Cities and Ports: Concepts and issues[1]

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1.- Introduction

At the start of this discussion of port and cities I would like to acknowledge your welcome and your invitation to me to give this address in an interdisciplinary series of lectures on Ports and Cities of Spain. As a geographer I have maintained an interest in ports and port cities for over forty years. This began when I travelled on holiday with my family to seaside towns in England or Wales. Later, I studied ports in France, in Africa, in Australia and in North America. The links between ports and cities have always interested me, and in recent years I have become involved in the study of cityports and the redevelopment of urban waterfronts.

I must make it clear at the outset, however, that Spain and the Spanish port-city system lie largely outside my direct experience. My lecture is a broadly-based one, therefore, a background study containing some ideas about ports and port cities and about ways of looking at them and at their inter-relationships and problems. What I have to say about ports and port cities illustrates some basic principles of port geography which underpin relationships between ports and their cities everywhere. I hope that my views and ideas will complement, rather than conflict with, those of historians, engineers, architects or planners. I regard the Spanish cityport system as one subsystem within a global cityport system; it is of interest for itself, of course, but also for ways in which it conforms to or diversifies from world-wide patterns and trends. My objective here is to discuss some global issues and general trends, and I hope that others will find it useful to relate these ideas to the Spanish context.

The lecture is divided into five main parts. I shall being with some basic ideas or contextual perspectives, to set the scene. Then I shall discuss the cityport concept, outlining some factors and inter-relationships concerning ports and cities. Thirdly, I shall discuss more specifically the port-city interface and, fourthly, the problems of waterfront revitalization. Finally, to broaden the perspective again, I shall look at port cities in a context of regional development.

2.- Contextual perspectives

Ports, cities and cityport systems

The cityport, or port city, is one of the quintessential elements of the modern world space economy. It symbolises the interdependence of environment and society, and involves a fusion of cultural diversity and historical experience. A close association between cities and ports is a recurrent theme throughout the history of civilisation. From the ancient cultures of the Mediterranean, of the Indian Ocean, or of China, to the present day, 'cities appear as a constant in every civilisation' (Konvitz, 1978, xi) and ports serve as transport nodes facilitating economic growth at many different scales. Dubrovnik, in war-torn former Yugoslavia, is a classic model. In temporal and spatial terms, port cities and the regions they serve constitute a fundamental element in the spatial structure, organisation and re-organisation of economies and societies, and in relationships between those societies and their environments.

Port cities, and their associated coastal zones, are today a focus of increasing planning attention. There is a growing realisation that cityports and coastal zones are under pressure, that they are changing, and that they are important within wider space economies. Toronto (Canada) is controversial in this sense. Change, if it is to be properly managed, must first be understood. This series of lectures is part of the process of understanding the changes that have taken place and are continuing within the Spanish port/city system. These changes are derived in part from local circumstances, at the interface between

land and sea, between terrestrial and maritime transport systems; in part from the national Spanish planned space economy; and in part from the international, global cityport system within which each port city is one small but significant element. In this sense, even a small island port such as Las Palmas illustrates principles of global relevance.

Africa and Europe

In the Canary Islands I am very conscious of being not only in part of Spain but also very close to the shores of Africa. So I would like to begin my discussion of concepts and issues with some comments on African cityports in comparison with those of Europe. Europe is a part of the physical world much diversified by peninsulas and islands, and in many parts of the continent the influence of the sea is never far away. From the Atlantic Ocean to the Black Sea, and from the Baltic to the Mediterranean, the shores of Europe are often characterised by an interpenetration of land and sea that has facilitated and encouraged the flowering of many maritime civilisations, as well as a great variety of political and trading systems, including those of Britain and of Spain. European cityport systems, together with the international maritime transport networks with which they are associated and upon which they depend, have thus played a major role in the evolution of the modern world (Hoyle and Pinder, 1992a and b; Konvitz, 1978; Mollat du Jourdan, 1993).

In Africa the general environmental situation is rather different. Broadly, Africa's coasts are not well endowed with natural harbours of adequate depth and ease of access for modern navigation, and the problems of creating new artificial ports are great though not insuperable. Specific problems of coastal hydrology and geomorphology affecting port growth include the surf barrier and littoral sand drift in West Africa; and the coral hazard on the ria coastline of East Africa. Africa's great rivers, while providing important transport arteries in inter-regional terms, do not generally offer open access from the sea. Africa has no St Lawrence estuary, no River Rhine or Amazon, providing routeways for ocean vessels into the heart of the continent. African cityport systems have largely developed as a product of contacts with external seafaring peoples, maritime cultures or metropolitan powers. Historically, the balance of initiatives has often seemed to lie with the non-African party rather than with the indigenous society (Hoyle, 1981 and 1983).

Today, in Africa and in Europe alike, two continents which might both be described as increasingly interdependent are unifying, transport systems and the factors affecting their continuing development are a major focus of economic and political attention. Pressures on existing transport networks, and environmental considerations, suggest that at the continental scale in Europe it is important to encourage the further development of railways and waterways; while in Africa the further improvement of road networks is often seen as the highest priority. Islands, of course, in either continent, depend increasingly on air transport services but also on maritime transport systems for the continuing development of their economies.

Ports and port cities provide not only essential nodes within multimodal transport systems at the national and continental scales, but also points of intermodal interchange between land and maritime transport systems in a wider world. Within these two restructuring continents, international cooperation in transport planning is essential, for the renewal of the economies and the mobility of the peoples of Europe and of Africa obviously depend upon the efficient operation of transport systems. Port cities,

in this context, have a very critical role to perform (Hoyle, 1990; Hoyle and Knowles, 1992).

3.- The cityport concept

I now turn, in theoretical terms, to the cityport concept and to some factors involved in cityport development. The idea of the cityport is derived from the traditionally close association between a port and the city of which it is a major component. Such an association may be deeply rooted in history (as at Lisbon, Portugal), linking the origins and development of a city with maritime trading activities over many centuries; or the association may be relatively new, derived from modern technological innovation (as at Tema, Ghana). Similarly, port-city linkages may be very varied and complex, or alternatively relatively limited or almost negligible. Port and city may exist side by side in a state of almost complete interdependence or with little real interlinkage. How far is the modern urban economy of Lisbon or Tema -or, for that matter, that of Southampton or Las Palmas -dependent upon port-related employment?

The idea of the cityport and its associated industrialisation are, of course, open to interpretation in many dimensions. Some of these dimensions are reflected in the title of a book published on the basis of a conference at Southampton on *Cityport industrialization and regional development: spatial analysis and planning strategies* (Hoyle and Pinder, 1981). There are spatial and temporal contexts; social and economic influences; and technological and political factors which often transcend other considerations. For modern practical purposes, planning and management perspectives must recognise these concerns. The degree to which a port and a city affect one another in land-use terms, for example, or in an urban transport context, or in relation to employment opportunities, may be a critical issue giving rise to a good deal of controversial debate at the local and regional level.

Locational factors: situation and site

The development of cityports is influenced by many locational factors from the landward and the seaward sides. Broader considerations to do with the situation are complemented by more specific factors to do with the site. The original water site of the *port* has often determined the general layout of a port *city*; and decisions concerning *port* expansion have often affected the pattern of *urban* growth. Ultimately, however, the wider circumstances of the land and water situations largely determine the long-term fortunes of a port city.

The balance between influences on cityport growth from land and sea, on various scales, obviously varies from one place to another, but in all port cities a common denominator is *the port function* (the transfer of goods across the land/sea interface) which largely explains the origin of the settlement and lies at the root of its physical and socio-economic expansion in terms of layout and location. The old harbour at Mombasa, Kenya, on the other side of Africa, still receives Arab sailing vessels known as *dhows*, which illustrates the port function in operation at a fairly basic technological level. In contrast, Le Havre (France) carries out the same function, essentially, but on a far wider scale and at a far more advanced technological level. Today, in many parts of the world, the redevelopment of port cities is derived from the separation of the port function from the urban forms to which it initially gave rise. Throughout the advanced world, and increasingly in the newly-industrialising countries of south-east Asia, such as Singapore and Hong Kong, the increasing separation of ports and cities, in form and function, has become a general trend. To what extent this port-city separation is becoming a feature

of the cityports of Africa and other parts of the developing world is an interesting question.

Harbours and ports

The importance of locational or environmental influences on cityport growth should not be overemphasised, however, because *port sites* do not determine *port development* nor that of the *cities* with which they are linked. What matters is how port sites were evaluated in the past and continue to be re-assessed today by those involved in cityport decision-making. Port-city development reflects the ever-changing uses of location and the continuous reassessment of locational values and interrelationships.

Many excellent natural deep-water harbours and other potential port sites have remained unutilized or underdeveloped. Shute Harbour, in Queensland, Australia, is a splendid natural deep-water harbour with only a small jetty for recreational use. On a world basis, there is no very close geographical coincidence between the distribution of fine harbours or other first-class water sites and the pattern of port development, for ports originate and grow where trade demands their facilities rather than where nature provides an appropriate local framework. Some of West Africa's finest harbours - Freetown (Sierra Leone), for example -contain only limited modern port development; whereas in the same region some of the finest modern ports - such as Abidjan (Côte d'Ivoire) - are largely artificial creations developed in response to demand.

Cityport evolution

It is of course impossible to be unaware, in examining present-day changes in port cities, of the immense influence of heritage from the past. For centuries, the pursuit of *maritime* affairs has played a major role in the development of *urban* systems. Throughout these centuries of change the evolution of maritime technologies acted as an important instrument of progress in port growth. New technologies of ship design and cargo handling repeatedly led to successive eras and scales of cityport development.

In theoretical terms, several distinct phases may be recognised in the physical development of cityports (Figure 1):

1. From ancient times until the nineteenth century, the coexistence of port and town on a *primitive* site involves maximum functional interdependence and very close spatial association, the town centre being dominated by merchants' houses and the waterfront often representing the focal point of the settlement as a whole. An example is 15th-century Genoa (Italy).

2. The *expanding* port city of the nineteenth century -exemplified by Marseille (France)- breaks out of traditional confines, as a result of technological developments such as the coming of railways and steamships, and the development of industry. Stimulated by, and facilitating, the overseas political expansion of Europe, this cityport grows rapidly around the shores of the industrialising and the developing worlds. Cityports grow as doorsteps or entry-points from Montreal to Maputo, from Bombay to Buenos Aires, from Singapore to Sydney.

3. The *modern* industrial port city involves a markedly accelerated spatial separation between city and port. Led by oil-refining, large space-consuming industries, based on bulk mineral trades, develop pioneer sites, and are preceded or followed by container terminals.

4. The emergence of *maritime industrial development areas* sustains and expands port growth in alternative or downstream locations (as at Fos, southern France) and - towards the city core - reinforces the *retreat from the traditional waterfront*; this creates, finally,

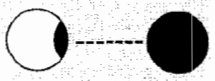
STAGE	SYMBOL	PERIOD	CHARACTERISTICS
I Pimitive port/city		Ancient/medieval to 19th century	Close spatial and functional association between city and port
II Expanding port/city		19th-early 20th century	Rapid commercial/industrial growth forces port to develop city confines, with linear quays and break-bulk industries
III Modern industrial port/city		mid-20th century	Industrial growth (especially oil refining) and introduction of containers/ro-ro require separation/space.
IV Retreat from the waterfront		1960 s-1980 s	Changes in maritime technology induce growth of separate maritime industrial development areas.
V Redevelopment of the waterfront		1970 s-1990 s	Large-scale modern port consumes large areas of land/water space; urban renewal of original core.
	○ city ● port		

Figure 1.- Stages in the evolution of port-city inter-relationships *(Source: Hoyle, 1988, 7)*

5. The problem and phenomenon of *waterfront redevelopment* with which many port cities around the world are now very much concerned. The redeveloping London Docklands provide a major example of this increasingly widespread phenomenon.

Two important consequences arise from this sequence in modern planning terms, on quite different scales. More generally, there is a need to re-examine the roles played by modern industrial and commercial ports in regional and national economies; more specifically, the challenges posed by the decline of outmoded port areas require a sensitive and appropriate response. We shall return to the second of these two issues later on.

4.- The port-city interface

The interface between city and port, to which I turn next, is almost invariably a zone in transition (Hayuth, 1982 and 1988).

A zone of conflict, cooperation and change

Figure 2 summarises some of the elements involved in port/city development today and in the processes of change now being experienced in many port cities around the world (Hoyle, 1988 and 1989).

-Urban land uses (on the left) are divided from maritime functions (on the right) by the interface zone, often a zone of decline and decay, but sometimes marked by co-operation between developers and by competition for space for new activities.

-Port development (No. 1), usually inclined to migrate downstream, quits the traditional port-city core zone in favour of deeper water and more capacious bluecoast sites.

-Meanwhile, port-based industries (No. 2), no longer dependent upon the break-bulk function or on labour concentration, migrate to other urban zones and to greenfield sites beyond.

-In the opposite direction, as waterfront sites become available, there is some competition for the redevelopment of the most advantageous locations, both from land-based concerns (No. 3) (housing, restaurants, shopping complexes) and from maritime interests (No. 4) (marinas, recreation, water-based facilities).

-Within the redeveloping cityport core zone, and beyond, environmental controls are established as a kind of filter, in an attempt to harmonise development projects and reduce pollution risks; and

-The entire system is affected and in part controlled by over-riding factors such as technological change, economic and political conditions at various scales, and national legislation.

The main reason for present-day changes and problems in this sphere is, of course, the inability of most cityport sites to absorb not only rapidly changing and expanding *port* development but also successive phases of *urban* growth.

The transformation process

The transformation of the port-city interface in recent decades has been derived from wider, interdependent trends (Figure 3):

-First, maritime technology has moved on apace, ships have increased vastly in size, and this has resulted in the widespread development of container terminals, bulk cargo handling facilities and roll-on/roll-off handling methods, all of which have transformed major ports everywhere;

-Second, the scale of modern ports and port-related industries, with their vast land and water space requirements, means that traditional port locations are often no longer of much use for present-day shipping and cargo requirements; and

-Third, as is only too well-known in many port cities, there has been a marked decline in port-related employment; the onward march of technology, in this as in other spheres, has entailed thousands of job losses and a substantial restructuring of the urban economic base.

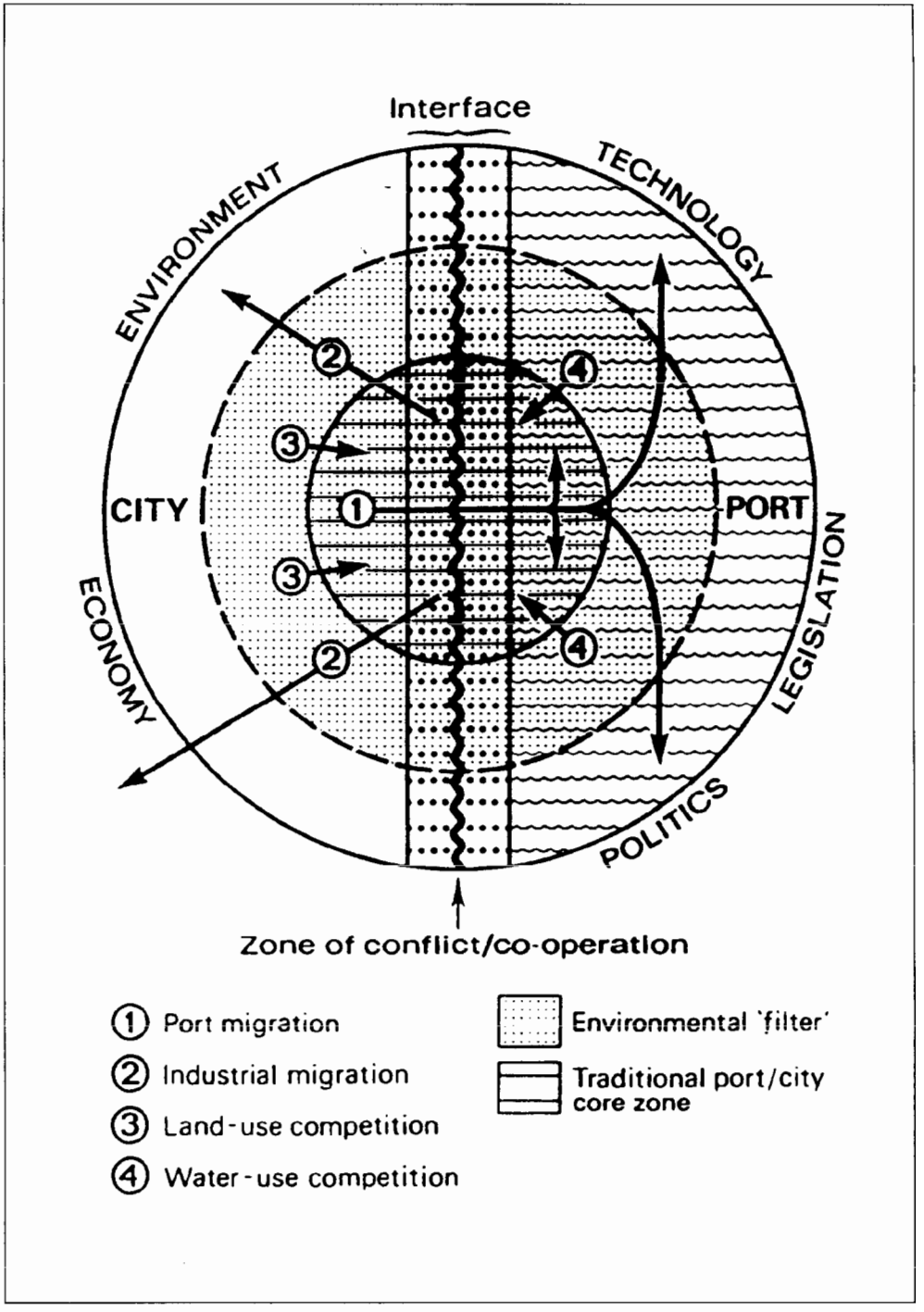


Figure 2.- Factors and processes involved in port-city development *(Source: Hoyle, 1988, 14)*

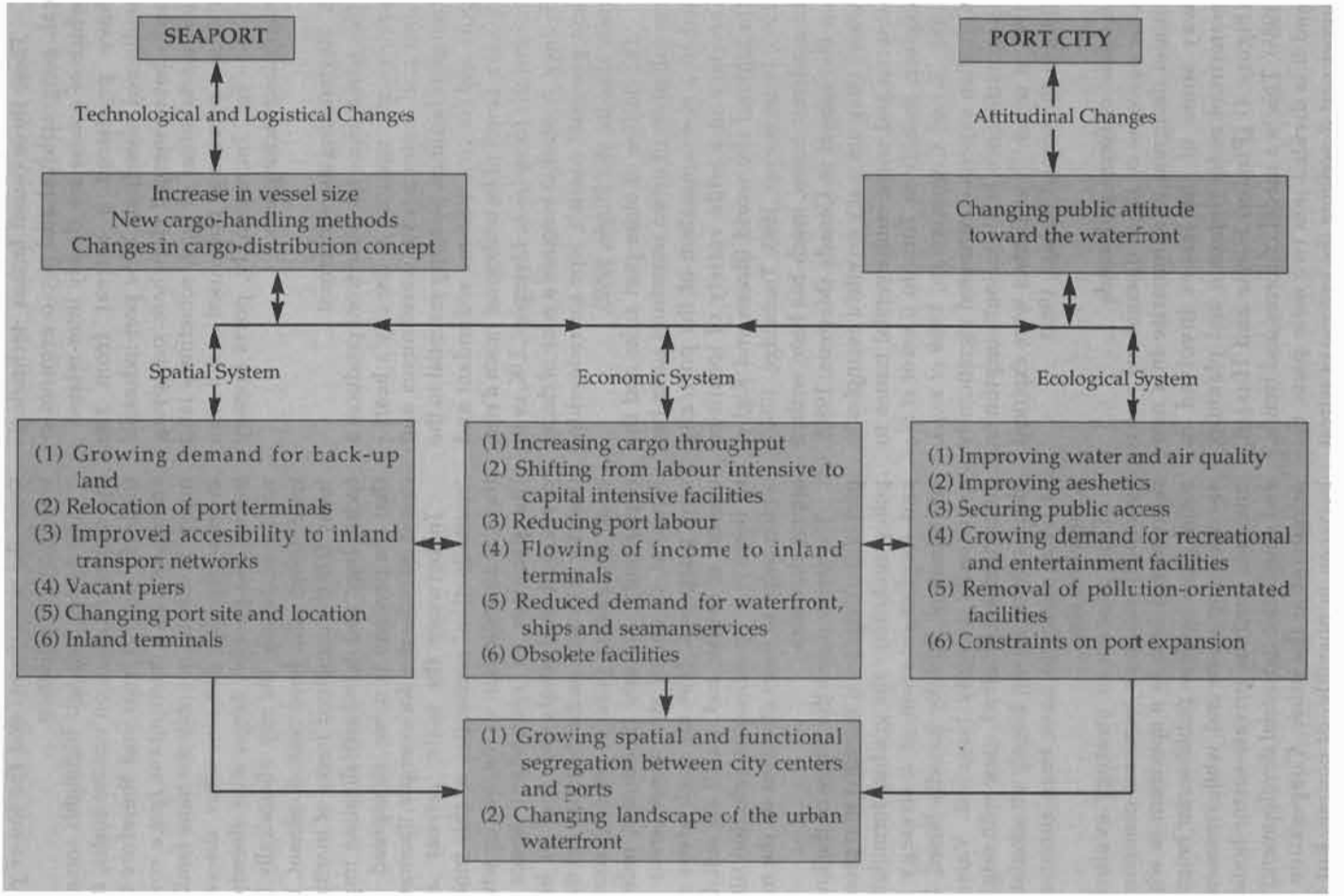


Figure 3.- Trends and developments at the port-city interface *(Source: Hayut, 1988, 54)*

These three causal factors -technological, geographical and socio-economic- which of course are closely inter-related - have produced a retreat from the traditional waterfront. New port-industrial areas have emerged elsewhere, occupying substantial areas of land, sometimes land that was previously underused or not even there - for, increasingly, ports occupy water-encroaching sites.

5.- Revitalizing the waterfront

This retreat from the waterfront produces a problematic vacuum at the city's heart - land and water areas, warehouses and transport facilities, formerly essential to the port and its city, become redundant and derelict. Bereft of its traditional *raison d'etre*, the historic focus (as in Liverpool, UK, or in Sydney, Australia) becomes a zone of decay and potential conflict, ripe for redevelopment (Pinder and Hoyle, 1992).

The decline of older port areas and the revitalisation of urban waterfront zones has led to a re-examination of the port/city interface in a wide variety of locations throughout the world (Breen and Rigby, 1993; Bruttomesso, 1993; Tunbridge, 1988). In academic terms, much has been written on this subject in Canada (Merrens, 1980), where there are many excellent examples to observe and some controversial issues to explore, notably in Toronto (Desfor *et al.*, 1988; Royal Commission, 1989 *et seq.*). Canadian experts contributed significantly to a conference held in Southampton in 1987 at which these themes were explored (Hoyle, Pinder and Husain, 1988).

A model of forces and trends

One outcome of these discussions was a model designed to summarise in a new way some of the issues involved in waterfront redevelopment and planning (Figure 4) (Pinder, Hoyle and Husain, 1988). This is a model of forces and trends, and it is divided into two main parts, the upper part describing the process of retreat from the waterfront, and the lower part waterfront revitalisation.

The upper rectangle highlights some of the major processes, on various scales, that underlie port retreat and therefore the emergence of a 'redundant space continuum' involving not only the more familiar inner-urban sites but also other, discontinuous and possibly larger sites elsewhere within or outside the city. Historically (*t1*) inner-urban sites have been dominant, but today (*t2*) the combined forces of maritime technology and deindustrialization imply that the problem is more widespread - as closed oil refineries, for example, illustrate.

In between the main 'retreat' and 'revitalisation' rectangles of this model there is an indication of the way in which the problem of redundant space is perceived and analyzed, and of how (rapidly or slowly, as the case may be) there is an increasing perception of resource opportunity - for new investment, redevelopment, re-use of abandoned areas for new purposes. Not all such areas are chosen, of course, and not all are suitable, so there is a 'revitalisation selection filter' which helps to focus attention on the most appropriate sites.

The arrow down the centre of the lower part of the diagram is intended to represent policy evolution - the gradual formulation and implementation of a strategy for revitalisation, initially broadly based, but eventually sharply targeted. Various authorities are involved, some with original ideas, others relying largely on emulation of what seems to have been successful somewhere else.

This process of strategy evolution eventually yields an 'outcome continuum', represented here as a spectrum in which social goals (such as public-sector housing) are dominant at one end, while commercial interests (such as private-sector housing and small-scale industrial development) are dominant at the other. Cooperation in-between is possible, of course, but the

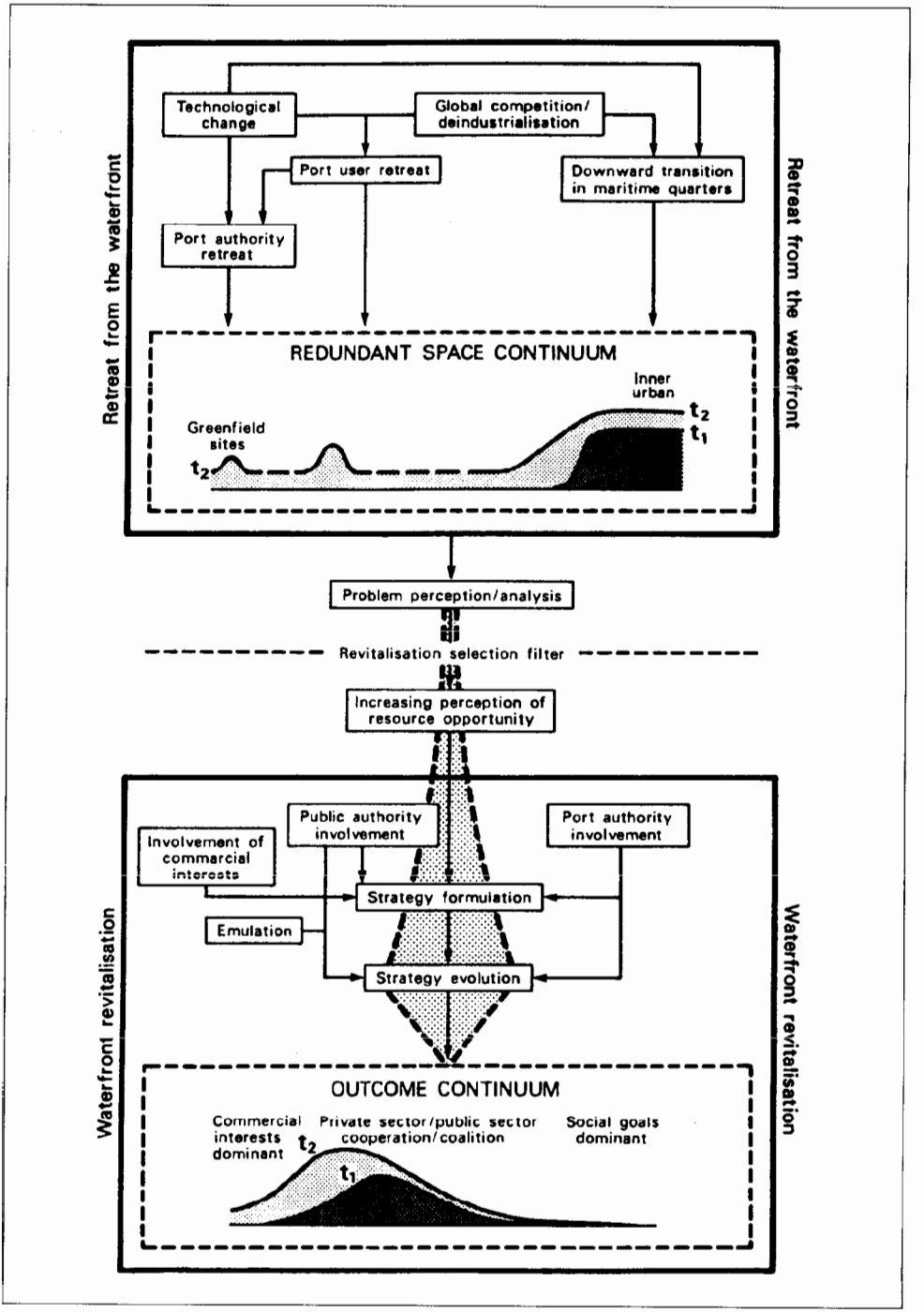


Figure 4.- Revitalising the waterfront: a model of forces and trends *(Source: Pinder, Hoyle and Husain, 1988, 249)*

implication of the model is that at present (*t2*) there is a marked trend towards the commercial end of the spectrum. One might in fact go so far as to say that retreat and redundancy have separated ports from people; and revitalisation has created commercial opportunities but has generally paid too little attention to the social needs of formerly port-dependent communities (Van der Knaap and Pinder, 1992).

Cultural contexts

The ways in which urban waterfront redevelopment is managed - in terms of objectives, methods and outcomes - are themselves a product of the cultural contexts within which port cities are set. In spite of tendencies towards emulation and similarity, especially in a North American context, there is a widespread and deeply-felt need to preserve the individuality of place and to enhance the character of location. The art of successful waterfront redevelopment - as, for example, in Vancouver (Canada) - lies in revitalising the cultural and physical heritage while creating attractive environments for present and future use (Hoyle, 1992).

Around the world, cities are reclaiming their water frontier, rediscovering their waterfront resources, breaking down the barriers between port and city, and learning to shape and to share new waterfront environments. Revitalisation certainly involves a commercial element, but recreational and residential activities often appear to predominate. The name of the game is an appropriate and acceptable mixture of land uses and water uses, creating attractive and accessible environments for all to share.

6.- Cityports and regional development

Yet we must guard against a tendency to examine, analyze and renovate the core areas of port cities in isolation. There is another relationship that is, in some ways, even more important, and that is the interdependence between a cityport, on the one hand, and the coastal region within which it is set on the other (Pinder and Hoyle, 1981). This relationship between cityport and region is sometimes an historical phenomenon - as between Venice and the Veneto, the cityport's immediate mainland environment; sometimes, as in Sydney, Australia, there is an over-riding concern for the environmental impacts of inner city redevelopment, the relocation of the port function (at Port Botany), and residential and recreational pressures on the wider coastal zone. Occasionally, as the bush fires around Sydney in January 1994 dramatically demonstrated, the tension between an expanding, changing cityport and its regional environment can be costly in terms of life and property, especially when the natural environment is harsh and unrelenting.

Coastal zone management

Coastal zone management is a phrase that has been to some extent hijacked by environmental scientists, ecologists, planners and others concerned with the conservation of the physical environment. In human and environmental terms, the management of coastal zones transcends the artificial boundaries of the cityport to encompass the symbiotic interchanges between cityport and region. Port cities are nodal centres of activity and development within coastal zones, but it is unrealistic to focus attention exclusively upon *urban* patterns and problems, still less upon *port* issues or the waterfront itself, without attempting to place these core areas and functions in context.

Putting the question the other way around, coastal zone management must examine littoral regions as dynamic interactive systems within which port cities perform a critical but not overwhelmingly dominant role. The balance between cityport and region must be carefully assessed, for each is dependent upon the other (Vallega, 1992).

7.- Conclusions

In focusing attention upon the changing cityport in a time of politico-economic transition, we should aim to analyze existing situations, to understand their origins, and to consider current trends and future developments, in order to have some idea of where we are going from here. As a conclusion to these broadly conceived remarks, three major points will bear re-emphasis.

First, the *world cityport system* (Figure 5) is a dynamic phenomenon, and the essential pacemakers are the maritime factors. Port cities are gateways orientated towards the world's seas and oceans; they belong to the world of seaborne transport and trade. New technologies of ship design and cargo handling are the key factors that have led to successive eras of cityport evolution, producing a remarkable variety of cityports around the shores of the world lake, that interconnected global water surface linking together all port cities and all maritime transport networks.

Second, in economic terms, cityports are continually involved in *interport competition*. A seaport survives by attracting traffic flows to itself. Traffic flows are fickle and can always grow, decline or be diverted elsewhere - even from a single port which may seem to have an unshakeable monopoly on a small island. Traffic flows involve port selection by ship operators and others who base their decisions on factors affecting efficiency, cost and convenience, and on the condition of the wider economy. The behaviour of decision-makers in this competitive environment, and the responses of port authorities, are critical to the long-term evolution and the short-term fortunes and patterns of port activity and cityport development. Quebec (Canada), in this context, seems today to be relatively unsuccessful, almost an historical anachronism, compared with Montreal.

Behavioural geography, rather than physical geography, largely explains the continuing process of differential cityport growth. It is the interaction of changing economies and societies, together with political influences and environmental attitudes, that ultimately influence what happens at the interface between land and sea, where port cities are located and where they prosper or perish. In East Africa, the archaeological ruins of Gedi mark a place on the coast of Kenya which in the 15th century was a cityport of ten thousand inhabitants and thriving trade. Today it lies abandoned, indicating to us that interport competition is a long-established element in economic and political life, and one that sometimes leads to commercial extinction (Hoyle, 1983).

Third, the most critical issue affecting the contemporary cityport is the *separation of port and urban functions*. Closely intertwined in the 15th century, as the core area of historic Venice (Italy) so strikingly demonstrates (Ashworth and Tunbridge, 1990) these functions have diverged in the closing decades of the twentieth century, as at Marseille-Fos, as the global forces of maritime technology have required a new scale of port development quite out of tune with dimensions associated with traditional urban cores. This planning problem lies at the heart of cityport development today throughout the advanced world and increasingly in developing countries too. As such, it is a problem that must be kept continually under review and I personally welcome most warmly the initiative shown by this University in bringing together ideas and viewpoints on an interdisciplinary basis. No-one has a monopoly of truth. I have spoken about shared space in a practical context, on the waterfront. How much more important is shared intellectual space, as we seek continually to refine our concepts, ideas and perspectives.

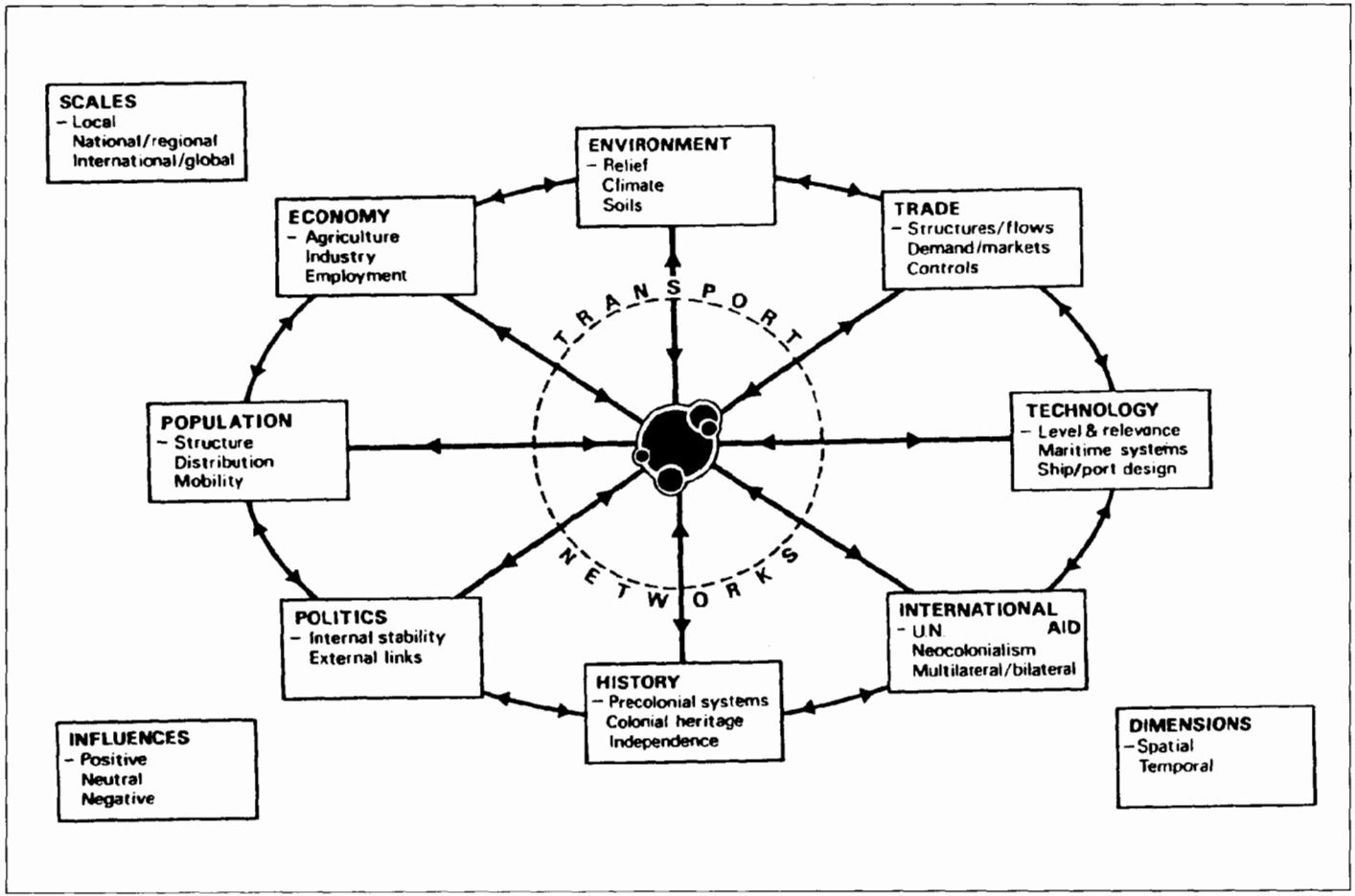


Figure 5.- The world cityport system *(Source: Pinder and Hoyle, 1981, 337)*

NOTE

1 Este artículo fue presentado en el curso de invierno titulado "Puertos y Ciudades Portuarias en España", celebrado en febrero de 1994 en la Facultad de Geografía e Historia de esta Universidad.

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