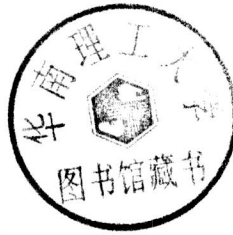


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Edited by Rodney Tolley and
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1. INTER-PORT COMPETITION IN DEVELOPING COUNTRIES: AN EAST AFRICAN CASE STUDY

B. Hoyle, J. Charlier

RELATIONSHIPS BETWEEN SEAPORTS and the hinterland regions they serve are often complex in the developing world, as in advanced countries, and ports and hinterlands are normally closely linked in terms of their development, functions and problems (Vigarié, 1979). Ports act primarily as gateways and as nodes within international transport networks (Bird, 1980, 1983), and their fortunes reflect the changing circumstances of their hinterlands and forelands. Hinterlands exhibit a variety of socio-economic and political systems which both reflect and are reflected by the character of ports or port systems. Interdependence between seaport gateways and their hinterlands is thus a first principle upon which seaport development is based (Charlier, 1983).

Gateway functions and regional or national development policies and patterns are not invariably compatible, as congestion in established ports and the need to construct new ports illustrate. Nevertheless, the port function, wherever it has been developed, has normally been related to some aspects of inland growth, and economic development has in turn required port facilities, so that port-hinterland relationships have become complex and well established. Throughout history there has usually been a close relationship between a port and its largely exclusive hinterland. From the 1960s, however, the evolution of maritime technology (involving particularly the widespread development of bulk terminals, container ports and roll-on/roll-off methods of cargo handling) has weakened the traditionally strong functional ties between ports and port-cities (Hoyle and Hilling, 1970, 1984); but these trends have in some ways strengthened the links between ports and hinterlands, making it more generally clear that a seaport is a national and international transport facility.

Relationships between ports and the regions they serve are clearly recognized as important, varied and dynamic. The interfaces between a port and the regions, on various scales, within which it is located and those which it serves introduce different sets of relationships. These may be less well defined than in the case of the port/city interface (Hoyle, 1988), for example, although they may reflect a similar variety of contexts – environmental, economic, political, technological etc – and a similar range of issues such as transport, employment and planning. A significant difference arises, however, in terms of the spatial scales involved; for whereas the port/city interface is largely confined within the relatively discreet context of the built-up area, the port/hinterland interfaces are not only far more extensive geographically but also involve in other dimensions a variety of different

concepts, scales and levels of interaction. Among these dimensions, inter-port competition and the process of port concentration are especially significant.

This paper first presents a brief overview of some theoretical contributions to the study of port hierarchies in the context of African seaports and their associated hinterland regions. The discussion then focuses upon East Africa and the successive seaport hierarchies which have served this part of the developing world in the past and today. The inter-related objectives are, first, to review the characteristics of this case study in broad terms; and second, to comment on the relevance of those trends to seaports in the developing world in general. These interdependent components lead to comments on the need for progress in the development of seaport/hinterland theory, and in the analysis of a wider range of further examples from African and other developing countries, in order to identify promising avenues for future research.

PORT HIERARCHIES AND INTER-PORT COMPETITION

The competitive position of a port in relation to other ports is the criterion which most profoundly influences its fortunes in the longer run. This well-known principle of port geography and port economics reflects the fact that no port is an isolated phenomenon, but belongs to a port group, hierarchy or complex which is functionally interrelated on a local, national or international scale. A port is also a dynamic phenomenon, changing in its morphology, functions and status over time. In national or regional terms, the character and functions of the various ports in a complex or hierarchy are likely to change as a result of the differential impact of factors affecting port growth. A classic model of transport network development in developing countries (Taaffe *et al.*, 1963) illustrates the degree to which such networks are rooted, functionally and historically, in port systems; it also demonstrates the process of port concentration from a scatter of small unconnected ports along a coast to a situation in which only one or two major ports provide specialized services for a wide range of hinterlands linked by an integrated transport system.

The process of port concentration has long been recognized as a general trend, and has been analysed in an African context in some detail (Hilling, 1975, 1977; Ogundana, 1970, 1971). In 1938 Sargent observed that 'the tendency of modern sea traffic is to concentrate, so that the number of effective ports grows less' (Sargent, 1938, p 2). In more recent decades, the economics of maritime transportation have required ever-increasing specialization of port installations and, as Bird has observed, 'If specialisation means concentration, the throughput of cargo via small ports must either increase to justify modern port installations, or the cargo will be concentrated at one of a series of small ports, to the others' disadvantage which may be mortal' (Bird, 1971, p 74). These arguments illustrate a process further discussed by Mikolasjski (1964) and others (Bird, 1971; Hoyle, 1983, pp 198–201), who have outlined some of the complexities of hinterland typology, and lead ultimately to the view that, in advanced societies and in a context of intermodalism, the idea of the hinterland no longer has any relevance (Blumenhagen, 1981; Hayuth, 1982,

1985; Foggin and Dicer, 1984; Slack, 1985; Hoare, 1986). This view has been criticized by Charlier and Ridolfi (1994).

Developing countries have not yet reached this stage of sophistication in their transport network development, however, and port-hinterland relations and the hinterland concept retain considerable relevance (Charlier and Tossa, 1995). The changing relationships within a port complex have also received some theoretical attention, for example by Ogundana (1970, 1971) who suggested, on the basis of his studies of the changing port system of Nigeria, that the composite pattern of a port complex may assume, over time, one of two basic forms: *port concentration* or *port diffusion*:

Port concentration implies that a few of the many ports in a complex are of disproportionate significance, and this structure emerges as a result of the increasing relative significance, over a period, of certain ports as compared to others which either gain more modestly or decline in absolute terms. Port concentration results initially in a relative decline but may lead to an absolute decrease in the number of ports operating. Port diffusion occurs when higher order ports decline, leading to the increasing significance of new or previously smaller ports, and involves an absolute or relative increase in the number of functioning parts. (Ogundana, 1970, p 169)

Ogundana also proposed that each era of port concentration or diffusion might be said to possess its own hierarchy and that, if a hierarchy experiences frequent change it might be said to have an *unstabilized port structure*. Alternatively, a port able to maintain its leadership within a system over a long period of time might be described as a centre of *sustained port dominance*.

These ideas underpinning the process of port concentration and inter-port competition over time clearly relate to the experience of many ports systems around the world, in different temporal and spatial context. In the 20th century, the factors affecting port development in advanced and developing countries have generally favoured the process of consolidation, involving the increasing concentration of port traffic at ever larger terminals. Over longer time periods, however, it is possible to recognize alternating periods of concentration and diffusion in the evolution of a port system. The most common experience through the developing countries over many centuries has been a flexible system of diffusion of port activity.

From the later 19th century, however, investment in modern port facilities, and modern ship design, required the stabilization of these formerly rather fluid port patterns. This process of concentration, closely associated with maritime technology (in the form of steamships) and with the building of railways linking ports with inland destinations, was part of the process of establishing European colonial control. Political frameworks and economic patterns established around the turn of the century have been in some respects perpetuated, in others modified, by post-independence changes involving both the national and extra-national hinterlands of the coastal ports. The East African seaport system exemplifies these principles very clearly, and invites comparison with other systems – in, for example, India, Malaysia, Latin America or West Africa – where experience has in many respects been similar.

HISTORICAL PERSPECTIVES

The chronological development of port activity on the East African coast may be divided into two periods of very unequal length, the first stretching from the first millennium AD to the mid-19th century and the second from the later 19th century to the present day. Both periods illustrate the processes of inter-port competition and port concentration, but in different ways. The coastal zone of Kenya and Tanzania (*Figure 1*) now constitutes the maritime facade of a developing region of considerable economic potential, and forms a vital outward-looking link with the rest of the world. This orientation is, in a sense, largely a product of the last 200 years, for during all the long preceding centuries the coastlands were for trading purposes little more than part of the western shore of the Indian Ocean, dependent in commercial terms upon the seasonal reversal of winds bringing sailing vessels from the north-east between November and March, and facilitating their return from early April. Within this coastal environment successive generations built up widely differing hierarchies of seaports, which comprised important if rather peripheral elements within the widespread network of trading towns and ports stretching in medieval times from eastern Africa through south-western Asia to China.

The earliest surviving description of the external trade relations of East Africa is to be found in the *Periplus of the Erythraean Sea* (Huntingford, 1976), a guide to the commerce of the Red Sea and the Indian Ocean written at some time in the first or second century AD by a Greek trader living in Alexandria. The book describes a voyage along the East African coast and mentions, *inter alia*, the trading port of Rhapta which was subsequently described as a 'metropolis' in Ptolemy's *Geographia* (Stevenson, 1932). The site of Rhapta, which seems to have been East Africa's first focus of port concentration, has never been satisfactorily identified, although it has commonly been associated with the Rufiji delta in Tanzania.

In early medieval times port activity was quite widely dispersed along the Kenya coast, and several locations – including Pate, Manda, Lamu, Malindi and Mombasa – were seaports of significance, whereas Kilwa was the only major commercial centre on the coast of Tanzania. In a context of inter-port competition, each of these ports probably dominated in turn varying areas of coast and hinterland, their fluctuating comparative importance reflecting their varying fortunes in trade and in warfare. Most trading centres were based on defensive islands which conferred a clear advantage. Mombasa Island is known to have been settled as a maritime trading post in the 11th century, and it began to take shape as a town with the Shirazi migrations (from southern Arabia and southern Persia) in the 13th century.

The later Middle Ages were marked by a much fuller development of Islamic civilization, with rapid urban expansion and trade development especially in the 14th century, possibly associated with improved environmental and political conditions. The full development of Arab settlements and their trade and culture on the East African coast in the 15th century, dominated by Mombasa, immediately preceded a period of decline. At the end of that century, and from the south, 'the restless energy of western Europe intruded upon the East African

coast like an unreasonable monsoon from which the inhabitants were totally unprepared' (Ingham, 1962, p 6). The Portuguese programme of African coastal exploration culminated in the celebrated voyage of Vasco de Gama to India in 1497–99. He was impressed by the port and town of Mombasa, but received a warmer welcome at Malindi, where he elected a *padrao* or stone cross and found a pilot to guide him across to Calicut.

In spite of competition from a variety of other ports along the East African coast, Mombasa had clearly emerged by the 16th century as a centre of sustained port dominance, as no other port along this coast possessed its combination of positive situation and site factors. Soon the 13th century Shirazi town, on the eastern side of the island facing the Old Mombasa Harbour, was paralleled and eventually superseded by the Portuguese town of the 16th and 17th centuries which today provides the essential framework of the traditional urban core. The overall effect of Portuguese intervention on the East African coast was, however, negative; Mombasa maintained an attitude of open revolt against their authority from the time of Da Gama's first arrival in 1497 until their final withdrawal to the south early in the 18th century. The impressive Fort Jesus now stands as the only substantial physical monument to Portuguese rule (Kirkman, 1964), and as a mark of Mombasa's long-continued importance as a maritime trade centre and as a port city of significance.

Whereas the 18th century was a period of rather low-level, dispersed port activity on the East African coast, the 19th century brought significant changes. The rising tide of Arab-controlled slave trading severely disrupted the economic and social fabric of the hinterlands, and the offshore island of Zanzibar (selected by the Omani Arabs as a regional emporium, and today part of Tanzania) became the chief centre of trade and innovation. The re-entry of Europeans on the East African scene in the later 19th century coincided with important technological changes: the opening of the Suez Canal (1869), the change from sail to steam as a means of propulsion of vessels, the rapidly increasing size of ships, and the growing importance of railways. A combined result of these innovations was that in the early European colonial period arterial railways were built from port sites (Mombasa, Tanga and Dar es Salaam) selected for their ability to accommodate larger steamers in a context of increasing trade with Europe via Suez, and for their relationships with potentially productive hinterlands (Hill, 1949, 1957; Ramaer, 1978; Amin *et al*, 1986) (*Figure 2*).

In Kenya, Mombasa (*Figure 3*) was the principal beneficiary in this process of port concentration whereby a traditionally fluid port pattern became crystallized as more capacious, sheltered, deep-water harbours replaced the minor inlets and open shorelines previously used by smaller vessels. In Tanzania, the German authorities selected Tanga and Dar es Salaam as the ocean termini of their railways to the interior. The intention to build railways, themselves powerful agents of innovation and economic transformation in the hinterlands, was the immediate cause of concentration of interest and activity on appropriate modern deep-water seaports. This process of rail construction from selected port sites took place in many colonial territories around the world, and not only effected a marked degree of port concentration but also set the scene for subsequent inter-port competition. Mombasa and Dar es Salaam were both particularly fortunate at this point in

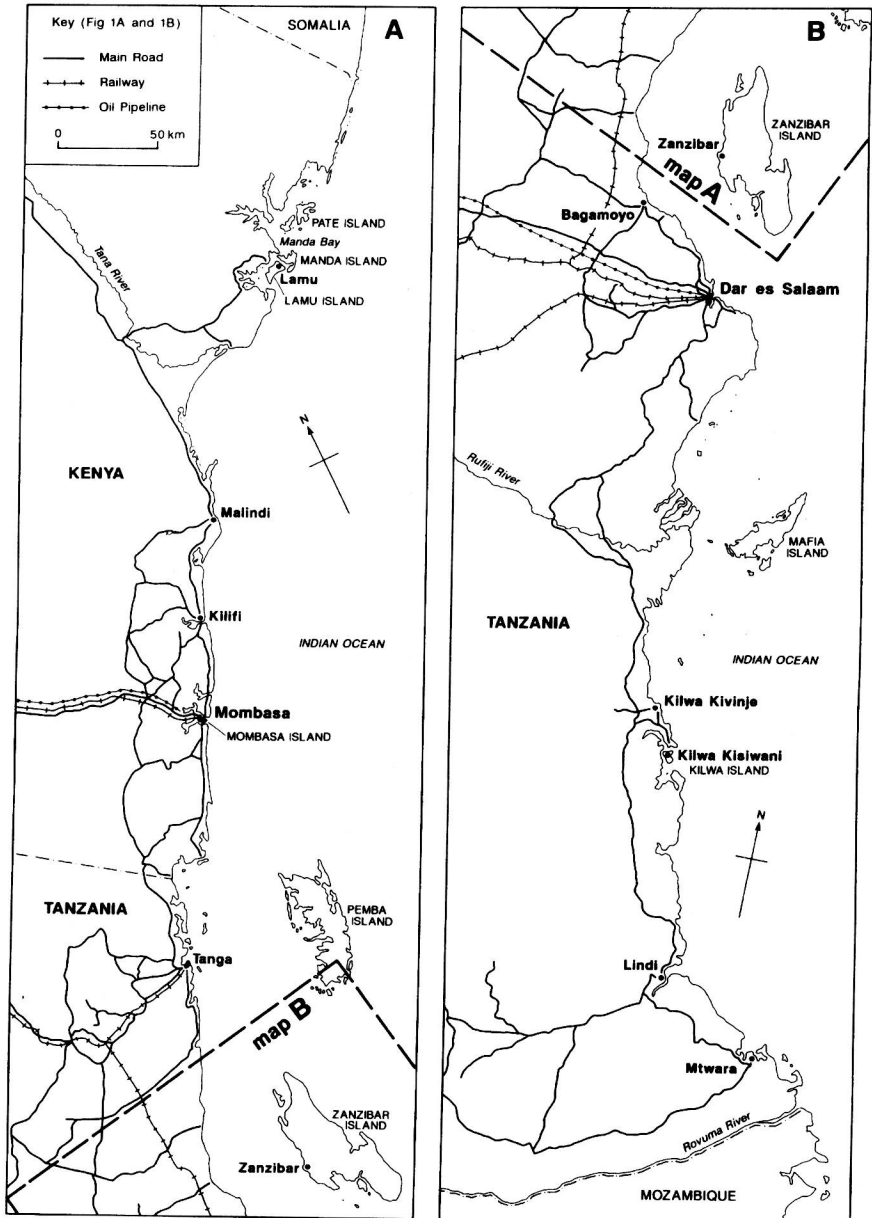


FIGURE 1 The coast of Kenya and Tanzania.

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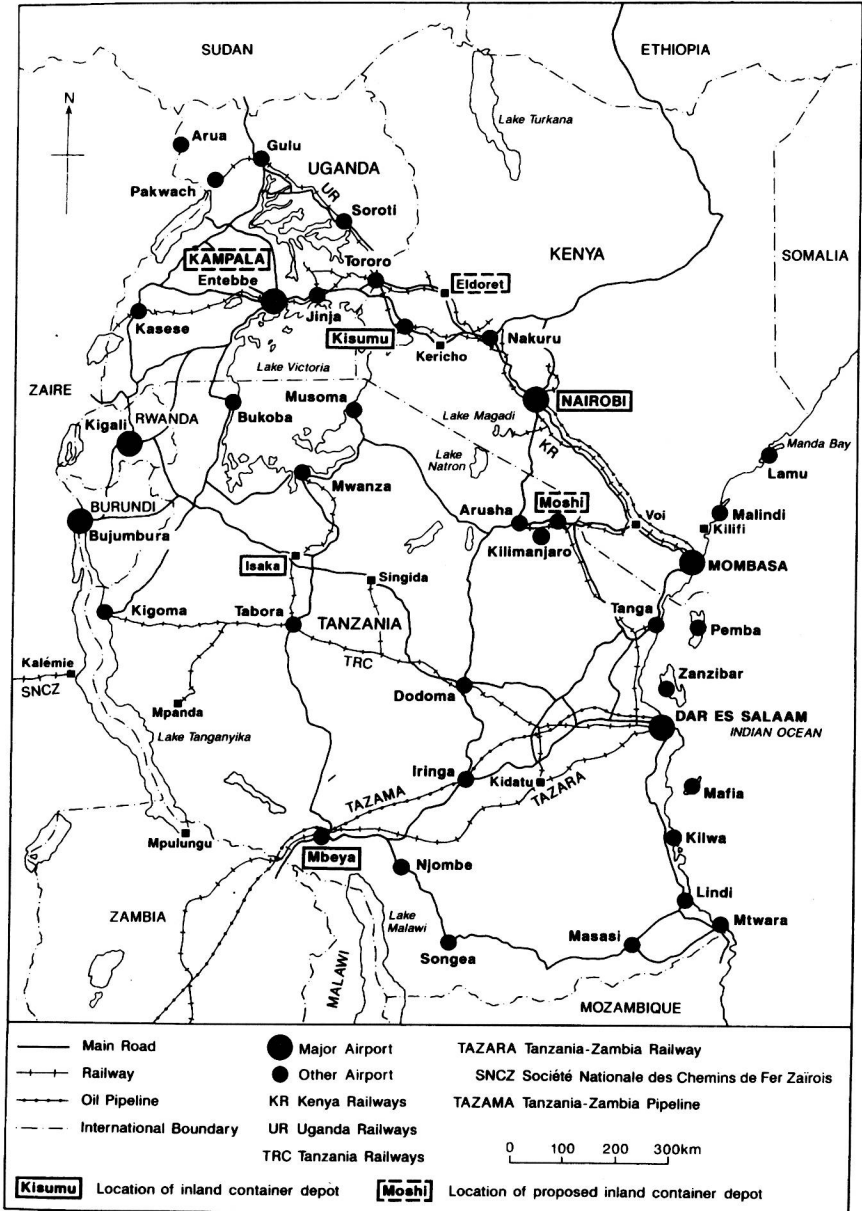


FIGURE 2 The East African transport system.

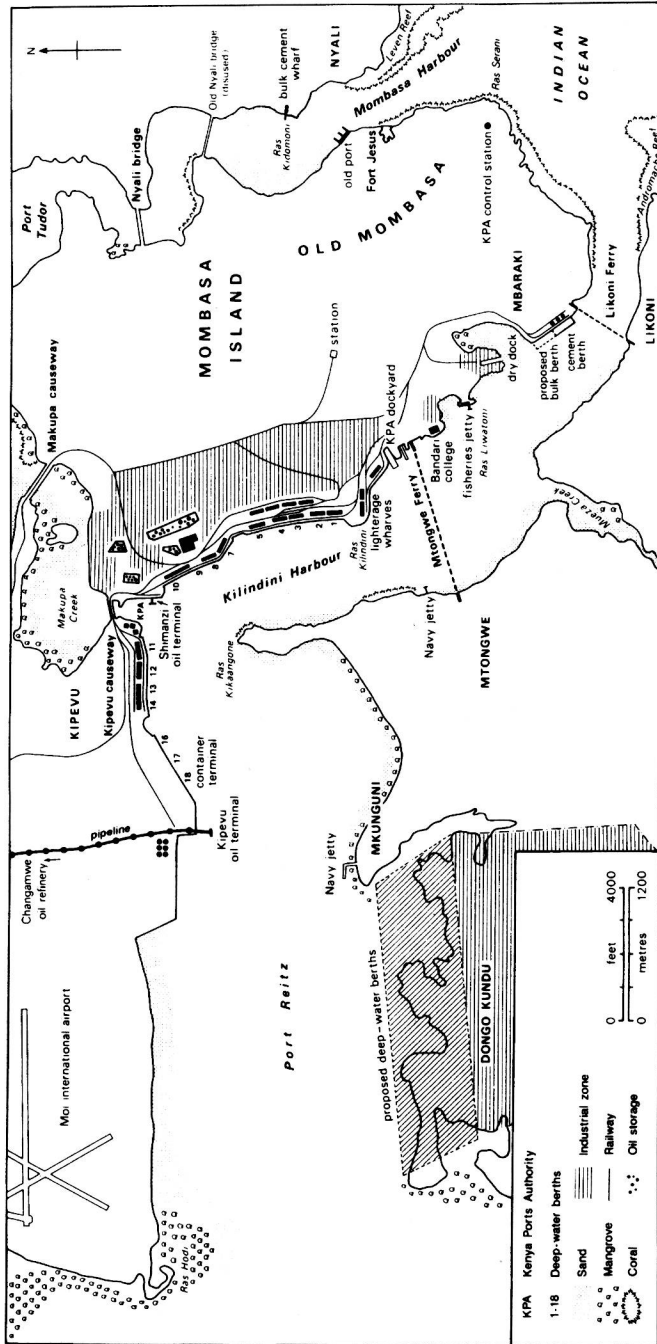
time, for their general geographical location and their specific site conditions enabled each to establish and maintain a central place in the modern economic life of the East African coastal zone.

THE RISE OF THE MODERN EAST AFRICAN PORT SYSTEM

The modern process of port concentration in East African effectively took place in the 1890s, when the beginnings of modern port development coincided with the start of railway construction to the hinterlands. The point of departure for the modern port of Mombasa was the purchase in 1895 of land near Kilindini Harbour as a base from which to direct the building of the railway through interior Kenya to Lake Victoria. Using Mombasa as an initial base, Britain and assumed political control of Kenya in 1895, and (as elsewhere) a standard procedure was to consolidate that control with an outline transport infrastructure, beginning with a railway to the interior from a selected port site. Mombasa was the obvious choice, as an established town, with a deep-water harbour of recognized potential. From these beginnings, the port of Mombasa has grown throughout the 20th century, starting with lighterage wharves at Mbaraki and proceeding upstream from 1926 to 1958 with deep-water general-cargo berths along the north-western shore of the island. From the 1960s to the present day, additional deepwater berths and various forms of specialized quays including a container terminal and oil-reception facilities have been added on the mainland at Kipevu. There are long-term plans to extend these facilities, in the context of a maritime industrial development area, along the southern side of Port Reitz.

The degree of port concentration experienced in Tanzania during colonial and post-colonial times has been less marked. In German East Africa (1895–1919) it was originally intended to build three railways from different coastal ports: a northern line from Tanga towards Kilimanjaro; a central line from Dar es Salaam to Lake Tanganyika; and a southern line from Kilwa towards Lake Malawi. The third of these was never built, although the modern Tanzania-Zambia railway (completed in 1975) is in a sense its present-day equivalent; and there were also proposals to extend the central line towards Rwanda, and the northern line to Lake Victoria (Gillman, 1942). The intention was to create a more widespread diffusion of port activity, economic exploitation and political control, and to avoid the apparent over-concentration on Mombasa shown by the British in Kenya.

Tanga was the first of the modern seaports of the East African mainland to be developed, its primary role being to serve the agricultural economy of the northern part of the territory, initially based on coffee and rubber, later on sisal. A small jetty was built in 1892 to receive imported railway construction materials, and this marks the beginning of the modern process of port development on this site. The port has not, however, grown very substantially, for two main inter-related reasons: there are no deepwater facilities (other than a specialized fertilizer jetty); and the hinterland, although productive in cash-crop terms, is geographically limited. The Tanga-Arusha railway has not been extended to its proposed terminus at Musoma on Lake Victoria, despite political interest reiterated



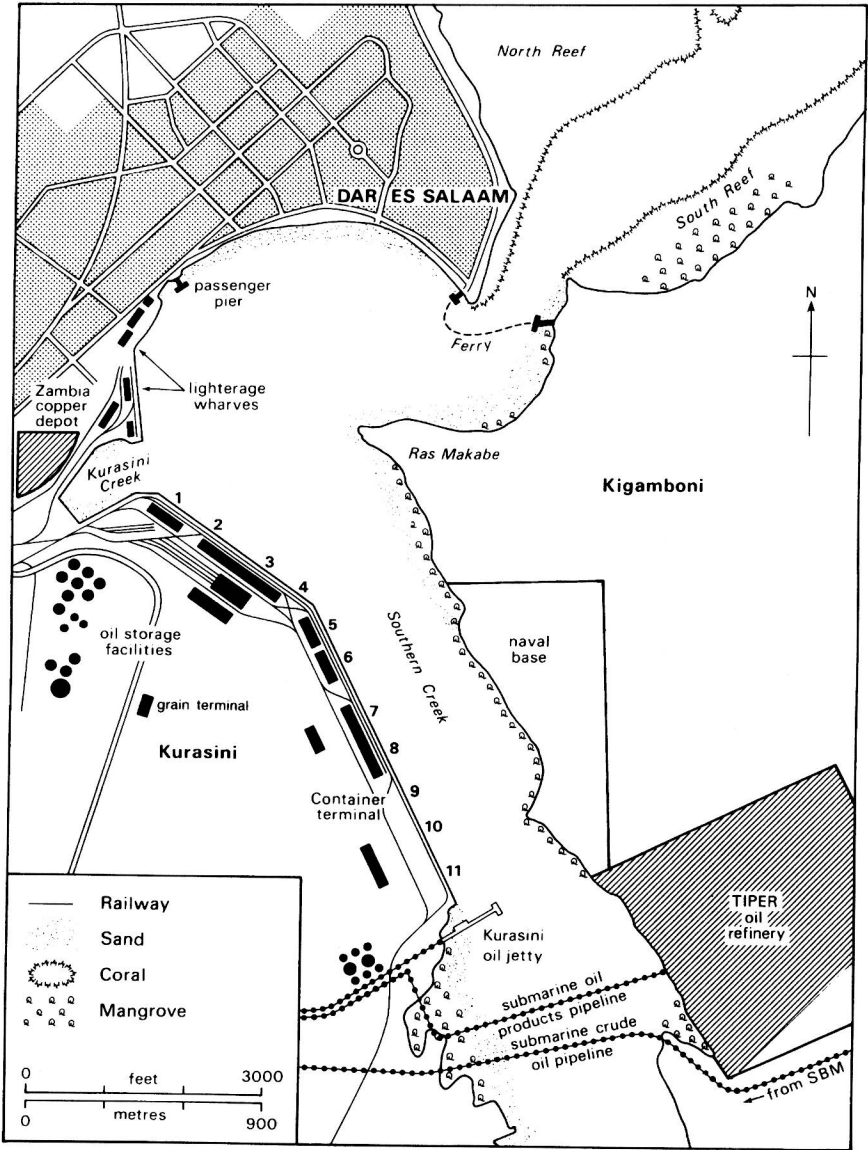


FIGURE 4 The port of Dar es Salaam, Tanzania.