of training needs for security personal has not been possible to arrange between neighbours. Most of the security related duties that will have to be performed as a routine, or in cases of emergency, have been assigned to national security forces and not to special staff to lead operations as was the intention. In the Code it is also stipulated that there should be regular drills conducted for training, in preparation for certain scenarios, something that is seldom being done. At least not thus far, if so irregularly, and in only some countries.

[23] The strict fencing of all port areas, and need for a valid identification to enter, is for the outsider the most visible result of the introduction of the ISPS Code

Another set of problems that has arisen is with the states that require the submission of security related information from ships that are about to enter territorial waters. As always some of the information, by some companies, is considered to be business related confidential information, not all states and ports adhere to the provisions of how to handle such information. In the same way information submitted to IMO about the implementation of the code and how it develops is often incorrect, incomplete or outdated. Also here systems must be further developed that correctly inform the shipping community about prevailing regulations and restrictions that are about to take effect.

Despite all the inadequacies, the introduction of the ISPS Code has meant a considerable increase in general security awareness within the African port and shipping industry. An awareness in ports that previously focused on theft only. However, the methods chosen, and especially the speed with which it has been introduced within IMO, have received strong critique from many. The introduction of the Code has meant that many companies have had to prioritise costly spending on security measures and change work methods. Upgrading has come with a price tag and UNCTAD has estimated that the increase in the average international maritime freight costs that already has, or will follow, as a result of the introduction of the ISPS Code will be in the range of 1% (UNCTAD 2007).

3.7. Carbon and Sulphur Emissions – and the Potential for Limitations

During the autumn of 2009 Sweden held the rotating presidency of the EU. The most important of the different questions that Sweden will be pursuing under its chairmanship are the environmental issues. Especially so for the upcoming environmental meeting in Copenhagen, which will take place during the Swedish presidency. A meeting, and the negotiations that will take place, is of utmost importance for the world as a whole in an attempt to find a new agreement to replace the outgoing Kyoto Protocol. But not only so, also for the shipping industry these negotiations will prepare the playing field for the near future. This because emissions from shipping was not included in the quotas set under the Kyoto Protocol, as many had expected IMO to be able to reach an agreement within the sector. However, at the 59th meeting of the Marine Environmental Protection Committee (MEPC), that took place in late July 2009, the IMO established considerable internal pressure in an attempt to push for such a solution, but with limited success. Instead the major shipping nations continue to wait for the results from the Copenhagen meeting before any further decisions are taken. A possible, and probably negative outcome for both the industry and the IMO, could be that shipping is included in the negotiations on a higher level. An outcome that would leave less lead-room for the industry, and the IMO, to have any major influence in the setting of future emission standards.

At MEPC 58, in October 2008, a long term general world-wide restriction of the allowed level of sulphur in bunker oil was agreed[24]. From 1 January 2012 the maximum allowed level will be 3.5% instead of the current 4.5%, which will include also Africa. However, to make it possible for Africa to follow the trend in several other parts of the developed world, regional agreements and own initiatives from individual countries, will be needed when it comes to fighting climate change. There are already a number of regional co-operation agreements in place, and some of these have reached a stage where these have a permanent representation. The most well known African ones

[24] The global sulphur cap will initially be reduced to 3.5% and then progressively to 0.50 %, effective from 1 January 2020, but subject to a feasibility review to be completed no later than 2018.

are the Abidjan Convention covering most of West Africa, the Nairobi Convention for most of East Africa.

Ship owners face complying not only with reduced sulphur content in bunker, but with a surge of different technological deadlines in the next few years when it comes to air and sea pollution. In this situation it is normally so that some forward-looking companies will move in advance of legislation, but recent turmoil in the world economy with increasing insecurities has discouraged investments. What comes out as costs for ship owners will generate big business for those supportive industries that will provide the solutions changes that could generate a market reaching USD 50 bn over the coming 10 years (Wilhelmsen 2009). Although owners and executives are moving environmental issues upwards on company agendas, implementing legislation is the catalyst to propel investment. Alternatively combined with financial incentives such as the Nitrogen Oxide (NOx) Fund in Norway where taxes collected on NOx emissions will subsidise projects reducing emissions. Commercially there are ongoing private, or state / private projects attempting to improve ship design, develop the use of sails, ship-mounted wind-towers, solar/wind or wave power, improve motor and propeller design or new techniques like fuel-cell technology.

An important such measure from an African perspective is the introduction of a compulsory ballast-water treatment system for merchant ships. Along practically all coastal areas of the world, new species have been identified where no other logical explanation can be given to their appearance than ballast water. An estimated 40 000 merchant ships in the world must by 2016 have installed a system to treat the ballast taken onboard that kill off 99.9% of all living species. Only the introduction of ballast water systems is said to have a market value of USD 20bn. Ballast water is a special case as here IMO both sets the regulations and approve the systems developed, and have prioritised its adaptation in Africa.

In several parts of the world certain sea areas have been accepted by the IMO as Special Sensitive Sea Areas (SSSA) with special restrictions for shipping. One such example is the Baltic Sea where the work of the regional environmental organisation, the Helsinki Commission (HELCOM) has made considerable progress in changing the approach among neighbouring countries towards accepting the environmental needs of the common sea. As a result it was possible to find support from IMO to give SSSA status to the Baltic Sea by mid 2006. In parallel scientific evidence has since proved that even more stringent measures will be needed to help the Baltic Sea recover from many years of neglect. A regional process that during the last few years has been overshadowed by the international debate about global warming. As a result the countries bordering the Baltic Sea, together with countries bordering the North Sea has requested IMO to consider a widening of the actions taken in the previously SSSA regulations.

The Implications of Stricter Sulphur Regulations

As mentioned above, MEPC 58, in October 2008, decided to lower the allowed level of sulphur in the bunker oil used in the shipping sector. The decision taken was in part to be applied globally but included stricter requirements for certain designated Sulphur Emission Control Areas (SECA). Among the special areas where stricter regulations will apply are the North Sea and the Baltic Sea where a 1% maximum sulphur content will apply from 1 July 2010, down from the current 1,5%, and with a further reduction to 0,1% from 1 January 2015. The border of the restricted area has been set between Bretagne and Cornwall in the western part of the British Channel, with a northern border line from approximately Ålesund in Norway to the north of Spitsbergen, and

from there south to Scotland. These borders make it a long voyage using more expensive bunker for ships heading in and out of the Baltic Sea. From an environmental point of view these changes are of course very positive. The other side of the coin is that the shipping industry in the Nordic region will face rising costs as bunker prices are expected to go up sharply in coming years. From the date of the introduction of these new regulations Sweden, and other countries around the Baltic Sea, will face restrictions along their full coastline.

In an attempt to estimate the expected costs of this change the Swedish Maritime Administration was asked by the Ministry of Transport, Energy and Infrastructure to estimate the costs that such a change can be expected to lead to for the Swedish shipping sector and indirectly for the Swedish transport sector and the Swedish business community. To make this possible an expert group was included in the project, representing 18 agencies and stakeholders.

The cost calculations presented, in Sweden as well as in Finland (that has done a similar study), discuss future scenarios with all the uncertainties that follow, indicate that there are considerable costs connected to such an initiative. The result of the estimations made by the Swedish Expert Group was that the "*extra*" costs that will have to be covered will be in the range of SEK 13 bn per year (about EUR 1.2 bn). Costs that will be transferred through higher prices on to the cargo owners; i.e. Swedish exporters and importers, and then indirectly on to consumers. For Sweden the societal benefits, mainly from lower emissions, come to about SEK 7 – 12 bn. Similar estimations made in Finland, for a smaller trade volume, indicates costs in the range of EUR 273 million per year.

The basis for the calculations made, has been an evaluation of the kind of ships that normally call at Swedish ports, frequency, type of cargoes, cargo volumes, and sailing time in sea areas with sulphur restrictions. The two national evaluation made has lead to an intensive debate about how these costs should be shared between different sectors of society. In the calculations made, as indicated above, the benefits for the society will not fully make-up for the increased costs, but will contribute to the reduction of emissions.

At the centre of the critique to the suggested change is the fact that such large cost increases are currently to be borne by the shipping industry alone. It has been said that the result could be 20 - 28% increase in shipping costs in the Baltic Sea. If so, considerable cargo volumes are expected to be moved from shipping to rail or transported by truck. Especially in the latter case, the environmental benefit from the initial decision to reduce sulphur content in bunker oil will then be off-set by increasing road traffic. It complicates the issue further that along the lines of the new Maritime Transport Policy of the EU, for the years 2011 – 2018, it is stated that "*the Commission´s proposal should ensure that modal 'back-shift' from short-sea shipping to road is avoided*" (EU 2009 p.8). There can be a new dimension to the ongoing debate added by future investigations that are about to start, as they will try to set costs and environmental advantages to the reduction of NOx exhausts from shipping. The results of these NOx studies, nor the possible repercussions to shipping from the results of these studies, will therefore not be discussed further here.

To indicate the possible advantages that could be achieved from a similar initiative, and its costs, a general estimation will be done here, using just one African country, Kenya, and its foreign trade as a base for such calculation. The basis will be the estimations done for Sweden in relation to the introduction of the compulsory lower sulphur content in ships bunker. The ongoing discussions about a compulsory Sulphur-reduction in the Baltic Sea from 2016, based on a decision by the IMO, declaring the Baltic Sea as a SECA, will not be further discussed here.

3.8. Sulphur Emissions in Africa – Kenya as an Example

What can be done here is a very rough description of the consequences that could follow from a decision to create a low sulphur zone; a SECA (Sulphur Emission Control Area) in the 200 mile Extended Economic Zone of Kenya (EEZ). As Kenya is bordering the open sea sailing distances here are not comparable to what will be the case in Sweden and Finland where sailing to a Swedish port from the outer border of the SECA at Bretagne is about 750 miles from the nearest Swedish port.

Source: Google maps, with drawings by the author

Figure 3.1. Approximate Kenyan 200 miles EEZ and Standard Sailing Routes

To make estimations reliable it is necessary to have access to real ship and route data, in addition to tonnes of cargo carried. In the absence of such data a number of simplifications and estimations have been made within the limitations given below. It should be remembered that the estimations done here are intelligent guesses made by the author at the time of writing. However, if more detailed information had been available, these estimations could have had a more solid empirical foundation.

Destination / origin:
As the port sector in Kenya is dominated by Mombasa to over 85% all distance calculations use Mombasa as its point of destination and origin.

Sailing distances inside the EEZ
In general this could be seen as a relatively straight forward distance from the port of Mombasa to the nearest point outside of the EEZ (route 2 in Figure 3.1). The risk of running into the waters of Somali pirates make it more probable that a ship leaving / arriving at the port would choose to sail like this. Under normal circumstances it is probably so that 80% of all ships calling in Kenya, arriving from other ports either north or south along the African coast (route 3 or 1 in Figure 3.1). It is probable that on these routes ships will sail along the coastline, and unlikely to start by sailing 200 miles east before heading either south or north. A ship heading north, in times without fear of pirate attacks, can be expected to sail for some 200 miles inside the EEZ, also in times of peach. Fear of pirates makes no difference inside the EEZ for a ship heading north, but it will considerably increase total sailing distance. A ship heading south would sail about 70 miles inside the EEZ[25].

Sailing speed
The sailing time inside the EEZ is of course proportionate to the speed of the ship. As for several other factors influencing the overall estimation of sulphur emissions, also the average speed has been set to a rough 10 knots for all ships travelling inside the EEZ. A speed that can appear to be on the low side, but no waiting time for pilots, waiting at anchorage or due to delays in port has been included which probably more than compensates for this. During the political unrest in early 2008, waiting time for practically all ships arriving to Mombasa came to several weeks, during a time they had a bunker consumption only slightly smaller than in port.

Total sailing time inside the EEZ
Based on the estimations given in the two sections above total sailing time inside of the EEZ can then be worked out. A northbound departing (as well as arriving) ship can be expected to sail 200 miles inside the EEZ, which at a speed of 10 knots give 20 hours of sailing. Similarly a southbound departing / arriving ship can be expected to sail for 5 hours inside the EEZ. In the same way an eastbound ship will spend 20 hours inside the zone. To simplify further 50% of ships are expected to be north-bound, 30% south-bound and the remaining 20% east-bound. In total this would set an average sailing time inside the EEZ for the ships visiting Mombasa to 16.1 hours[26].

Time in Port:
Depending on cargo type and volume that will be handled for each ship type the number of days in port could vary considerably. The average number of days in port for a calling ship has here been set to two days. During these two days the ships are expected to generate its own power for handling equipment and electricity, using its own bunker oil.

Standard ship types used
In line with other simplifications used here also the kind of ships used has been standardised. For the three standard cargo types handled in the port of Mombasa, only two kinds of ships will be used. All general cargo in the port is looked upon as containerised and a short follow-up has indicated that most container ships that call in Mombasa are of a capacity between 1,400 and 3,200 TEU. As a consequence the average ship here has been set to 2,000 TEU. However, the container sector is relatively easy to handle as it involves modern ships and the same ships are frequent as they mostly trade on the same route between a small number of ports. In the same way draft restrictions in the port limits other ship types to about 40,000 dwt and as a consequence all bulk cargo, both dry and liquid, is here being handled by a 15,000 dwt ship.

[25] A ship on its way to Mombasa from the north could, in an attempt to avoid the EEZ sail outside the zone and approach at the point that give the shortest possible distance from the EEZ border. However, ships are here expected to prefer the shortest possible route.

[26] Average hours spent in the EEZ will then be: 0,5 x 20 + 0,3 x 7 + 0,2 x 20 = 16,1

Total number of port calls
In 2008 the port had about 2,200 recorded calls. It must be remembered that all ships that call in a port do not necessarily carry cargo, with visiting cruise ships and other smaller vessels as typical example. But all these ships will still generate emissions. If 20% of total calls are non-cargo vessels, about 1750 calls remain to be split among cargo ships.

Current use of bunker
It is assumed here that all ships calling at ports in Kenya today use high sulphur oil and that the introduction of a SECA area would mean that all ships would face increased bunker costs. Bunker consumption for the 2,000 TEU container ship used has been set to 24 tonnes per 24 hours, or 1 tonne per hour. As for the tanker / bulk ship used, of about 15,000 dwt, the bunker consumption has been set to 20 tonne per 24 hours, or approximately 0.83 tonne per hour.

Port of Mombasa cargo traffic
During 2008 Port of Mombasa handled about 16 mt out of which 13 mt was unloaded and 3 mt loaded cargo, indicating that 80% of ships will leave the port empty. The mix of cargo types was roughly 40% general cargo, 20 % dry bulk and 40% liquid bulk. In absolute figures this means that over 6 mt were general cargo, over 3 mt dry bulk and about 6 mt of liquid bulk (see also 4.4).

Number of visiting containerships
Over time, on the container side, a state of balance is often reached when the importers send back as many refilled, or empty, containers as normally arrive at the port. However, it is very seldom so that a containership un-loads all its cargo at the same port. Instead it has been estimated here that each ship handle 1,000 TEU at each call. That is offloading 500 TEU and loading 500 TEU. On the container side the turnover in the port 2008 was 615,000 TEU. With a 1,000 TEU turnover per ship the yearly turnover in the port will need about 600 ship calls.

Number of visiting bulk ships
For the bulk ships the cargo balance in the port indicate over 3.5 mt of dry bulk and about 6 mt of liquid bulk. As the vast majority of this is inbound cargo, many ships will leave the port empty. The standard bulk ship was set to 15,000 dwt and to handle 90% of this volume will also take about 600 ship calls.

Bunker use by other visiting ships in Mombasa
Deducting the two categories above from the 1,750 ship calls reserved here for foreign ships, leaves 550 ships in the category of other visiting ships. These additional ships are visiting foreign ships large enough to become registered and could be smaller ships but also larger cruise vessels. As a result the average of these ships is assumed to be smaller than the two previous categories, but similar in bunker consumption as domestic Kenyan ships; 12 tonnes per 24 hours. However, these ships are expected to sail the same average distance and time in the EEZ area as the average visiting cargo ship.

Bunker use by other Kenyan ships
From a 2007 ships survey it has been learnt that there are about 19,000 ships in Kenya. A figure that includes not only the sea coast, but also smaller lakes, and not least important, the coast line of Lake Victoria. It can be assumed that a large number of all these vessels are not in use, or rarely in use. For the large part these are fishing boats of a size much smaller than what is being included in other calculations here. However, out of this large number it has been assumed that there are 500 ships of various kinds in this group worth considering (could be an over-estimation). These ships

are here set to run on bunker oil for 10 hours a day inside the EEZ of Kenya with a consumption of 4 tonnes per 24 hours; i.e. 1.7 tonnes per ship and day.

Estimated total bunker use in the Kenyan EEZ

There are four categories here that together constitute the bunker users in the Kenyan EEZ.

-- First of all the 600 containerships that spend two times 16.1 hours in the EEZ with a 1 ton per hour of bunker consumption; i.e. 19,300 tonnes.

-- The 600 bulk ships will spend two times 16.1 hours in the EEZ with a bunker consumption of 0.83 tonnes per hour; i.e. 16,000 tonnes.

-- The 550 other visiting ships will spend two times 16,1 hours in the EEZ with a bunker consumption set to 0.5 tonnes per hour; i.e. 8,800 tonnes.

-- Loading and unloading in the port can be assumed to take about two days for the average ship and during these two days the above three categories are expected to use 3 tonnes of bunker per day for auxiliary machinery onboard. In line with the above there will be 600 + 600 +550 = 1,750 ships that will fall under this category. In total this will mean a bunker consumption of 3 x 2 x 1,750 = 10,500 tonnes.

-- Domestic ships have been set to use 1.7 tonnes per day and their number has been estimated to 500; i.e. a total consumption of 800 tonnes per day. Over a year, with 200 working days per ship, total bunker consumption will come to 160,000 tonnes.

Total bunker consumption for Kenya within the EEZ will, under the limitations set here, come to about 221,000 tonnes in one year.

Cost scenarios for 2015

The base scenario used for the price of bunker has been set to USD 400/tonne, which relates more or less to the early September 2009 price of crude of about USD 70/ barrel.

In the second scenario the cost of crude oil has increased from USD 70 /barrel to USD 100 / barrel, and this is expected to result in a slightly larger increase in bunker price, or about +50%. In the case of the vessels calling at ports in Kenya there will not only be this increase in oil price, but also the extra cost to switch over to low sulphur bunker. According to the projections by the International Energy Agency (IEA) the oil price by 2015 is expected to reach USD 100 / barrel. In the case of Sweden the 0.1% sulphur bunker in 2015, at a USD 100/barrel crude price, was expected to approach a price of USD 1,200 /tonne.

In an attempt to illustrate also the effects of a considerably higher oil price, the third scenario indicates a price of USD 1,700/tonne. A price level that is not unreasonable if the price of crude oil approaches USD 150 / barrel.

Cost increases due to the introduction of a SECA area

Assuming the calculations above give a fair indication about the weight of different factors total costs could be calculated. The problem here, as so often when forecasting, is the obvious unpredictability of the development of the oil price. In a base scenario oil prices are to stay stable over the full time period and if so today's bunker prices could, more or less, be expected to apply also in 2015. If so the cost increase from the introduction of a future SECA area would be represented by *"only"* the price difference between high and low sulphur bunker.

A difference between standard quality and 0.1% bunker that currently represents an increase of about 75% in costs; from about 400 to 700 USD / tonne. For a total bunker consumption, as calculated above, such a shift would raise costs for the 221,000 tonnes of bunker used by over USD 66 million per year, or nearly USD 4/tonne of cargo handled in Mombasa. This extra expense is in addition to the USD 92 million already spent on bunker oil at today's prices.

If the IEA forecast for the 2015 price for crude oil of USD 100 and the price for 0.1% sulphur bunker will reach the levels set out in the Swedish study, the cost increase will be dramatic. If the same quantity of bunker is being consumed inside the Kenyan SECA area, at a price of USD 1,200 per tonne, an additional USD 178 million per year, or about USD 10/tonne, will have to be spent.

If the high cost scenario, with a USD 150 / barrel of crude oil, is to come true, and as a result low sulphur bunker will hit USD 1,700 / tonne the money spent on fuel will have to increase dramatically. The same 231,000 tonnes consumed will under this scenario cost an additional USD 287 million on top of today's oil bill, or an additional USD 16/tonne.

It should be remembered that in all the three alternative scenarios presented here just over 75% of the additional cost fall on the domestic fleet, which is the by far largest oil consumer. This is also the section with the largest insecurities about consumptions volumes.

Positive effects of reduced sulphur emissions

In the same way as a reduction of the emissions in other areas where reduction of sulphur emissions have been proposed, e.g. in the Baltic Sea and North Sea, a SECA area in the Kenyan EEZ will lead to positive environmental effects. Any reduction of emissions is a positive reduction, but it still have to be balanced against the advantages and the costs a reduction will incur.

On the coastline of Kenya the most frequent wind direction is from the east – from the sea towards land. As a result it can be expected that much of the sulphur emissions at sea will fall on land. In an as rudimentary investigation as this there are of course no exact data as to what percentage that can be expected to reach land, but it is probably a considerable part of what is being emitted. Well established research has shown a long range of negative effects on the sea water eco-system, biosphere on land as well as on human beings. With no technical solution available to reduce the emission of sulphur from ships engines, no other way exists than to reduce emissions than by reducing the sulphur content in the fuel used. In addition to the positive effects on sulphur emission another positive consequence will be a considerable reduction of emissions of particles. This effect will appear, in addition to that fewer particles are formed from sulphur, from the fact that the low sulphur oil is generally a much cleaner product. If a Kenyan SECA was introduced, taking down the sulphur content in bunker used from 3.5% to 0.1% this will not lead to a proportionate reduction in concentration in the air. Shipping is probably not the most important local source, which can be expected to be local cars, buses and trucks, but winds will move emissions of both sulphur and particles over large areas.

A reduction in emissions, which here has its origin from shipping, will reduce the negative effects from acidifying sulphur oxides wherever the fallout will occur. The effects on human health from sulphur are well known, but less so when it comes to health effects from particles. Although recent research has indicated that very small particles might be a considerably larger health problem than previously expected. To make a viable cost – benefit calculation about the money save for the society from lowered sulphur and particle emissions will need a considerable amount of local data. However, the valuation set to a human life saved becomes important here, as the lower the value

the less likely it will be for such a calculation to show a positive value. The same goes for the reduced productivity that will be seen in farming from damages caused by sulphur dioxide and particles. Reduced biomass production in woodlands and crops on fields is difficult to estimate and to set a value to. Especially so as, depending on soil-type and chemistry, the sensitivity to sulphur emissions could vary over a region. Also the sensitivity in the sea water, including for the marine ecosystem, is dependent on chemical factors. As a result, and at this stage, it remains difficult to set a value to the advantages that e.g. the fishing industry will have from a Kenyan SECA, but it is set beyond doubt that the effect will be positive.

Although few economic quantifications have been presented here as to the positive effects from a SECA area, the advantages are numerous. Decreasing the exposure of its population and its land to unhealthy substances remains a duty of any state. Reducing the loads of acidifying sulphur oxides on land and at sea, and decreasing the levels of particles in the air will bring advantages to Kenya and Africa, but the situation has to be assessed taking into account the characteristics of soil and sea water, meteorology and structure of the population exposed to air pollution when estimating the positive effects obtained. As no estimations have been found that set a price on a prolonged life in Kenya, that can be expected from reduced pollution, no exact evaluation has been made for the positive effects. A rough estimation, with low life values, could point towards positive health effects in the range of USD 500 000. As a result it is not possible, based only on calculations of this kind when average incomes are low, and from a purely economic point of view, to motivate a stricter interpretation of environmental regulations.

However, a Kenyan initiative in this respect could facilitate a wider range of actions in the region resulting in a move towards a more sustainable development of the society. In a desk-study of the kind presented here, all values and positions taken could not be used for anything else than a point of departure for a discussion. If a study instead were to be conducted with a better dataset over visiting ships, but still not as detailed as the Swedish study, it would probably make Kenya into a forerunner in this field. Although such a study were to make use of simplified, but real, data it could be turned into a model to be used by many other African countries to estimate costs and advantages. To continue in this direction would be especially valuable as this has become a field where Swedish currently holds expert knowledge.

Possible transport effects of a Kenyan SECA area

The calculations made in Sweden that are set to estimate the effect on the transport sector after the introduction of a low sulphur zone in northern Europe from 2015 onwards, indicate a considerable risk of a modal shift in transport for certain cargo types and for some destinations.

In the case of the introduction of a one-country Kenyan SECA there would also be unwanted side effects. The rising costs that would follow from more expensive bunker would have to be paid by importers, but would also be a levy on exports. For most Kenyan users there would probably be few alternatives and the changes that can be foreseen are limited as the effect on the final product price would be limited. In the balance when it comes to transit trade towards other landlocked countries, the actual price effect would remain as small but could come to be "*just another issue*" that reduces competitiveness. As discussed previously there is competition for transit trade towards southern Sudan, eastern Congo, Rwanda, Burundi, but first of all Uganda. Near 6 mt in 2008 was considered to be transit trade in Mombasa which corresponds to over 30% of the turnover. A share other neighbouring ports like Dares es Salam would always be ready to take over.

For oil products there is a pipeline connection from the refinery in Mombasa to Uganda. The pipeline has capacity to handle about 75% of the 800 000 tonnes consumed yearly in Uganda (Globalresearch 090209). However, the remaining share arrives on road, but also this volume practically exclusively transported through Kenya. The Kenya Petroleum Refineries Limited (KPRL), with shared ownership from the state of Kenya and Essar Energy Overseas Limited from India, has already presented plans to increase its production of higher value products which includes low sulphur marine products (KPRL 2009). Offshore oil exploration has started also in Kenyan waters by Chinese and Australian interests. The recently initiated exploration has still to strike oil in volumes that could serve as a basis for a possible future offshore oil production.

Since transport costs are severely higher in East Africa compared to the Nordic Countries means comparatively even higher costs leading to major obstacles for the shipping industry and interventions and reactions from the government and relevant ministries in Kenya and in the port of Mombasa. Still, container traffic through Port of Mombasa would most likely be affected by a SECA zone in the EEZ of Kenya.

The model also implies extensively price elasticity for the price of MGO for vessels compared to the price elasticity for truck fuel, one reason being the increased fuel competition between trucks and vessels when vessel will need more refined products.

It should be mentioned there are no sanctions for shippers/vessels not respecting the low sulphur rules, the idea is misuse should be reported to IMO and most likely a so called black list will be introduced for vessels not complying with the low sulphur regulations. A suggestion of introducing a penalty fee, and make the fee very high might be one way of dealing with the problem, another might be to publish name of vessels not complying. It is up to countries and regions, like Kenya and the East African Community to discuss how to address and regulate the issue.

If Kenya is to lose some of its share due to the oil findings in Uganda, a loan for a new road towards Ethiopia has been commissioned by the African Development Bank (ADB 2009). Here the hopes in Kenya are set for more transit traffic for the proposed Lumu Port and on the Ethiopian side to lessen the dependence on Djibouti.

4. The African Port Sector

4.1. Cargo Handling in the World

In ports of the world during 2007 an estimated 8.0 billion tons were loaded (see Table 8). Out of this total crude oil was the single most important product and accounted for 23%, with an additional 10% of the volume being oil products. For the African continent a total of 835 mt were loaded and out of this 68% was oil and oil products. Out of the off-loaded volume of 366 mt, 23% were oil and oil products.

Table 4.1. Development of Loaded Volumes in International Seaborne Trade
(1970 - 2007)

Year	Tanker cargo	Dry cargo	Total	5 main bulks*
1970	1 442	1 124	2 566	448
1980	1 871	1 833	3 704	796
1990	1 755	2 253	4 008	968
2000	2 163	3 821	5 983	1 288
2007	2 681	5 340	8 021	1 977

*= 5 main bulks and include iron ore, coal, grain, bauxite/alumina and phosphate

Source: UNCTAD, Various Years

As mentioned above crude oil is the single most important product for shipping and in the world energy supply the African continent is becoming an increasingly important player. Out of world exports of crude oil in 2008 about 12% had its origin in Africa. The major oil producing countries in Africa are Nigeria, with a production of 105 mt, Angola 92 mt, Libya 86 mt and Algeria 85 (all four are OPEC members). Total production for Africa was 488 mt in 2008 (-0.4% over 2007) which is about 40% of the volume produced by the Gulf States.

Shipping of gas in the form of liquefied natural gas (LNG) is currently the most rapidly expanding of all segments in shipping, with a large number of new buyers and suppliers entering the market. The proven reserves in Africa can currently be found in Nigeria and Algeria that holds 3% and 2% respectively of known world reserves.

Steel production holds an important position in shipping as one of the major generators of transport demand. First of all for bulk-shipments of iron ore, but also coal for the production process and shipments of steel products. Steel is a typical segment where the African involvement is minimal with a total production of under 20 mt, with over half of this production volume coming from South Africa. With an African share of world consumption of steel being about 8% there is a considerable imbalance in relation to the African share of production that stood at less than 2%. World shipments of iron-ore in 2007 came to near 800 mt, about the same volume as coal shipments[27]. Despite the large domestic use of iron-ore, South African production still has room to export near 30 mt. For coal it is again South Africa that is the by far largest exporter in Africa, and

[27] The two major coal categories are thermal coal, used for heating purposes, making up about 570 mt, while the traded coking coal volume, mainly used in the steel industry, is about 220 mt.

third in the world behind Australia and Indonesia, with over 65 mt (SSB 2009). For another of the more important bulk products, grain, about 15%, or about 300 mt from a world production volume of over 1 600, are shipped overseas. For grain Africa appear only as an importer of near 20% of world trade; or in 2007, 45 mt of imports. There are only two more of the major bulk products where there is any major African involvement; bauxite and phosphate rock. For bauxite Guinea is one of the four big exporters in the world, in a group well behind Australia, while for phosphate Morocco supplies near half of the world export.

Compared to other large regions that are being serviced by international shipping, size and efficiency has not developed as rapidly around the African continent as elsewhere. Apart from what can be referred to as macro economic factors, like a lack of political stability and domestic policies there are also more genuine shipping-sector reasons for this. The first such is that there is a need for a greater variety of vessels to service these markets because the kind of cargoes handled. Unprocessed goods, that often constitute a major share of the export, do not lend itself to be easily containerised at the same time as it can seldom be transported in anything but bulk ships[28]. Although container handling in African ports has increased dramatically so has general cargo handling. The underlying trend here is that container handling remains constrained in ports and especially by the lack of infrastructure to support effective inland container transport (see also 4.3). Hence, also general cargo volumes have continued to grow.

4.2. The Organisation of Cargo Ports

What generally makes-up shipping activities are the combined results of several different aspects of a derived demand. A demand that originates from either the consumers of a county's need for imports or an oversupply of something that can be exported, or, of course, a combination of the two. Ports, that are the most visible proof of shipping activities, are to their profile and size a result of the inbound and outbound traffic generated by the nearby market, or what is often called the *"hinterland"* of the port. A hinterland that could be anything from the nearby area, a domestic region, a country, or, as is relatively often the case for the largest ports in Africa could include one or more landlocked neighbour countries.

The advantage to a city (and country) of having a major port, and the revenue a port will generate, does not only come from cargo handling. There are a number of service operations connected to ports like pilotage, towage, mooring, waste handling, bunkering, water and other ship-supplies, i.e. services outside of the service sector that administrate the cargo onboard. In addition to this an international port inevitably gives better access for the local business community to import/export and services at the same time as a port contributes with international influences.

What has slowly turned into an ever more problematic issue for ports around the world, as well as in Africa, is the lack of handling areas in and around ports. When ports were established in Africa, as in most countries in other parts of the world, they most often came to be located on one, and often both, side of the mouth of rivers. What has later emerged as the principal port in most countries is often also the biggest city of the country, if not the capital. As a result of this it is often the location that appear to be nearly insolvable. One is the above mentioned problem of the

[28] Theoretically a ship could load different cargoes in different cargo holds, but this is seldom an economically viable transport solution

scarcity of land and the other is the difficulty to establish well working infrastructure connections to the port, in and through an urban environment.

The land issue can often be solved when a new port or a new terminal is being build, which is then often placed further towards the sea. A new location that is intended to solve the land issue and give room for expansion, but will also allow facilitated communication over land (road and rail), shorten sailing distance for arriving ships and partly also to solve the problem with river sedimentation. However, one outcome of expansion and / or relocation is often enhanced capacity to receive larger ships which in itself will increase demand on handling equipment, land access and available storage space as the handled volume at each call can be expected to increase.

Despite an impressive list of benefits obtained when introducing new terminals there are often two major limitations that must be overcome. First of all investment resources, as the construction of a new green-field terminal is expensive, and to find land that not only will serve its purpose well, but without interfering with (too many) other interest groups while minimising the need of land. Locations that can be used are often scarce coastal land used for recreation, has build-up areas already, is ecologically sensitive (e.g. with mangrove) or is important for fishing or for other reasons (see also 4.4). How complicated the handling of such issues become often corresponds well to the level of openness and democracy in a country. One possible solution to reduce the need for land could be to organise inland terminals, where e.g. cargo and containers are stored and handled inland from the port. Something that has worked well in certain cases as a short term solution, but this is a solution that will further increase the demand on the connecting infrastructure (further discussed in 4.3).

What is a frequent problem areas for city-ports all over the world can be compromised to the following points:

- -- scarcity of land for expansion
- -- problematic transit to / from port area for trucks
- -- problematic transit to / from port area for trains
- -- problematic relation with neighbours due to noise and pollution

-- if located in a river – often sedimentation
-- if located in a river – often long and / or complicated access for ships

If the transit and land issues are parts of the external world for a port, the internal way of organising the port remains utmost important to make best use of the asset of having a port in a country or city. Current port administrative traditions are often the result of an inherited way of working in the sector. In Europe there are a number of organisational structures being used in different countries to organise the port sector. In Sweden, traditionally, ports have been communal / municipal and have been administrated by the local authority. Over the years there have been a number of state initiatives taken with the aim of re-organising the port structure, but all such initiatives have more or less always failed. Instead ports have largely remained under the ownership of the city or community, although often organised as a separate company.

On the African continent there are two port ownership traditions that both see their roots all the way back into the colonial times; the French and the British. The French system placed a port under a state agency that was in charge of infrastructure, real estate and the necessary marine

service. At the same time there were private companies that operated the cargo handling and other services in and around the port. The British model saw the administration of the port run by a port authority which, despite being formally under the state, were given a wider autonomy. This organisational system made authorities become involved in the handling of cargo as well as storage and other service functions. In both cases investments in infrastructure and equipment was supported by the port authority. The tendency over previous years has, from both points of departure, been that the public institutions have tended to slowly incorporate more and more functions and services.

Table 4.2. Transfer of Risk as a Function of Type of Contract

	Tech Assistance	Lease	Concession	Privatisation
Commercial risk	Public	Private	Private	Private
Development risk	Public	Private	Private	Private
Loss of value	Public	Public	Private	Private
Ownership rolling stock	Public	Public	Private	Private
Ownership infrastructure	Public	Public	Public	Public/Private

Source: www.mowca.org

In later years there are principally two new tendencies. The most frequent is to establish independent shareholding companies based on port agencies. Although all shares are most often owned by the state it is still an indication about a road forward towards privatisation. The other choice is to give/sell/auction concessions of e.g. special terminals and in this way transfer the costs and risk to private operators to reduce risk, bring in international know-how and to optimise revenue for the state (see Table 4.2).

The institutional framework selected by different countries, as classified by the World Bank during 2007 and shown in Table 4.3 indicate that only two countries have fully adopted the favoured Landlord Model. Eight out of 17 countries still retain the old style Service port model where the public sector remains both manager and operator. However, nine countries have concessioned/sold/auctioned to private port operators what in 2008 was the most important container terminals.

Table 4.3. Institutional Framework for Ports in 2007

Country	**Management model**	**Country**	**Management model**
Djibouti	Mgmt Concession	Sudan	Service port
Kenya	Service port	Tanzania	Part landlord / part service
Namibia	Service port	South Africa	Service port
Angola	Part landlord / part service	Dem Rep Congo	Service port
The Congo	Service port	Cameroon	Part landlord / part service
Nigeria	Landlord model	Benin	Service port
Ghana	Landlord model	Ivory Coast	Part landlord / part service
Senegal	Part landlord / part service	Cape Verde	Service port

Source: World Bank 2008

As a result of a slow transformation process the ownership structure in Africa is dramatically different from what can be seen as the general rule in the world. Globally international operators and private operators control near 90% of capacity in port container handling while the same figure for the African continent is about 25%. In all the three largest global terminal operators together hold a world market share of 23%; PSA (Port of Singapore Administration), HPH (Hutchinson Port Holdings) and DP (Dubai Ports).

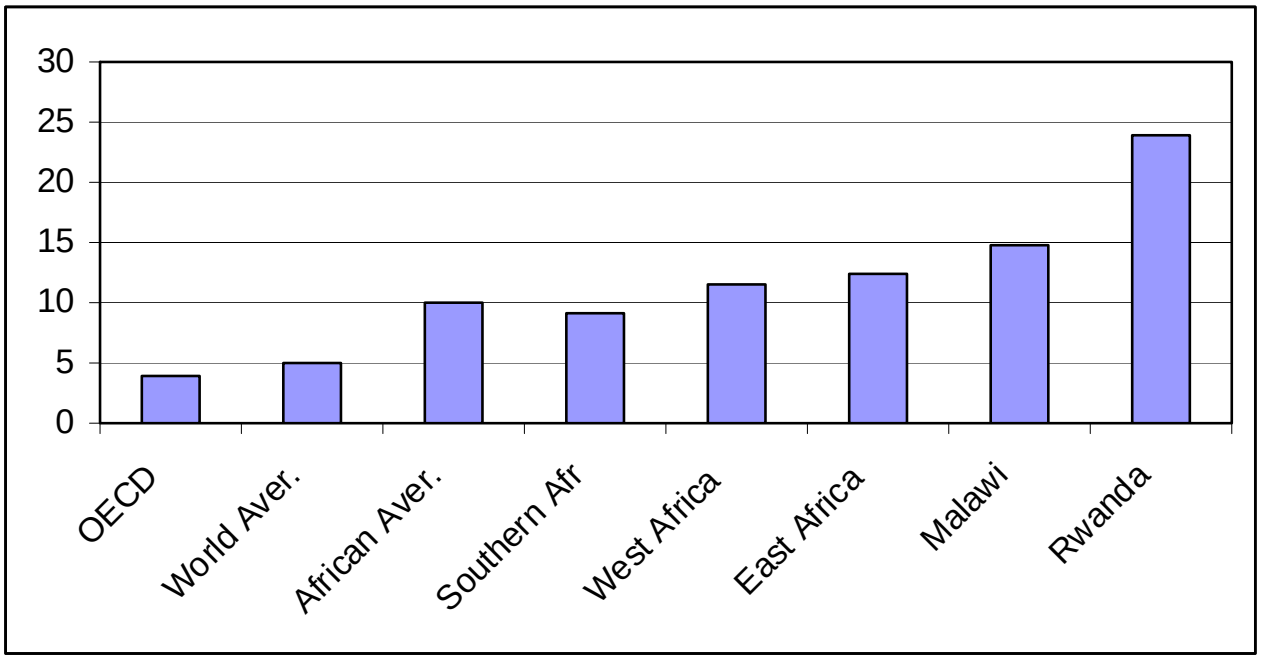
The first African country to allow a private operator into a port was Mozambique that rented out the Maputo Coal Terminal already in 1993 on a management and lease contract. Second to follow was Kenya and then again Maputo in 1996. In both these examples the same kind of contract as for the Africa's first terminal were used, but this time for the Mombasa Container Terminal and the Maputo Container Terminal, respectively. The first African green-field project for a new port followed in Mauritius in 1998. The same year as the first full concession for a full port was given by Mozambique for the port in Beira. Since 2000 concession have been the contract of choice and have in some cases been split into 5 – 6 different in just one port and with over 20 given in Nigeria alone during 2005.

For historic reasons Africa as well as Europe holds a number of independent, but landlocked, countries in Africa that are all dependent on transit ports in neighbour countries for practically all of their foreign trade. However, volumes generated by the five land-locked countries of West-Africa, Central Africa, Burkina Faso, Central African Republic, Chad, Mali and Niger registered by OMAOC amounts to only 5 mty[29]. A major restriction in developing trade for these countries is inevitably the transport distance over land that vary between 1 000 to 2 000 km, with an estimated average of some 1 500 km. Commissioned studies have showed that of the transport cost from production to the port of destination, the share for land transport of coffee and cacao from different origins came to between 35 and 41% of total transport cost. In the other direction, on the import side, the freight cost as percentage of import value has for developing countries in Africa remained around 10% for years at the same time as the world average has remained around or just above 5%. The only other region of the world with a similar cost structure is for developing countries in Oceania where costs, during the same period, have remained at only half a percentage point below Africa[30].

Many countries on the African continent are literally trapped in a vicious circle where exports remain weak, and expensive, because of high maritime transport costs, which lead to low traffic volumes and high tariffs. Also indirect costs have proved high with slow custom handling, inadequate telecommunication systems and other kinds of delays that push-up costs. Add-on's that consumers in the market of destination will have to pay for.

[29] Questionable if all cargo is captured by the transit data statistics kept by OMAOC. For a lengthy discussion about the problems involved in measuring transit trade see chapter 2 in Brodin 2003.

[30] Costs are here not only related to the development stage of a country, as developing countries in America have constantly had a cost structure near or even below the world average.



Source: UNCTAD 2006

Figure 4.1. Transport Cost as Share of Import Value (2005)

All trade relations have a difficulty to define volume threshold where the circle will be broken and the pressure on traders will decrease and the competitiveness of the local economy will see a relative increase. To make such a development possible the region must see improved port efficiency that can be created e.g. through regional integration and improved connections between the port and its hinterland. A development that can result in reduced tariffs and increased traffic. External challenges can also be seen as a chance that opens a window of opportunity to implement already overdue reforms in the transport sector – including in the shipping and port-sector. As mentioned elsewhere, there are a large number of empty containers leaving the African Continent that could, and should, be filled with export products from a diversified export sector. If so, shipping costs in both directions would fall considerably.

A solution to a complex and longstanding problem can seldom be introduced with one corrective regulatory change, but will instead have to be done in the form of organised and co-ordinated actions involving several changes. Out of these, the following three are generally considered as very important:

1. Facilitating procedures and controls in ports to make handling both cheaper and more efficient

2. Increase private sector participation to increase investments in new facilities and equipment. Initiatives that can be expected to improve cargo handling and efficient terminal management, including the transfer of know-how and international best practices.

3. There is also a need for institutional reform when it comes to labour relation and ownership structures

Previous experiences from other, reasonably similar, markets in Asia and Latin America have shown considerably lowered transport and unit handling costs after privatisations have taken place, or when ports have been opened-up to privatisation. Nigerian examples have shown that the introduction of terminal concessions for container handling had within six months practically eliminated waiting times caused by handling, at the same time as it had cut handling costs considerably[31].

One way to reduce the costs in different African regions is to let some of the larger ports with good hinterland connections, or the possibility to establish such connections, be allowed to develop into regional hub-ports handling larger volumes. The African coast from Mauritania south to Angola is one of few areas in the world at the moment that do not have a dominating larger port; often denominated as a hub port. A port better equipped than others in the region, a port where all major shipping lines call and from where distribution is being organised on to other smaller nearby ports. A development that can be expected to become profitable for most parties involved, and as shown by the plans presented in 4.4, many ports appear willing to take-up the challenge. Better connections would open-up the possibility to develop inter-modal transport solutions, something that is near to non-existing in the African context[32]. The idea is far from new as there are already a considerable number of corridors that are intended for further development, but where development has been unequal and sometimes random along the corridor[33]. There are also success stories for cross border corridors that should be told and the Maputo Corridor, that reaches from the port in Maputo 600 km to Johannesburg, is one such story (for location see Figure 4.2). Here traffic over ten years, 1997 – 2006 has increased dramatically; by truck from 29 000 tons to 1.2 mt and by rail from 800 000 tons to 2.5 mt, passengers from 360 000 to over 3 million (after the dropping of visa requirements). At the same time the turnover in the port, that include two of the three first private take-overs in Africa, has more than doubled from about 3 mt in 1997 to over 7.8 mt for 2008. However, with South Africa as an important destination, custom requirement to deposit a guarantee for goods in transit remains a problem as do the border passage where a one stop border point might be introduced during 2010[34]. As so often the corridor has a logistic problem in finding return loads for the large capacity needed to transport South African export. Similar discussions are ongoing on the other side of Africa where Walvis Bay is the point of departure for three corridors; Trans Kalahari towards Botswana and South Africa, Trans Caprivi towards Zambia and the Trans Cuene Corridor in the direction of Angola. Facilitation and improved rail and road infrastructure is hoped to support a considerable improvement in all three directions[35].

---

31 Regrettably this has not meant the end of congestion at Nigerian ports, as "*new*" reasons surfaced, e.g. with the limited capacity in the road transport sector and the status of the roads.

32 Intermodal – a good example of inter-modality is when a container is transported by train to a port, shipped by sea, transported on by inland shipping to a distribution centre and then finally delivered to its destination by truck – and never opened.

33 Some examples are: Djibouti Corridor, Mombasa (Northern) Corridor, Dar es Salaam Corridor, Central Corridor, Nacala Corridor, Mtwara Corridor, Beira Corridor, Maputo Corridor, Walvis Bay Trans Kalahari and Trans Caprivi, North South Corridor (Durban Corridor) and the Lobito Corridor (for location see Figure 4.2)

34 The deposit aims to prevent losses to the state if goods would enter the local market without custom dues have been paid. Two such one-stop-border posts have opened between SADC countries; South Africa – Zimbabwe and Zambia – Tanzania.

35 Previous attempts to upgrade has proved problematic with e.g.four Chinese locomotive imported in 2004 that have caused constant breakdowns and allowed only 33 months of joint availability over five years (allAfrica 090702).

Figure 4.2. Major Southern SSA Transit Corridors

In later years containerisation of cargo has been rapid in developed countries, much as a result of the fact that the container easily lends itself to a change of transport mode. However, in the African market this advantage has not yet found a way to make full use of its potential. In Europe practically all containers leave the ports intact and a large percentage are being handled in an inter-modal transport chain, while in an African port most containers are stripped in or near the port. At the same time a large percentage of export cargoes arrive to the port non-containerised and the container used are being stuffed in the port area. This is an example of a way of working that increases the difficulty in planning and costs for delays are often dramatic in shipping where just one extra day in port for a regular size ship can cost USD 35 000 and come to over twice that figure for any kind of larger ship. These are the kind of costs that can be calculated with, if known beforehand, or could come-up as ad-on's due to unexpected delays or congestions in ports. During times of delays in Nigeria 2006 the Delmas Company (now part of CMA-CGM) calculated that the delays in Lagos made a call there twice as expensive as for the same kind of ship in Felixstowe (UK) while Maersk Line has indicated that handling costs are nearly three times the European level. Sometimes this is compensated for by the container lines though the use of surcharges, that could vary from some USD 25 / TEU as a minimum reaching 300 - 500 USD during times of severe

congestion or considerable differences in efficiency between ports. Costs that in the end always will have to be carried by cargo owners and that will restrict trade flows. In addition there are other un-official barriers in ports and at border-crossings that not only slow transport but that will increase costs. As in many other parts of the world there is a need to increase transparency for transactions to make it possible to increase efficiency.

Implications that has and will follow from the international port security restrictions, i.e. the ISPS-code, and increased demand in the field of environmental protection must also be attended to in the region. Much of the necessary knowledge to adjust and implement correctly the necessary new procedures can probably only be found in developed countries or through organised development assistance (ISPS is discussed separately in chapter 3.6).

4.3. Shipping and Handling of Containers

World container trade has been estimated to have reached about 143 million TEU in 2007 and to carry about 1.2 bn tons of goods; i.e. an average of 8.400 kg/TEU[36]. With a continued growth of about 8 – 10% per year the volume is expected to be near 160 million TEU by the end of 2008, reach 220 million in 2012 and exceed 370 million TEU by 2020[37]. In world trade with containers it is the Asia – Europe connection that is dominating with 27 million TEU with the Asia to Europe leg generating 17 million out of this. The trans-pacific connection from Asia to the US generated 15 million while the opposite direction saw less than 5 million loaded TEU. In these trade relations the Asian export dominate, with near 80% east-bound with the US and 70% west-bound with Europe. The other major container route, across the northern Atlantic, carries about a third of the volume of the two previous, with well over four out of the six million TEU's being west-bound from Europe to North America.

Port turnover of containers in 2007 increased by near 12%, to reach 485 million TEU[38]. Out of this the twenty biggest ports handled 238 million, or 48%, and increased their volume two percent more than world average for 2007. At the same time Chinese ports are increasing their handling even more rapidly and now account for near 140 million TEU, or 29% of the turnover.

For a new entrant to compete in the high-sea container business is increasingly difficult due to the high barriers to entry. This leaves the local and regional market as the only ones for domestic companies. However as long as container volumes, and the containerisation rate, keeps increasing, there will be a window of opportunity that can be opened in the local market. Total north – south trade in 2006 of containers was estimated to have reached about 20 million TEU. On the container side about 1 million TEU are loaded import units in West Africa, out of which some 70% originate from Europe. Out of this the cargo flow from Europe to West Africa was set to about 0.6 south-bound and 0.4 north-bound. The loaded export is in the range of 70% of imports (Agpaoc 2008).

---

[36] This turnover is created by way of moving around a total stock of about 25 million TEU of containers had in the world. A volume that has been growing by near 10% per year during the 2000´s and where prices for a standard container had increased to about USD 3 500 for a 40 ft and about USD 2 000 for a 20 ft by 2007 and to have fallen back by 30 – 40% during 2008.

[37] With only preliminary estimations available for 2009 there are still strong indications of a fall in total turnover for 2009, that started already in late 2008, which will probably push forward these optimistic volume predictions by 3 – 5 years.

[38] The handling figure in ports in ports is much larger than the trade figure as it measures "lifts" of containers, which includes also transshipments and empties.

The growth in this trade has for both directions been under 10%/year during later years, which has remained in line with world average. In all, the share for SSA in containerised world trade, excluding South Africa, has remained below 20% of the near 30 million TEU turnover in Singapore alone during 2008 (MPA 2009). The imbalance in cargo flows becomes a yet more complex problem if import and export cargoes are different in character, which they are in Africa. This inevitably lead to a lower level of service, as it isi difficult to fill the outbound containers, which will result in higher costs per unit.

Expansion from a small volume is the south – south trade between Africa and Asia, especially so as China has signed trade agreements with a number of African countries in later years, can lead to further imbalance. Expanding trade in this trade relation will probably mean increased African imports from China of consumer goods and therefore containerised. At the same time it is probably so that African export to China can be expected to be raw material in bulk and containerised only to a very limited degree.

Table 4.4. Turnover in SSA Container and General Cargo sectors

(TEU and mt respectively)

Region	1995 TEU	2007 TEU	% Change	1995 mt	2005 mt	% Change
East Africa	505 000	1 790 000	+ 176	13.8	38.4	+177
Southern Africa*	1 356 000	3 920 000	+ 128	2.7	14.5	+431
West Africa	673 000	2 240 000	+ 364	19.6	51.7	+164
Total	2 534 500	7 613 703	+ 200	36.1	104.6	+187

*

= South Africa and Namibia
Source: Ocean Shipping Consultant 2008

Table 4.5. Container Handling in Major African Countries 2008

(approximate; 1 000 TEU)

Senegal	C. de I.	Ghana	Togo	Benin	Camer.	Angola	South A	Madag.	Tanz.	Kenya	Djibuti
450	540	530	220	310	190	400	3,850	120	380	610	310

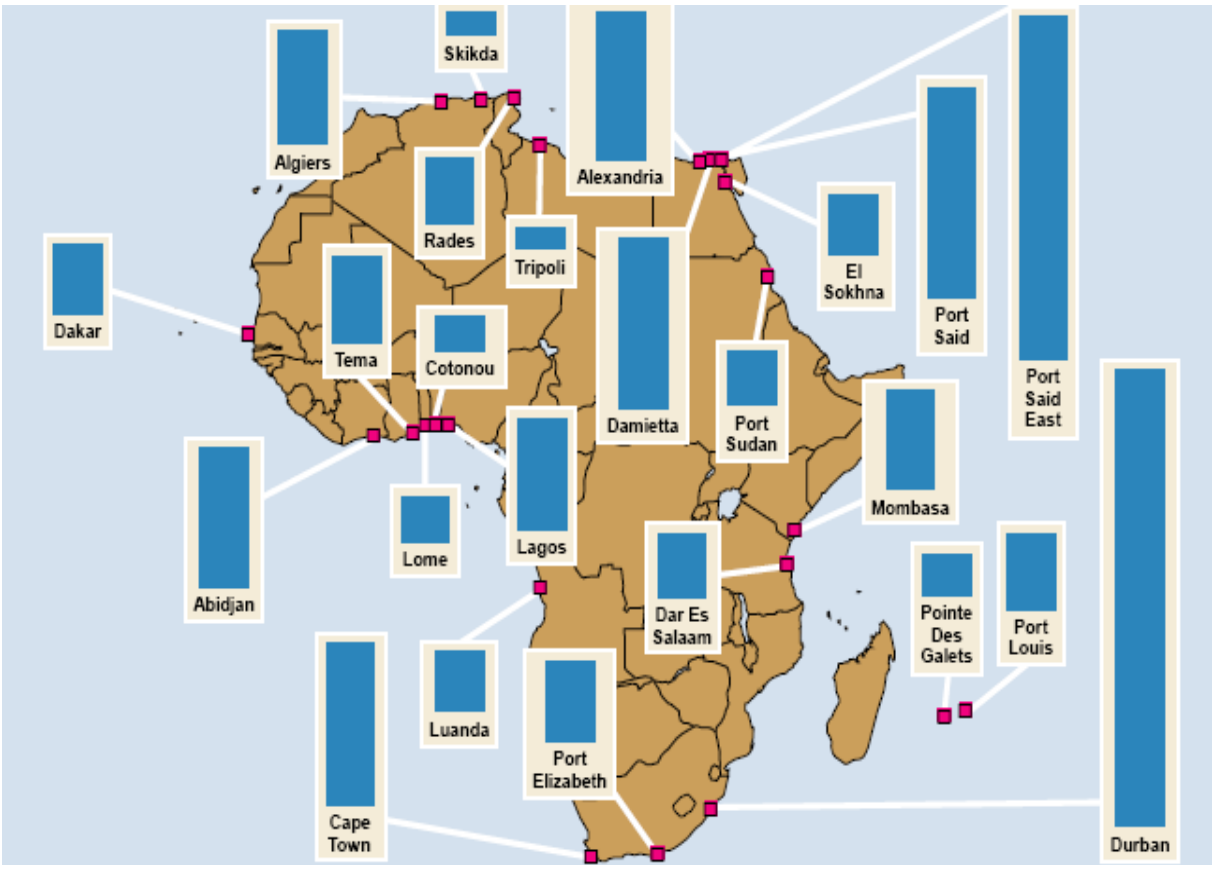
Source: Containerisation International Yearbook 2009 and individual ports[39]

The combined turnover of the twelve (+two) countries in Table 4.5, approximately 13 million TEU. This corresponds to the turnover in the United Arab Emirates, with a population of less than 5 millions. The total African turnover in 2007 reached about 17 million TEU, while the container turnover in China stood at over 80 million and for both Korea and Taiwan at 16 million each. The

[39] In addition to Table 4.5 ports in Egypt handled about 4.6 million TEU and Morocco about 700,000

combined African turnover was under 3% of world total container throughput for the year[40]. Although the total figure can appear low, the growth has been rapid since the first containers appeared in African ports in the first year of the 1970's. Total African turnover then reached 1 million already in 1978 and 2 million in 1981. Then not much happened during the next five years of slow economic expansion in the world and the African volumes remained around 2 million until 1987 when growth was reassumed. Already by 1994 volumes had again doubled to 4 million, by 2002 to 8 million and, as mentioned above, only four years later volumes had again doubled to reach 16 million. Judging from the rate of construction of new terminals the next doubling can be expected to take eight to ten years, depending on how long the 2009 recession will affect trade.

Figure 4.3. African Ports with > 100 000 TEU Turnover in 2008



Legends: Cotonou 100,000 ; Lagos 500,000 ; Durban 2 milj.

Source: www.drewry.co.uk 2007

The three largest container handling companies in the world HPH, DP World and APM Terminals together hold a number of concessions to run container terminals in Africa. HPH operates two terminals in Egypt and the one in Dares Salam, DP World operates in Djibouti, Maputo, Dakar and

[40] There are at least five ports in the world with a turnover larger than the combined turnover for the 12 largest African countries; Singapore 28 million, Shanghai 26, Hong Kong 24, Shenzen 21, Busan 13. The four largest in Europe are Rotterdam 11, Hamburg 10, Antwerp 8, Bremen 5.

has during 2009 opened a new terminal in Djibouti – Doraleb, while APM operates in Abidjan, Lagos, Onne (eastern Nigeria) and Douala in Cameroon, and during 2009 has been awarded concessions in both Congo and Benin. The common denominator for all the terminals listed is that traffic has increased dramatically within a few years after take-over and so has efficiency, at the same time as dwelling time for containers have been shortened dramatically. The most expensive takeover for a terminal was by APM in Lagos in July 2007, where the takeover bid came to about USD 1 bn and with an additional commission of USD 16/container handled. Not only efficiency at the terminal has increased dramatically, so has prices to use the service, but with a 10% increase during 2008 turnover has reached near 500 000 TEU.

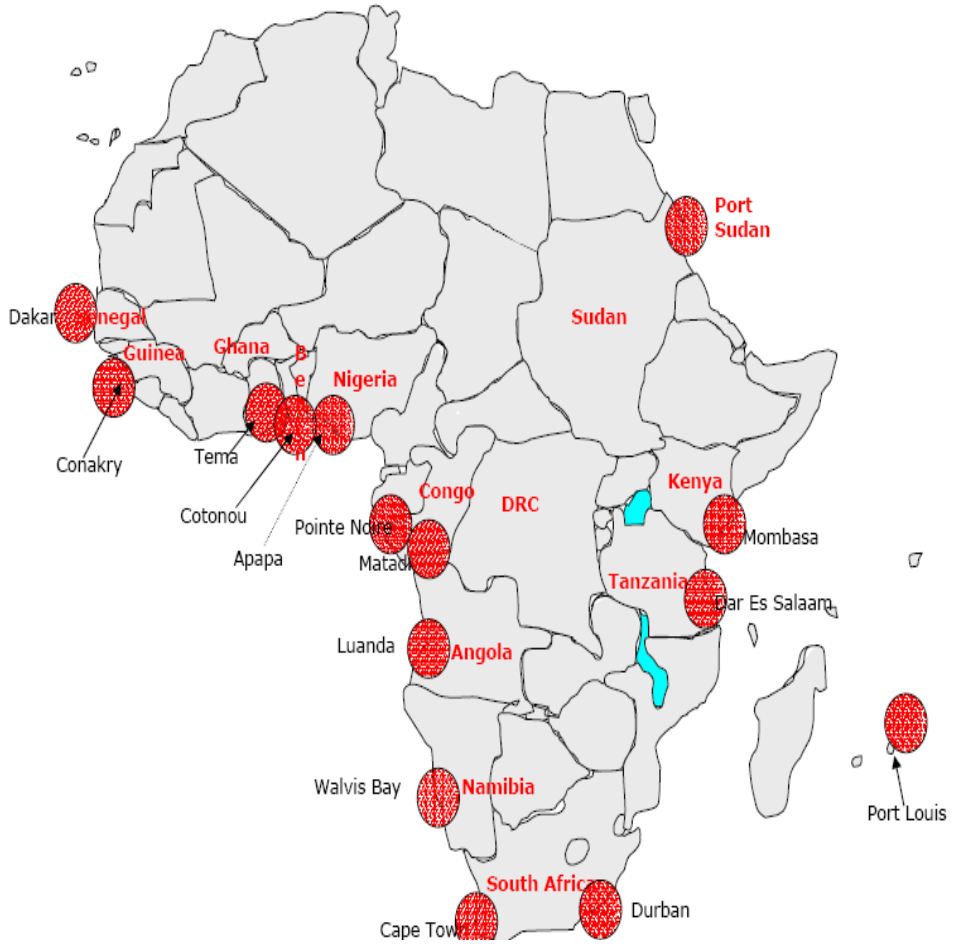
Somewhat in the same way as many countries have strived to have a flag-carrying-airline, many countries in Africa felt a need to establish or participate in a national shipping company. A period of time that in most countries is gone since 10 – 15 years, but has left a negative memory for many as it became a costly venture. Instead a number of ever larger shipping lines have outgrown other, with some of the largest having reached a stage where they now include all parts of the world on their network of sailing routes. It can be expected, based on the development seen in other areas of the world that the major carriers will increase their dominance on the intercontinental lines with port calls in Africa, while some of the local feeder traffic will be handled by local / regional shipping companies. Draft limitations are frequent in ports where it might have been possible to use larger and more economical ships. In the container business a 1 000 TEU ship needs about 8 - 9 meter draft while a 3 - 4 000 TEU ship could require 12 meters. At the same time the handling capacity in many of the ports vary greatly and most could simply not, without dredging and upgraded supra-structure (most often larger and more efficient cranes) handle bigger ships.

Since the start of the more regular use of containers in international trade, in the 1970's, containers have come to take over as carrier of practically all medium and high value cargoes in international trade. As discussed en-passant above containerisation of cargo has been rapid also in developed countries in later years. The reason for this has been the fact that containers easily lend themselves to a change of transport mode and give good protection to the goods transported. Despite these advantages the container has not yet found a way to make full use of its full potential on the African market.

In Africa, as elsewhere in the world, the handing out of long term concessions to large multinational port operators is debated. In the case of Nigeria foreign operators handle over 90% of containerised general cargo with Maersk alone handling over 80% (Vanguard 090416). From the side of the handling company a takeover has been paid and considerable investments have been made in the terminals. On the other hand the local critique is of a different opinion stating that too little has been invested. Another focus of the critique is similar to what is said about multinational companies in all sectors of the economy. The company is focusing on the interest of the investor, not the national interest, and that profits are taken out of the country. One of the most debated initiatives, in the case of Nigeria by Maersk, has been to introduce a progressive storage fee. Previously importers have had a tendency to import goods without having completed the documents necessary to get the imported products out of the port or to be transhipped elsewhere. When this way of working becomes systematic import cargos will soon fill-up terminals and contribute to congestion. Port congestion is not in any countries interest and becomes very expensive for all parties involved in trade (see also next paragraph).

Once a port has become congested and handling times surpass what is normal, with further ships at high demurrage costs waiting at anchor to moor, something of a blame game is set to start. In the case of Nigeria the concessions given were negotiated between the administration of the

previous president and what today are the foreign operators. This process is said to have been conducted *"with a minimum of transparency and very few people involved"*[41]. A way of negotiating long term concession contracts, for what is often 20 – 30 years that might have been used in several other African countries.



Source: Various sources; collected by the author

Figure 4.4. Major Terminals with Demurrage Periods some time During 2008

Ways Out of Port Congestion.

In an all African meeting of shipping agents, they observed that ports congestions were gradually becoming a common feature of African ports. Whether ports are in Tanzania, Egypt, Djibouti, Kenya or Nigeria congestion is a common problem. Agents therefore strongly called for a seamless cooperation and collaboration, pointing to that the crucial factor is to make a ship's arrival to a port more effective. Handling would be more efficient if the shipping manifest could be forwarded together with other vital data from the ship's last port of call. However, the need for training of

[41] Stated by Adam Biu, Executive Secretary of Nigerian Shippers' Council, quoted by AllAfrica 090611

maritime personnel cannot be over-emphasised, stating that only this would ensure the continent's preparedness to meet the future[42].

Many state that they have identified what is causing persistent port congestion in Nigeria. While the maritime experts say lack of genuine information exchange among key operators is responsible for the occurance of congestion. Maritime stakeholders in Africa and the National Association of Government Approved Freight Forwarders (NAGAFF) has blamed the Nigeria Customs Service (NCS) (Financial Times 081229). The President of the National Council of Managing Directors of Licensed Customs Agents (NCMDLCA) stated that the Government must have lost over one trillion naira to the lingering congestion at the port in Lagos during the last three months of 2008 (Vanguard 090109). The NCMDLCA figure is probably not exact on target, but there are few estimation about the losses incurred by the states due to constant delays. However, it is probably true that the sums are very large as the ports are the gateways to the world. It is not only traders that pay a high price. After the first six months of 2009 the planned revenues from the Nigerian customs office from import tax has missed out by over 50% due to the low turnover. At the same time the Apapa-Oshodi Expressway, that links two of the most important ports in the country, Apapa and Tin Can Ports, is in itself a telling story. The Expressway is so worn down that trucks constantly break down and containers fall off trucks onto the road.

If there is someone that can take advantage of congestion it is neighbouring ports. If the clearing procedure for goods coming into, in this case, Nigeria, then ships are bound to get redirected. Shippers then prefer to go to neighbouring port, e.g. Lomé in Togo, where 45 ships, that had waited for weeks outside Nigeria, called in early January and where the paperwork is easier and the charges are lower (republicoftogo.com 090114). Even closer to Nigeria is Cotonou in Benin, that also see Nigeria as a potential market. For any port there is always a risk in forcing traders to use alternative ports from their routine. If these alternatives prove as efficient and /or cheep, the alternative could well become traders' route of choice for the future. As shown in Figure 4.4 also many other countries face the same problems, but not many have any viable alternatives.

Delays and confusion about responsibility is negative not only for trade but also for development assistance. Aid in Motion has recent experienced a situation, similar to what is often commented in the public domain as a reason against sending aid. Three containers with 15 tons of donated clothing from Bahrain got stuck in Mombasa without any reasons why the containers are not being let through. Without any official confirmation SoS Children Villages, that according to the shipping documents is consignee and responsible for clearing the containers, became subject to fines for keeping the containers in the port (Gulf News 090507).

In many African countries there is, from time to time, surfacing threats to bring activities to a halt at ports or other shipping related installations due to the use of foreign workers. Workers that do not necessarily have to be well paid Europeans or Americans, but that might as well be migrants from neighbouring countries, or distant low cost countries. In Nigeria trade unions protest against the employment of foreigners as dockworkers by the management of Cement Terminals. In Nigeria, that has a protectionist Coastal and Inland Shipping Act to assure local involvement in the sector, the pressure to employ domestic staff becomes extra strong (Global Insight 090410). Domestic transport must be undertaken by Nigerian flagged ships, crewed by Nigerians and be repaired at Nigerian shipyards. With reference to this Act foreign flagged vessel have been

[42] Not only on the wish-list by many African cargo-handlers. In Sweden where this has been an ongoing process for many years, to make this happen is still a desire among Shipping Agents: Sector Report 2008, Swedish Maritime Administration; Interview with Mr Almqvist on page 62.

arrested for breaching the provisions of the Act when carrying oil products to ports in the delta (This Day 090714). For a country with the size of Nigeria, with a long coastline and a considerable river delta, the number of employees in the sector is on the increase. Thus far, however, many of the employed in the sector have been international workers and the losses to the state from the non-employment of domestic seafarers have been estimated to be in the range of USD 500 million per year (Daily Independent 090416).

In also other countries than Nigeria there have been reports about public disturbance as local unemployed workers have clashed with foreign workers. The worst incident in later months is believed to have happened in Algeria where 100s of Chinese workers building a motorway clashed with locals leaving 20 of the protecting police force dead and many Chinese injured[43]. Similar incidents, with not as grave consequences, several involving Chinese workers, have been reported from many countries. With the Chinese system to bring in workers from China to do also relatively unskilled work, in countries with very high domestic unemployment, can easily irritate the local community.

The introductions of dry-ports / inland-port[44]

The need to organise different kinds of dry-ports has generally been generated out of either the slow administrative handling in the port area, as discussed above, or the limited access to land for expansion. In a dry-port the cargo, practically only container cargo, is transported directly to a well fenced dry-port where storage, clearance and the preparations for further transport can be take place. As a large percentage of container cargoes in Africa are stuffed and broken up in the ports, it is better that this process is taking place in a dry port than at the sea-side port. Ideally, for export products, the cargo only sent on from the dry port to the sea-side port just before the loading of the ship is about to take place.

The general perception is that a dry port should be located with a short distance to the port area, but the idea of a dry port changes somewhat when taking the point of departure in a land-locked country. With the above in mind the Sunway City Company from Zimbabwe has unveiled plans to establish an inland port in Harare. An establishment that could serve as a regional cargo hub for several transport modes. On the chosen location inbound and outbound cargo through rail, road and air networks could be handled. As a full service facility it would also serve as a cargo centre, supply equipment and space for cargo consolidation, rental space for long-term storage, repackaging, wagon loading and offloading tracks, efficient clearance and documentation, customs brokerage (Financial Times 090506). The destination, or the origin, of the cargo transiting could be through South Africa, Mozambique or the more traditional Dar es Salam.

In the same way as Zimbabwe, Ethiopia is a land locked country that see inland ports as a way to improve the efficiency for the handling of import and export cargo. As a result the state controlled Dry Port Enterprise and Ethiopian Chamber of Commerce has been given advanced training for ten days in Dry Port Management by instructors from India (The Daily Monitor 090319). To improve the handling of the expanding Ethiopian foreign trade skills and competence of Ethiopians in international trade and managing dry port operations have had to be sought abroad. Ethiopia is among the countries that can take advantage of the USD 500 million India has set aside for an India-Africa forum of capacity building. The Ethiopian government has pushed for the

[43] Ongoing projects in Algeria is said employ about 35,000 Chinese workers. The connection to the Han Chinese treatment of the predominatly muslim Uijgur population remains somewhat unclear (The Times 090715)

[44] Sometimes also called "*hinterland gateways*", off-dock terminal or "*inland freight hubs*".

establishment of dry port facilities at certain strategic locations. The need to improve handling is also called for to reduce costs as a result of the congestion and delays experienced during 2008 at the port of Port Djibouti. The two first dry-ports, to become operative during the summer of 2009, are located in Modja (80 km SE of Addis Ababa) and another one near 600 km north of the capital.

Uganda, as a land-locked country, has been using a system similar to dry ports with 11 container depots. In the spring of 2009 the Ministry of Trade has become questioned as it appears, and to the surprise of other parties concerned, has in a secret contract allowed a private company a near monopoly on an inland port functions for Uganda. As a result both importers and exporters fear that a centralised function become more expensive and be less service minded. The internal co-ordination within the government appears to have been minimal as no other ministry, e.g. the Ministry of Finance that collect a considerable part of its revenues from trade, was aware of the centralisation (All Africa 090717).

Eritrea has made public the introduction of a dry port and free zone at Massawa in late 2009, located on the Red Sea Coast. The zone will have access to a port, with low draft, and small airport. Investors from China, Djibouti, Dubai, India and others have already registered to operate in the zone. One further zone will open in 2010 on the border to Djibouti that is hoped to be able to profit from a strategic location next to both a trade centre and the international shipping route with 20.000 ships per year passing just outside the coast (EIU 090516).

If the above examples related to East Africa the tendency is similar in Western Africa. Luanda is another of the many congested ports and a as a mean to relax the pressure on the port the government has decided to speed up the construction of a dry-port in Viana. The national Council of Shippers have requested such an initiative as extremely necessary to facilitate the flow of arriving cargo. With the positive economic development of Angola, the trade volumes in the country's biggest port, Luanda, is bound to go up. The flow has already surpassed the port's capacity, and an upgrading of the port is also in the process.

Land-locked Zambia has faced the same congestion problems in its main transit ports of Dar es Salam and Durban as have most others. Therefore a new initiative has been taken by signing a lease agreement for a dry-port in Namibia. The intention from both parties is to increase not only the use of the Walvis Bay-Ndola Lubumbashi corridor, but also to support trade between the two neighbours. The agreement will allow the Walvis Bay port Authority to go-ahead with the development of one of its terminals (Xinhua 090501).

Rail transport is having a difficult time in Africa. Many of the long distance lines still in operation was build already during colonial times and transport patterns of those days only partly correspond with current borders and needs. The famous passenger trains on the Mombasa – Nairobi line, build already 1896, is just one such example. But the poor condition of the railway, despite having seen both the Ugandan and Kenyan railways being privatised by the Rift Valley Railways in 2006, has not made a modal shift away from the roads possible (Bristol 2006). Rift has kept the tariffs low, but this has not helped to reduce the 70% of transit trade towards the inland that is being taken by truck. There is a single-track railway that runs from Mombasa to Lake Victoria/Ugandan border via the capital Nairobi, but frequent derailments and that the railway has been considered to be accident prone has made it remain second choice among transporters. In the takeover Rift has promised to increase transport volumes by 75% over 5 years and Rwanda, Burundi and eastern Congo also use Mombasa, and the appearance of Rift have given them some hope for the future.

Also in South Africa, as the most developed country in Africa, with the highest volumes of transport by train, rail is having a difficult time in the logistic chain. One example is the fact that from the largest container port, and despite the fact that it costs 30-40% more to send a container on a truck from Durban to the Deep-Sea inland terminal in Johannesburg, the market share is still only 13%. The main advantage for the truck on this this connection is transport time, that is about 12 hours instead of 16, while handling-time is more or less equal (Financial Mail 090710). The time advantage could be reduced as new locomotives are coming in from mid 2010, instead of the 30 years old ones in use today. In South Africa, like in most other developed countries, rail transport is a near monopolist for raw-materials from mines to ports, while the share is much lower for high value goods like containers.

As many railway lines were built for the transport of bulk material, passenger services have practically always been a loss-making operation in the few African countries with a passenger service. Botswana Railways (BR) is one such example with a longstanding loss making passenger transport that has constituted a relatively small share of the rail company's turnover. With insufficient maintenance the passenger coaches had to be taken out of service in June 2009, as they have been deemed unsafe. At the same time the BR put both locomotives and coaches up for sale and it is currently unlikely that Botswana will see a passenger train again (The Reporter, July 8, 2009). Although this example relates to the summer of 2009 and Botswana, it could well serve as an example for many other African countries.

However, there are also examples of African grand scale rail project, but most often such projects never leave the planning stage due to lack of funding. Since late 2008 the Russian State Railway (RDZ) has been involved in the construction of a new high-speed railway along the coast of Libya. The project includes the construction of a standard gauge 800 km railway from Syrt to Benghazi including 67 stations and railway crossings along the line. With a contract value of EUR 2.2 billion over four years, considerable incomes have to be generated (RDZ July 2009).

4.4. Changes in the Port Sector

There are generally no kinds of cargo that the more traditional ports do not handle. However, the ports that get most of the attention nowadays are the container terminals, although, as the name indicates, they are only terminals. I.e. a part of bigger port area where containers are being handled. The other important category of ports is the bulk terminals that handle e.g. coal, bauxite, iron ore, phosphor, cement or other materials in un-packed form. African bulk terminals often serve just one mining operation and then have a small conventional quay for the import of supplies to the operator of the mine, railway and port – not seldom the same company. There are examples where a port has both a bulk terminal and a container terminal, but that is not normally the case. Both need very deep water in approach canals and alongside quays to be able to handle large ships, which results in both very expensive and difficult infrastructure work. As mentioned the bulk terminals are often constructed by a private company from the beginning while the container terminals are the result of a world-wide trend in transport of an ever increasing use of containers. Therefore expansion into a sharply increased handling of containers has come to lend itself well to privatisation of terminals with long term concessions that make foreign investors willing to carry much of the infrastructure costs.

In the port sector, new transport patterns and changes in the mode of transport have often lead to a situation where a sector that has for long been starved of both investment and reform becomes a severe bottleneck for development. What have often been state-controlled port companies, which have been paying dividend to the state coffer, suddenly need large investment resources. In addition to that, if radical changes and upgrades should be possible the hardest change for many governments to implement is the labour reforms that are mostly an inevitable part of the implementation of port sector reforms. Necessary staff reductions, in line with the abolition of established overly formal control mechanisms, once put in place to secure the state revenue from trade, take much determination on the part of the state and the port administration to carry through. While waiting for this, and while trade is increasing much faster than capacity, congestion will be the high price that will be paid.

As mentioned above, international oil companies and mining companies will take care of their own transport needs when it comes to ports. That if agreements are generous enough and findings large enough to pay for this. What is often left to the state to handle is general cargo handling. A trade that has more and more come to focus on container handling as new cargo types are increasingly becoming containerised. One such cargo, and party typical for African trade, is fruits that are to an ever larger extent being handled in containers and not in large shipments on reefer ships. Leading to changes in the port with less demand for voluminous space in large refrigerated storages in the port area.

The easy way around this need for change and investment resources for a state is to put up container handling in the port for international tender. One of the hand-full of leading multinational port companies, with investment resources and know-how, are then likely to win the tender and take over. To make this happen, a port sector reform is practically inevitable and at least a 20 – 25 years leasing time will be required. The new equipment and dramatic changes in administrative routines that will be brought in by the foreign investor will probably lay-off half of the old staff. On the positive side is that productivity will probably double or triple in a year or two. If so, the problem faced on the quays of the port can be looked upon as solved, while the administrative burden put upon shipping and trade around the port might well remain. Permissions, stamps, dues and fees that will have to be paid and cleared for ships to arrive/depart or containers to be cleared and taken out of the port area could still cause congestion. As exemplified for Nigeria, disastrous roads that are to be found just outside of the gates to the port can still cause major problems when everything else appears to have been solved (see Nigeria below).

National Examples from Africa: Djibouti → Guinea Conakry

With a vast hinterland and what appears to be well working port **Djibouti** has taken another big step towards regaining its dominance in the container sector in East Africa. In the first months of 2009 the new Doraleh terminal was inaugurated (Economist 090503). The new terminal, with a designed capacity of 1.2 million TEU will replace the previous that had only 30% of that capacity. Plagued with congestion and increasing imports to first of all Ethiopia, Djibouti has practically lost its trans-shipment role for the coast of East Africa[45]. To make up for this the new terminal, with 18 meters draft and super-panamax cranes, can handle the largest ships currently in use. The operator, Dubai Port World, has designed the new port so that it can be extended on to a 3 million

[45] Ethiopian Shipping Line (ESL), in possession of nine vessels with a total dwt of about 150,000. ESL holds practically monopolistic rights to the country's import- and export-business, and is a major customer in Djibouti (The Reporter 090711).

TEU capacity. The new terminal has been built on a greenfield site outside of the city and the old terminal will now be converted into a bulk port.

Kenya is an example of a country that has outsourced the handling of containers at its main port in Mombasa since many years. Kenya Ports Authority (KPA) remains the state arm in the sector and administrates port activities outside of container handling.

Despite the economic downturn in early 2008, due to the post presidential election political turmoil, container turnover in the port of Mombasa increased. With nearly a third of the handling being transit trade, during the weeks of political turmoil, the handling in the ports came to a near standstill and caused unprecedented congestion. The come-back seen during the year from this situation has been striking. However, also Kenya has seen the effects of the current global economic downturn and the rate of increase in turnover fell from 22% during 2007 to 5% in 2008. In all about 615 000 TEU was handled in 2008 compared to 585 000 TEU in 2007 (Reuters 090409).

According to the KPA total turnover for all cargoes increased to just over 16 mt for 2008, instead of just under for 2007. This figure was reached despite the fact that the post-election violence, for weeks, blocked transit-trade by truck to neighbouring countries. These volumes still grew by approximately 10%, or half a million tonnes, to nearly 5 mt (KPA 090605). The most important market for transit trade from Kenya is Uganda, importing nearly 4 mt, with Congo as second most important taking less than 10% of the volume to Uganda. The volume of liquid bulk, dominated by oil, fell slightly to 5.6 mt, with transit trade falling slightly more.

As already the 2007 figure for container turnover was 25% above the planned capacity of the port, and 2008 saw a further increase of 5% in handling, it is not surprising that congestion is a constant problem at Mombasa. To solve this problem the KPA has awarded Japan Port Consultants a design and supervision contract for a second container terminal. The new terminal, to be built in three phases, will reach full capacity of 1.2 million TEU when completed by 2018. To make this possible a USD 200 million loan has been agreed with Japanese lenders (Containerisation International 090420). To make this possible there is also a major effort to be made to widen (to at least 150 m) and deepen (15 m) the approach canal but also to create a turning basin of up to 500 m. Dreading that is not only very costly, but also lift-up enormous volumes of bottom sediments that must be dumped somewhere and will muddy vast water areas throughout the construction period. In addition, an international terminal project for the import of Liquefied Petroleum Gas (LPG), to handle about 600,000 tonnes, has been on the table for several years. Bu the project has, again, been put on a hold while awaiting design and environmental regulatory approval

The government of Kenya appears to go ahead with the building of a new port on Lamu Island. What makes this project controversial is that the government of Qatar has agreed to help construct the port in exchange for 40,000 hectares of arable land. A similar agreement under negotiation by a Korean company on Madagascar, was much discussed and criticized, and the agreement was later put on a hold. In the case of the Lamu port the government will approve the project to reduce the pressure on Mombasa. The project includes new road and rail links to connect the port to both Ethiopia and southern Sudan. If construction work starts in late 2009 as planned, the first ship should be able to call at Port of Lamu by the end of 2011. In perspective the port could also become an export point for oil from southern Sudan.

Mozambique was the first country to venture into the field of offering international operators to take over port concessions. A major restriction for port handling in the main port of Maputo is the approach channel that restricts ships size and increase sailing times. The advantage is the geographical location that allows ports in the southern part of Mozambique to compete for transit trade to and from destinations in South Africa.

The largest ongoing port projects in Mozambique is run by investors from India that will export coal from a new terminal that from 2010 is planned to handle about 1,5 mt, but in perspective 30 mt. With reserves expected to be as large as nearly one billion tonnes the perspectives look bright (Indian Business Insight 090611). The more well-known giant in the coal sector, Brazilian Vale de Rio Doce, has decided to continue to develop its Moatize coal reserves in the central Tete province. When exports starts this will mean a considerable increase in handling for the port of Beira. For the transit trade of coal it is still to be decided if the coal from the South African Waterberg Basin reserves will be exported via Richards Bay or increase handling in Maputo.

Also in the deepest natural port of East Africa, Nacala, there is hope of attracting international investors to establish a new container terminal to serve western Indian Ocean countries. It is to the advantage for Nacala to have the existing rail connection towards Malawi and inland Africa.

The largest port project on **Madagascar**, initiated by the mining giant Rio Tinto, the new port of Ehoala at Tolanaro (south east), as a part of a USD 1 bn investment scheme for iron and titanium mining, has been put on a hold. The port is operational and the first near one million tonnes had been shipped by the time of the political crises. The continuation of the project currently depends of future royalty fees, and is waiting for the crises in Madagascar to be settled. (Bulk Materials International 090624).

In recent years it is probably Durban that has served as something like the hub port of **South Africa**, although the port has from time to time been heavily congested. As a result of what is probably the largest ongoing port investment project on the African continent, Transnet, the national port authority, has spent about USD 1.3 bn on building new port structures at the Eastern Cape's Ngqura Port. It is the geographical location of what is planned to become the flagship container port, in the middle between Durban and Cape Town that appears to have been the decisive factor. The port has initially 6 post panamax gantry ship cranes as well as 22 yard handling gantry cranes. The new space saving yard cranes can stack containers five high and six wide, allowing efficient use of space. The container terminal will have an initial handling capacity of 800,000 TEU per year with expansion areas prepared for up to 2 million TEU per year. It will be the only port in South Africa able to serve the new generation of mega-max vessels, which carry over 9,000 TEU and have a draft of 16.5 metres. The intention is that the largest of the container ships can make a single call in South Africa and feeder traffic will then distribute containers nationally and to nearby countries. The critique against the project has focused on the apparent disadvantage of the lack of nearby industry and consumer centres near Ngqura.

Co-ordination appears low and with a parallel upgrade taking place in the port of Durban, in direct competition to Ngqura, the Transnet plans could face a problematic future. By March 2010 new Post Panamax container cranes will be in operation and at the same time both deepening and widening of the approach to be port will be ready. Competition of this kind that lead to over-investments is far from a new phenomenon in the port sector, but a continued strong increase in handling has over the last few years kept investors from feeling the pain. For some time to come capacity in South Africa appears to have reached it limits and how well the market can catch-up

probably has more to do with the speed of international economic recovery and less with the domestic development.

In tonnes handled the biggest port in South Africa is the Richards Bay Coal Terminal (RBCT). Also at RBCT expansion is ongoing with called Phase 5 that from late 2009 will increase capacity to 76 mt/y. After the completion of Phase 6, phase by 2012, capacity will have reached 92 mt/y (see also 4.6 for a wider description).

Expansion is also the theme in the **Namibian** port of Windhoek, Walvis Bay. An investment scheme that has been valued at near USD 200 million will by 2012 have improved the port considerably when it comes to equipment and facilities. With USD 50 million already spent on equipment, the intention is to bring the Walvis Bay terminal on par with other larger ports and try to create a competitive advantage in relation to its competitors. When the expansion is complete the port will be able to receive and handle Post-Panmax containerships carrying up to 8,000 TEU, with its new cargo tracking system keeping it all organised.

Source: World Bank SSSA

Figure 4.5. Angola - Zambia / Botswana Corridor

In the same way in many other countries along the African coast also **Congo** is on the expansion track. In December 2008 the French Bollore Group was awarded the right to build a new deepwater container terminal for the Republic of Congo, in Pointe-Noire. In April 2009, Bollore included APM Terminals as a stakeholder in the venture called Congo Terminal[46].

The initial investment agreed between Bollore and the Congolese Government was USD 800 millions for a 27 year concession. If the plans can be fulfilled the new terminal will handle 7,000 TEU vessels and double annual throughput from current level of 200,000 TEU. To achieve this, the quay will be extended by 100% to 1,500 meters, with increased draught to 13 - 15 meters while the storage yard will more than double its area to 38 hectares. In the process 14 ship gantries and 34 storage gentries will be introduced. If the momentum can be kept up a continued expansion to 1 million TEU by 2020 is foreseen (Bollore and ATM 2009). The practically unique feature with this project in Africa is the intention to promote the use of the River Congo as a transport corridor, and not only make use of transport corridors on land, to reach Central Africa.

[46] APM Terminals is the port franchise of Danish oil and shipping conglomerate A.P.Moller-Maersk

In addition to the container terminal expansion at Point Noir Australian mining company DMC in April 2009 concluded a rail agreement that advances its Mayoko iron ore project in the Republic of Congo. To be able to ship in Panamax size bulk vessels, 15 meter deep waters are needed, as well as an agreement with state Chemin de Fer Congo-Ocean, for access to the Mayoko - Pointe Noire rail line[47]. The line passes near to DMC's Mayoko deposit that is located about 400 km from Pointe Noire. For 2010 a shipment volume of 3 mt of both lump and fine ore has been planned, to expand to some 10 - 12 mty within a few years. The Mayoko fields of mostly magnetite, and some hematite, are expected to hold a total of near 1 bn tonne within the 1,000 square km DMC licence area (SBB 0904).

Equatorial Guinea has initiated a major investment to double its port capacity in an attempt to turn the oil rich nation into a shipping hub, a Dubai, of Central Africa. Port developments are a part of a national strategy launched by the government to ensure the end of incomes generated by its oil- and gas will not be followed by a sharp economic downturn (Reuters 090325). The handling of containers is hoped to reach 400 000 and the number of ship-calls to double from today's 1,200. The foreseen investments needed to complete the ports and related projects by the end of 2011 have been set to about USA 4.5 bn. In the Malabo port contract workers from Morocco are reclaiming land to extend and build new quays for the container terminal. When ready the new quays will be able to accommodate Panamax size vessels. In the future the Malabo port will have to compete with the full list of intended regional ports mentioned here, for its turnover.

It is not only on the island of Bioko Norte, where the Malabo port is located, that construction work has been initiated, the Bata port project on the mainland is also underway. In a five-year project the building of the port of Bata will be carried out by the China Road and Bridge Corporation. Here the port will be based on a 2 km jetty that will extend out to deep waters. Lima with no costs estimations given for the Bata project.

However the political stability in Equatorial Guinea is a major worry, and was put in question by the fact that in February 2009, gunmen attacked the presidential palace. A palace that is located on a hill overlooking the port. Security forces, supported by helicopters later repelled the attackers. Accusations of abuse and corruption are frequently being levelled against the government, but where the government uses the infrastructure investments in the port sector as proof of that oil- and gas incomes are well spent.

The feasibility study for a deep-sea port in Limbe, 70 km from Douala in **Cameroon**, undertaken by Korea Port Engineering, estimates the costs to about USD 830 million (Economist 090615). Currently the country's dominating port in Douala is congested for much of the year, affecting both domestic trade and neighbouring countries trade. The feasibility study included the building of a port at a green-field site but details of how the financing could be shared between public and private sources have not been made public.

An alternative could be the proposed deep-sea port in Kribi, about 150 km south of Douala, which has also been discussed for some time. It is uncertain if Kribi could ease the pressure on Doala, as increased capacity here would first of all serve to facilitate the exploitation of the country´s nearby mineral reserves. Findings that include large deposits of iron, bauxite, nickel and cobolt.

[47] Built in the 1970s by Comilog to haul manganese ore from the Congo-Gabon border to Pointe Noire – now underutilised.

2008 was a year when cargo handling fell in **Nigeria**. A year of port congestion that lingered till the end of the year. Practically every terminal has been congested during parts of the year with delay up to two weeks, and sometimes more. This is bad for Nigerian economy with the negative reputation and insecurities it creates. It is very negative for the high costs for demurrages that must be paid to the shipping companies that indirectly will have to be covered by Nigerian cargo owners or consumers. The pressure on the ports is also being upheld by the fact that Nigeria imports 70-80% of oil products and with the near non-existence of railway lines connecting the port the number of trucks needed increase dramatically. Two factors that are often referred to as causing the problem are roads and customs. On the Customs side a 48 hours electronic cargo clearance and payment process has been subject to go into operation on August 4 2009. The ports have also set a 48-hours cargo clearance limit, but with multiple clearing agents handling the paperwork in ports, the likelihood that this will work is low (AllAfrica 090423). As for roads it is the access roads to ports where major resurfacing needs urgent attention. It causes accidents, loss of lives and properties as well as delays in cargo delivery.

The worsening road traffic conditions along the port access roads in Lagos have lead the Association of Maritime Truck Owners (AMATO) to come up with too dramatic suggestions. AMATO, with support from the cargo agents, warns that its members will withdraw their trucks from the roads if the Federal Government fails to take urgent steps improving the roads. In the traffic around ports like Apapa, and other western ports, huge sums are lost as trucks are constantly trapped on the roads. Truckers also demand 0%-import tax on spare parts as the bad roads lead to astronomic maintenance costs (AllAfrica 090716). Roads are so bad that containers falling off trucks have become a regular problem and have killed many by-passers. At the same time an initiative by the Grimaldi Group, which operates a terminal in Tin Can, to pay for the repair of the access road to the port, after 25 people in the port or on the access road over a year had been killed by falling containers, was blocked by the NPA (Vanguard 090716).

At the same time as ports in Western Nigeria are congested ports in Eastern Nigerian are facing economic hardship caused by lower than expected turnover (Daily Independent 090716). Ports in the eastern part of the country, like Warri, Port Harcourt, Onne and Calabar have seen turnover figures remain low in spite of the investments by private operators, who won concessions here. There are two problems that are being blamed for this situation; no dredging of the canals and no tugboats available. Both are the responsibility of the Nigerian Port Authority (NPA). With ever more shallow waters in the canals many operators do not want to call at these ports for the fear of running aground. With few or no tugboats available in the area risks increase and the chance for grounded ship to get assistance is minimal.

The Federal Government has promised to commence the dredging of the Calabar port channel before the end of June 2009. Previously, in 2006, USD 56 million was spent on a dredging project, but the dredging was not completed for unknown reasons. The whole of the 84 km channel to the Calabar port will now be dredged. Because of the shallow waters in the channel, shippers have refused to follow state directives to divert traffic from ports in the west to ports in the east, due to draught restrictions and fear of militant activities (AllAfrica 090327).

Source: BBC Africa

Figure 4.6. Stretch of Niger River to be Dredged in 2010

APM's investment in port infrastructure surpasses USD 200 million and resulted in a doubled turnover since the takeover of the Apapa port in 2006 (Daily Independent 090423). Out of this sum over half has been invested in equipment, construction works, IT systems and people training (Port Strategy 090430).

The latest of the container handling concessions granted in Africa is in **Benin** and the port of Cotonou. Also here it is the Bolloré Group (as in Congo) that has been awarded a 25 year concession (Bollore 090702). Bollorè will pay USD 200 million in fees over the first eight years in addition to a takeover installment fee of USD 27 million. According to the plan the turnover in the port will increase from the 2008 figure of 315,000 to about 1 million TEU / year by 2030. This will be achieved through increased emphasis on transit trade towards land-locked countries in the north, but also by promoting Cotonou as a "*Lagos east*" alternative.

In Togo and its main port of **Lomé** a 35 year concession was signed in early 2009 between the port authority and a group of foreign companies for the operation and expansion of the Lome Container Terminal (Getma 090227). Within three years the capacity will have doubled to about 500,000 TEU/year by way of foreign investments in the range of USD 300 million (EUR 200 bn). Here, as in many of the other ports, the plans include large volumes of dredging, to near 17 meters, to allow access for 9,000 TEU ships, and the construction of new quays. With near half the traffic in the port being transit trade, the free-port facilities will also be extended to further promote transit to first of all Burkina Faso, Mali and Niger. The planned expansion is expected to double port capacity to 10 mty inside two years (Togoport 090317).

The military junta that seized control of **Guinea Conakry**, following the death of President Lansana Conte in December 2008, has threatened to cancel foreign mining concessions. An initiative that appears to include Rio Tinto's USD 6 bn Simandou project, which about to be scaled-up to become among the biggest mining projects in the world. Rio Tinto has already spent USD 450 million in Guinea on Simandou. With construction work to be started in 2010 of the port, railway and the mine, work is currently on a hold. The Simandou deposit is expected to hold between 8 and 11 bn tonnes of iron with a grade above 65%. The initial volume to be exported from 2013 has been set to about 70 mty (RioTinto 090615). With Guinea being an important player in the world also in bauxite mining, with mines and port installations in the north of the country and normally around number four in the world as exporter, also these investors have come under threat.

4.5. African Oilsector's Connection to Ports and Shipping

Finding oil and gas could be a blessing, but to organise a long term solutions for the transport to a market remains a considerable headache in many countries. Large raw material findings face the same problem, as large investments over several years will often be needed before a positive cash-flow can be shown (see footnote 52). At the same time infrastructure will be needed, both supplied by the state in the form of roads and telephone networks, but then also railways, pipelines and ports. Then, when finally production gets on-line, fairways and other water infrastructure must be in place to assure a minimal impact from shipping.

New oil findings and new refineries are of considerable interest to the shipping sector. Not only is some 50% of the total shipped volume in international trade oil and oil products, but for many countries oil represents the lion share of what is handled in ports. Therefore oil and gas handling rightly deserves a subchapter here. To exemplify the problematic picture the new-borne oil-country Uganda will be used as an example and the biggest investment project ever discussed in Africa for gas will also be mentioned.

As mentioned above crude oil is the single most important product for shipping and in the world energy supply the African continent is becoming an increasingly important player. Out of world exports of crude oil in 2008 about 12% had its origin in Africa. The major oil producing countries in Africa are Nigeria, with a production of 105 mt, Angola 92 mt, Libya 86 mt and Algeria 85 (all four are OPEC members). Total production for Africa was 488 mt in 2008 (-0.4% over 2007) which is about 40% of the volume produced by the Gulf States. For some of the African producers the changes seen over the last three years have been dramatic. Nigeria, as the largest producer has seen production fall by over 20%, Algeria has seen no change at all while Libya has increased its production by 10%. The biggest change is for Angola that has seen an increase of 50% in only three years, and Sudan, with the most rapidly increasing production in Africa, where production has gone up from 15 mt in 2005 to near 24 mt in 2008, or +58%. Chad has lost out the most with a fall of 26%; from 9.1 mt in 2005 to 6.7 for 2008. There are also other noticeable African oil producers than the five mentioned, with Egypt, Equatorial Guinea, Republic of Congo (Brazzaville) and Gabon as the ones with a production over 10 mt per year. Shipments from Africa are dominated by West Africa, shipping about 210 million; about 25% of the volume from the Persian Gulf. The Mediterranean coast was the origin of another 120 million tons while 100 million were shipped from Central Africa[48]. Generally oil is exported as crude from Africa and later imported as oil products after having been refined elsewhere. When it comes to refining capacity the African share of world capacity is very small, standing at 3% of world capacity, to be compared to a production share that is four times as large (BP 2009).

Shipping of gas in the form of liquefied natural gas (LNG) is currently the most rapidly expanding of all segments in shipping, with a large number of new buyers and suppliers entering the market. The proven reserves in Africa can currently be found in Nigeria and Algeria that holds 3% and 2% respectively of known world reserves. With the production volume of 2008 these reserves will last for over 100 years in Nigeria and over 50 in Algeria. As for the production of natural gas the importance of Africa is increasing and has reached 5% of the world production in 2008. Algeria, Egypt and Nigeria were early starters and are now supplying 3%, 2% and 1% respectively of world

[48] Sudan's rapidly expanding export is mainly exported through a pipe-line operated by a Chinese – Malay consortium that links Port Sudan, located by at the Red Sea, with Khartoum and oil fields in central parts of the country. The oil producing region has so far seen little disturbance from the problems in the Dafour region.

gas production[49]. The export volume by pipeline is about twice the volume shipped in the form of LNG, but the latter is increasing rapidly. African pipeline export is dominated by the Algeria – Italy connection that carries more than half of the African pipeline export. However, with Africa being a relatively new producer, the shipped LNG volume has already become a third bigger than the pipeline volume and corresponds to 27% of world LNG export. The five African exporters of LNG in order of importance in 2008 was Algeria, followed by Nigeria, which both export just above 20 bcm, Egypt 15, Equatorial Guinea 5 and with Libya just emerging as an LNG exporter (BP 2009).

Uganda – an Oil-blessing, with Problems

Uganda is among the countries in Africa that have recently discovered oil and now faces the positive problem of how to handle this richness. Should the oil be exported as crude or should Uganda try to refine its oil locally and sell oil-products in the domestic and regional market. Every oil producing country has a desire to upgrade its production of crude oil to include also the processing of an as large share of the production as possible in a local refinery. This is also the case in both old- and new oil-rich African countries like Nigeria and Angola, not only in Uganda. Although a new refinery could be build to be optimised for both the kind of oil that will feed it and the volumes it can be expected to process, it is a considerable investment. Economic and political insecurities make investments in something as long term as a refinery unviable in many African countries. Also in more stable countries capital costs and depreciation rates often makes it very difficult to achieve the profit margins necessary when establishing refineries. In addition, the large enough investors that can finance and organise the initial long term investments to make the oil start flowing, normally have refineries of their own elsewhere in the world that needs to be fed with crude. A low scale alternative for the EAC region would be to build for only the generation of fuel oil for the domestic and nearby market. Continued expansion of the resources available, through large new findings, could off-set the line of thinking above and allow Uganda to take on a double-role as both refiner for much of the region and still become a crude exporter. This far, however, findings are relatively small and crude export could well remain the only viable alternative if the initial, partly secret, contract with the explorer does not specify differently. An international investor, that indirectly work for the shareholder value of his company, probably see crude export as the best alternative to generate a cash-flow.

For the export of crude oil through Kenya (or Tanzania), the easiest and quickest option would be to lay a crude oil pipeline to Mombasa[50]. Depending on the size of the findings the size of the pipeline will be set, but minor variations in the diameter is less of a worry than the cost of laying the line. I.e. there have to be a considerable amount of oil to export to make just this undertaking viable, as the alternative by rail is considerably more expensive. The natural destination for a pipeline would be the Mombasa refinery that in this way would be given an extra option for its supply. It could purchase crude oil from Uganda at market price or alternatively it accepts a long term agreement that commits both parties to a crude oil supply and refining deal[51]. An alternative that would protect the existing pattern of supply and would allow the Mombasa refinery to modernise and to upgrade its product line. If products were to be produced in Uganda existing supply and transport patterns in EAC would have to be revised. To build a new Ugandan refinery,

[49] Natural gas is generally produced and consumed within national borders. When not shipped in a pipeline, Liquefied Natural Gas (LNG) has during the later 10 years come to be sea transported over longer distances in a practically and economically viable way.

[50] About 1,400 km (2,000 to Dar es Salam). An alternative could be to also lay an additional line for an oil-product back-flow.

[51] EAC oil consumption is about 6 mt/y, of which the Mombasa refinery can supply about half.

on a green-field site, could hardly be done in less than four years which gives a certain lead time for the parties involved to adjust. In other sections here plans by both Tanzania and Kenya to expand ports and pipelines then have to be reconsidered[52].

No matter the direction chosen, improved railways, pipelines and perhaps new refinery capacity will all be needed to take advantage of the new the oil discoveries. However, especially Uganda needs to put in place, and make use of, an institutional and regulatory framework for a transparent management and governance of its "black gold". There are numerous African examples where governments have mis-managed incomes generated by natural resources, and Uganda needs to learn how to effectively manage its resources.

Another similar example could be Ghana were oil was found offshore in 2007. As in the case of Uganda, the findings are small on an international scale, but can probably make a considerable difference for a 23 million developing country. Also Ghana is trying to learn the lessons from other African countries that have started to develop their own findings. It is an absolute advantage that Ghana is among the least corrupt countries in Africa. Especially oil and gas opens up various possibilities for corruption, especially so among politicians and state officials. If oil and other resource richness becomes too dominant, the country run a risk of becoming dependent instead of using the incomes to create a more diverse economy. In the case of Ghana, away from a dependence the country once had on cacao. As most oil here is off-shore, it becomes environmentally more risky. Yearly production of about 12 mty, by way of production ships (FPSO's), is expected within a few years and 40 mty within another few[53].

Ghana was also the country where President Obama gave his speech to Africa, and the US has the ambition to source 25% of its oil imports from Africa. Ghana could possibly become a country that could reduce the currently high US dependence on politically instable Nigeria. Ghana today has a small refinery run on mostly Nigerian and Angolan oil, but that could be expected to switch to domestic oil once production gets on line. As news report at the time of the Obama visit mentioned ques of 100s of meters at petrol stations, a secure domestic supply would probably be appreciated in the local market.

Nigeria could serve as a warning to Uganda and Ghana, where oil has generated billions of dollars in profits, making Nigeria one of Africa's leading economies, but few benefits have been seen by the about 30 million people who live in the oil-rich Niger Delta. Today, as 50 years back, they lack adequate basic infrastructure like schools, clinics and potable water, and many of the better-paying jobs in the oil industry are held by foreigners or Nigerians from elsewhere in the country. Demands made on behalf of the more than 40 politically-marginalised ethnicities in the Delta for a fairer share of the oil wealth have provoked a violent response from the state.

Most of the oil found and produced in Nigeria is high quality low-sulphur crudes. Oil in Nigeria is the source of 80% of the state budget and over 90% of national export earnings. In 2008, Nigeria,

---

[52] To exemplify the high costs of oil extraction the Maersk Oil Angola, owning 50% of a drilling concession in Angola, was given another EUR 54 million in capital injection from the mother company in May. Including this, Maersk has spent EUR 150 million in Angola over the past few years without revenues. An action that indicate that there must be considerable amounts of oil in the waters off Angola's coast to compensate for the risk- taking. Something that was compensated for by the discovery of oil off the coastline of Angola at a depth of 4,700 metres, in 1300 meter deep waters, during the first drill test in the concession (Maersk Oil 090512+0716).

[53] FPSO – Floating Production and Storage Oilplatform. Construction based on an old supertanker that has been stripped of its engine and instead is anchored carrying equipment to receive crude from under-water reservoirs, store it onboard and to offload on to visiting tankers that transport the crude on to its refinery destination.

the world's eighth largest oil exporter, had a production that averaged about 300 000 tonnes per day (one very large tank ship)[54]. Figures that would probably had been more than a third larger if Nigeria had not been faced with internal armed conflicts in large parts of its oil bearing Niger oil delta, and with no oil taken out of the Ogoniland area since the protests started in 1993 (AllAfrica 090717).

As mentioned elsewhere, the delta area has seen repeated attacks on oil installations from MEND and other less organised groups which have limited production. Previous government attempt to stamp out insurgents using its security forces appears to have failed as kidnapping of foreigners from ships and oilrigs have continued. In an attempt to reduce the tension, President Yar'Adua has instead announced an amnesty offer for 60 days to MEND soldiers that wanted to surrender beginning from July 2009. At the time of writing little can be said about the effectiveness of the measure, but early on few have turned themselves in (Reuters 090709).

Trans-Saharan Gas Pipeline

The most significant event over the last year in the oil and gas sector in Africa was probably the Inter Governmental Accord (IGA) signed in July between the governments of Nigeria, Algeria and Niger for the development of the Trans-Sahara Gas Project (TSGP)[55]. There are a number of obstacles that remain in the path of the proposed over 4,000-km pipeline, most notably the security situation throughout the three countries that the pipeline would traverse. However, the signing of the accord is an indication that the vast project is gathering momentum and now international partners will be sought for the project. In addition, a signed IGA is expected to attract renewed interest from the European Union (EU). The EU views the pipeline as a key future project to increase security of supply and reduce dependence on Russian gas.

The TSGP is planned for a capacity of 30 bcm/y, with first deliveries scheduled for 2016. The pipeline is expected to allow the export of gas from Nigeria's Niger Delta across much of the continent to the Mediterranean coast in Algeria. In the case of Algeria, the TSGP will support the fields under development in the south west and south central parts of the country and give a connection to the coast. Niger will here act as a transit country and will have both energy needs and some incomes secured as such. However, a pipeline that has its source in a river delta with ever more frequent attacks from MEND (see also 2.4), passes large practically uncontrolled and unpopulated areas, with Niger's Tuareg rebels active in central Sahara before reaching the Maghreb area where al-Qaida cells are active, places security and safety as the most pressing issue to solve (IHS Global Insight 090707).

[54] In 2008 44% of exports were destined to the United States, 25% to Europe, India 11%, Brazil 7% and South Africa 4%.

[55] The accord was signed in Abuja, Nigeria on 3 July by the petroleum and energy ministers of the three countries: Rilwan Lukman of Nigeria, Chakib Khelil of Algeria, and Mohammed Abdullahi of Niger.

Problems with Flaring

In the same month as Nigeria's giant Trans-Sahara Gas Project was agreed with its northern neighbours "*gas-flare-out-date*" was again extended - this time to 2011. The decision follows 25 years of political wrangling, and illegal behaviour of oil multinationals, that flare the associated gas (AG) – produced as by product of oil production. It is of course a paradox that a poor country continues to flare some 50% of its associated gas, or over 20 bcm/y, that have an economic value in the range of USD 2.5 bn/y – in total a near USD 70 bn over its history of oil extraction[1]. After Russia, Nigeria is the world's leading culprit, flaring 13% of the world total of 170 bcm/y.

Already in 1984 was flaring outlawed in Nigeria, and the gas should be re-injected or utilised. More than 20 years later the fines has yet to fit the crime. In fines that have been levied on the multinationals have so far been below USD 400.000 / year. With no direct market for liquefied associated gas, a World Bank project were designed to reduce flaring by shipping it elsewhere in the region for electricity generation in what was named the West African Gas Pipeline, completed in 2008. However, the project's impact on gas flaring was later revealed by the World Bank's Inspection Panel as "modest", with pipelines principally used to transport cheap, non-AG, to industrial clients in Ghana, Togo and Benin.

4.6. One African port is Second Biggest in the World

Among the many negative notes of congestion and a lack of capacity in African ports, the Richards Bay Coal Terminal, in the easternmost corner of South Africa, could serve as a positive example. In cargo turnover this is the biggest port in Africa where only the storage has a capacity for nearly 7 mt. From its current position, with a yearly capacity of 72 mty further expansion is underway. When the ongoing Phase V has been completed in late 2009, capacity will have reached 92 mty and make Richards Bay the second largest coal port in the world[56]. Loading did not reach capacity during 2007 or 2008, but despite several spells of bad weather and problems also for the Transnet Freight Rail, that deliver coal 650 km from the mines, exports surpassed 66 mt and 65 mt respectively (Richards Bay 2009). The port is private and is majority owned by two or the world's largest mining companies; BHP Billiton and Anglo American.

[56] The Kooragang Coal Terminal in Newcastle, Australia, is biggest in the world with a 102 mty capacity. Ironically, the first export shipment from Newcastle was actually shipped to South Africa and Cape Good Hope in 1802.

5. Conclusions

Widespread and rapid poverty reduction in a country is often best achieved through sustained economic growth. However, increasing populations have further increased the pressure on resources and further complicated the situation for often weak governments to focus on long term initiative. Today there are many countries that face special challenges to generate a sustained growth that could generate means for the state to, e.g., develop infrastructure and support necessary reforms. At the same time some of the African states have to live with state borders that are part of the colonial heritage and has generated internal conflicts, while others have been given the blessing of being rich in mineral resources or hydrocarbons. In parts of Sub-Sahara Africa oil and gas, or mineral findings, have lead to an economy where expansion has taken place in this sector while a continued downward trend for many traditional export products has proved problematic. The pitfalls are numerous for economies that have the advantage of being commodity exporters, and few are the examples in the world apart from Norway, where a lion share of the wealth has come to serve a majority of the population. Overall the value of African export has grown in later years and the commodity export has seen rising prices, and especially so during 2007 - 2008.

However, there is a need to channel incomes by way of good governance to raise investments and to find ways to diversify the export. In addition there are many small states in Africa that face high per capita costs to administer their state, often prone to natural disasters, while their small size also leave them with few choices when searching for ways to diversify their economies. Instead there is a need to focus on supporting labour intensive activities while allowing increased support to the creation of a better infrastructure and to widen the educational base for the future.

As has been shown in previous parts here there is a major transport challenge facing the African continent. A challenge that too often starts with costly waiting time for approaching ships at anchor in front of congested ports. Once docked, a slow handling process and an excess of administration has to be overcome to handle both imports and exports. That is before imports / exports can find its way out of the port area on weak rail and road infrastructure links. Connections that becomes even more challenging if the distances are long and if transit cargo will have to cross borders to neighbour countries.

In most cases, to improve the process of handling in ports, there is often a need to upgrade both the soft processing and the hardware to support it. A need that includes replacing previous paper based systems, often put in place to secure the state revenue from trade transactions, with electronic means to handle the administrative process. The challenge for any country is to be able to finance such a process, remain efficient during the process, and secure that both revenues and security is maintained. At the same time the ultimate aim must be to considerably improve efficiency and remove previous bottlenecks.

However, the dramatic increase in efficiency in the port will often reveal other necessary improvements in other transport sectors. Such examples could be a complicated custom handling system, worn down access-roads to the port, inefficient rail capacity or other limiting factors. As a result, congestion in port will continue where the actual lifting on and off of cargo from calling ships has become efficient.

Progress has been made in the ports of several countries, with improved handling and less administration, but much remains to be done in most countries. Further, to improve the connecting infrastructure remains a huge challenge as this is not as easily privatised or concessioned as a port terminal. In often politically turbulent countries with low purchasing powers it is unlikely that a willing, if any, investor can be found. As a result any process will probably have to proceed gradually and improvements will come when the governments find room for this in their budgets. To both support and push in the process, foreign aid could make a considerable difference, where development assistance in the form of aid-for-trade could be of utmost importance and could really make a difference.

To make way for the changes discussed above there is generally a need to prepare domestic legislative changes, not only to implement international IMO conventions, but also to open for international investors. All the concessions given to foreign operators in ports have resulted in dramatic reductions of the workforce in the port, which has to be both allowed and taken care of. As shown in the summery of conventions presented many conventions have been adopted by African countries, although it sometimes can be questioned how well these have been implemented. Nevertheless, as shown, many more conventions remain to be adopted and later implemented.

To make long term improvements in this area is possible, but greatly improved maritime training will be needed. In a number of countries, where maritime training used to have a good reputation, both the funding and the status of the schools have fallen behind. This will have to be attended to, to assure that the qualifications of sailors from African countries fulfil the demands of the STCW convention[57]. Further, there appears to be a dramatically increasing need for advanced shore-based training for employees in the port sector of the kind given at e.g. WMU. Not to leave countries stranded in relation to international investors and the numerous conventions applicable here. In both areas many countries need well educated state officials to act in fields where many countries have adopted, but not implemented the IMO conventions properly, and protect the rights of the state and its citizens.

As understood from the above the SSA group of countries are facing numerous transport challenges. From some points of departure it could be seen as understandable that country's focus has been on questions outside of the implementation of the IMO conventions they in many cases have already signed. The follow-up of the quality of ships, through e.g. port state controls, are currently lagging dramatically behind. Inspections that will create a typical win-win situation for the country where the inspection is conducted, in addition to all other countries where a ship is about to trade. A ship that is better maintained, of better quality, with a well trained crew, is always less likely to end up in distress or pollute.

[57] STCW - International Convention on Standards of Training, Certification and Watchkeeping for Seafarers; first adopted in 1978 with several later amendments. A similar convention for fishing adopted in 1995; International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F).

In a situation where many other issues in the field of transport have not been attended to it can appear extravagant to introduce something that generate extra costs like a sulphur emission control area (SECA) as has been outlined here for Kenya (see 3.8). The costs are high and would, at a reasonable development of oil prices, add approximately USD 10 per tonne to each tonne handled in Kenya, but the advantages are also numerous. Although much more difficult to pin down and set an exact value to. A deeper study, using a real data-set, could prove to become a milestone for Kenya in this field. A simplification and standardisation of the work process could lead to a considerable knowledge transfer of best-practice to other African countries in a field where Swedish has come to be established as a knowledge centre.

Sources:

ADBG 2009 African Development Bank Group, Tunis; Project Portfolio – Kenya www.adbg.org

ADI 2007 Africa Development Indicators, World Bank 2007; www.worldbank.org

Africa Business Daily 2009 Africa Business Daily, Nairobi ; www.businessdailyafrica.com

Agpaoc 2008 l'Association de Gestion des Ports de l'Afrique de l'Ouest et du Centre www.agpaoc.org

AllAfrica 2009 All Africa Newsservice, Kampala; www.allAfrica.com

BP 2009 BP Statistical Review of World Energy, June 2009; www.BP.com

Bistol 2006 National Union of Rail, Maritime & Transport Workers, Bristol Branch www.rmtbristol.org.uk/2006/11/kenya_uganda_hand_over_railway.html

Brodin 2003 Baltic Sea Ports and Russian Foreign Trade; Handelshögskolan Göteborg www.ub.gu.se/sok/dissdatabas/detaljvy.xml?id=5778

Bollore 2009 Bolloré Logistic Group; www.bollore-africa-logistics.com – news section

Bulk Materials International 2009 www.bulkmaterialsinternational.com

Containerisation International 2009 www.ci-online.co.uk Container Rate Benchmark Report

Drewry 2006 Drewry Shipping Consultant Ltd; London; www.drewry.co.uk/

Drewry 2009 Drewry Shipping Consultant Ltd; London; Container Rate Benchmark Report

Daily Independent 2009 The Daily Independent, Lagos, Nigeria, www.independentonline.com

Economist 2009 The Economist www.econmist.co.uk

EIU 2009 The Economist Intelligence Unit, Business Africa; www.econmist.co.uk

EU 2009 Maritime Transport Strategy 2009 – 2018; www.ec.europa.eu/transport/citizen/doc/2009_maritime_policy_space_en.pdf

Getma 2009 Getma International, Paris; www.getma.fr

Ghana Shippers Council 2009 Transport study, July 13, 2009; www.ghanashipperscouncil.org

Globalreseach 2009 Global Research, Montreal, Canada www.globalreseach.ca

IHS IHS Global Insight, Financial and Economic Analytics, Lexington; www.ihsglobalinsight.com

IMF 2009 International Monetary Fund, World Economic Statistics Database; www.imf.org

Independent 2009 The Independent Newspaper, London; www.independent.co.uk

ITF 2009 International Transport Forum, *Short Term Database by Country* www.internationaltransportforum.org

KPRL Kenya Petroleum Refinery Limited, Mombasa; *Future investments* www.kprl.co.ke

KMA 2009 Kenya Maritime Authority, Mombasa; www.maritimeauthority.co.ke

MPA 2009 Maritime and Port Authority of Singapore; www.mpa.gov.sg; *Statistics*

Moscow Times 2009 The Moscow Times, Moscow; www.themoscowtimes.com

Port Strategy 2009 Port Strategy Magazine; www.portstrategy.com

RDZ 2009 Russian State Railways; Moscow; www.RDZ.ru
Richards Bay 2009 Richards Bay Coal Terminal, Richards Bay, www.rbct.co.za/
SST 2009 Swedish Shipping Gazette, Göteborg; Sjöfartens bok 2009
SBB2009 Steel Business Briefing; www.steelbb.com
Subsea 2009 Subsea Industry News; www.subseaworld.com

The East African 2009 The East African, Nairobi; www.theeastafrican.co.ke
The Times 2009 The Times, London; www.timesonline.co.uk
The Reporter 2009 The Reporter, Addis Ababa; bi-weekly free press, www.etheopianreporter.com
This Day 2009 This Day, Lagos daily; www.thisdayonline.com/
TogoPort 2009 Port Autonome de Lomé; www.togoport.tg

Tradewind 2009 Tradewind Shipping Magazine, Oslo; www.tradewind.com
UNCTAD 2007 Maritime Security: ISPS Code Implementation, Costs and Related Financing, UNCTAD/SDTE/TLB/2007/1
UNCTAD 2009 United Nations Conference on Trade and Development, "*Economic Development in Africa 2009*"; www.unctad.org

World Bank 2007 Sub-Saharan Africa Transport Policy Program (SSATP) UNECA and The World Bank
World Bank 2008 Port Sector Africa - Diagnosis Infrastructure Study
World Bank 2009 World Bank Statistics Database; www.worldbank.org

Appendix 1.

Table A1 Members of Maritime Organisation of West and Central Africa - MOMCA

(*Organisation Maritime de l'Afrique de l'Ouest du Centre – OMAOC*)

Country	*Country*	*Country*
Angola	Benin	Cameroun
Cap Verde	Congo	Cote d'Ivoire
Gabon	Gambia	Guniee Conakry
Guinee Bissau	Guniee Equatorial	Liberia
Mauritania	Nigeria	Dem. Rep. du Congo
Sao Thome Principe	Togo	
OMAOC Associate:	**OMAOC Observer:**	
Burkina Faso	France	
Niger	Spain	

Source: www.momca.org

Table A2 Members of Port Management Association of Eastern and Southern Africa – PMAESA

The members of the organisation are not countries as both ports and maritime administrations can be members. The organisation also incorporates land locked countries like Burundi and Rwanda.

Country	*Country*	*Country*
Angola	Burundi	Djibuti
Eritrea	Kenya	Madagaskar
Maurtius	Reunion	Seychelles
Sudan	Tanzania	

Source: www.pmaesa.org

Table A3 Member of South African Port Organisation

Country	*Country*	*Country*
South Africa	Namibia	

Source: www.transnetnationalportsauthority.net/

Appendix 2.

Background and Development of IMO

Shipping is perhaps the most international of the world's industries, serving more than 90 per cent of global trade. However, the ownership and management around ships has always embraced many countries and ships can spend their economic life moving between many different jurisdictions. There is, therefore, a need for international standards to regulate shipping, which can be adopted and accepted by all, but also amended.

The Convention establishing the International Maritime Organization (IMO) was adopted in Geneva in 1948 and IMO first met in 1959. IMO's main task has been to develop and maintain a comprehensive regulatory framework for shipping and its remit today includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping.

The IMO today is a specialized agency of the United Nations with 168 Member States and three Associate Members. The technical work of the IMO is performed in specialized committees and sub-committees that continuously update existing legislation or develop and adopt new regulations. The result is a comprehensive body of international conventions, supported by hundreds of recommendations governing every facet of shipping. There are, firstly, some key conventions; SOLAS where measures aim at the prevention of accidents, including standards for ship design, construction, equipment, operation and manning, the MARPOL convention for the prevention of pollution by ships and the STCW convention on standards of training for seafarers. The very first of these maritime treaties date back to the 19th century. Later, the Titanic disaster of 1912 spawned the first international safety of life at sea, SOLAS convention, still the most important treaty addressing maritime safety. The International Convention for the Prevention of Pollution from Ships, 1973, and modified by a new Protocol in 1978, therefore related to as MARPOL 73/78, covers not only accidental and operational oil pollution but also pollution by chemicals, goods in packaged form, sewage, garbage and air pollution and is a convention under intense constant scrutiny.

In addition to the above there are measures which recognize that accidents do happen, including rules concerning distress and safety communications, the International Convention on Search and Rescue and the International Convention on Oil Pollution Preparedness, Response and Co-operation.

Finally, there are conventions which establish compensation and liability regimes, e.g. Civil Liability for Oil Pollution Damage, the International Fund for Compensation for Oil Pollution Damage and the Athens Convention covering liability and compensation for passengers hurt or killed at sea.

It is the responsibility of Governments to implement the regulations adopted. IMO's Technical Co-operation Programme (TCP), under the Technical Co-operation Committee (TCC), but IMO will assist Governments which lack the technical knowledge and resources that are needed to operate a shipping industry properly. The emphasis of such programme is very much on training. Perhaps the best example of IMO training facilities is the World Maritime University (WMU) in Malmö, Sweden, established in 1983. WMU provides advanced training for the men and women in maritime administration, education and management. A recent example of the need for training is the entry into force in July 2004 of a new, comprehensive security regime for international shipping, including the International Ship and Port Facility Security Code (ISPS), made mandatory under amendments to SOLAS adopted in 2002. ISPS is an important new convention for many resource-shy members, where IMO has assisted a considerable number of countries with training.

Today, we live in a society which is supported by a global economy, which simply could not function if it were not for shipping. IMO plays a key role in ensuring that lives at sea are not put at risk and that the marine environment is not polluted by shipping - as summed-up in IMO's mission statement:

The Mission of IMO:
Safe, Secure and Efficient Shipping on Clean Oceans

Abbreviations:

ADB	African Development Bank
ADI	African Development Index
AMATO	Association of Maritime Truck Owners (Nigeria)
APM	A.P. Möller Maersk Terminals
BBC	British Broadcasting Corporation
Bn	Billion
BR	Botswana Railways
DP World	Dubai Ports World
DMC	DMC Mining Company Ltd
Dwt	Dead weight tons; tonnes of load, including bunker oil and inventories, a ship can take onboard
EAC	East African Community
EEZ	Exclusive Economic Zone
EU	European Union
EUR	Euro
FAL (IMO)	Facilitation of International Maritime Traffic Convention
FAO	Food and Agriculture Organization of the United Nation
FPSO's	Floating Production and Storage Platform
GDP	Gross Domestic Product
GSC	Ghana Shippers Council
GT	Gross Tonnage
HELCOM	Helsinki Commission
HPH	Hutchinson Port Holdings
IEA	International Energy Agency
IGA	Inter Governmental Accord
ITCP (IMO)	International Technical Co-operation Programme
ITF	International Transport Workers' Federation
ILO	International Labour Organization
IMO	International Maritime Organization
ISPS (IMO)	International Ship and Port Facility Security Code
KMA	Kenya Maritime Authority
KPA	Kenya Ports Authority
KPRL	Kenya Petroleum Refineries Limited
LDC	Least-Developed Countries
LNG	Liquid Natural Gas Carrier
LPG	Liquefied Petroleum Gas
MAN	Maritime Academy of Nigeria
MARPOL(IMO	)International Convention for the Prevention of Pollution from Ships
MDG	Millennium Development Goals
MEND	Movement for the Emancipation of the Niger Delta
MEPC (IMO)	Maritime Environmental Protection Committee

MGO Marine Gas Oil
MOWCA/OMAOC Maritime Organisation of West and Central Africa
MOSOP Movement for the Summit of the Ogoni People
MPA Maritime and Port Authority of Singapore
MRCC Maritime Rescue and Co-ordination Centre

mty Million tonnes per year
MOU Memorandum of Understanding
NAGAFF National Association of Government Approved Freight Forwarders
NCS Nigeria Customs Service
NCMDLCA National Council of Managing Directors of Licensed Customs Agents (Nigeria)

NEPAD New Partnership for Africa's Development
NGS Nigeria Customs Service
NIMASA Nigerian Maritime Administration and Safety Agency
NOx Nitrogen Oxide
NPA Nigerian Port Authority

OECD Organisation for Economic Co-operation and Development
OPEC Organization of Petroleum Exporting Countries
OPRC (IMO) Oil-spill Response and preparedness Convention
RMU Regional Maritime University
PSSA Particularly Sensitive Sea Area (IMO)

PSA Port of Singapore Administration
RDZ Russian State Railway
SADC Southern African Development Community
SAR Search and Rescue
SECA Sulphur Emission Control Area (IMO)

SEK Swedish Crown
SIDS Small Island Developing States
SOLAS Safety of Life at Sea (IMO)
SOx Sulphur Oxide
SSA Sub-Sahara Africa

STCW (IMO) International Convention on Standards of Training, Certification and Watchkeeping
SUA Suppression of Unlawful Acts against Safety of Shipping Convention (IMO)
TCP (IMO) Technical Co-operation Programme
TEU Twenty-foot Equivalent Unit
TSGP Trans-Sahara Gas Project

UN United Nation
UNEP United Nations Environment Programme
UNCTAD United Nations Conference on Trade and Development

UNHCR Office of the United Nations High Commissioner for Refugees
USD United States Dollar
WB World Bank