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Waterfront redevelopment and territorial integration in Le Havre (France) and Southampton (UK): implications for Busan, Korea

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Abstract

본 연구는 유럽의 두 항만도시에 대한 친수공간 개발사업의 차이점들을 지역통합모델 관점에서 분석하여 도시특성에 맞는 바람직한 친수공간 개발 방향을 제안하고자 하였다. 르와브르시(프랑스)와 사우스샘턴(영국)의 다른 친수공간 개발패턴과 공간적 통합과정 설명을 통해 대규모 친수공간 개발이 임박한 우리나라 친수공간 개발의 시사점을 찾아보고자 한다. 주요 발견내용은 항만과 도시기능의 충돌을 고려하여 두 공간에 대한 충분한 고민과 연구와 함께 공간적인 통합, 역사적인 통합, 기능적인 통합, 문화적인 통합계획이 필요하다. 이는 새로운 친수공간과 기존 도시 혹은 항만공간과의 충돌을 방지하여 항만과 도시, 구시가지와 신시가지의 유기적 연결이 가능해 지기 때문이다. 또한 항만도시별 특성에 맞는 친수공간 개발의 중요성을 강조하였다.

Keywords:

Busan, Le Havre, Southampton, Territorial Integration, Waterfront redevelopment

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1. Introduction

Recent trends involving logistics integration, port area expansion and extended hinterland in the port and maritime industry have redefined the functional role of port cities within supply chains. As a result of logistics integration and extended hinterland, many load center ports are focused on inland terminals and transport network to preserve their attractiveness and to fully exploit potential economies of scale against their rival ports in general perspective (Notteboom and Rodrigue, 2005), while developing distriparks, logistic centers and free trade zones around the port area. As well, the surrounding city is affected by port dynamics, because of the economical and spatial interaction between port and city, but also tries to develop its own attractivity, based on non-marine initiatives. Waterfront redevelopment lies at the core of these two trends – port and urban dynamics -, aiming at increasing the economy and living environment as a whole instead of the sole port activity, which has become less profitable to local communities.

The question whereas there is a regional specificity of port-city relationships has been recently discussed through international comparison at a world level (Ducruet, 2005), about Europe and Asia (Ducruet, 2004; Ducruet and Jeong, 2005) and among Asian hub port cities (Lee, 2005), using mostly quantitative methods. If global and regional factors become recognized in the process of port-city linkages (Lee et al., 2007) and waterfront redevelopment (Hoyle, 2000), there are still few studies comparing the internal organization of port cities as revelatory of global and regional change from a crossed urban and port perspective.

Having the aforementioned in mind, this paper proposes to introduce a spatial model of the European port city through the concept of “territorial integration”, defined by Brunet (1997) as a process *“connecting, supporting interrelationships and reducing disrupts and distances between elements which, however, keep their own identity (...) An integrated territory*

corresponds to a number of places correctly linked with each other and with decision centers; all its parts are correctly irrigated with services, goods, information, labor facilities ; products of any kind efficiently drained and redistributed". Generally used to depict regional integration, it can also be applied to the local level, by looking at the level of combination of different urban and transport functions. Thus, this paper proposes direction of waterfront of Korea through a qualitative approach so as to interpret the relation between waterfront redevelopment and the overall structure of the port city in European cities. It argues that the more a redevelopment project is integrated to the structure of the city, the more it becomes successful in terms of attractivity for both citizens and businesses. Inversely, the low spatial integration (resulting from cultural, political, economical factors) of the projects puts a threat on its attractivity and relevance for the whole local community. This approach is original compared to previous ones based on maritime identity in cultural geography (Brocard, 1996), political science (Fouilland, 2001) and social geography (Hoyle, 1995). Moreover, it allows a comparative approach, while most previous works privileged one case study only, and gives suggestions of waterfront redevelopment to the Busan case.

First section brings out the phenomenon of conflict of global and local force in port cities. In the second section, it carries out a literature review of spatial models related to port cities in general, followed by the European model itself. Then, the model is applied to Le Havre and Southampton, which face similar aspects with Busan: proximity to a global city (Paris, London, Seoul) and to a major sea lane (English Channel, Asian corridor). The application of the model aims at showing the varying successfulness of territorial integration regarding waterfront redevelopment in the two European cities, before addressing some implications about Busan case.

2. Conflict of local and global forces in port cities

Globalization has influenced urban spatial structure as well as the growth of the port through a rapid increase of exports and imports and the advance of port technology and operation in port cities. The rise of hub port cities is by all means its product. In this context, Hambleton et al. (2002) mention that globalization encompasses an enormous range of activities and is performed by a revolution in transportation and communication. The revolution has not only shrunk time and contracted space, but has also made transmissions across national boundaries breathtakingly cheap. The revolution stemming from globalization allows countries and cities that are far apart to be closely connected. A few hub port cities also become global cities. As a result of the growth of port activities, their other industries and urban economies, have rapidly grown. However, these cities still have not identified the factors that affect both urban and port areas in terms of symbiosis.

A port faces with a variety of pressures, whose two sources are (i) *outer effects* from global forces (e.g., globalization, containerization and intermodalism) and (ii) *inner effects* from local forces (e.g., post-industrialization and post-modernism). These forces are altering port and city development and interaction. Thus, the spatial pattern of port businesses and operations, in a number of countries, increasingly reflect this interrelationship through the creation of intra- and inter-port competition at local, regional and global scales, mainly related to port reforms. This in turn pushes urban redevelopment trends towards port (de) concentration (Hayuth, 1981).

In this respect, various studies dealing with port growth patterns in both developing and developed countries have been proposed on the port side (Wang, 1998). Others on the urban side have discussed urban redevelopment policies in obsolete port areas under post-industrialized trends (Gordon, 1997; Marshall, 2001).

A number of hub ports are facing similar problems (i.e., space limitation and traffic congestion) as shown in Figure 1 under the influence of the global and local forces, as mentioned by Notteboom (1997, p. 100): "*diseconomies of scale in some load centres emerge in the form of a lack of space for expansion and limited foreland or hinterland accessibility*". Thus, the efficient management of peripheral port areas is important for such port cities. Figure 1 illustrates the relational mechanism between port and city and the potential role of their common interface.

[FIGURE 1]

3. A spatial model of the European port city

3.1 General trends

European port cities are part of a continental system of ports and cities. With the combination of globalization on one side, which affects both ports and cities, and localization or regionalization on the other side, which shows the emergence of an integrated European territory.

Given the spatial pattern of European settlement, often described as a core-periphery pattern with the 'blue banana' at the centre and its surrounding areas, it is very difficult for European port cities to be both big ports and big cities. It means that port and urban activities are spatially distributed according to a gradient of centrality and nodality. As showed in Figure 2, a "ring" of peripheral metropolises is characterized by important urban functions (primate capital cities) and secondary port functions (ro-ro, shortsea and ferry services), from Dublin to Saint-Petersburg in the North, and from Lisbon to Istanbul in the South. Another "ring" is made of gateways, where port function is very important for the local economy, which is often dependent on trade and industrial activities, from Le Havre to Hamburg in the North, and

from Valencia to Trieste in the South. Finally, the last “ring” is made of inland metropolises: Paris-Lyon-Vienna-Berlin, defined by a full range of activities.

[FIGURE 2]

This gradient is an important factor to explain the diverse importance of waterfront redevelopment. Compared to the maritime cities, gateways have to sustain an important port and logistics function and are likely to redevelop their wastelands “for new port uses” (Charlier and Malezieux, 1997) rather than for strictly commercial and non-port purposes. The city size is another important factor to accompany the redevelopment, in terms of budget, traffic congestion and lack of space. The strategy of big cities is to maintain and/or increase their position within the network of global cities, while smaller cities will face the contradiction of specialization: how can they both take the advantage of being a port city and manage to diversify their economy?

A recent study (IRSIT, 2004) on European port cities has showed that 28 among 39 cities have wastelands close to the CBD due to the shift of port activities, with Figure 3 as an example of the results. Most of wastelands constitute large areas (100 hectares as a mean value) and the importance of wastelands “seems to be more related to the attractiveness of the port than to its overall size”.

[FIGURE 3]

This study distinguishes between the cities where wastelands have been reintegrated in the urban structure (e.g. Barcelona, Hamburg) and those where wastelands are still conflicting areas (e.g. Marseilles). Among 73 cities studied, 51 declare to be involved in redevelopment

projects at the port-city interface, but 7 have no project (Wilhelmshaven, Felixstowe, Riga, Tallinn, Cagliari, Gioia Tauro and Nice) and others did not specify. The surface of the reconversion project varies from 2 hectares in Zeebrugge to 520 hectares in Dublin, showing that most industrial port cities are engaged in vast projects of redevelopment, particularly in northern Europe.

3.2 Previous models of port cities

Although “the influence of the sea on the city plan is quite simple, as main streets converge towards the waterfront” (Lavedan, 1936), “urban models almost never consider the effects of port activities on the city’s spatial structure” (Gleave, 1997).

The ‘Anyport’ model of Bird (1963) proposes successive stages of port development from an upstream urban site to a downstream / deepwater site, with implicit reference to London but which can be found elsewhere in Europe and has been confirmed by the more recent spatial model of the European estuary (Brocard et al., 1995). The models of Zaremba (1962) are very dependent on the morphology of port cities, with the natural site as one of the main factors to explain their industrial and urban development. Hudson’s model (1996) is also dependent on site issues, but through a more synthetic approach with only two types.

Other models are specific to one regional area, like the classical one of McGee (1967) on the southeast Asian city, the colonial Indian city (Kosambi and Brush, 1988), extended metropolitan region of Rodrigue (1997) from the case of Singapore, the one of Eliot (2003) on the South Asia port metropolis and the other of Lee (2005) on the Asian hub port cities.

The diagrams of Frémont (1996) and Chédot (1999) bring the time dimension in the model, so as to define trajectories of port development according to their insertion in three dimensions: city, maritime networks and hinterland. It is also the task of Hoyle (1990) with its successive stages of port-city separation and redevelopment. Unfortunately, the ones of Lecoquierre

(1999) on European ports and the chrono-spatial model of Marcadon and Comtois (1996) do not have a spatial approach despite their relevance to explain the evolution of port-city linkages.

Spatial models of port-city relationships are numerous but remain relatively limited as tools for international comparison, notably concerning waterfront redevelopment. Even the more specific studies of Hayuth (1982) on the port-city interface, or the one of West (1989) on the rent remain conceptual and are not applied to specific cases.

3.3 The European case

This paper proposes a general model of the port city in order to encompass the complexity of internal dynamics taking place at the waterfront. It is applied to Le Havre and Southampton in Europe so as to test its relevance. Three steps are proposed to build the model: the site, the territorial dimension and the reticular dimension (Figure 4). Then, a synthesis is given before its application (Figure 5).

A first step combines two types of sites (bay, estuary) so as not to limit the approach to one particular physical configuration, and to lower the importance of the site compared to other development factors (A). Three main stages of development are highlighted, showing the gradual spread of port functions outside the urban core, together with industrialisation and urbanisation processes. Two important factors intervene: the lack of space and the traffic congestion (e.g. difficult transit of trucks through the city; technological change in the maritime world).

With the combination of functions (B), particular territories emerge: the “sailortown”, of which the “waterfront” is the area adjacent to the docks and the sea, the Maritime and Industrial Development Area (MIDA) where industrial and port activities integrate. Thus, a specific aspect of the port city pattern is the mixture of functions instead of a simple zoning,

highlighted by a “cut” between the port city itself (upper part) and the “anycity” (lower part). These territories are often depicted by land use conflict and overlapping strategies of different nature (municipal, port, private companies), which are accentuated when the areas belong to different jurisdictions.

[FIGURE 4]

The reticular dimension (C) is based of a common use of transportation networks by several players: daily commuting, trucking to and from the port and the city, river transport for barging and other activities (recreational, crossing). The port city is a place where all transport modes can be represented, compared to “anycity”: sea, port, river, air, road, rail and other additional activities like storage, distribution, packaging and logistics. Intermodality is more a potential, which effectiveness depends on the operational integration of different modes within a transport chain, but it remains very complex to assess in reality. On one side, the lack of efficient transfer brings a risk of congestion and loss of competitiveness; but on the other side, an efficient interconnection has the risk to lower the local value-adding process. A recurrent pattern seen in numerous cases is the formation of a major axis between the port city and its surrounding region, that may cut the city from the port.

The general model is a simplified combination of these steps, insisting on the dichotomy between “anycity” and “port city”. This asymmetrical organization rules the daily life of the city, and gives its major specific character when compared to “non-port cities”. The crossing of “port/city” and “sea/land” enable to give a general principle of a port city’s organization. Other principles are: the reciprocal relationship between port traffic intensity and distance to the urban core, the concentration of terrestrial traffic along a major axis used for both

commuting, trucking and freight logistics (river, railway), and the emergence of a new centrality on former docks, so as to value the waterfront and its outlying neighborhoods.

[FIGURE 5]

4. Le Havre and Southampton case study

4.1 General context of the two port cities

Le Havre and Southampton are two port cities of the English Channel, the densest sea of the world in terms of maritime trade. Although Southampton dates back to medieval times, Le Havre has been planned as a new port city at modern times (1517). They have in common to be both commercial and passenger ports, with Le Havre being a main gateway to America with giant liners, but the rise of aviation reduced this activity to some ferryports while it sustained in Southampton for cruise services (Queen Mary 2). The two port cities were bombed during WWII and faced similar steps of development since then: the rise of oil traffic and the construction of remotely located oil berths (Fawley and Antifer), the development of containerization and the prospects for new port development (Dibden Bay and Port 2000). However, Port 2000 has started its operation in march 2006 while Dibden Bay project failed to get recognition from central government. Finally, some major differences remain like the type of port governance: Le Havre is an “autonomous port” (public administration controlled by central government) while Southampton is managed by Associated British Ports, a private company operating several ports in Great Britain. It is obvious but important to mention that Le Havre is a maritime and river port (Seine estuary) at the mouth of a corridor to Paris while Southampton has no navigable inland waters and is not connected to mainland Europe by ferry links.

The two cities have developed very differently despite the apparent similarity of their situation. They both face the advantages and constraints of being close to the national capital (London and Paris, two global cities), but Southampton has a better position in the urban system because it has no direct competitor before London or Bristol in the south (Portsmouth being an industrial city and former naval port) while Rouen is keeping its position between Le Havre and Paris as Normandy's regional capital (Brocard, 1994). It had direct effects on the two city's economic structure: Le Havre remained an industrial city located in a rural area, with a majority of low-skilled employees in big factories like automobile (Renault) and chemicals (Total), shifted during the 1960s from the Paris capital region; Southampton became a commercial and tertiary center during the shift of financial services and light industries in the 1980s from London thanks to lower rental costs (Mason et al., 1990), better economic attractivity and radial position in the transportation network (Monkhouse, 1964). Due to their specific situation, they have started both in 1993 a strategy of "urban networking" so as to cooperate with neighboring cities in terms of territorial development to help addressing new projects, of which waterfront redevelopment (Ducruet, 2006).

4.2 Territorial integration and waterfront redevelopment in Le Havre and Southampton

4.2.1 The morphological factor

The two sites of the port cities bring interesting differences in terms of morphology and potential development. As noticed by Zaremba (1962), whose case study is notably based on Le Havre and Southampton among several other cases, Le Havre's site is characterized by more advantages than for Southampton's, as showed in Table 1 and Figure 6. Then, waterfront development projects will be dependent on two essential factors: the particular morphology of the port city (1) and its economic identity as part of an urban network (2).

[TABLE 1]

[FIGURE 6]

The application of the European port city model starts with Figure 7, so as to determine a more precise land use pattern for the two port cities, using satellite images. In terms of overall urban area pattern, Southampton has more developed than Le Havre thanks to its inland position, while Le Havre has been blocked to the south by the river Seine. Although this shows the limits of Zaremba's models to explain particular case studies, it confirms the varying size of the two cities' interface, which is larger in Le Havre than in Southampton. Then in Southampton, port areas and industries have been limited not only due to port competition and the nature of activities, but also for morphological reasons. It also means that there would be less wastelands in Southampton, as land has been less available in the past for port and industrial development. Then, waterfront redevelopment is a less important topic in Southampton than in Le Havre.

[FIGURE 7]

4.2.2 Territorial integration in Le Havre

In Le Havre, the port-city interface is a vast territory running from the seaside / museum Malraux to the Vauban docks / entrance of the city, along the docks, warehouses and canals that penetrate inland. In particular, the neighborhoods of Saint-Nicholas, Eure and Neiges are symbols of the port-city interface in Le Havre, with old industrial architecture and abandoned lands. Current projects include "Vauban-Gare", to refresh the entrance and the city close to old docks (hotels, logistic companies, chamber of commerce, concert hall and the new "center

for sea and sustainable development”). The main project, “Docks Vauban” follows the redevelopment of the beach area (ancient houses and walkways) and the PIC URBAN project (European funding) for the redevelopment of the southern parts of the city, adjacent to the port. Its originality is the central situation of the project (entrance of the city, strategic for the connection of the city and the port inland access) and its nature (multifunctional with a preference to maritime-related activities, using warehouses along the docks that have been abandoned since port activities shifted toward deep sea). The total project is estimated to cost 100M Euros, financed by private investors, on 66 square kilometers (of which 40 are for commercial use). The accessibility is well organized both for public transport (bus lines, several parking areas) and freight transport (trucks can use the main roads or bypass the city entrance to the south without creating congestion).

Thus, the project can be said to participate to the general dynamic of the whole city, because it is a part only of a global policy to rise Le Havre’s status from a port industrial city to a commercial maritime city.

4.2.3 Territorial integration in Southampton

The case of Southampton (UK) is by many ways very instructive about the possible failure of waterfront redevelopment, caused by a lack of territorial integration. As a dynamic city of Southern England, and a major UK port, Southampton faces the problem of all British cities: the budget of the local authority is totally dependent from the central government. Moreover, it is a medium-sized city (220,000 inhabitants) and also faces the constraints and advantages to be close to a global city (London).

Then, Southampton tried to overcome its difficulties by launching ambitious projects of waterfront redevelopment in the 1990s, as a means to reinforce its attractiveness and to bring additional budget from the private sector. Projects include the redevelopment of Ocean

Village, Town Quay and West Quays, very influenced by the mood for “postmodern waterfronts” (Northcliffe et al. 1996). The content of the waterfront areas is mostly based on consumption (fast-food, theaters, nightclubs, shopping malls, marinas and bars) without much link with the maritime character of the city. It has even been said that the redevelopment strategies of Southampton have been “mediocre” (Brunskill, 2001), given the poor urban design brought by the planners to the privately funded projects.

As a result, the different projects remained separated from each other, both institutionally (different developers) and spatially (southeast and southwest). Moreover, each redevelopment (Ocean Village and Town Quay, on both sides of Southampton Waters) are not well planned in terms of accessibility (few parking places and low bus coverage) and attractiveness (most of attractions have seen their frequentation decline in the recent years and many commercial stores have closed). Thus, the content of the projects are mostly oriented towards mass consumption (stores) and upper class (marinas), without being spatially integrated to the rest of the city structure. The lack of spatial and economical integration (i.e. the West Quays redevelopment was recently blamed by the central government for being too much commercially-oriented and for surpassing the city’s budget) led to a relative failure of the whole waterfront redevelopment.

The relative failure of these projects to attract tourists and public frequentation raises a number of questions. First, the short term strategy has focused on a poor qualitative content, mostly made of commercial activities (fish and chips, bars) and recreational (nightclubs, marinas, cinemas). Second, the projects are quite small and isolated a) from each other b) from the rest of the city. Then, their frequentation has gradually declined until the recent period, as Southampton inhabitants (e.g. students) preferred to stay in the city center which is more lively and attractive. Another problem was the low car accessibility of the different areas, and their poor urban design.

As a result, the central government has blamed Southampton City Council to have overweighted its budget and used it for only its profits. It is an effect of a limited public debate and discussion about what should be developed in this city. Moreover, the failure of the new port project (Dibden Bay) of Southampton, condemned by the central government, adds to the general mismanagement of the port city.

Then, some UK urbanists have started to argue in favour of the “**redevelopment of the redeveloped areas**” which constitutes a dramatic loss of time and money. Their principal argument is that the urban landscape and the integration of the projects within the whole city should be improved, so as to erase the very limited content of the previous waterfront redevelopment.

4.3 Interpretation

This case study has used the concept of territorial integration applied to waterfront redevelopment policies in two European port cities. It appears that despite the similar situation and history of the cities, and despite the relative success of Southampton in the last decades as a commercial city compared to the stagnating industrial character of Le Havre, the evaluation of the projects’ successfulness is in favor of the French port city.

Our main argument is verified, as based on the varying degree of interaction between the redevelopment process and the entire city dynamic and structure as shown in Figure 8.

It means that Southampton’s waterfront redevelopment was too much disconnected from the city needs and structure, being the direct application of a “model” like the London Docklands or the Boston examples. Without being integrated to the city area and economy, the project cannot reach sufficient recognition towards companies and citizens, and then become useless to the daily life of the city. It constitutes enormous wastes of money and land, especially given the particular peninsular site of Southampton.

For Le Havre, although investment is private, the spirit of the planning project has respected the city dynamics, economy and culture. It shall become a successful project but yet it is not opened to the public (completion in 2008), what is a difficulty for comparing the two achievements. Still, the way the projects was realized gives much argument about the way waterfront redevelopment is led in France (see also Marseille “Euroméditerranée” Project under completion which is also based on an interaction with the city structure). The methodological approach using spatial models is not an end in itself. It helps to recognize the degree of interaction between different functions and to address general trends in terms of spatial homogeneity, disrupt and integration.

In conclusion, it can be said that waterfront redevelopment, in Europe and elsewhere, shall be of four kinds:

- **Economic integration:** focus on the needs and lacks of the city economy, taking into account its relative situation in its urban network (what are the specific functions compared to other neighboring cities and how can redevelopment can value these functions?)
- **Spatial integration:** focus on the accessibility of the project area, at the level of the whole agglomeration (prevent from congestion, divide public and freight flows)
- **Cultural integration:** focus on the link with the sea and the maritime function, so as not to cut the redevelopment from its past.
- **Historical integration:** focus on the conservation of old port facilities and old building in the CBDs so as to prevent disconnection from its past.

[FIGURE 8]

5. Implication for Busan waterfront redevelopment

5.1 Brief introduction

Having grown to be North Asia's hub ports, Busan has established itself as a top class container port. It has excellent natural conditions for anchorage and a geographical location that is a connection between Asia to both Japan and America for shipping lines (Figure 9). It has also played an important role as a gateway for Korea's manufacturing industry and an alternative transshipment platform to Japan (especially, since the Kobe earthquake in 1995).

[FIGURE 9]

Busan has a long history as a trade port dating back to 1407. However, the port has played an important role in modern trading since it was colonized by Japan in 1910. After independence from Japan in 1945, the port has grown rapidly. It has been greatly influenced by Korea's economic structure in relation to export-based manufacturing industry. Thus, remarkable growth has been recorded in a short period of time. It began to handle containers in 1970 with only 5 thousand TEUs per annum, but it soon reached 2.3 million TEUs in 1990. Its traffic increased by 322% in 10 years to reach 7.5 million TEUs by 2000. In 2005, it achieved a throughput of 11.8million TEUs (Containerisation International Yearbook, various years). Such evolution has made the port develop all around Busan bay, blocking the urban spaces from reaching the seaside.

5.2 Territorial pressure

Busan is confronted with the big change resulting from conflict between local and global forces. It is the opening of new port and the redevelopment of old port areas. The waterfront redevelopment has to consider the particular growth of Busan (Figure 10).

[FIGURE 10]

Busan old port still has to handle a number of container cargoes (the capacity is about 600 million TEUs) above 20 years and a part of the port needs to be redeveloped as urban function area. As a result, waterfront redevelopment is an important project for harmonizing space as mentioned in European case. It should consider combination among port, old fishery market, ferry and train terminals, and the other CBD functions. Another particular feature of Busan compared to Le Havre and Southampton, like between Asia and Europe in general, is the continued activity at the “old port” whereas it has totally stopped in European inner port cities. Then, Busan has an additional pressure from the port side. Such pressure is illustrated in the difficult passage of trucks through the city to and from the port (Frémont and Ducruet, 2005), which is compensated financially, but not spatially, by a container tax levied by the municipal government (Kim et al., 2002). The lack of space for building a new waterfront is also accentuated, compared to Europe, by the lack of abandoned areas: every area in Busan is maximized in its utilization. There also one can recognize a particular feature of Asian port cities: the high productivity rates at the terminals resulting from the lack of space.

Figures 11 and 12 show the principles of Busan’s land use before assessing its implications for waterfront redevelopment.

[FIGURE 11]

5.3 The international and national contexts

While other waterfront redevelopment cases in Asian port cities are backed by already established global cities such as Hong Kong, Singapore, Tokyo, Shanghai, etc., it is not the case for Busan.

Despite its important demographic size (4 million inhabitants), and its remarkable port function (5th container port of the world for TEU throughput in 2005, 90% of Korea's port throughput), it is not the core of Korea's economy. Seoul region concentrates about 96% of the major public and private companies' headquarters (Hong, 1996). This enormous concentration is a major constraint to attract strategic activities and diversify Busan economy, and is an increasing trend despite the governmental efforts to deconcentrate the capital region. Thus, a waterfront redevelopment project in Busan shall ask the question: how can it be a tool to overcome the heavy weight and lock-in effect of the Korean urban system, and how can it turn the maritime and port function into an advantage?

Another important condition for the success of Busan's waterfront redevelopment is to overcome the drastic competition with other South Korean ongoing projects, such as Songdo New City within the Incheon Free Economic Zone, Saemangeum tourism project in Jeolla province, the New Administrative City (or ubiquitous city) under way especially close to Daejeon and, especially, the plethora of free trade zones which are usually built between port and urban areas for industrial purposes: customs free zones, free trade zones, free economic zones, foreign exclusive and industrial complexes, foreign investment zones and the free international city of Jeju.

In economic terms, the attraction of companies within the Busan waterfront project seems hampered by this international and national context. Although Busan participates to the national strategy of free zones, with Busan-Jinha Free Economic Zone and its Customs Free Zone, it is far from being recognized as a leading location for investors.

[FIGURE 12]

6. Conclusion

This paper suggest to common direction of waterfront redevelopment through the different point between two European waterfront redevelopments in terms of territorial integration. The findings are given to many implication for Busan waterfront redevelopment. The direction of waterfront redevelopment is believed to be induced from the internal and external forces that are coincidentally in juncture at the same time. The drastic changes in the regional environment have exerted impacts on specific port cities, causing them to evolve in a specify way which is different from their counterparts in other regions of the world. In order to respond to the changes, new policies are implemented and the city and port become more cohesive and connect very close to each other to increase the competitiveness.

By reviewing and comparison of European cases, the waterfront redevelopment keeps role of four kinds for achieving combination between local and global force, urban and port function and old and new evolution, respectively:

- **Economic integration:** Busan has to integrate commercial and logistic functions as economic cluster.
- **Spatial integration:** Busan has to connect between commercial and logistics zones like port and FTZ, and commercial and transport zones like train platform and ferry terminal.
- **Cultural integration:** Busan has to maintain the cultural connection between maritime function like fishery market, new commercial zone and CBD.
- **Historical Integration:** Busan has to conserve the historical entities coming from old CBD and old port area.

With the above content in mind, Busan waterfront redevelopment does not copy to the other cases of waterfront redevelopment in any countries. Its waterfront redevelopment has to understand its situation in terms of port competition. It is also supposed to consider connection from the city needs and structure. Without being integrated to the city area and economy, the project cannot reach sufficient recognition towards companies and citizens, and then become useless to the daily life of the city. It constitutes enormous wastes of money and land, especially given the particular Busan waterfront redevelopment. What factors make and increase Busan attractiveness, compared with domestic and international competitors? Compared with competitors in Korea, waterfront is an important factor for increasing Busan's attractiveness. Therefore, considering port function in core urban area, Busan should implement common planning document for the waterfront.

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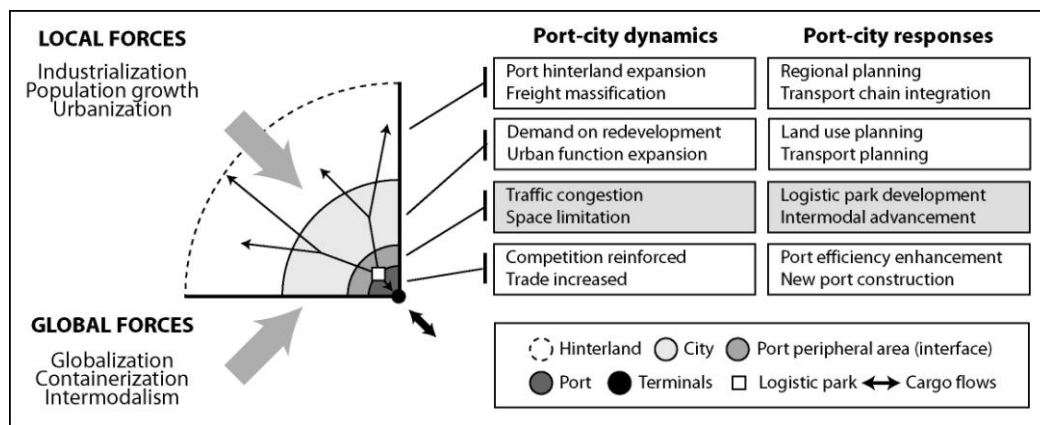
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Table 1: Advantages and constraints of Le Havre and Southampton's morphology

	Le Havre	Southampton
Advantages	a) The city keeps the whole coastal area for its development b) Port and urban areas are well integrated and the public space along the river can be developed for citizens c) port and related industries are compactly organized, that facilitates transport links between city and port d) this morphology allows to separate clearly the city in two parts, one for residential and working functions, one for leisure functions, without representing a constraint to the port	a) city develops freely towards inland, as it is not constrained by port areas b) the port area between the sea and the city has remained thin because of the lack of space
Constraints	a) The link between the major city and the satellite city (here Honfleur) is often difficult b) The upstream growth of the port might become an obstacle for land transportation, because of overlapping areas and necessitates to improve road links c) The communication between the two river banks lead to costly works like bridge or tunnel because of the river	a) The peninsular situation forces the city to develop on another bank using costly works like bridges, what reduces its access to inland through one direction only b) The port is forced to shift on a scarce remaining land along the peninsula so as to reinforce its access to inland transportation networks (rail, road)

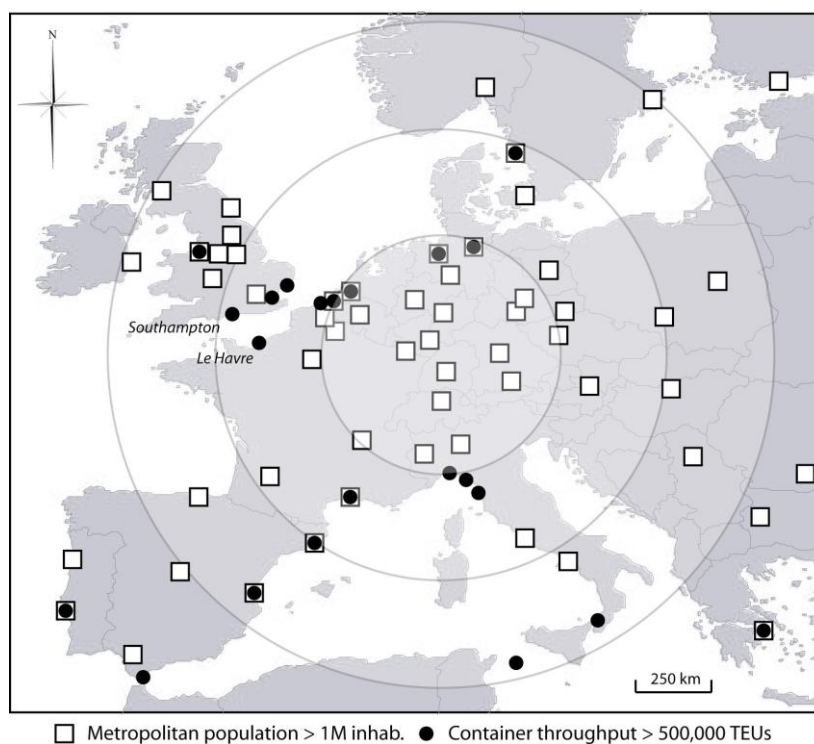
Source: adapted from Zarembo, 1962.

Figure 1. Relational Mechanism between Port and City



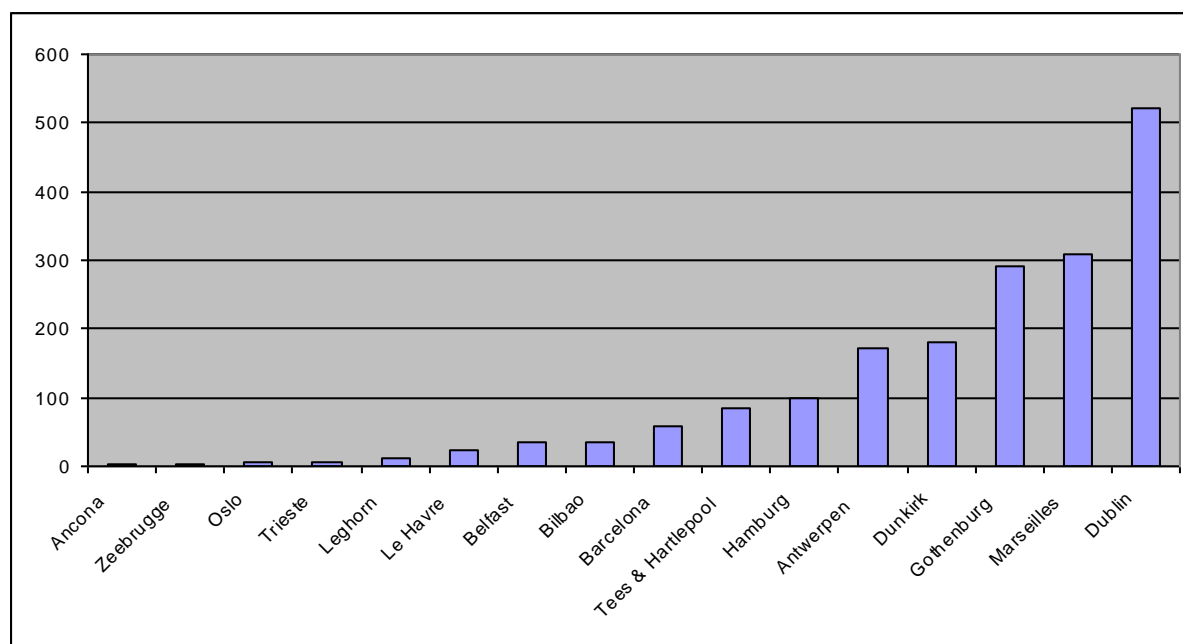
Source: modified from Lee, 2005

Figure 2. Major ports and cities in Europe



Sources: Containerisation International; Helden, 2006

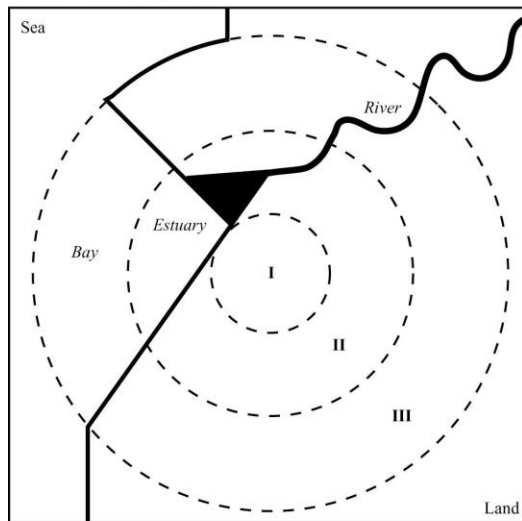
Figure 3. Size of some European waterfront redevelopment projects (Unit: Ha)



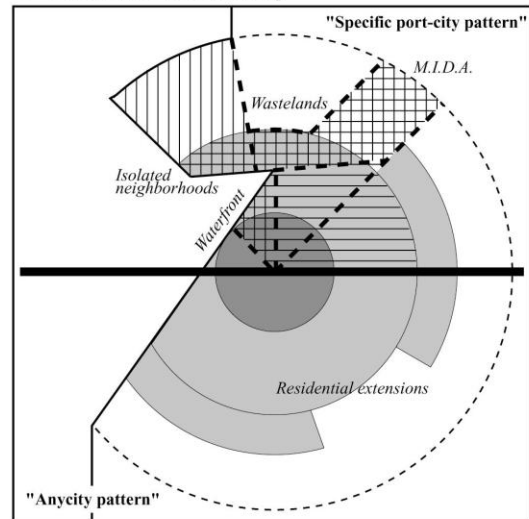
Source: IRSIT, 2004

Figure 4: Building a spatial model of the European port city

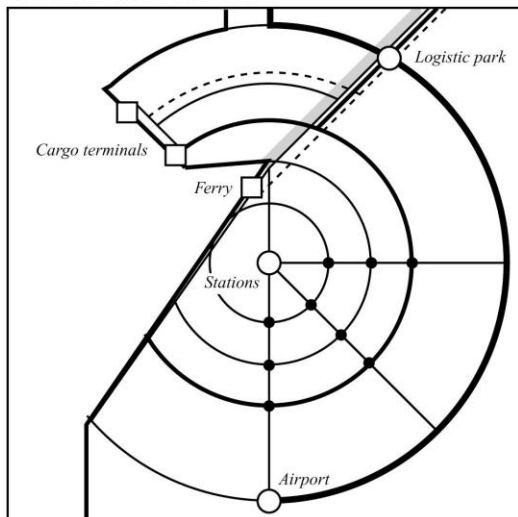
A - Site and spatial evolution



B - Land-use and zoning



C - Modal connections



- I - Original port-city core
- II - Industrialisation and coastal shift
- III - Urban growth and port migration

- Port areas
- Industrial areas
- Central Business District
- Suburban areas

- Interface
- Disrupt
- Landside connection
- Seaside connection
- Road network
- River
- Railway
- Urban treillis

Figure 5: Spatial model of the European port city

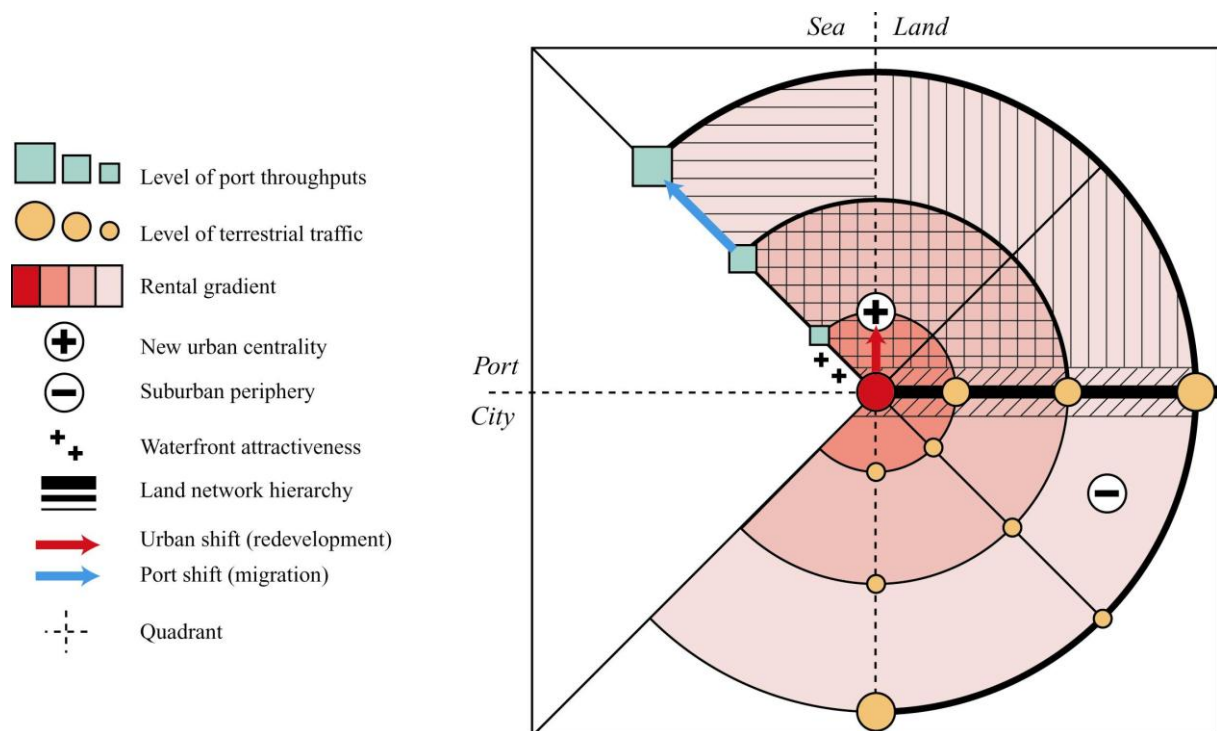
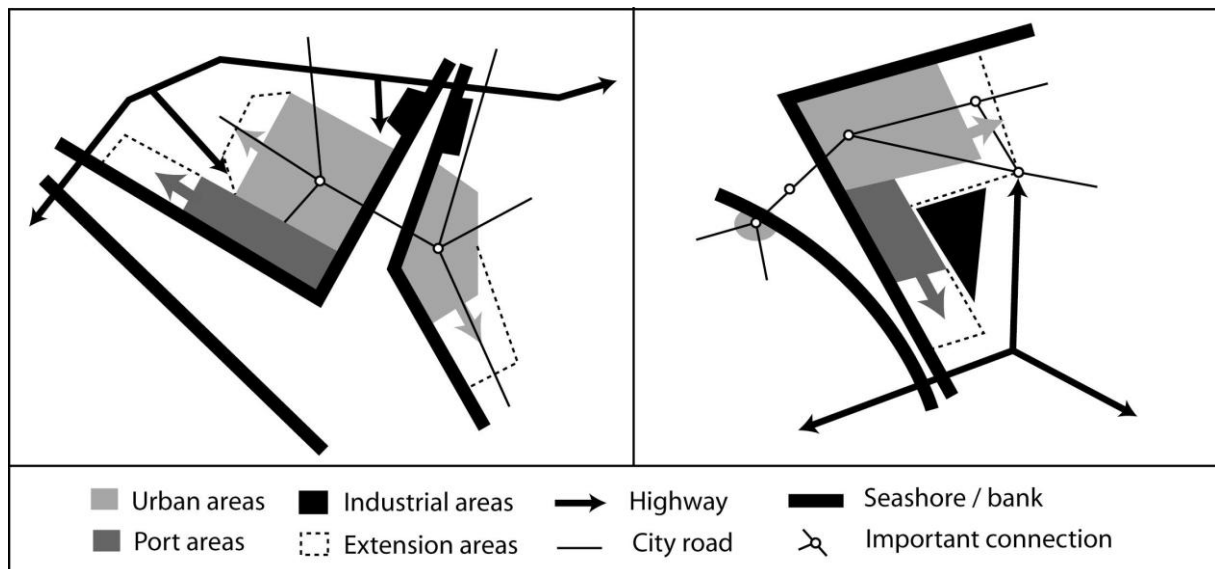


Figure 6: Zaremba's models of Southampton (left) and Le Havre (right)



Source: adapted from Zaremba, 1962

Figure 7: Spatial pattern of Le Havre and Southampton

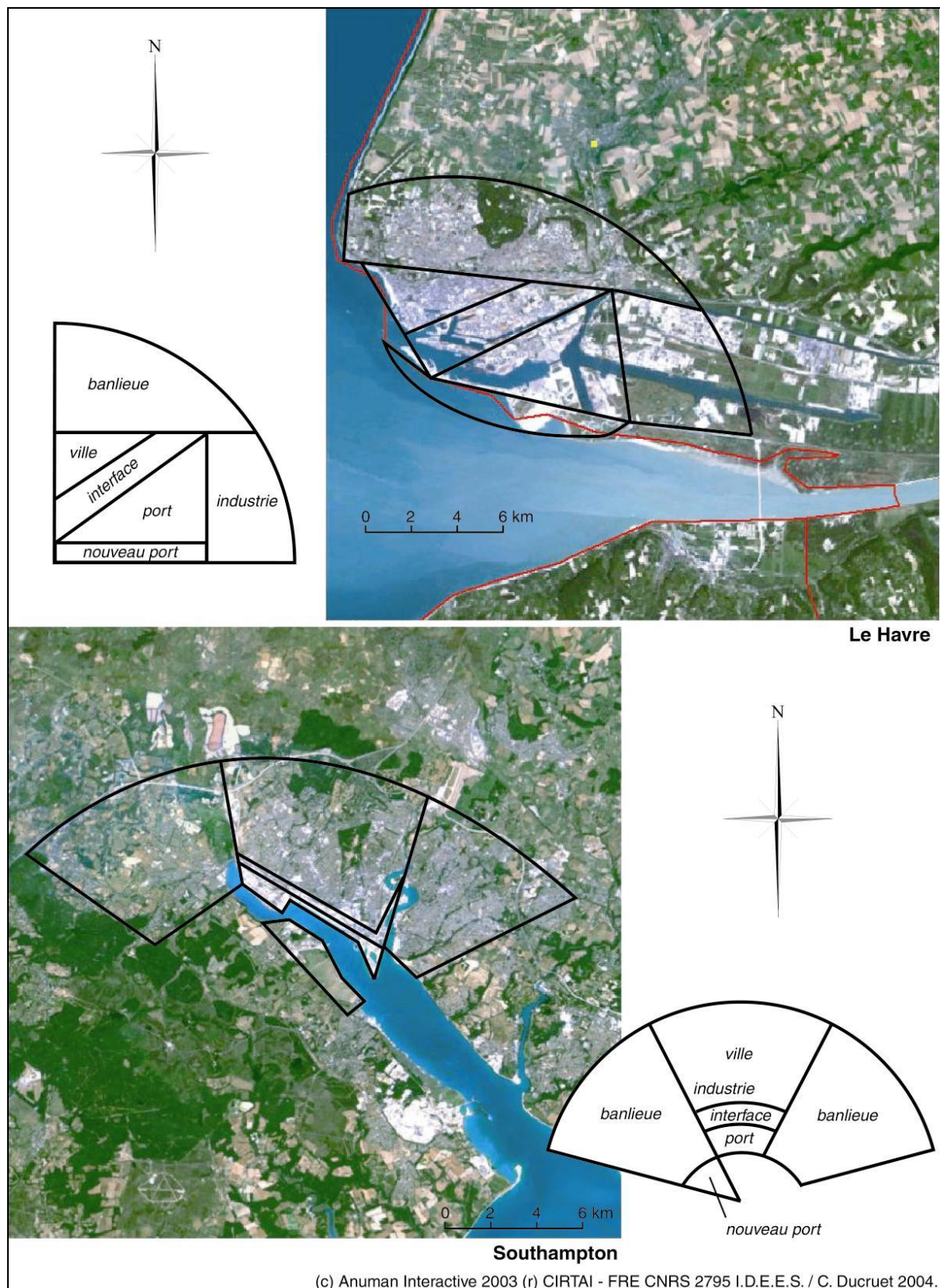


Figure 8: Synthesis of Le Havre and Southampton case study

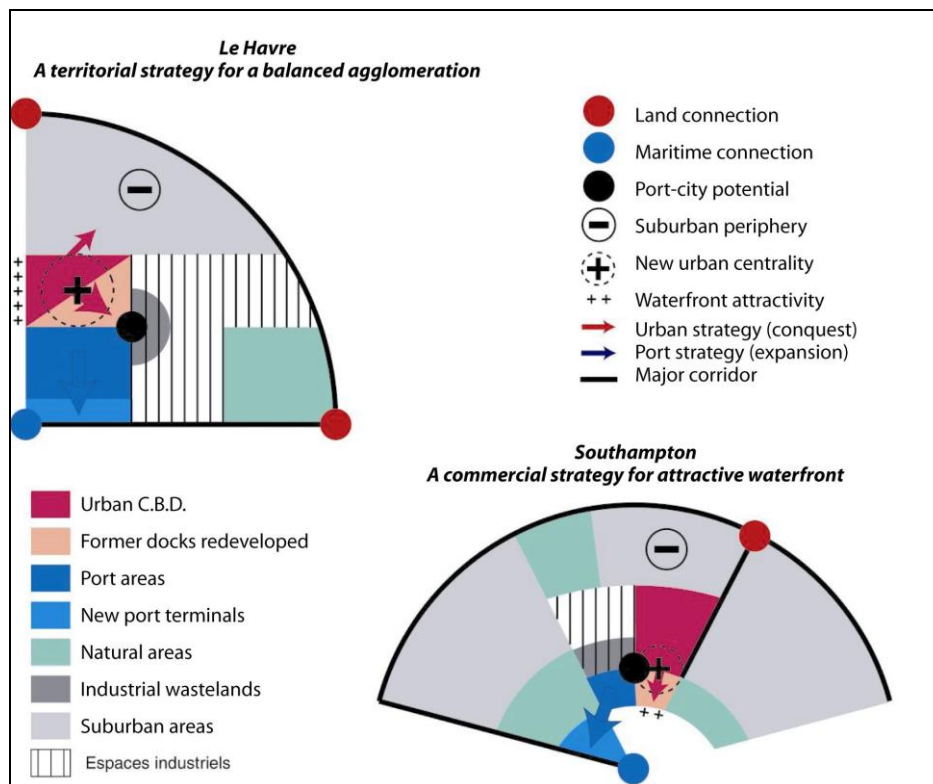
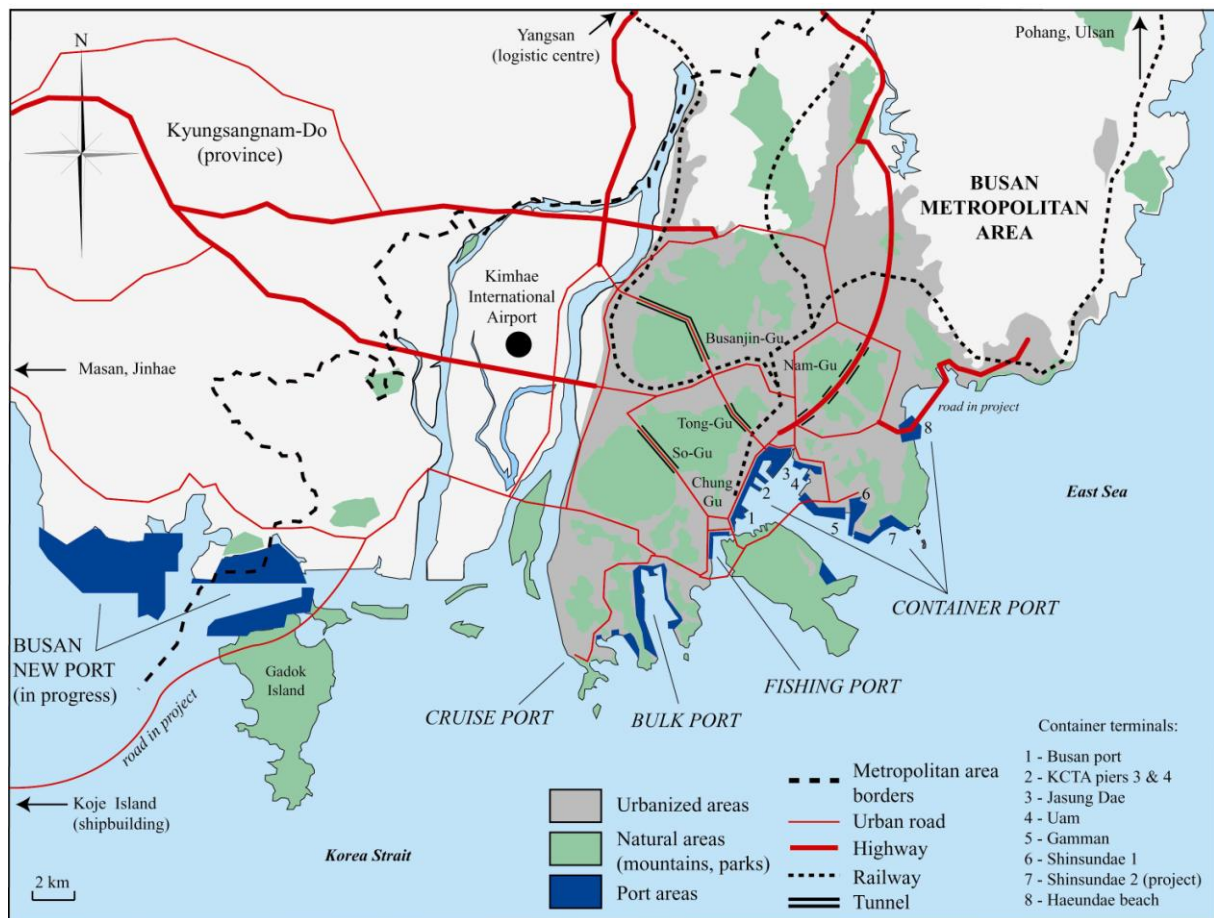


Figure 9: Territorial layout of Busan port city



Source: adapted from Frémont and Ducruet, 2005.

Figure 10: Spatial pattern of Busan port city

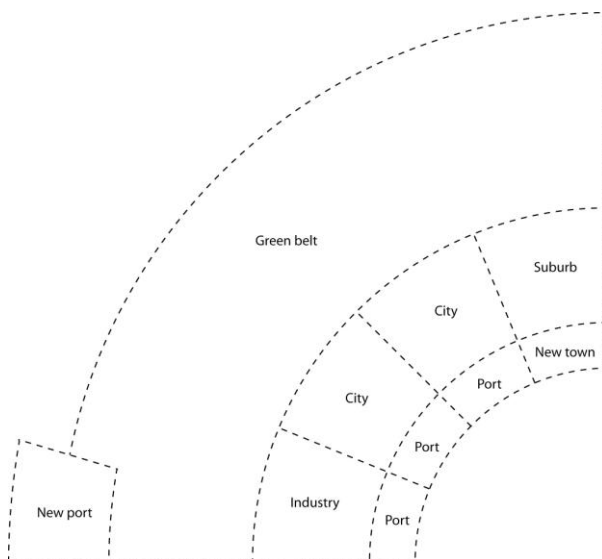


Figure 11: Networks and nodes in Busan port city

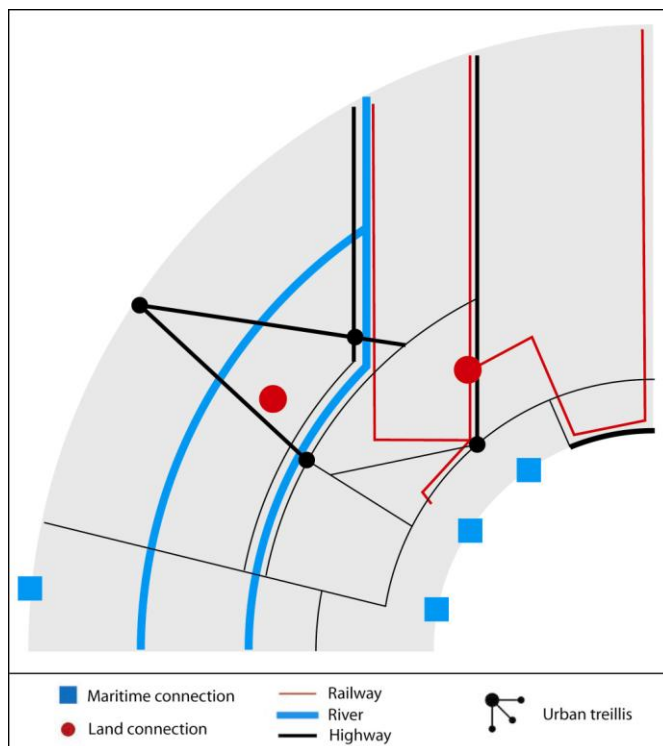


Figure 12: A territorial model of Busan port city

