

**The  
Changing  
Structure of  
Transport under  
Trade Liberalisation  
and Globalization and its  
Impact on African Development**

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## Contents

|  |    |
|--|----|
| Abstract .....   | 1  |
| 1 The changing relations between transport and development ..... | 1  |
| 2 The logistic chain .....                                       | 4  |
| 3 Changing intercontinental transport .....                      | 5  |
| Shipping .....   | 5  |
| Air transport .....  | 8  |
| 4 The intra-African international transport .....                | 10 |
| Changing patterns of intra-African trade .....                   | 10 |
| Intra-African maritime shipping .....                            | 10 |
| Inland transport .....   | 11 |
| 5 Rural transport .....  | 15 |
| 6 Transport and development in Africa .....                      | 16 |
| Notes .....  | 19 |
| References .....   | 21 |

## **Abstract**

*Until the early 1970s transport costs were among the most important explaining factors in economic geography and theories of regional and industrial development, but during the 1970s transportation and transport costs disappeared almost completely out of mainstream economic geography. Transport geography became a niche concerned with the transport system itself but with few linkages to economic and industrial development. There was two reasons for this. First, a number of studies during the 1960s showed that there was no clear relationship between transport and development. Secondly, the interest of location theory shifted from the independent enterprise to the large multi-location, multinational organisation, where the internal restructuring of the large organisation was seen to be more important than transport costs, which anyway were seen to be decreasing and therefore become less important. However, during the 1990s transport and communication appear slowly to be on their way into the mainstream again, but now transformed into the much broader concept of logistics, which has become an increasingly important element in the organisation and restructuring of the globalizing economy. From being an external factor of location transport and communication have become an integrated part of the production and distribution system. The structures of transportation and production are therefore highly interdependent, not at the level of individual investments but at a broader national, international and global systemic level. The rapid restructuring of the global transport system taking place at present therefore is likely to get a profound impact on the processes of globalization, not only in the industrialised and industrialising world, but also in Africa. On this background the paper investigates some of the changes taking place in the global transport system and discusses their impact on African development.*

## **1 The changing relations between transport and development**

Until the 1960s transport costs were generally seen as one of the main factors explaining the location of economic activities, and it was the central organising principle in most location theories. This changed dramatically during the early 1970s, apparently for two reasons. First a number of empirical studies during the 1960s and early 1970s showed that there was no simple relationship between transport investments and development, in fact in some cases improved transport to peripheral regions led to close down of economic activities due to increased competition from imports (see e.g. the discussion in Hilling 1996). Secondly, the pattern of industrial relocation changed. Where earlier industrial development was seen as a result of the location or relocation of independent enterprises, large enterprises increasingly were seen to build branch plants with a minimum of investments and management functions in low-wage areas or

to outsource production functions to low-cost subcontractors. As a result regional development and later internationalisation and globalization, came to be seen as processes of internal restructuring of large, multi location, multinational enterprises which dispersed different production functions to those regions and countries over the globe where the specific costs of labour and other production inputs were lowest (Massey and Meegan 1979 and Fröbel, Heinrich and Kreye 1980). Even where low transport costs were recognized as a prerequisite for this process of dispersion to happen, it was generally assumed that transport costs now were so low and rapidly decreasing that they had no longer any importance for the location of production.

As a result transport largely disappeared out of studies of economic and regional development during the 1970s and 1980s. A standard text on international restructuring, such as Dicken (1992), has no references to transport issues at all and Storper and Walker (1989) only have a single reference stating the unimportance of transport. Transport geography became a niche concerned with the development of the transport system itself in response to technological change and economic development, but not as a factor of importance for broader processes of economic and industrial development (see e.g. the overview of transport geography in the United States in Taaffe and Gauthier 1994). This is illustrated by the recent textbooks on transport geography by Hilling (1996) and Simon (1996). They report on the old transport/development debate but have little to say about the effect on development of the rapid current changes in transport technology and organisation.

The argument about falling importance of transport, however, suffers from a number of problems. First, although the average per unit costs of transport have been reduced, overall transport costs have generally not decreased, because the amount and length of transport have increased as rapidly as the unit costs have decreased. Thus in spite of reduced transport costs the size of the transport sector as a percent of GDP has generally not decreased, and the availability of infrastructures and services has become increasingly important <sup>1</sup>).

Secondly, although unit costs of transport and communication have decreased they have not decreased equally for all types of commodities and consignments, all types of communication and all origins and destinations. In fact transport and communication costs depend increasingly on the availability of infrastructure and the density of demand on specific links, and here Africa is especially disadvantaged with a low and dispersed demand and many landlocked countries, which are difficult to serve. In addition, large infrastructure projects seem especially susceptible to corrupt tendering, diversion of funds and materials, and bad management and maintenance, partly resulting from politically appointed managers. Consequently, African infrastructures are, in spite of heavy donor support, of low density and poor quality. Road management and maintenance were generally given low priority until the last decade where donors increasingly have pressed for improved maintenance (Heggie 1955). International connections are mostly controlled by multinational shipping companies and airlines, although South African capital is now also

investing in African shipping, air and rail links. UNCTAD (1998) estimates that freight costs as a percentage of the total value of imports are almost 14% in Sub-Saharan Africa, while only 4% for the developed countries and 8% for the developing countries as a whole. For the landlocked countries in Africa it varies between 20-40%. Thus the infrastructure development in Africa has not resulted in decreases in transport and communication costs comparable with those achieved in other parts of the world.

Thirdly, although merchandise production has increased rapidly and merchandise is increasingly shipped around the world, the percentage of the work force even in the industrialised countries producing directly for the non-local market has only changed marginally during the last hundred years, because merchandise production has become more and more efficient and employ a decreasing share of the work force. Therefore, even if transport costs related to a specific production have gone down their share of the total production costs may not have. It also means that the local production environment and the production for the local market remain important in spite of the globalization (see e.g. Krugman 1996).

Fourthly, the current trend towards globalization implies an externalisation of production and service functions which used to be performed in-house in the enterprises and a regrouping of them at a larger national, international or global scale. As a result internal transport, communication and storage costs have become partly substitutable with external transport and communication services. Enterprises no longer attempt to minimize their external transport and communication costs but the logistic costs covering the total costs of internal and external transport and storage and the transaction costs covering internal and external communication costs and costs of negotiating contracts and favours with other enterprises and public authorities (Pedersen 1997b). These costs are often much larger than the external transport and communication costs. The possibility of substitution between internal and external logistic costs increases the importance of the local and regional production environment, comprising both private production and service enterprises and public infrastructures and services which can help reduce the logistic and transaction costs, and create what Schmitz (1990) has called collective efficiency. Therefore transport costs can no longer be seen as an isolated element, as they were in the old location theories, but must be seen as an integral part of the dispersed production process. At the same time, the different modes of transport must be seen as related to each other as links in the transport chain in which other services such as storage, packaging, forwarding, trade finance and insurance, may also be part. Thus, the effect of transport cannot be studied at the level of the individual investment. To understand the effect of transport on economic development one must focus on the transport system as a whole and the way it is integrated into the processes of production, distribution and consumption. In this much broader perspective transport is now resuming a new importance as a factor structuring economic development.

There is in the literature a number of indications of such a renewed interest in the relationship between transport and development. It is evident in the increased focus on geography, space and agglomeration economies in the new economic growth and international trade theories (Krugman 1996), and in the increased focus on trade and services in studies of local as well as global development (see Pedersen 1998). But maybe it is most evident in more recent attempts to link transport and economic development at the macro level in studies of globalization (Janelle and Beuthe 1997) and of the long cycles which have often been explained by shifts in sources of energy and means of transportation (see e.g. Rodrigue, Comtois and Slack 1997).

However, these different new approaches generally stop short of studying the increasing integration between transport, production and distribution taking place in the globalizing economy.

## **2 The logistic chain**

What has come to be known as the logistic chain can be a tool to such a broader systemic approach to the study of the transport sector. The logistic chain consists of a series of links which together attach the (raw material) producer with the (final) consumer. The individual links in the chain may consist of different modes of transport, different processing, packaging or storage activities, and at the transfer from one link to the next a number of private or public services may be performed.

Until the 1970s the attention of most manufacturing and trading firms tended to be on marketing and distribution. However, internationalisation of production during the 1980s and 1990s has led to increased focus on supply management and the logistic chain. The reason for this is that the internationalisation of production has increased the freight flows, not only of raw materials and final products but especially of intermediate goods and components between producers and their still longer chains of suppliers, subcontractors and branch plants, and led to increasing problems of coordination which the enterprises attempt to solve by increased focus on the logistic chain and developing supply management and just-in-time production systems.

This has fed back on the transport sector in the form of reorganisation of the individual modes of transportation, increased competition between them, and attempts to integrate the different modes into door-to-door transport chains in order to serve regionalising or globalizing producers and distributors. Rapid containerisation has been one of the most important element in this process.

These developments in the transport system started in North America and Europe but has during the last two decades also transformed the transport systems in the industrialising areas of Southeast Asia as well as the intercontinental links between the three world regions. However, until the late 1980s these restructuring processes had only limited impact on Africa. As primarily manufactured goods were containerised, it was largely irrelevant for African export. African imports were to a large extent containerised, because the European exporters required that, but the impact of this on the transport costs was probably limited, because African infrastructure was not geared to receive the containers, and because imports were limited by lack of foreign currency.

However, during the 1990s trade liberalisation and privatisation has started a process of change which has been invigorated by increased competition from South Africa following the end of the embargo on South Africa in 1994. At the same time restructuring of the transport system at a global scale, partly as a result of transport liberalisation, is changing the position of Africa in the global transport network.

In the following we shall discuss some of these changes under way in the world transport system as seen from Africa and their likely consequences for African development.

### **3 Changing intercontinental transport**

#### **Shipping**

The intercontinental transport is dominated by shipping, either tramp or liner traffic. Since the 1970s containerisation has revolutionized shipping and especially liner shipping. Introduction of containers has reduced the costs of packaging, breakages and theft, but first of all it has simplified the process of transshipment between different modes of transport and opened up for the creation of multi-mode door-to-door transport, and become a pre-condition for the internationalisation of subcontracting and just-in-time production systems. However, the transport improvements achieved through containerisation during the first decades primarily benefitted transport of manufactured goods. In an African context it therefore mainly benefitted the import trade and not the exports, which mostly consisted of bulk goods. This generally led to lack of return freight for the lines and therefore high transport rates. As a result containerisation most likely contributed to the marginalisation of African economies during the 1970s and 1980s.

However, the importance of liner traffic has increased because the degree of containerisation has increased. This is partly because trade in manufactured goods has increased, but also because a number of goods, which used to be transported in bulk, are being containerised, e.g. fruits, meat

and fish (Branch 1998) and increasingly also coffee. One of the reasons for this is the skew distribution of traffic in many ports, and among those the African ports. In general the total tonnage of outgoing bulkgoods from the African countries is much larger than the flow of incoming bulk goods, while the inflow of container goods is larger than the outflow. Transport rates for outgoing containers therefore tend to be lower (often only half) than for incoming containers, so there is an urge to shift higher value bulk goods to container transport.

Containerisation also makes it possible to secure a more continuous flow of produce (because the goods do not need to await a full shipload but can go when a container has been filled), which reduces the cash flow problems, at the same time as it is possible to secure a higher quality standard. Containerisation may therefore improve the possibilities for increased local processing of raw materials. For instance, in West Africa containerisation has been important for the development of saw mills and a shift from export of logs shipped in bulk to export of planks shipped in containers. During the last decade containerisation therefore appear to have become increasingly important also for Africa.

However, the growth of container traffic requires increasing investments in ports and freight handling equipment and a growing administrative capacity to operate the ports efficiently. It also put increasing pressure on the road and rail infrastructure necessary to connect the port with its hinterland. Worldwide the tendency has therefore been to concentrate the container traffic in large hubports, which also increases the chances of getting a more balanced traffic (see e.g. Fleming and Hayuth 1994 (on the world), Notteboom 1997(on Europe) and Wang 1998 (on Southeast Asia) and Walker 1984 (on the Middle East).

The African countries generally have not been able to satisfy these requirements. In spite of large donor support African ports have remained serious bottlenecks, which have contributed to the high transport costs. The African Development Bank (1999) refer to studies showing that while it takes 20 days to transport a container from Europe to Mombasa, it takes 40 days to get it to Kampala, to a large extent due to delays in the harbour.

The increasing need for rapid door-to-door transport led during the 1970s and 1980s to the development of large transnational freight forwarders with offices all over the world (including Africa) which on behalf of the transport buyers undertake to manage the multi-mode logistic chain linking shipping with road, rail and air transport, including transshipment import/export clearance, customs payment and sometimes also storage, packaging and other services. Some of the large freight forwarders are also transporters, but others subcontract transport services from independent transporters. The growth of the large freight forwarders has partly been based on the introduction of information technology in managing and controlling the commodity flows, and forwarding has become one of the most profitable activities in the logistic chain.

At the same time as many freight forwarders outsource their use of transport services, large transport companies therefore attempt to expand into multi-modal activities and forwarding. During the 1990s this has led towards a structural change in the organisation of liner shipping. On the one hand, the port-to-port shipping lines are, in order to shorten the travel time, complemented by land (often rail based) and air bridges, often organised by consortia of complementary transport companies. On the other hand, the port-to-port shipping lines organised in shipping conferences are being substituted by a hub-and-spoke system of shipping lines with the hubs located along a system of around-the-world lines linking the industrialised areas in Europe, Southeast Asia and North America, and organised by the largest shipping companies or their strategic alliances with complementary transport firms. The main lines around-the-world are served by a new generation of large container ships with room for about 6000 TEU containers. They only serve a limited number of large hubports which are able to guarantee a rapid transshipment of the containers, to and from land or air cargo bridges and regional feeder lines serving ports outside the main lines. In order to guarantee a rapid transshipment the large liner companies are investing in their own port terminals. The large liner companies also own large numbers of containers (100,-250,000 each) which they provide for transport buyers as part of the deal, (they now own more than half of the worlds fleet of containers for rent, the other half being owned by large specialised container leasing companies); and they increasingly offer door-to-door services especially to large transport buyers in competition with the large freight forwarders, who fear that their market shall be eroded (European Commission 1996). The process also appears to limit the powers of the shipping conferences.

As a consequence of this new strategy Maersk Line, which has a large share of the African shipping, is now concentrating most of their freight between Africa and Europe on feeder lines to hubports on their around-the-world line, from West Africa in Algeciras in Southern Spain and from East Africa in Jebel Ali near Dubai in the Persian Gulf. Here the freight is transhipped to the main line, either eastbound or westbound. Due to the very short transshipment time in the hubport this restructuring of the service may not reduce the transport time and service to Europe. On the other hand, not being on a direct line is likely to reduce the relative position of Sub-Saharan Africa on the European market. However, linking the African ports to the large hubports is likely to increase the frequency of services to other destinations on the around-the-world line, especially Southeast Asia and North America, which at present are more poorly served. This will support the emerging shift in African trade away from the European market towards the growing Asian market.

Also within Africa there is a tendency towards concentration of the traffic on hubports. In West Africa, Abidjan seems to be developing into such a hub (Iheduru 1996). However, many of the ports which could aspire for a hub status have serious capacity problems which constrain their development into hubs (see e.g. Dickinson 1984, and Hoyle and Charlier 1995). For instance, land transport costs to Durban in South Africa today are so low that it would attract much more

traffic from Central and Southern Africa if it had the excess capacity. To increase the port capacity South Africa has in collaboration with Mozambique engaged in a project to develop Maputo port and a new transport corridor between Johannesburg and Maputo, which is closer to Johannesburg than Durban.

For landlocked countries, which today can choose between alternative transport corridors, the creation of hubports may effectively limit their choice.

### **Air transport**

International air traffic has traditionally been organised on the basis of bilateral government agreements between national airlines, but since the 1970s it has increasingly been liberalised, first in the USA, and later also in Europe and the rest of the world. This liberalisation has led to a concentration of the airlines, in the USA first by acquisitions but during the 1990s and in Europe especially by the creation of strategic alliances between the airlines (Debbage 1994). This has especially in North America (Morrison and Winston 1995), but increasingly also in Europe (Dennis 1994) and Southeast Asia (O'Connor 1995) led to the restructuring of the route network into a hub-and-spoke system, where each of the hubs tend to be dominated by one airline or alliance of airlines.

Air freight originally developed as a byproduct of passenger traffic, transporting spare parts and other small consignments of goods requiring rapid transport and using excess capacity on passenger flights. Therefore air freight capacity has been very dependent on the size of the passenger traffic.

However, as air freight has grown rapidly and become an increasingly important element of international trade, it has developed into transport of large consignments and is increasingly using special all-cargo aeroplanes. For instance is Dubai developing into a transfer centre for an air/sea transport between North America/Europe and Southeast Asia, where goods are flown between North America or Europe and Dubai and then shipped between Dubai and Asian destinations (Fleming and Hayuth 1994 and Branch 1998).

Air passenger traffic in Africa has been growing much slower than in the industrialised world and in many airports has even stagnated. Most African airlines have been ailing, many are being privatised, some have tried (so far with limited success) to collaborate in regional airlines (such as Air Afrique in West Africa and the Alliance Airline Services, between South Africa, Tanzania and Uganda), a few such as Kenya Airways have been accepted as junior partners by one of the large European Airlines (KLM). Liberalisation and privatisation of the African airlines have during the 1990s tended to reduce both domestic and international route networks. In Nigeria, for instance, the number of domestic air routes dropped from 63 in 1983 to 15 in the mid-1990s, but with only a small reduction in the total passenger movement (Akpoghomeh 1999).

As in other parts of the world international air traffic has also in Africa tended to concentrate on a few hub airports, with many intercontinental connections, from which other African capitals are served with feeder lines. Between 1986 and 1996 Johannesburg, Nairobi and Dakar developed into the most important intercontinental hubs in Sub-Saharan Africa. Lagos, Abidjan and Khartoum have lost position, while Mauritius is aspiring to become a new hub especially for Africa-Asian connections (see Fig. 1). Also Mahe Island (Seychelles) and Durban have increased their intercontinental connections. In terms of inter-African connections Johannesburg has developed into the most important hub. Nairobi and Lagos have lost position but still make up a second layer of important African hubs together with Abidjan, Dakar and Addis Ababa. Many of the other African capitals, such as Harare, Lusaka, Dar es Salaam and Brazzaville have lost connections. Only few, such as Asmara, Accra and N'Djamena have gained connections, and today most capitals have a very similar low level of both African and intercontinental connections.

The rapid increase in export of flowers and vegetables from Africa to Europe and increasingly also Asia, has been based on air transport. The strong dependency of air transport on the transport capacity of passenger flights, means that the growth of flower and vegetable production has been concentrated in countries with a hub airport and a large air passenger traffic. This tends to be countries with large tourism, many international organisations or a large white settler population, such as Kenya, Zimbabwe and Cote d'Ivoire. At present there appears to be an increasing traffic of all-cargo planes, and some of the large airports, e.g. Nairobi, have together with large international airlines been investing in large air cargo centres.

In airports such as Nairobi with a large and increasing export of flowers and vegetables, the outflow tends to be much larger than the inflow, therefore the transport rate for imports by air tends to be low (in Nairobi the rate is around 1.5 US\$/kg for exports, but only around 1.0 US\$/kg for imports) and manufactured goods which used to go by ship are now transported by air, especially if they are imported in small consignments and to in-land destinations.

Just as the development by the large shipping companies of integrated door-to-door transport services is threatening to erode the large consignment market of the freight forwarders, the small consignment market is being eroded by international couriers and parcel carriers which have taken advantage of the growing air transport opportunities, and increasingly also by the attempts of the large international airlines and their alliances to develop international cargo information systems, which should make it possible for the airlines to change their present airport-to-airport service into a world-wide door-to-door service (European Commission 1996).

Which impact this development will have on the African transport system is too early to say, but there seems to be little doubt that it will favour a further development of the large hub airports and the regions around them.

## **4 The intra-African international transport**

### **Changing patterns of intra-African trade**

Until the introduction of the structural adjustment policies in the 1980s and especially in the 1990s, trade between the African countries generally had low priority, in fact it was mostly seen as synonymous with smuggling in order to benefit from differences in the national pricing policies on agricultural products. It was generally argued that as the African countries largely produced the same products, there was limited basis for trade between them. In addition the main purpose of export trade under import substitution was to earn hard currency, and this was not achieved by trade with the neighbouring countries. Formal trade between the African countries therefore made up less than 5% of the total African foreign trade. As a result the most important commodity flows between the African countries were on the one hand the transit trade between the landlocked countries and their export/import harbours, and on the other hand, the unrecorded, illegal or semilegal, border trade, which has always played an important role along many African borders.

Since the end of the 1980s the structural adjustment policies have tended to change this picture. Liberalisation of the African currencies has made it possible to earn hard currency on trade with the other African countries. It has also increasingly been realised that although African countries have similar production structures, seasonal and climatic swings in the agricultural production and specialisations in manufacturing and services still give unexploited opportunities for increased intra-African trade (Park 1993, Weeks 1996). Liberalisation of the Intra-African trade has also during the 1990s led to increased trade, though trade is still small (around 10% by the mid-1990s). Furthermore, most of the increase can be attributed to a few countries: Nigeria has increased its export of oil to the other West African countries; Kenya has increased its exports (to a large extent of manufactured goods) to other African countries especially in East Africa from 9% of its total export in 1986 to almost 50% in the mid-1990s (McCormick and Pedersen 1999); and first of all, since the embargo on its trade was lifted in 1993, South Africa has increased its export to the other African countries dramatically.

### **Intra-African maritime shipping**

After independence most coastal countries in Africa established national shipping companies, supported by a UN charter reserving 40% of the nationally generated freight for national carriers. However, most of these national shipping companies have very little transport capacity and play a limited role for the inter-African trade. Some operate feeder lines, but today many of them operate mostly as shipping agents for the 40% reserved national freight, chartering space on international carriers (UNCTAD 1995).

The expansion of Kenyan export in East Africa and of South African export to Sub-Saharan Africa, in competition with traditional imports from Europe, has to a large extent been based on the protection offered by lower transport costs, and in spite of a fairly low productivity in South African and especially Kenyan manufacturing industries. Kenyan export especially to Uganda, Rwanda and Northern Congo/Zaire has been able to benefit from the already existing transport capacity developed to serve the transit traffic from Mombasa. And South African export expansion has been based on the advantage offered by the shorter and cheaper sea-transport to East and West Africa from South Africa than from Europe. For instance, transport time from Durban to Mombasa is five days against 28 days from Europe to Mombasa.

In correspondence with this Iheduru (1996) saw the development of a strong South African shipping industry as one of the prerequisites for the expansion of South African trade with Sub-Saharan Africa. He describes how Safmarine and Unicorn, the two leading shipping companies in South Africa, during the early 1990s expanded their control of African shipping networks through strategic alliances with large European shipping companies and space chartering agreements with the small African national carriers with little or no transport capacity of their own. However, in 1998 Safmarine was sold to the Danish Maersk Line. Which influence this will have on the future South African trade is too early to say, but it may in fact strengthen Safmarine's African lines, because they will be developed as feeder lines to Maersk's around-the-world lines. It may also strengthen South Africa's position as a hub on a southern route between South America and Australia/Far East.

### **Inland transport**

However, the weak point of intra-African transport is not the shipping but the transshipment in the ports and the inland transport, originally by rail and inland waterways, but increasingly by road. Ports, railways and roads all have suffered from insufficient investments and poor management. The railroads have increasingly given in to the competition from the trucking industry. However, the trucking industry has had its own problems in the form of poorly maintained roads, and an old truck fleet and limited competition due to restrictions on the import of new trucks.

### *Ports*

The capacity of the African ports generally have not been able to follow the increasing demand for transport, partly because investment in port development and material handling equipment has been insufficient, and partly because management has often been poor. However, bottlenecks in the traffic flows have been due not only to insufficient and poorly managed ports, but also to slow and often corrupt customs clearance and lack of coordination with land transport, especially the railways. Slow introduction of electronic traffic management systems and telecommunication has contributed to this.

One of the solutions to the insufficient capacity of the ports has been to establish inland ports closer to the receivers of the freight. This removes some functions, such as customs clearance and storage from the seaport. The full effect of the inland port, however, requires that the customs authorities are willing to let sealed containers into the country without customs clearance and inspection until it reaches the inland port, and most African countries have been reluctant to do that (Ngwenya 1993), because they fear (apparently with some right in e.g. Kenya) not to be able to control that the goods are not diverted into the local economy without paying duties and taxes.

As part of the structural adjustment policies it has been attempted to improve the efficiency of ports through privatisation or commercialisation, but this has generally been a very slow process the result of which remains to be seen.

In some ports the shipping conferences or alliances have been allowed to administer their own quays, and some services such as the pre-customs inspection have been privatised in order to avoid corruption, but in total the result so far appears to be limited. Other ports (e.g. Maputo) are planning to contract port administration out to a large international port management firm, which is already managing a number of large ports in other parts of the world.

### *Roads*

One of the reasons for the limited development of the *trucking industry* in Africa has been that parastatals and large private industries operated their own in-house fleet of trucks. This was part of a general pattern of vertical integration prevalent in African enterprises, partly due to a very unstable economic environment which made it more important to be selfsufficient than to be efficient, and partly because capital was cheap for those who could borrow it. In the transport sector this limited the development of an independent trucking industry and reduced the productivity of transport, because generally it is more difficult for in-house transport to secure return freight than it is for a transport company serving several customers. In agriculturally related transport with large seasonality this is especially problematic.

As a result the independent trucking industry in the African countries was developed primarily to serve the transit traffic between the ports and the landlocked countries; thus in East Africa it served the transit traffic from Mombasa and Dar es Salaam to Uganda, Burundi, Rwanda and Northeastern Congo rather than local industries (though it may also have served Kenyan export to other East African countries, which has increased rapidly since the end of the 1980s (McCormick and Pedersen 1999)).

However, since the mid-1990s increased competition due to trade liberalisation seems rapidly to be changing this pattern. In Kenya many of the large manufacturing enterprises are now selling their trucks and outsourcing their transport services to specialised transport firms. They are doing this partly to save capital which has become more expensive, and partly to reduce costs in order

to survive the increasing competition both from imports and from foreign, especially South African, firms investing in East Africa. The most noted example of this is Kenya Breweries, which have outsourced their distribution, but there are many other examples. <sup>2)3)</sup>

There also appears now to be an increasing international traffic of Kenyan and Zimbabwean busses and trucks to neighbouring countries and further afield; South African trucks drive at least to Malawi and probably also further north; and a number of non-African companies have recently attempted to establish transport businesses in Africa.

A recurrent complaint of the trucking industry has been the poor maintenance of the roads, which led to high accident rates and high costs of operation and maintenance of the vehicles. However, the poor maintenance standard to a large extent has been due to a rapid deterioration of roads caused by the inability (or unwillingness) of many governments (for instance the Kenyan and Tanzanian governments) to enforce axleload regulations.

A major change in the conditions of the trucking industry in Kenya therefore has been the decision of the government to finally enforce an eight tons axleload regulation, (though hard pressed by the donors, which made this a precondition for further support to road rehabilitation in Kenya). For many of the large truckers this has led to a reduction in the payload to almost half of what they used to carry. Therefore the industry obviously protested to a start, but appears now to have accepted the axleload regulation under the condition that everybody is to submit to the regulations, which have previously been subject to heavy corruption. The Kenyan transporters' organisation has required that the weigh bridges should be privatised with their participation, and this now appears to have been accepted by the government.

Although enforcement of the axleload regulation has reduced the payload and led to increased transport rates, it also increases the travel speed (which with the heavy overloads were often very low) and reduces the vehicle maintenance costs.

#### *Railways and inland waterways*

Railway services have suffered from poor infrastructure which often from the beginning was built with low-weight rails and design standards which are insufficient for today's traffic, and which in addition have deteriorated due to poor maintenance, as well as from a poorly maintained and managed rolling stock. The railways have therefore generally been losing the competition with the roads.

Lake transport has suffered from insufficient investment and poor maintenance and safety standards.

Attempts to privatise or commercialise the railroads and lake shipping have generally been slow in materialising, although some limited changes have taken place. In Tanzania lake shipping was already in the early 1990s separated from Tanzania Railroad Company (TRC) to form an independent (though not privatised) unit which now finally seems to be privatised; and in Kenya the Magadi line, which only serves the Magadi Soda mine, has recently been taken over by the mining company, which has also been allowed to operate their trains through to Mombasa on Kenya Railway's rails.

However, recent developments indicate that more important changes may be underway. The South African railway company, Spoornet (which operates on commercial conditions but is not privatised) has invested in both rails and rolling stock in a number of African countries, and has a management contract on the operation of the railways in southern and eastern Congo/Zaire. In Tanzania Spoornet has built a freight transfer station in Kidatu where it is now (since May 1999) possible to move containers between TAZARA railway (which has the same gauge as the railways in Southern Africa) to Tanzania Railroads Company (TRC) which has the narrower gauge used in East Africa. At the same time Spoornet has obtained a time share on the use of TRC's rails, which will make it possible for Spoornet to move freight between South Africa and Uganda at a much lower cost than via Durban and Mombasa. This undoubtedly will increase the competitiveness of South African goods in East Africa.

However, Spoornet is not the only interested party in the rail transport in Eastern and Southern Africa. A company (East African Railway Development Corporation, EARDC) formed by Canadian investors has recently set up offices in Dar es Salaam, Kampala and Nairobi in order to bid for the railways in Tanzania, Uganda, Kenya and Zambia once they are privatised (The East African Aug. 9-15, 1999).

Increased investments in the railroad systems and simplified border crossing procedures may, in combination with the enforcement of axleload regulations for trucks, potentially shift the competition between rail and road traffic more in favour of the rails. Faced with the threatening competition from Spoornet, Kenya Railways has recently reopened the direct freight trains between Mombasa and Kampala in the form of a block train, but apparently have difficulties in operating the trains regularly.

As a result of unstable rail traffic and increased road transport rates due to the enforcement of axleload regulations in Kenya, Ugandan traders at present appear to shift their preference of transit route from Kenya (Mombasa) to Tanzania (Dar es Salaam). However, insufficient shipping capacity on Lake Victoria at present is a major constraint for the traffic between Uganda and Tanzania. On the other hand, a number of private businessmen apparently are planning to invest in shipping routes after Tanzania has privatised TRC-Marine and allowed private investments, so the situation may rapidly change.

In total, the competitive position between the different transport corridors appears to be very unstable.

## 5 Rural transport

For most marketed agricultural crops rural transport is the first link in the transport chain. In many parts of rural Africa lack of market access is a major constraint for the expansion of crop production for the market, whether national or international (Platteau 1996). In order to overcome this constraint both governments and donors have since independence invested many resources in rural road programmes, and in many countries the rural roads network has expanded dramatically, though it has often not been well maintained. However, detailed studies of the patterns of rural transportation carried out since the mid-1980s show that, even where there is good road access, motorized traffic is responsible for only a minor part of the demand for transport in connection with the agricultural production or more broadly in the life of rural people. A major part of the transport taking place in the rural areas take place on the farm, between the fields and the farmstead, or on paths within or between villages, mostly on foot, but sometimes by use of intermediate forms of transport, such as bicycles, scotchcarts or donkeys. This is very time consuming and often a major constraint to the expansion of crop production (Barwell 1996, Sieber 1996 and Leinbach 1995).

Sieber (1996) therefore argues that rural roads must be complemented with the development and maintenance of foot paths, investments in intermediate means of transport, and the location of service activities in such a way that the demand for transport decreases. For the planning of such a development they propose an accessibility planning based on multimodal transport (Sieber 1999), which bears much resemblance to a logistic chain analysis.

A problem with the rural roads programmes is that the existence of rural roads does not in itself guarantee that there is access to motor vehicles. Thus, in most African rural areas there has been very few motor vehicles for hire. An important reason for this is that farmers before structural adjustment generally were not allowed to trade the main crops out of the local district, and this clearly is a major, though highly seasonal, market for transport in most rural areas. Therefore the only trucks stationed in rural areas often were those belonging to the local traders who use them for their own (often monopolistic) purposes, and who have opportunities for utilising their trucks year round. For instance, in two district service centres in Zimbabwe which have 10,- 20,000 inh. (but serves rural districts with 300,000 inh. each) there was in the early 1990s only one truck for hire in each of the two centres (Pedersen 1997a). In Kenya the *matatus* (minibuses) serving the rural areas since the 1970s have played an important role in creating market access for farmers, in Ghana the *tro-tro* has played a similar role (Grieco, Apt and Turner 1996), but in Tanzania and

Zimbabwe such minibuses were only allowed to be operated after liberalisations during the first half of the 1990s.

Trade liberalisation has generally improved the availability of trucks in the regional towns, but this is only slowly spreading to the rural areas. The improved availability of urban based trucks may help improve farmers access to the urban /national markets, but they do little to improve access to neighbouring villages and the integration of rural markets because costs become prohibitive.

The problem is even worse because the few trucks available are run inefficiently and at very high rates. Platteau (1996) reports on studies showing that trucks in African countries in average run less than half annual distance of what comparable trucks in Pakistan do and at rates which are more than six times higher.

The high rates and poor availability of motorised transport in rural Africa means that the conclusion of the rural transport surveys and accessibility planning: that local rural trips dominate the rural travel pattern, tends to underestimate the importance of the links between the rural areas and the national and international transport systems and markets; and lack of integration between rural and national/regional transport is likely to become an increasing problem.

## **6 Transport and development in Africa**

Since the 1970s transport has become a much more integrated part of the internationalizing or globalizing production and distribution system than it was before. This has resulted in a logistic thinking which, supported by policies of liberalisation and privatisation, has led to a rapid transformation of the world transport system during the last decade. Due to the structural adjustment policies carried out in Africa this transformation now has an increasing impact on development, first of the African transport system, but in the longer term undoubtedly also on the broader processes of urbanisation and economic development on the continent.

As in the more industrialised parts of the world international air traffic in Africa has increasingly been concentrated on a few large hub airports: Johannesburg, Nairobi, Lagos, Abidjan, Dakar and Addis Ababa, which attract a large number of connections to cities both in and outside Africa, while the number of connections of most other capital cities has contracted. Status as a hub in the airline network is likely to be important for the ability of cities to attract international organisations and multinational corporations. It is also important for the possibilities to develop the local air freight capacity and industries dependent of such a capacity.

In international maritime shipping, which makes up the backbone of long-distance international trade, the container shipping lines are becoming increasingly important, not only for trade in manufactured goods, but also for trade in the more valuable bulk goods. At the same time the traditional intercontinental shipping lines organised by liner conferences are being substituted by a hub-and-spoke system with around-the-world lines as the stem, and complemented with feeder lines linking ports outside the mainline with large hubports on the mainline. In this new system the direct lines between African and European ports will be reduced to feeder lines to hubports where the freight is transshipped to the main around-the-world line which will bring it to its destination in Europe, North America or South East Asia. In absolute terms this may not reduce the service to and from Europe, but relative to destinations on the mainline Africa is likely to be marginalised. On the other hand, access to North American and Asian ports, which today are more poorly served, may improve and support the trend towards increasing trade with the industrialising countries in South and Southeast Asia.

Also on the internal African market transport has changed rapidly during the 1990s. African shipping companies, airlines, ports and railways are slowly in a process of commercialisation or privatisation. Parastatals and large private enterprises which used to operate their own truck fleet increasingly tend to outsource their transport to transport firms in order to reduce costs and be able to compete with the increased import and with foreign firms (mostly South African) investing in Sub-Saharan Africa. The trucking industry therefore is growing.

In spite of heavy donor support the railroads have generally not been able to compete with the road traffic and have mostly stagnated or even contracted. Since 1994 South Africa has invested in a number of African railroads. In 1999 the South African rail road company Spoornet has opened a freight transfer station in Tanzania, which will link the rail network of Southern Africa with the East African rail network, which has a narrower gauge. This makes it possible for South Africa to operate trains all the way through from South Africa to Uganda, and increase the competition between South African and Kenyan products in East Africa.

Increasing inter-African trade has also led to increased competition both between the old transport corridors to the landlocked countries and for new inter-African transport markets. Thus the owner of Zimbabwe's largest trucking firm apparently is heavily involved in Zimbabwe's military adventure in Congo/Zaire, and in addition to the different political motives to Zimbabwe's and Uganda's military engagement in Congo it is difficult not to see the war in Congo as part of the "second scramble" for resources and markets (among those the market for transport) in Central Africa.

These developments in the African transport system, partly based on private investments, contrasts with most of the studies of African transport which have tended to focus on the generally appalling standard of poor maintenance of the physical transport infrastructure and see

this as a major constraint for African development (partly because they mostly have been carried out as preparation for large World Bank or donor financed investment projects). One of the reasons for this seeming paradox is that although poor physical infrastructure is a constraint poor information handling and management of the freight flows are probably a much larger constraints, and that is what foreign firms investing in African transport attempt to provide and profit from.

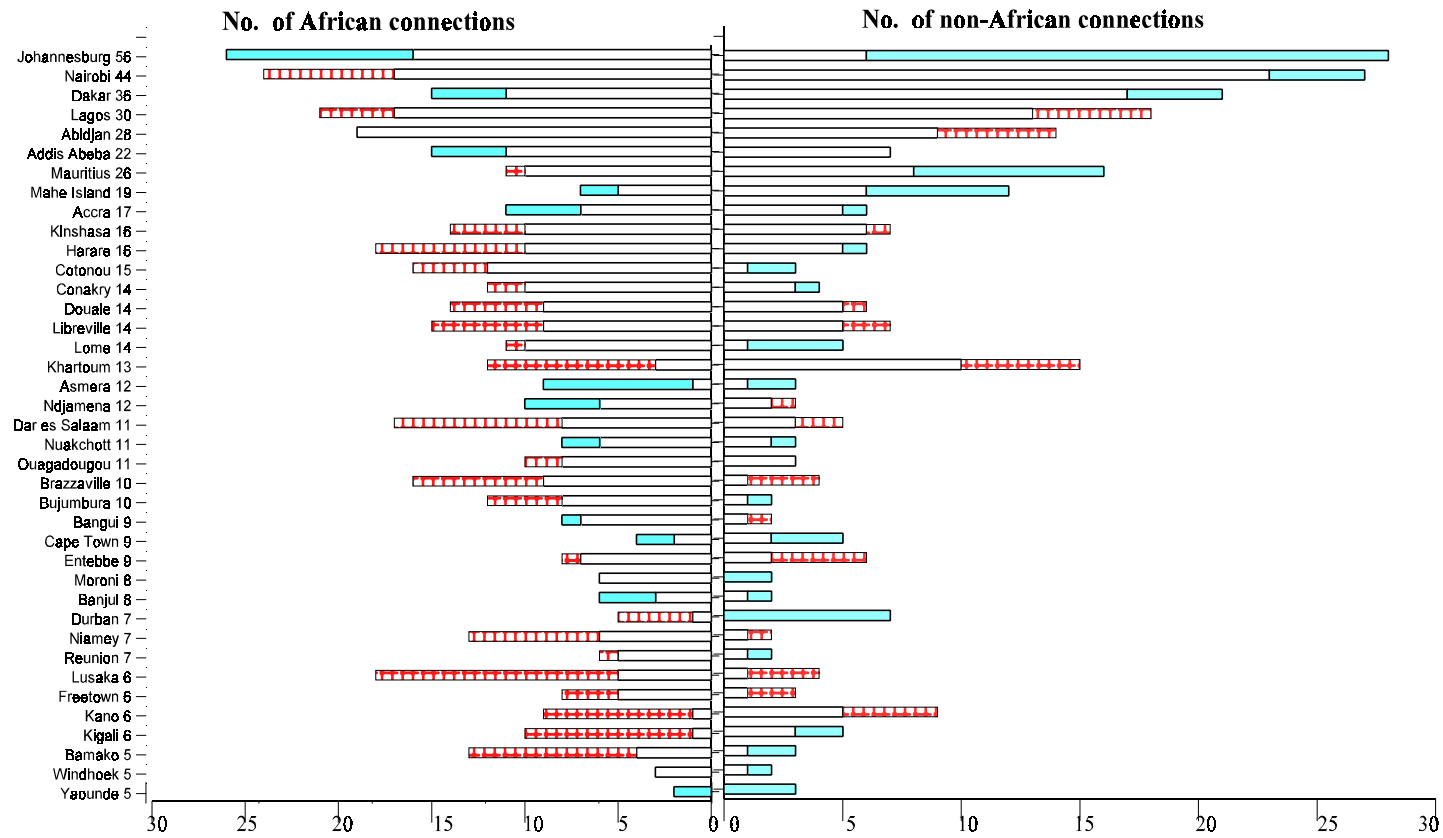
## Notes

1) One of the arguments for falling transport costs in the 1970s and early 1980s was the expectation that transport partly would be substituted by the much cheaper telecommunication. Although there are examples of such a substitution, a much more important effect of improved telecommunication on transportation has been to support the implementation of a product standardisation, which has probably been as important in reducing per unit transport costs as improved transport technology. This has made a further spatial division of production possible and thus led to increased demand for transport (Pedersen 1987).

2) This outsourcing of transport services should have resulted in an increase in the number of trucks for hire. According to the Kenyan statistics such a rapid increase took place in 1997. But already in 1998 the number of trucks for hire again went down by 20%, according to The Republic of Kenya (1999) due to decreased transit traffic to the war ridden Lake Region, and destruction of the road to Mombasa by the weather phenomenon “El Nino”. However, the figures which are based on licence payments (about the administration of which the Ministry of transport and the Revenue Authorities have been fighting) in general appear to be problematic.

3) Interestingly Alokian (1995) draws the opposite conclusion for Nigeria where structural adjustment also had a different impact than in Eastern and Southern Africa: While transport to a large extent was outsourced during the oil boom in the 1970s (and the early 1980s when the economy was based on heavy borrowings) when it was easy to import, structural adjustment has in Nigeria led to a more inward looking economy and also an increase in-house transportation.

**Fig. 1: Development in the number of African and non-African towns to which Sub-Saharan African towns had flight connections in 1986 - 1996.**



The number shown after the town name is the total number of towns to which these were connected in 1996.  
 Growth 1986-96 is shown with uniform grey hatching, and decline with net hatching.  
 Source: ICAO, Traffic by Flight Stage 1986 and 1996.

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