

MULTIFUNCTIONAL LAND USE IN THE RENEWAL OF HARBOUR AREAS: PATTERNS OF PHYSICAL DISTRIBUTION OF THE URBAN FUNCTIONS.

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ABSTRACT

Being one of the most representative spatial processes of the last 30 years, which frequently occur in strategic parts of the cities and justify special financing investments, the operations of renewal of harbour areas can be seen as a laboratory of contemporary urban design.

In the context of the activity developed by the IFHP Working Party on Multifunctional and Intensive Land Use, these operations are also an high potential field of research, justifying its closer analysis, as it has been done in the last two years with the technical visits to Amsterdam, Rotterdam, Oslo, and now to Barcelona.

Focusing on the multifunctional use of spaces, this paper analyses several operations of renewal of harbour areas, trying to identify the urban design solutions adopted in those operations regarding the physical distribution of the proposed urban functions.

The case-study comparative analysis is the applied method, based on which are identified: (1) the different urban functions present on these operations, and; (2) the concept under which these different functions are disposed in the area and combined between themselves.

The hypothesis is that it can be established a general classification on the forms how different functions are combined in these operations.

The paper previously distinguishes two types of functions, regarding the relative its importance in the area: the *dominant urban functions* and the *located urban functions*.

The *dominant urban functions* are those functions that generally dominate an urban area, although it can contain *located urban functions* within its perimeter on specific locations, e.g., residential areas, offices and shopping areas, industrial areas, public equipment areas and special use areas.

The *located urban functions* are those specific functions that aren't dominating functions and exist within the perimeter of a *dominant urban function*, e.g., schools, museums, public services, local shopping's and others.

The papers defines which are the frequent groups of *dominant urban functions* and of *located urban functions* in the analysed operations of renewal of harbour areas.

Based on that definition, a classification of the forms of combination of the different urban functions is established, as followed:

- (1) **THE SOFT ZONING CRITERION**, utilising a general zoning at the master scale of the planning of the area as a form to attribute to each zone a dominant urban function; it understands the need for the existence of specialised urban areas in the city, trying to avoid the existence of mono-functional urban spaces in each zone, and the existence of only one type of specialised zone.
- (2) **THE STRONG ZONING CRITERION**, creating physic located zones for the different dominant urban functions, which integrate the operation, not integrating them between themselves. The dominant urban function A has the A location and the dominant urban function B has the B location; its interconnection is not considered, once it intentionally wants to create two specialised urban areas with different urban characteristics or site location.
- (3) **THE SPECIALISED DISTRICT**, intentionally creating a specialised part of the town that must be understood in the context of the entire city. Dependents on accessibility efficiency to survive, these areas tend to have day / night cycles and to generate urban fluxes, although they might correspond to important city's objectives. These operations entirely assume a unique dominant urban function for the hole intervention and count on other parts of the city or on the surrounding areas to solve the necessary complementary functions.
- (4) **THE BUILDING/BLOCK DISTRIBUTION**, defining different land uses to each building or block, although it could exist a dominant urban function, e.g., *LuJiaZui* renewal operation in Shanghai, in which it is the general form for physical distribution of urban functions in the entire plan – therefore being the urban design technique for functional distribution on this specialised district.
- (5) **THE LAYERS CRITERION**, looking for the vertical integration of the different urban functions by distributing them horizontally, by groups of stories. Inspired on mixed buildings of the traditional city, which was questioned by the functional segregation proposed the modern movement, it vertically re-combines them under contemporary patterns, frequently creating different vertical access and entrances, connections on the upper floors and others.
- (6) **THE STRUCTURE OF LOCATED URBAN FUNCTIONS ON A ZONING CRITERION**, defining a logical structure for the implantation of specific located urban functions in a base of zoning distribution of the dominant urban functions, which does not result from the normal distribution of functions in the city (such as the current criterion for the distribution of schools), but from the urban design concept.

PUBLIC SPACE: THE DESIGN'S EXCELENCE.

All the studied operations are based on the idea of "implementing public space" as a kind of "glue" permitting to generate a kind of "structural narrative" putting in relationship the different specific development in the area and acting as "trans-project" and "trans-zonning" active principle.

The case-study analysis includes the following operations of renewal of harbour areas: (1) the *Port Vell* operation, in Barcelona; (2) the *Expo98* area, in Lisbon; (3) the *Eastern Docklands* operation, in Amsterdam; (4) the *Kop van Zuid* operation, in Rotterdam; (5) the *Aker Brygge* operation, in Oslo; (6) the *Canary Wharf* operation, in London; (7) the *Western Docklands* operation, in Helsinki; (8) the *Lu Jia Zui* operation, in Shanghai, and; (9) the *Tiger Bay*, in Cardiff.

INTRODUCTION: THE RENEWAL OF HARBOUR AREAS AS A LABORATORY OF CONTEMPORARY URBAN DESIGN.

Waterfront areas, partly due to their central situation respect to the cities that house them, have become true laboratories of experimentation of the new space structures of the global city.

From mid the 1970's the development of these areas has become a priority for city leaders and real estate promoters.

In some cases, like it happens in the context of it USA, due to the processes of downtown renewal; in Europe, mainly in the Latin Europe, due to the deep changes in the economic base of the cities.

In the case of Far East, they suppose a condensation of the investment activity and in Latin America they are presented as true "blue chip" for international investment.

"The Transformation of the Urban Ports is, without a doubt, one of the big chapters of the urban renewal for the last 15 years and it can make sure it will be a crucial topic in next decades. The old central ports are entering in obsolescence fundamentally because of the changes in the system of port traffic and the growth of containerisation that demands other measures and another functional" system (J. Busquets & J. Alemany, 1990:5)

The impact of technological innovation in transports has been, with no doubts, one of the fundamental aspects in the emergency of the renewal and transformations of the harbour areas.

However, we would like to remark that the "waterfront" concept goes beyond the simple "port - city" interface that stands up the port geography.

The waterfront implies a total relationship between the city and the environment, in this case with a specific resource that is water (sea, canal, river, lake...).

Therefore we will find some factors that can explain the importance of waterfront developments in the last years.

THE PORT AND ITS HINTERLAND.

There is a cliché that explains why a port is a city inside the city.

In many cities the Port Authority is different from the municipal authority; the ports rule their own police, and rail network and infrastructures.

But until recently the environment of the port was constituted by a complex system of industrial plants and infrastructures of transport.

Gas and electricity factories that produced thanks to the raw material entering through the quays, enormous rail beaches to administer the distribution of goods, heavy industries manufacturing marine hardware or its complements (shipyards, dikes, metal companies, etc) draw up a part of the port areas landscape.

A large space in the urban centre prolonged by the coast following the layout of railroads and highways; reserves of "productive land" that fit pretty well in the heart of the city but were becoming isolated from the city.

In definitive a "system" defined as "the group of elements with a supra-local scope that, orderly related to each other, contribute to achieve the planning objectives regarding communications, free spaces, technical services and community equipment, at level of metropolitan ordination (for the case of Barcelona...) the port general system is the one

constituted by the port of Barcelona and its port environment and for the other ports of the metropolitan area... in its interior the sectors of the port, of the port environment and of the area maritime - terrestrial are clearly separate" [Urban Metropolitan Norms Tit III, cap 1]

*PLANNING AND ZONING IN THE GENERATION OF "EXPECTANT TERRITORIES".
PLANS FOR THE FUTURE.*

The systemic viewpoint we adopted outlines that the diverse types of planning generated among the 1930's and the 1970's have been really important to *keep in reserve for the future* vast expectant territories (bear in mind we can say that from an historical point of view), those which receive the direct impact of the technological innovation in the system of maritime transport and inter-modality.

"It is necessary that the important industrial areas are contiguous to railway lines, the navigable rivers or the ports and to the main routes of terrestrial transports" read the Charter of Planning the City [Sert, 1942].

Sixty years after the principles of the General Plan of Urbanisation and Expansion of Lisbon (PGUEL) was the Expo' 98 opening and the world heard to talk about of the development on "frente ribeiro" in the Portuguese capital.

The instigator of this work E. de Gröer, collaborator of Agache in Rio de Janeiro, put the objective *"to correct in a progressive way the old error that consisted on to build and to urbanise the city in opposed direction to the Tagus, essential element of her beauty"* [Nunes Silva 1994.15].

The subsequent development of the Master Plan of the City of Lisbon in 1948 finally decided to transform the oriental area of the city in the main industrial area due to its easy connection with the port, with the railway lines and its good position regarding the dominant winds (winds from the north quadrant) that would minimise the pollution of the adjacent residential and services areas.

This way, planning and zoning took off urban life— except like it happens in Barcelona when in the 1960's and 1970's it is necessary to implement social housing schemes- from the oriental part of the city, creating expectation respect land uses that are activated when, ending the seventies, all the industry in this area started to become obsolete.

FROM PROMENADES TO WATERFRONTS.

The impact of technological innovation in the system of transport on the port environment added to the role that the territorial zoning had in the generation of plans and possible expectant areas, they are necessary but not sufficient reasons to explain the approach and appropriation of the waterfront on the part of the city.

In other historical moments this appropriation was thought by means of the urban creation of interfaces between the line of water and the city.

Already in 1905, Jaussely proposed the creation of a promenade (*Passeig Marítim*) in Barcelona.

The South Promenade (costanera sur) in Buenos Aires was open in 1918; two kilometres of "promenade" for the Buenos Aires inhabitants - remains of the City Beautiful movement.

As soon as in 1918 we can find a "promenade's Law" in Spain.

The dream of Le Corbusier was to build two towers 200 m. high; a dream that would repeat in 1934 in the plan Macià for Barcelona, just in the core of the Port.

The Portuguese Estado Novo opens up Lisbon to the Tagus on the occasion of the Exhibition of the Portuguese World in 1940, by means of a certain founding allegory of the Praça do Comercio: the Empire Square.

However in many port cities the situation between the sixties and seventies is summarised in this text:

"Waterfronts, too, can be made to act much more like seams than they ordinary do today. The usual form of rescue for a decayed waterfront vacuum is to replace it with a park, which in turn becomes a border element - usually appallingly underused, as might be expected - and this moves the vacuum effect inland. It is more to the point to grasp the problem where it originates, at the shoreline, and aim at making the shore a seam [it would be necessary.] to employ counter-force against necessary city borders that means: as many city elements as possible must be used to build lively, mixed territory, and ace few ace possible must be used to compose borders unnecessarily" [Jane Jacobs 1961: 281-283].

The city and, therefore, its waterfront, is a product of the history and socially conditioned.

The simple association of factors only produces the effects we are studying in a context of advanced capitalist production: the informational one [Castells, 1989].

As merchandise, the waterfront presents a double face. On one hand, the territory should generate appreciation. On the other, the investment on the territory should be productive by means of the consumption. The operations on the waterfronts synthesise the new model of production of the territory.

So much Castells [op.cit] as Lash and Urry [1994] point out very wisely that in the context of "post-industrial" society, the processes of reflexive accumulation are taking place because the importance of the information, of the signs, in the processes of productive exchange.

If production becomes flexible, the companies are disintegrating and the capital operates globally at financial and investment levels, the production of the physical space, of the territory, of the city will be radically different from the one that happened in previous phases of capitalism.

Fragments of individualism, of ecology, of recovery of the city to "live her", will generate a new "culture" that will make possible the development of the "waterfronts."

The operations are relatively complex.

It is necessary to negotiate the listed lands to get appreciation.

First the structure and the culture of the welfare state, developed with effort since the crisis of 1929, will be weakened.

Later on an entire universe of offer of mixed uses will be generated, through flagship operations to attract the international financial capital, by means of the formula of the "capital leverage" [Bovaird, 1997].

Cities will play the game in facing up to the fear of its decay in the framework of what Peter Hall called "cities in competition" and a war against unemployment and galloping inflation.

A new social class will be the objective of the promotions. *"Those managing the post-industrial city will ensure that this urban landscape, especially its public spaces, exhibition and convention facilities and its water, presents a scene of continuing human animation"* [Ward, S.V: 1998: 190].

That's sure that the key exemple is Quincy Market in Boston.

EQUIPMENTS, CULTURE, PUBLIC SPACE, PUBLIC ART, ARCHITECTURE: THE IMAGE OF THE CITY

In front of the day-to-day bigger concentration of resources and capital, cities started to show processes of decentralisation based on *"cultural strategies used by local politicians and policy-makers to achieve different social and political objectives (... involving...) rediscovering and celebrating, as a reaction against the negative effects of functional zoning in land uses planning, physical features of the pre-industrial city like density, "walk ability" and the overlapping of social, cultural and economic uses"* [Bianchini; F, 1993:10].

As M. Miles [2000:61] points accurately *"the waterfront development and the cultural quarter, then, are signs for the post-industrial city"*, but he adds *"the diverse publics of a city do not have equal access to the image of abundance"*.

If something characterises and is common in most of the waterfront developments is the excellence of their urban design, key element to confer a new skyline and a new image to the city, think of otherwise how important is the Guggenheim Museum for the image of Bilbao.

But like Nuno Grandes points out [2000:123] this new image of the city will *"never be consequent if it doesn't allow an extensive renovation of the territory that supports the city. Because, if it is true that we learn how to admire the city starting from their scenic values, it is also true that we can live it only intensely, when we get a depth understanding of the city"*.

Amsterdam, Baltimore, Barcelona, Bilbao, Boston, Buenos Aires, Cardiff, Duisburg, Frankfurt, Genoa, Hamburg, Helsinki, Lisboa, Londres, Melbourne, Oslo, Rotterdam, Shanghai, Sydney, Vancouver, ... and a long etc., are concrete cases that repeat a global logic.

In each city, waterfront development is the flagship to start the mechanisms of change and of necessary regeneration, that make them able to compete at an international / regional context.

Waterfront development becomes an allegory proving cities are able to provide a "vision" - this way looking at the future - and to develop the necessary strategies to make it happen.

This context places us in a kind of "dreaming sphere" and like in any dream we should be able to create the necessary icons to support it: architecture, public space and public art, urban design will be the disciplinary fields able to produce the icons of 21st Century city.

THE PREVIOUS DEFINITION: THE DOMINANT URBAN FUNCTIONS AND THE LOCATED URBAN FUNCTIONS.

An agenda of analysis of urban functions on the operations of renewal of harbour areas must be preceded by a previous methodological clarification: not all the functions have the same urban importance and territorial implementation in these operations.

In fact, some urban functions might be distinguished as the dominant programme for the renewal operation, although changing from case to case.

They are the main urban functions that dominate the operation, the colour of the small hatch to be putted on the zone on the zoning types of city's master plans, the main urban function that the area represents to the city.

Other urban functions, having to integrate the new urban areas, correspond to located uses or to detailed intensions, not being comparable to the main ones.

Some represent the application of the current tables of equipments to the new urban area, like in any other new urban area – schools, health equipments, and others.

Therefore, paper previously distinguishes two types of functions, regarding the relative its importance in the area: the dominant urban functions and the located urban functions.

The dominant urban functions are those functions that generally dominate an urban area, although it can contain located urban functions within its perimeter on specific locations.

These functions are applied to zones, e.g., residential areas, offices and shopping areas, industrial areas, public equipment areas and special use areas.

The located urban functions are those specific functions that aren't dominating functions and exist within the perimeter of a dominant urban function, e.g., schools, museums, public services, local shopping's and others.

They are singular buildings or small areas of urban functions, which are exceptional or complementary to the dominant ones.

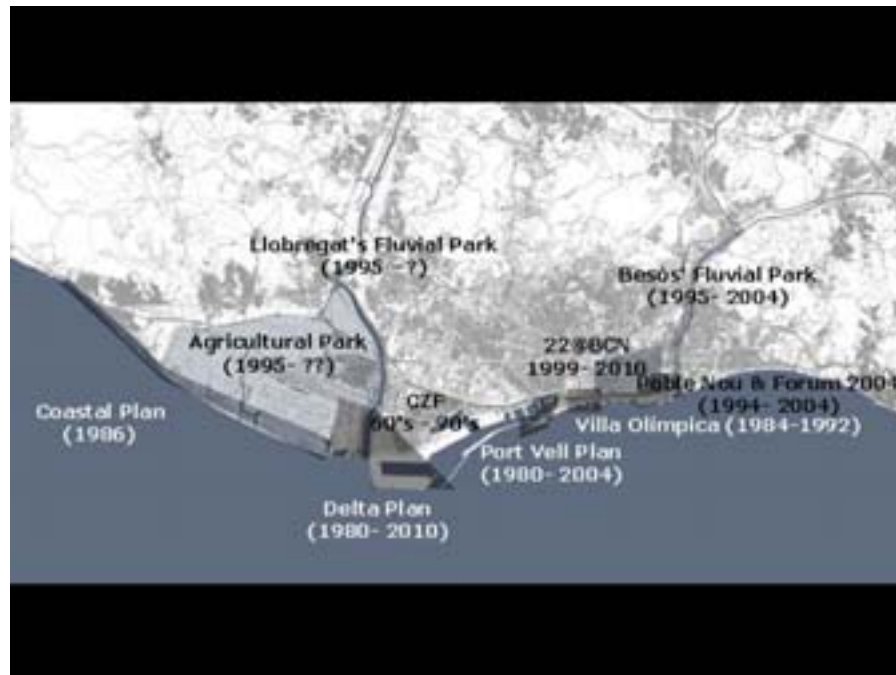
As a typological pattern, some located urban functions can be combined, therefore becoming a dominant urban function in the operation.

As an example, museum or leisure equipment, being located urban functions on several parts of the area of the operation, could be aggregated or organised under a structural form.

In the first case it would define an urban perimeter, a cultural or a leisure area, therefore eventually becoming a dominant urban function, depending on its dimension and on its urban representative ness.

In the second case it would define a structure of a specific located urban function, a logical structure of isolated cultural buildings, complementary to the dominant urban function but having a higher representative ness in the operation, defining a pattern.

MULTIFUNCTIONAL LAND USE ON THE OPERATIONS OF RENEWAL OF HARBOUR AREAS: SOME CASE STUDIES.



THE PORT VELL OPERATION, IN BARCELONA.

The Special Plan for the *Port Vell* of Barcelona was adopted in 1989.

This plan means the urban renewal of the Barcelona's old port extending 55 Ha (13,59 acres) taking in all the quays built up since the XVIII century; those quays are located nearby city centre.

The Master Plan in 1976 included the idea of branching off the *Llobregat River* (an idea that has been implemented in the "Delta Plan" including the relationship among port, airport, train and roads). From this moment different plans existed to change the old urban port.

The port area is managed by the Port Authority, an independent body from the City and under the guidelines of Central Government.

Only a good relationship between the port and the city will make possible the regeneration of the old port.

Early in the 1980's the Port Authority received an offer from EDC (Enterprise Development Co.), a company rooted in Rouse Co., to build up a "fun city" in the old port of Barcelona.

But in any case, in the early 1980's some plans to integrate port and city were on the table, specially from the moment the City Council decides to return the *Paseo de Colón*, the 19th century promenade, to its civic form.



A new buried urban motorway were designed by Solà Morales and the *Paseo de Colón* and the *Moll de la Fusta* (Wood Quay) will recover their physiognomy like a sea façade of the city.

The program guidelines, developed by an Urban development Corporation (the *Port 2000*), were set off from an approach of "mix of functions" excluding the residential function because of legal reasons derived from the Metropolitan General Plan,.

The functional areas to plan were: Hotel, Offices, Culture, tourism, sport and Leisure.

This program was implemented in two phases.

A first one between 1989 and 1995 focussed on:

- a) The development of cultural and training equipment (*Palau del Mar* like headquarters of the Catalunya's Museum of History and the *El Far* - The lighthouse- building, Centre for the Sea's Works);
- b) The arrangement of the *Port Vell's* public spaces with special relevance of the continuation of the *Rambles* through the *Rambla del Mar*, a bridge that links the city and the quay, a design by Piñon and Viaplana;
- c) The creation of a leisure area including the Sea World, Cinema and an *IMAX*;
- d) The creation of a commercial centre and coffee-shops and restaurants: the *Maremagnum*;
- e) The development of sport equipment (*Port Vell's* Marina), and;
- f) The creation of new ships terminals in order to allow Barcelona to become headquarter port for the Mediterranean cruises.

This way the *Barceloneta's* neighbourhood, an example of military Baroque urbanism, is endowed with a Plan for Inner Renewal (M. Solà, A. Font, I. Paricio and M. Tatjer), in which the qualification of the public spaces was fundamental (Boulevard *Joan de Borbó*, Promenade, *Catalana's* park...), achieving a free access to 2 km of beaches between the *Barceloneta* and the Olympic Port.

On the other hand and in consonance with an old sport tradition in Barcelona, it attended a deep remodelling of the swimming and water-polo sport facilities, first with the construction of the new building for the *Barceloneta's* swimming club and with the remodelling, at the moment in course, of the Barcelona's Swimming club.

These way the city's waterfront will host the 2003 Swimming and Water-polo World Championships.



THE PARQUE DAS NAÇÕES OPERATION, IN LISBON.

The *Parque das Nações* renewal operation was generated by the need to organize the 1998 Universal Exhibition in Lisbon; the main town planning idea was to use that investment to the renewal of waterfront on the eastern part of the city, therefore re-balancing the growth of the city (dominant to the north and to the west) and inducing a new developing dynamic in the areas between the city centre and the site of the operation.

The operation covers an area of about 350 ha and was planned to answer to a double urban use: in 1998 it would receive the exhibition, and, after its finish, it would become a new part of the city.



Its functional organisation had, from the beginning of its conception, this double goal, having the following structural distribution:

- a) The central area, by the existent dock and along the waterfront was the place of the exhibition and its main buildings were to be re-used after it as urban equipments, e.g., the aquarium would continue in function, the structure under which the pavilions of the countries were located would become the Lisbon's International Exhibition Centre, the Portuguese pavilion has been assign to be the building of the Presidency of the Council of Ministers of the national government, the *Julio Verne Theatre* would continue in function, the *Utopia pavilion* would become the Lisbon's Multi-uses Pavilion, and others.
- b) The area of the exhibition was served by a new multi-modal central station, which would be the central station of the city, which in fact it isn't today.
- c) The areas to the north and to the south, as well the interior longitudinal areas, where planned as residential neighbourhoods and were urbanised for the exhibition; the construction in the large part of them was delayed to after the exhibition, being the free ground of the blocks arranged as the parking areas to serve the event, served by the already urbanised urban spaces.
- d) The main infrastructures and the public spaces were realised for the exhibition and serve today the new part of the city.

The program of the operation was the following: 638.000 m² of housing, 240.000 m² of multi-uses (offices, shopping and others), 85.000 m² of industry and 467,000 m² of equipments.

Housing and multi-uses / equipments are the dominant urban uses, corresponding to 45% and to 50% (respectively 17% + 33%) of the total 1.430.000 m² of construction.



The concept of the functional organization in the *Parque das Nações* renewal operation was based on the idea of the creation of a new urban centrality on its central area (the site of the exhibition), justified by:

- a) National level equipments - the Presidency of the Council of Ministers of the national government; National / regional equipments - the Lisbon's International Exhibition Centre;
Regional / city's equipments - the Lisbon's Multi-uses Pavilion, the multi-modal Station, the Marine and the Aquarium, and; City's / local equipments - the Theatre.
- b) Good accessibility infrastructures, including:
International / national / regional direct train accessibilities to the north; Easy road accessibility to the international airport; Easy access to the national / regional road accessibilities; Reasonable integration in the city's road accessibilities, and;
Integration on the city's underground train;
- c) Integration of offices / shopping areas and hotels in the interior central area and on the waterfront.
- d) High quality public spaces, exemplary to the city / region.



The new centrality would generate intense urban life and a new urban dynamic in the area, which would help on the success of the new residential areas (including its own residential complementary functions) and on the re-discover of the east part of Lisbon.

The urban design technique for functional organization is the application of a non-exclusive main zoning, defining the following areas:

- a) The equipments area, corresponding to the area of the exhibition, which includes only small restaurants and bars.
- b) The mixed area, corresponding to the interior zone between the equipments area and the tramline (the longitudinal limit of the intervention), including offices, hotels, shopping buildings and residential buildings.
- c) The residential areas in the north and in the south, integrating the current complementary functions.

THE EASTERN DOCKLANDS OPERATION, IN AMSTERDAM.



The redevelopment of the Amsterdam's *Eastern Docklands* takes place between the first municipal resolutions of 1975 and the 2000's, being a renewal operation based on separated interventions on different peninsulas and islands, each one with specific premises of urban design.

"The basis of all the plans is that new building development should distinctly respond to the specific character of the former harbour area. Because in practice this amount to a completely different 'personal' interpretation for each peninsula, the transformation of the former harbour area has turned out to be a sort of laboratory in the field of urban development and architecture." [Koster, 1995, pp.9].

The renewal operation is managed by the city, through the Department of Physical Planning, being mainly a new residential district in the former harbour peninsulas and islands, at the *IJ* River.



The different peninsulas have adopted different proposals in the connection to the water, allowing to the area to have variety – from the houses over the water on the *Entrepot-West*, to the houses on the water of the *Borneo Island*, and to the public streets and squares over the water on the *KNSM* and *Java* islands.

At first, the construction of *IJ boulevard*, a major road infrastructure, threatened to split the district in two; however, a solution was found in the form of a tunnel under the *Spoorwegbassin*, connecting the eastern ring and the city centre.

The first new homes were completed in 1988; by 2003, when the operation is previewed to be complete, approximately 8.500 dwellings for 17.000 inhabitants will have been built in the 104 ha of land.

Complementary urban functions to the dominant residential programme, such as shops and small-scale business, are integrated in the area.

The first section to be transformed into a residential area was the *Abattoirterrein*; city's public housing department in collaboration with the planning department drew up the planning design, which consists exclusively of rented social dwellings.



In 1986 was implemented a new housing policy, made up for the mix of the social sector and market regime, which implied a change in the planning philosophy for the area.

“The new basic principle was to leave the existing water area completely intact and to maintain and reuse the existing buildings as much as possible. It was also decided that in future external urban development designers would be called to work out the various plans” [Koster, 1995, pp21].

The *Entrepot-West* project (1988) already resulted from that politic, which had continuity on the KNSM Island (by Jo Cohen) and on the Borneo-Sporenburg Islands (by Adriaan Geuze) in 1989, these two included in a covenant with the National Government.

The Eastern Docklands exemplifies a dominantly residential operation, homogeneously distributing housing in the entire plan area; however, the division of the area in different planning parts, developed by different authors, which creatively applied different housing typologies introduced animation on the urban design of the area.

THE KOP VAN ZUID OPERATION, IN ROTTERDAM.



The port of Rotterdam is with no doubt the most important port in Europe.

The urban development of Rotterdam shows a pattern that may be shared by cities, which ports are in the riverside.

A port is born near the old nucleus of the city, which is placed near one of the riverbanks.

Growing port and city activity, especially during industrialisation, means that the city and the port will “jump” the river in order to get a better relationship with the territory.

Later most of the “industrial system” is displaced to the other side.

Finally the port grows towards the sea, searching deeper waters... and the industrial system, too.

Vacant and derelict areas near the centre, problems connecting the neighbourhoods, especially those that grow on the other river side.

Independently of the reconstruction needs of Rotterdam after 2nd World War, the regeneration of the urban port must be understood in the sequence we explained before: urban port regeneration can not be split from a more general problem that is inner city regeneration schemes.

Then what we find is that the regeneration of the urban port is a complex work of partial projects to regenerate the whole waterfront of the city and consequently inner city.



So we can find urban developments in the port area from mid the seventies (*Leuvehaven, Spanish Quay, Fejenoord*) and early eighties (*Leuvehaven, Waterstad...*) in the context of the evolution of the 1946 Basic Plan for the Reconstruction of the Inner Harbour.

The 1985 Inner City Plan in front of the problems set by the continuous urban sprawl of the seventies was based on the idea of the compact city.

If following the rules of the 1946 Plan 3.000.000 m² of floor shape had been created, the Inner City Plan proposed that a balanced concentration could add another million square metres.

Four themes were suggested: shopping and entertainment / culture and recreation / maritime tourism and world port.

If you look attentive to the plan you will realise that the only possibility to develop an urban integrated City of Tomorrow is linking it with the north area of Rotterdam.

The infrastructure link was the idea Teus Koolhaas put on the table.

The new *Willemsbrug* and specially the *Erasmus Bridge*: a clear link between the *Weena - Coolsingel* "City" and the new "City" to develop.

A link between North and South; a link supported too with the expansion of the underground to the other bank of the *Maas*.

This way we can consider *Kop van Zuid* like the last but one urban regeneration development for the urban port of Rotterdam.

Functionally the *Kop van Zuid* project is divided in 7 different zones.

- a) *Wilhelmina Pier*, having 183.000 m² of offices, 1.200 units in intensive housing (70 m. High towers), Corporate skyscrapers (*PTT* – Port Building), an Hotel (Former headquarter of the *Holland- America Line*) and the *Luxor Theatre*
- b) *Zuikade*, having 148.000 m² of offices, housing for elderly, Communal facilities, Courtyards and the *Ichthus Hogeschool*.
- c) *Entrepot Area*, having rent and for sale Housing, the *Festival Market*, a Marina, the Commercial Mall and urban facilities.
- d) *Landtong*, family Houses, luxury apartments, urban facilities and a sports centre.
- e) *Stadstuinen*, an area designed with children in mind, commercial facilities, an Eco Corner, a school and social / medical facilities.
- f) *Vuurplaat*, having the main road that connects *Kop van Zuid* with the surroundings, a super market, an eco corner, a school and commercial facilities.
- g) *Parkzicht*, having 1970's – 1980's social housing, commercial facilities and a school.



Key Figures of *Kop van Zuid* are: an area of 125 ha, 5.300 new dwellings, 400.000 m² office space, 35.000m² business / working space, 30.000m² educational facilities and 30.000m² recreational and other facilities

The essence of *Kop van Zuid* is the creation of an undivided city with its centre on both banks of the river *Maas*. Planning and construction activity is ruled by "Quality", converting *Kop van Zuid* in a development of excellence.

THE AKER BRYGGE OPERATION, IN OSLO.



The *Aker Brygge* operation, in Oslo, was developed on a 5,82 ha shipyard area, abandoned in 1982 at the *Pipervika* bay; it was initially previewed to be realised in three stages, which occurred respectively in 1984, 1989 and 1991, but during the 1990's the area was completed with a fourth and fifth stages, respectively a marina and a group of constructions in its northwest part.

The area was owned by the *Aker* Group of Companies, which developed the operation, although it also benefited from public investment in the surroundings, such as the road-tunnel construction in the *Pipervika* bay, allowing for the City Hall Square to be entirely free of motor traffic and immediately connected to *Aker Brygge*, since 1994.

The urban design concept for the *Aker Brygge* area was to develop a complete district, which would be shaped as a compact traditional urban area with modern architecture, where streets and squares were coordinated in such a way that outdoor spaces were activated by pedestrians.

The programme of phases 1 to 3 (information on the phase 5 wasn't available) combined 81.000 m² of offices, 18.000 m² of shopping centres, 5.000 m² of restaurants, 4.000 m² of cultural attractions and 33.000 m² of other uses with 39.000 m² of apartments on the upper floors, linked together with a system of aerial passages.



Offices, shopping, restaurants, cultural activities and other uses are the dominant function of the operation, corresponding to 78 % of the building area; housing doesn't represent more than 22 % of the 180.000 m² of construction – the total of the operation.

The program adopted announces the intension of creating an intensive used urban area for working and leisure activities on the waterfront, benefiting from its strategic location in the city.

The residential program isn't the dominant use; it corresponds to a complementary urban function in the area existent to avoid mono-functional spaces and to ensure different urban activities during the 24 hours of a day.

The urban design technique for functional organization resulted from the election of the dominant urban function and from the concept of pedestrian life in the area, distributing the different urban functions on horizontal layers.

The applied concept, being original for contemporary urban planning was inspired in the traditional concept for the integration of urban uses: the division of the functions not by the zoning, but through the stories in the buildings, allowing for: (1) the urban functions that depend on public access to be on the first stories; (2) the urban functions that should have easy access to be on the intermediate stories and; (3) the urban functions that should not be too much exposed to public to be on the upper stories.

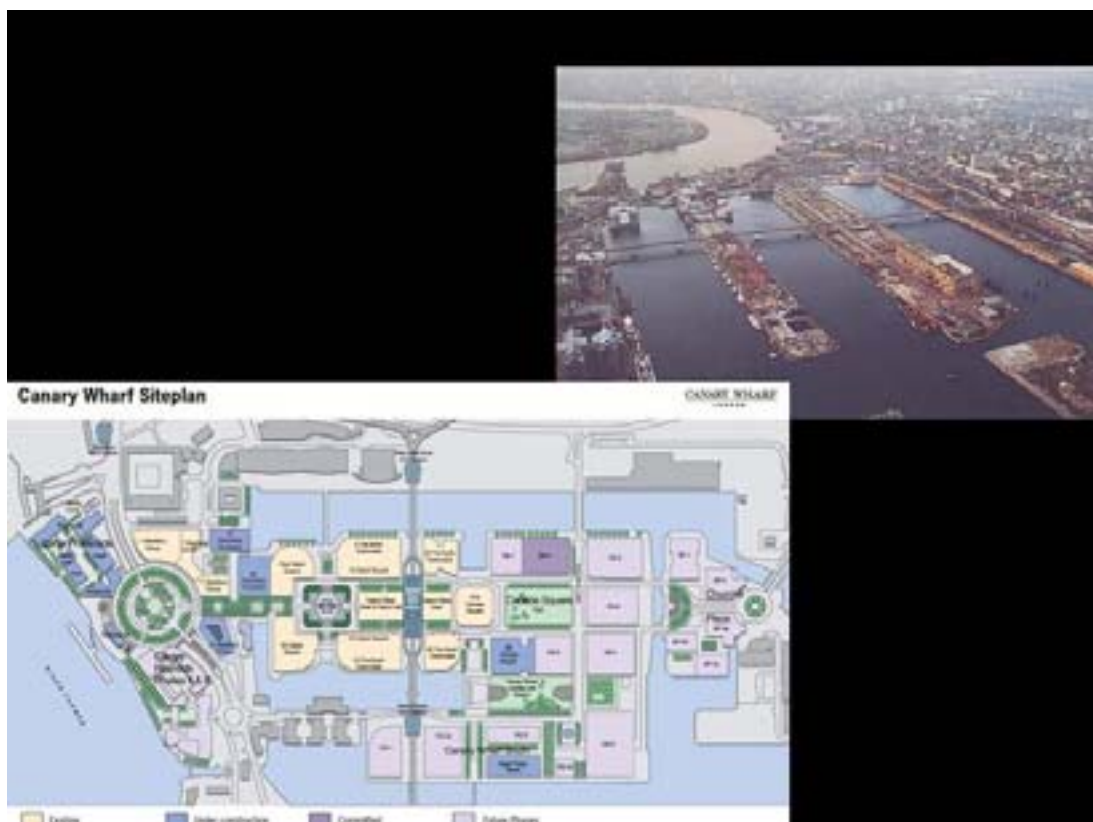
As a result, the following general functional distribution was applied:

- a) The restaurants, cultural activities and isolated shopping were located on the 2 / 3 first stories, having direct connection to the streets.
- b) On some blocks shopping was grouped in shopping centres with more stories.

- a) The offices were located on the intermediate stories, having their own vertical access.
- b) Housing was located on the upper floors, having their own vertical access and frequently connections between blocks on the upper floors.

This conceptual distribution allowed exceptions and was adapted to each case, depending on the location of the building / block, on the type of the activities and on the height of the buildings – it varies from 6 to 12.

THE CANARY WHARF OPERATION, IN LONDON.



The London Docklands Development Corporation (LDDC) was established on 2nd July 1981, under the provisions of Local Government, Planning and Land Act 1980, in response to the severe economic, physical and social damage caused to East London by the closure of London's docks. The LDDC ended its work in 1999.

The London Docklands Urban Development Area (UDA) covered eight and a half square miles (2,146 ha.) extending six miles (10.8 km) down river from London Bridge to the south and Tower Bridge to the north, and comprised parts of the London Boroughs of Southwark, Newham and Tower Hamlets.

- a) The economy had been wrecked by the closure of the docks:
- b) The population of London Docklands fell by 20% between 1971 and 1981.
- c) The unemployment rate in London Docklands in 1981 was 17.8%.

- d) In the three years between 1978-1981 10,000 jobs were lost in London Docklands.
- e) In 1981 60% of the area was derelict, vacant or under-used.

The overall strategy of the LDDC was to try to correct market failures and to create the circumstances and in particular transport infrastructure in which private investment would fund the economic regeneration of London Docklands, while at the same time to improve the social infrastructure and public amenities from their low base.

Land Disposals by Land Use were:

SQUARE METRES	ROYALS	SURREY DOCKS	WAPPING, LIMMEHAOUS AND ISLE OF DOGS	TOTAL
AIRPORT	412.779	0	0	412.779
OFFICE	52.609	4.047	372.311	428.967
CANARY WHARF	0	0	125.453	125.453
OTHER COMMERCIAL	736.528	76.890	194.249	1.007.667
COMMUNITY FACILITIES	8.094	12.141	12.141	32.375
EDUCATION	32.375	28.328	20.234	80.937
LEISURE	36.422	4.047	16.187	56.656
RESIDENTIAL	797.231	465.388	461.342	1.723.961
RETAIL	121.406	129.499	16.187	267.092
ROADS & TRANSPORT	48.562	0	8.094	56.656
UNIVERSITY	101.171	0	0	101.171
	2.347.176	720.340	1.226.197	4.293.714
			WATER	1.687.539
			ROADS&TRANSPORT	2.225.771
			TO SELL	586.794
				8.793.818

Most of public investment was in transport infrastructure (£1.86 billion).

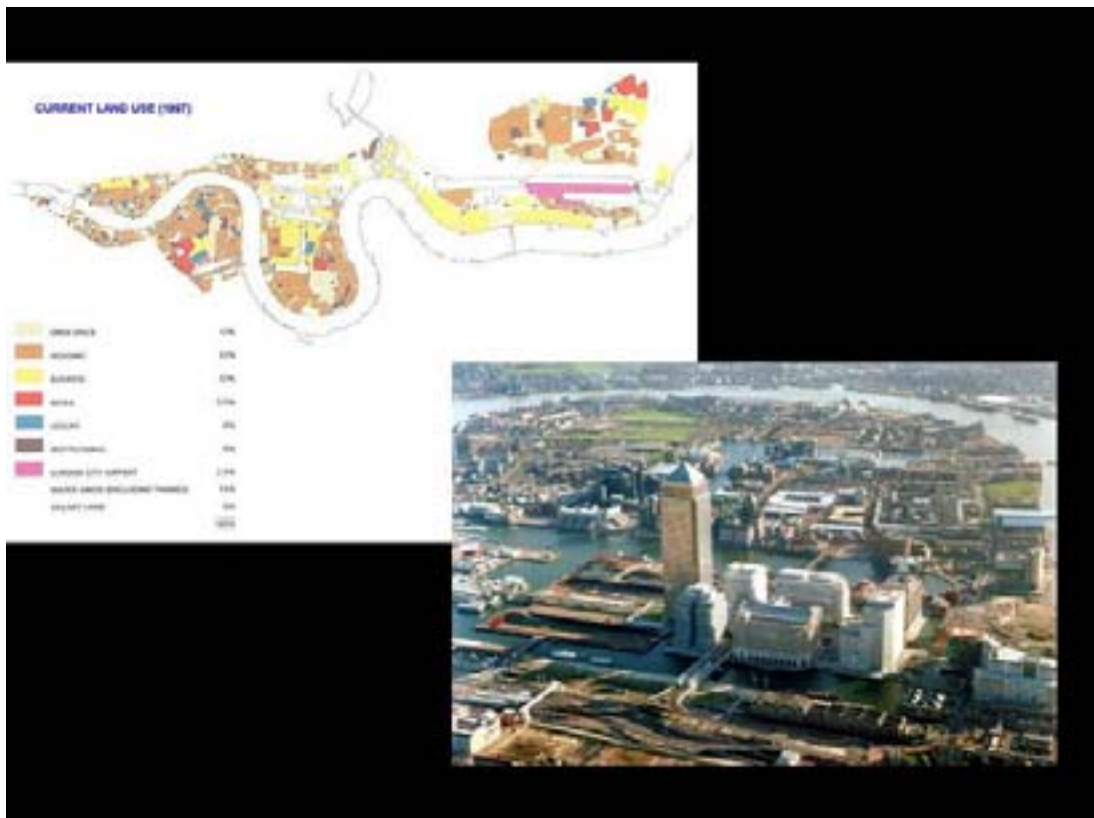
The 18 miles (29 km) of the DLR (Docklands Light Railway) with an investment up to now of £734 m is now reliably carrying more than 80,000 passengers daily.

The £200 million Lewisham extension, funded by the private sector, is under construction and will open five new stations south of the Thames.

The LDDC has built or had a major part in the procurement of 72 miles (116 km) of new or improved roads.

The Corporation has provided high specification pedestrian and cycle networks and has given priority to ensuring that Docklands is fully accessible to all, including disabled people.

The Corporation has promoted an integrated transport policy which has delivered a modal split, on the Isle of Dogs Central Business District for instance, of 27% private to 73% public transport at peak hour travel and has fostered London City Airport which carried 1.2 million passengers in 1997 and has championed the Jubilee Line Extension of the Underground.



THE ISLAND OF DOGS ENTREPRISE ZONE (EZ)

The Enterprise Zone was formally designated on 26th April 1982 for ten years. It covered 195 hectares including the West India, Millwall and East India Docks, together with a small part of the Leamouth area extending into the London Borough of Newham.

Initial activity in the Enterprise Zone involved relatively smallscale industrial and commercial development either side of Millwall Inner Dock and on what is now Marsh Wall, Millharbour, Mastmakers Road and Limeharbour.

The designation of 482 acres (195 ha.) of the isle of Dogs as an Enterprise Zone proved a major stimulus in creating a commercial/office market in Docklands.

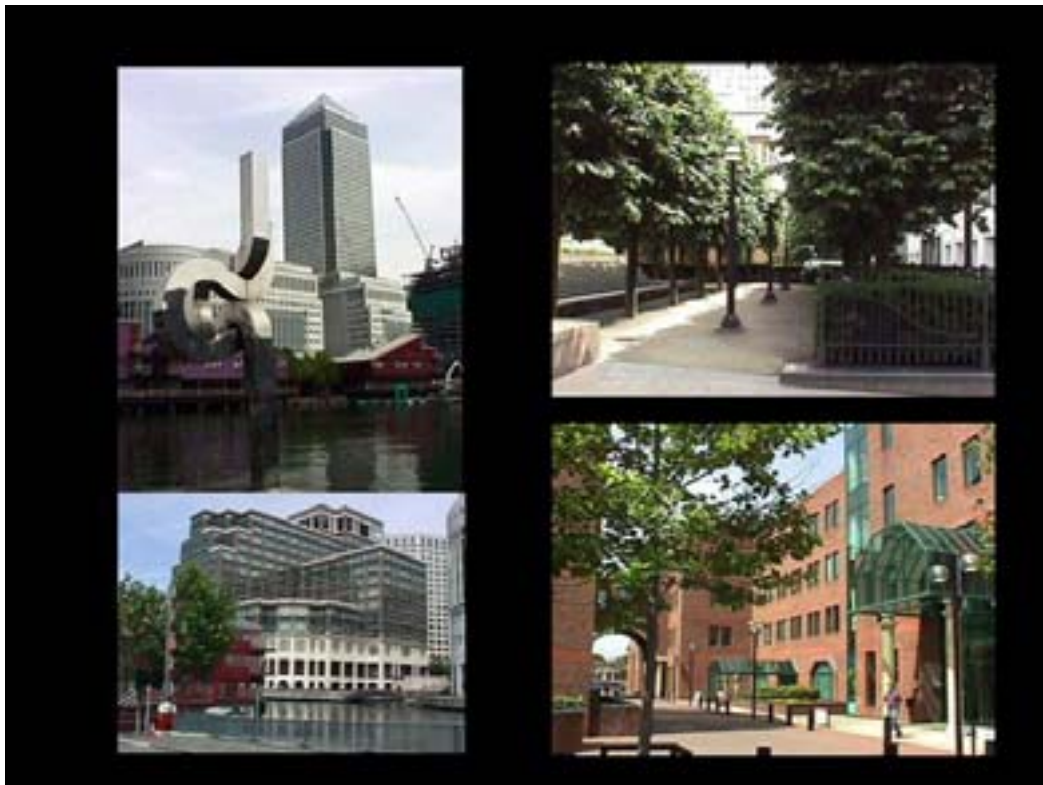
It attracted significant investment and international businesses, contributing over 11.2 million sq. ft (1 million sq. m.) of completed new office space out of a Docklands total of 14.8 million sq. Ft (1.3 million sq. m.).

It led to the establishment of a new business district for London, incorporating the Canary Wharf development as its centre-piece.

CANARY WHARF

Canary Wharf with South Quay comprises a total of 8,3 million sq. ft (0.8 million sq. m.) and forms the core of the central business district.

When fully built out the two schemes will total some 21.4 million sq. ft (2 million sq. m.) and employ a total of some 70,000 employees.



At present the Isle of Dogs Central Business District employs some 30,000 people and was in the first quarter of 1998 91 % let.

The Canary Wharf development of some 12 million sq ft (1.2 million sq m.) agreed by the Corporation in July 1987 marked the third and final phase of development activity in the Isle of Dogs Enterprise Zone.

Developed by Olympia & York, the scheme was to build out some one third of its total size, some 4.4 million sq, ft (409, 000 sq, m.), before the 1989-90 recession halted work.

The company was subsequently placed in administration and acquired by the creditor banks in 1993.

In 1995 a new company, International Property Corporation Ltd, led by Paul Reichmann, reacquired the development from the banks and work has now started on further new buildings.

Today Canary Wharf is at the heart of London's new business district and has attracted many international companies such as Morgan Stanley, Credit Suisse, First Boston, Readers Digest and BZW.

The Canary Wharf tower has also become London's new Fleet Street housing many of the UK's national newspapers including the Daily Telegraph, Independent and Daily Mirror.

Under the master plan of Chicago architects Skidmore, Owings and Merrill, Cesar Pelli designed and built the tallest tower in Britain.

With other architects of his calibre the first phase was completed in record time, with the first tenants moving-in in August 1991.

The development currently comprises 10 office buildings, a retail centre and a conference and banqueting venue.

In 1986-87 private investment completed and committed in Docklands was £1.06 billion.

The following year it had grown to £2.16 billion, bringing the cumulative total to £4.4 billion since the Corporation started.

The 1987 stock market crash had made little impact on the confidence of investors in Docklands.

The Enterprise Zone (EZ) was intended to draw investment into Docklands away from London's more prosperous areas.

It was recognised that special measures had to be taken if funds then being attracted to green field developments, to the New Towns and to the prosperous provincial towns of south east England were to be diverted to the East End.

There were no planning controls (with minor exceptions), rates (property taxes) were paid by Government and capital investments could be written off against a company's tax Liability.

Whilst the EZ got off to a slow start, the achievements over that ten year period, including the first phase of Canary Wharf, were, by any standards, exceptional.

Despite the lack of normal planning control the LDDC inherited much of the vacant land within the EZ and could therefore use its land ownership powers in directing development. Gordon

Cullen was commissioned to assess the Isle of Dogs and together with the LDDC prepared design guidelines for the area.

It was this guide together with development briefs for individual sites that the LDDC used to encourage and direct investment.

The first phase of regeneration on the Isle of Dogs that can be seen in Millharbour and Mastmaker Road was the result.

The success of this and the start of construction of the DLR prompted the second phase of development along Marsh Wall at South Quay in the mid-1980's by which time the proposals for Canary Wharf were emerging.

More than 21,600 homes have been built over the last 16 years which have dramatically increased the diversity of tenure of the stock available.

Prior to 1981, to "move up" you had to 'move out" and the economically active and financially prosperous families and individuals left the area.

The choice of housing in Docklands was a council flat or a council flat!

Now more than 43% of the housing stock is in owner occupation as well as a sizeable portion managed by Housing Associations.

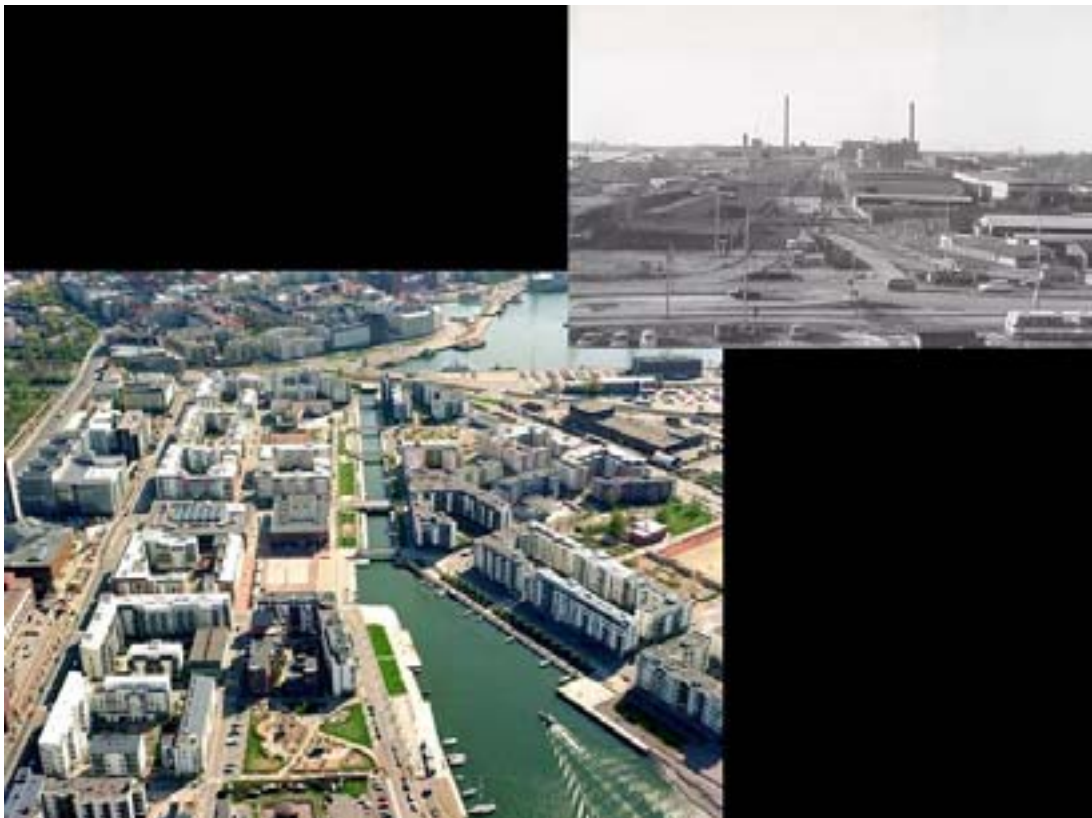
On sites previously owned by the LDDC, priority was given to tenants of the Docklands boroughs to buy new homes at affordable prices (more than 50% of people moving into Docklands since 1981 have relocated from elsewhere in Newham, Southwark and Tower Hamlets).

The vacated council properties have been re-let to families on the councils' waiting lists.

Additionally, the LDDC has funded the refurbishment of a large part of the existing local authority owned housing stock most in need, investing £43 million to improve 8,000 units.

ACHIEVEMENTS

The Corporation worked for 17 years; in its final Annual Report in 1998 it headlined its achievements as follows: £1.86 billion in public sector investment; £7.7 billion in private sector investment; 1,066 acres of land sold for redevelopment; 144 km of new and improved roads; construction of the Docklands Light Railway; 25 million sq feet of commercial /industrial floor space built; 1,884 acres of derelict land reclaimed; 24,046 new homes built; 2,700 businesses trading; contributions to 5 new health centres and the redevelopment of 6 more; funding towards 11 new primary schools, 2 secondary schools, 3 post-16 colleges and 9 vocational training centres; 94 awards for architecture, conservation and landscaping, and; 85,000 people now at work in London Docklands.



Canary Wharf's sheer size helped to foster a transport revolution: the upgrading and extension of the DLR to Bank (agreed at the time of signing the MBA), the Jubilee Line Extension, the Limehouse Link and Docklands Highways (agreed by the LDDC in 1986) and the first RiverBus service all came as a result of the increase in development projected for the Island in the wake of Canary Wharf - Reuters building at Blackwall Yard, designed by Richard Rogers.

THE WESTERN DOCKLANDS OPERATION, IN HELSINKI.



The urban renovation of the Western Harbour, in Helsinki exemplifies a spatial dynamic of liberation of old harbour lands due to the construction of a new port outside the city; the progressive transfer of the harbour activity from the zones in peninsula to the new peripheral zone of Vuosaari frames it.



The operation is partially realised (the *Ruoholahti* area is finished, corresponding to phase 1 of 3, the other two being the areas of *Jatkasaari*, and *Munkkisaari*), and was previewed in the city's Master Plan of 1992 - being considered both in the 'Strategic Planning Advice' and in the 'Master Plan'.

The programme is essentially residential, including an area for expansion of the central business district and a new car-ferry passenger terminal; the main infrastructures already existed, so they didn't take part in the operation.

In the *Western Docklands* operation phase 1, the area of intervention corresponds to one peninsula and part of a second one, both on the southwest waterfront of the city, connecting to three different existing urban areas (an industrial area in the north-west, a park in the north and the city in the north-east), and to the *Jatkasaari* area (phase 2), being the rest waterfront limits.

The phase 1 covers an area of 58 ha, phase 2 of 80 ha and phase 3 of 60ha, in a total of 198 ha with an irregular and very extensive waterfront.

The program of the operation previews 743.000 m² for housing, 305.000 for commerce and offices and 120.000 m² for public buildings, in a total of 1.168.000 m² of construction, corresponding to an percentage of occupation of, respectively, 64%, 26% and 10%.

Phases 2 and 3, on south, correspond to assumed residential areas (respectively 80% and 75%); phase balances housing and commerce / offices / public buildings (47% v/s 53%).

The curious attitude on the urban design proposals is the concentration of the commerce / offices of phase 1 (it corresponds to 81% of the total of the operation) on the north, connecting to an existing industrial area and to a park through a main city / region urban road accessibility, which corresponds to the access of the city centre to the west.

Housing is concentrated on the south interior part of the north peninsula and on the occupied part of the south peninsula, centred on the old interior dock.

The entire area is punctuated by a very rational structure of isolated public buildings, which for a regular grid of dots on the area.

The urban design technique for functional organization is, therefore, the application rigorous zoning for the dominant functions:

- a) Concentrating commerce, offices and industry on the north, connected to the regional road accessibility infrastructure, which confers to these functions some centrality, alternative to the city centre.
- b) Concentrating the residential area on the south, not so visible but profiting from the extensive perimeter of waterfront of the interior canal.

This rigorous zoning is crossed with a grid of located urban functions, creating a second layer functional organization superposed on the primary zoning.

THE LUJIAZUI FINANCE CENTRE OPERATION, IN SHANGHAI.

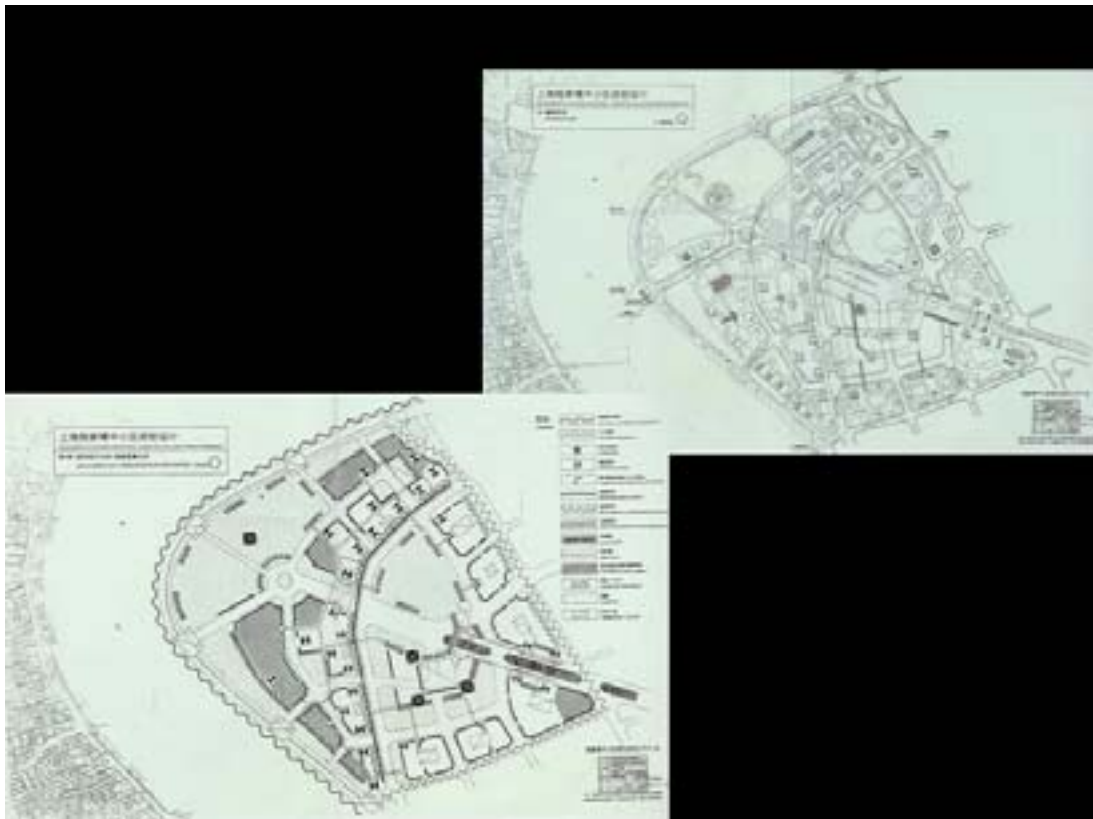


The *Shanghai LuJiaZui Finance Centre Plan*, approved on December 1993, corresponds to the 1990's intension of creating the new international financial district for China, as the country has opened its economy to the world.

It is located on a 168 ha former harbour, industrial and residential area and previews approximately 4.700.000 square meters of construction, $\frac{3}{4}$ being offices buildings, in the of land, corresponding to 108 high-rise buildings, the highest having 350 metres.

The *LuJiaZui* CBD integrates the large urban operation of the *Pudong New Area*, a 522 km² developing area in the southeast part of Shanghai, separated from the existing city (*Puxi*) through the *Huangpu* River.

The *operation* is an enormous offices state programme, which concentrates some public companies and banks and tries to capture private investment.



The main urban design concepts are: (1) the integration on the network of transport systems; (2) the conceptual structure of the urban space - the CBD, the road rings, the waterfront and the pedestrian and non-built spaces, and; (3) the zoning concept, which defines urban organization and the land value.

Its urban design is based on five areas (the north, east, central, west and south areas), divided on 21 blocks, which are again divided on 87 plots.

The plot is object of quantification, according to the urban design concepts, which includes, among other criteria, the followed urban functions:

- a) Offices and Shopping areas – 4.303.000 m², corresponding to 90%;
- b) Residential areas – 160.000 m², corresponding to 4%, and;
- c) Equipment areas – 250.000 m², corresponding to 6%;

The physical distribution of these urban functions is a result of the urban design intensions; the used technique to organise it is the definition of the function of each plot, according to the above-mentioned definition.

This type of functional distribution is possible only because the plot dimension is high (each plot has approximately 1,0 ha at least) and the building typology adopted is the isolated tower, changing only the number of stories.



This distribution obeys to a general urban design concept, which justifies the allocation of specific functions on determinate areas of the plan.

Although some general zoning definition exists as the basis for the urban design (functions are grouped, together with the highest of the building and other criteria), its physical disposal does not correspond to the blocks or to five areas – it was defined at the plot scale.

The urban design technique for the definition of the urban functions isn't, therefore, the common zoning; being applied to the plot scale it might be called a building / block distribution.

THE TIGER BAY OPERATION, IN CARDIFF.



The port of Cardiff was one of the largest exporters of coal and steel, but coal industry started to decay after the 2nd World War, because of the substitution of the energies.

The industrial crisis of the 70's added to technological change, affected to the large steel industry in Britain.

So came the demise of the port of Cardiff, known with the nickname of "*Tiger Bay*".

Dereliction set in, until 1987 when under the umbrella of the Derelict Lands Act and the Urban Development Corporation scheme, a plan was launched to regenerate Inner City and the industrial, port and housing areas in *Tiger Bay*.

"Cardiff grew rapidly as a port in the late 19th Century –it was a phenomenon of the discovery of coal in the valleys behind it. This fuel changed a small market town into a seething port where ships from all over the world came to take on coal; dumping their ballast on the quaysides. The city was built with this residue and now lies silent beside the sea, with only the hum of services and the lap of polluted water to mark the closure of all but the last mine". [J. Gingell: 1999]

Cardiff Bay Development Corporation (1987 - 1999) was created under the UDC (Urban Development Corporations) scheme (1981).

The main stakeholder is *Grosevenor Waterside*, a division of Associated British Ports Holdings PLC (ABPH) – the Port Authority in Britain after the privatisation of ports early in the 1980's - the port responsible for property development activities, which are focused at port locations where the land is no longer required for port operational purposes.

The land is then redeveloped or sold to other developers in the residential, leisure and retail sectors.



Since 1999 the Development is under the responsibility of Cardiff's City Council following a huge vote of confidence by the National Assembly.

Cardiff Bay development area is 2,700 acres (1,100 ha) plus 550 acres area (223 ha) of fresh water resulting of the Cardiff Barrage project. Cardiff is sited in the Bristol Canal where the tides are very important. The objective of the Barrage is to protect the bay's inner area from the *Ebb* tides.

The forecast investment for the development is of 2.4 Billions (sterling pounds); a part of this investment, 500m. Pounds that represent the 20,83% of the total investment, comes from the public sector through the Government Grant and Sales, to private developers, of the lands get by the application of the Compulsory Purchase Act (1965) - a way to implement the "leverage" strategy [Bovaird: 1997] and to check future "partnership" schemes.

The project is conceived on the basis of a real Multifunctional use the land. Office space (371,600 m²), industrial land (464,500 m²), commerce and retail zones (430.556 m²).

6,000 new homes distributed in between the other areas.

A big investment was done in road infrastructures, specially the *Peripheral Distribution Road* that connects all the areas of the Bay.

Connection with the Inner City is other of the objectives. Cardiff inner city is just 1,5 km away from the coast. A light rapid transit system has been designed in the redesign of *Bute Street*.

The number of previewed new jobs goes up to 30,000.

Public Space areas have been a priority in the development of the Project.

In 1990, as part of its commitment to excellence, the Corporation adopted an ambitious public art policy.

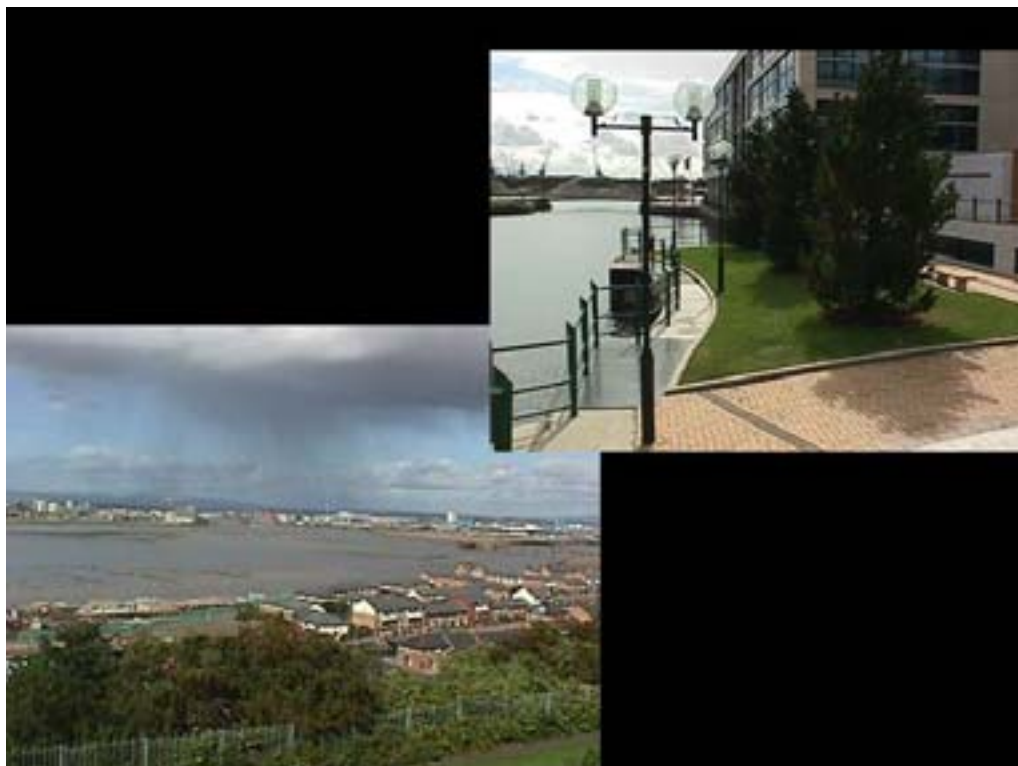
In 1991, it appointed Cardiff Bay Art Trust to introduce art to public places, providing vital and optimistic pointers to later developments.

Since then, landmarks have transformed the environment, and small-scale works of the imagination have helped to make a distinct and unique landscape (urban furniture, sculpture, paintings, etc).

This helps to create a sense of pride and ownership amongst residents, developers and visitors alike.

Cardiff Bay Art Trust, an independent charitable body, co-ordinates the Corporation's Bay - wide percent for art strategy and initiates many other projects with private and local authority partners.

These bring together artists, clients and residents.



The Trust believes that through a visible and accessible process of commissioning it encourages business and local communities to become involved in shaping their own environments.

From landmarks that dominate the landscape and cityscape to artworks that weave subtly into them, from commissions for private developers to collaborations with local communities, from public seating and lighting to freestanding sculptures and gateways, Cardiff Bay is alive with art.

"All these initiatives are seen as preliminary stages in the establishment of a permanent centre for Art & Urban Regeneration which advocates the benefits of underpinning the rapid development of industrial South Wales with the dynamic creativity resulting from closer

collaborations between artists, architects, landscape designers and town planners". [Sue Grayson-Ford, 1999]

The main areas of the operation are:

- a) Leisure: – Cardiff Bay Visitor Centre, Landsea Gardens, Waterfront Park, Bute Street, Ocean Park, Penarth Esplanade and Millenium Centre.
- b) Housing – Atlantic Wharf, The Bridge, Capital Waterside, Ferry Road and Pengam Green.
- c) Sport – Penarth Haven.
- d) Culture & Heritage – Pierhead Building, Q- Shed, Opera House in the Millenium Centre, Pilotage Building, Railway Gallery, Norwegian Church, Technique and Welsh Industrial & Maritime Museum.
- e) Corporate and Institutional sites – South Glamoran County Hall, National Assembly for Wales (Wale's Parliament), Wales Millenium Centre and NCN Insurances Headquarters.
- f) Hotels – St. David's Hotel.
- g) Industry – Scott Harbour.

May be this development will allow to fit one of the objectives of the Corporation to offer real opportunities for local people while creating a renewed environment for those starting a new life in the Bay.

Grants are often available for local business relocation and community activities, training programmes have been initiated and a communication strategy has been implemented to enable existing residents to truly benefit from the Bay's regeneration.

"Gone are the grim docks. New homes and offices crowd to seek respite and 'difference'. 'On the waterfront' once signified the sordid edge - a dark place of power, menace and the absence of the regulation of the civil in the name of trade. Now, the developer wipes clean the grimy strands and spreads a new nomenclature evoking romance and nostalgia - 'Schooner Way' 'Maritime Close'. Development Corporation and civic authority work together for a new solution.". [J. Gingell: 1999]

CONCLUSION: PATTERNS OF PHYSICAL DISTRIBUTION OF THE URBAN FUNCTIONS.

The nine above mentioned operations of renewal of harbour areas were enough to verify the variety and local compromising of the developed programmes; urban management philosophies, political concepts for urbanization, site characteristics, local urban dynamics both of city and port, and other aspects introduce diversity to each case study.

Being each one a singular case, they all had to deal with the same city conception and urban design question: under which criteria it was defined the programme of the new part of the city and how it was distributed the programmed urban functions on the territory.

Having each one defined their own solutions, and others being also possible, the question we can ask ourselves regards the existence of some patterns of the physical distribution for those functions.

Its means some common characteristics can be found on the city's functional concept and on the urban design techniques utilised for functional physical organization, and they might be object of reuse.

Based on that hypothesis, a classification of the forms of combination of the different urban functions might be established as followed:

(1) THE SOFT ZONING CRITERION,

utilising a general zoning at the master scale of the planning of the area as a form to attribute to each zone a dominant urban function.

It understands the need for the existence of specialised urban areas in the city, although trying to avoid: (1) the existence of mono-functional urban spaces in each zone, and; (2) the existence of only one type of specialised zone.

Mixed located urban functions under a basis of dominant urban functions, by zones, could be another expression to mention this concept.

The zoning its not a rigorous rule under which urban functions are applied to each plot, but it corresponds to a general intension for the area, which needs to be detailed on inferior scales of town planning or on architectural projects, stimulating mixed activities on a urban area with a dominant urban function and the articulation of several dominant functions under a general idea.

The *Parque das Nações* general zoning, attributing a dominant function to each detail plan but allowing each one to be a mixed area, under some rules, and combining different dominant urban functions in its different zones, exemplifies a possible form of application of this criterion.

The seven detail areas of *Kop van Zuid*, meaning different types residential areas combined with the offices area of *Wilhelmina*, each one having its own identity, also exemplify the application of this concept.

(2) THE STRONG ZONING CRITERION,

creating physic located zones for the different dominant urban functions, which integrate the operation, not integrating them between themselves.

The dominant urban function A has the A location and the dominant urban function B has the B location; its interconnection is not considered, once it intentionally wants to create two specialised urban areas with different urban characteristics or site location.

The Helsinki Western Docklands exemplify this concept, separating the offices area in the north part of its phase 1, well connected to the city, from the residential areas of the other half of phase 1 and of phases 2 and 3, with a peripheral location, although by the waterfront.

(3) THE SPECIALISED DISTRICT,

intentionally creating a specialised part of the town that must be understood in the context of the entire city.

Dependents on accessibility efficiency to survive, these areas tend to have day / night cycles and to generate urban fluxes, although they might correspond to important city's objectives.

Multifunctional use of space is not the main criteria in this concept, which understands it makes sense to common urban areas but could dissolve the intense urban use of the specialised area.

These operations entirely assume a unique dominant function for the intervention and count on other parts of the city or on the surrounding areas to solve the necessary complementary functions.

Both Shanghai's *LuJiaZui* Finance District and London's *Canary Wharf* exemplify a functional type of this concept, one being a public operation and the other a private one.

Amsterdam's Eastern Docklands represents the residential new urban area, although in this case mixed uses and other functions integration was part of the urban design conception, therefore not being a "radical" operation.

(4) THE BUILDING/BLOCK DISTRIBUTION,

defining different land uses to each building or block, although it could exist a dominant urban function, e.g., *LuJiaZui* renewal operation in Shanghai, in which it is the general form for physical distribution of urban functions in the entire plan – therefore being the urban design technique for functional distribution on this specialised district.

This functional distribution can co-exist with others, being the general form of organization, as in *LuJiaZui*, or a detailed technique applied only on some parts of an operation.

That would be the case of some areas in the *Port Vell*, specially the *Maremagnum*, the World Trade Centre and the New Hotel.

We can also observe this logic in some of the flagship works in Cardiff or in the area of *Wihlemina Pier* in Rotterdam.

(5) THE LAYERS CRITERION,

looking for the vertical integration of the different urban functions by distributing them horizontally, by groups of stories.

Inspired on mixed buildings of the traditional city, which was questioned by the functional segregation proposed the modern movement, it vertically re-combines them under contemporary patterns, frequently creating different vertical access and entrances, connections on the upper floors and others.

Aker Brygge renewal operation is one possible physical form for this concept, representing its general application to the entire new urban area.

Detailed areas in the Barcelona's *Port Vell* or the *Vuurplaat* shopping centre in Rotterdam represent very located applications of the concept, although it is not generalised in the respective operations.

(6) THE STRUCTURE OF LOCATED URBAN FUNCTIONS ON A ZONING CRITERION,

defining a logical structure for the implantation of specific located urban functions in a base of zoning distribution of the dominant urban functions, which does not result from the normal distribution of functions in the city (such as the current criterion for the distribution of schools), but from the urban design concept.

The Western Harbour in Helsinki, with its structure of public equipments on the residential area of phase 1 exemplify a possible form of this criterion.

PUBLIC SPACE: THE DESIGN'S EXCELLENCE.

All the studied operations are based on the idea of "implementing public space" as a kind of "glue" permitting to generate a kind of "structural narrative" putting in relationship the different specific development in the area and acting as "trans-project" and "trans-zoning" active principle.

(Not entering into a discussion of what "public space" means – many times these projects use the concept of public space like a marketing tool when they are really projecting "collective spaces")

If we attentive read the different documents related with the projects, we can realise that most of them are "public space" led.

The most important idea of the use of public space in these projects is that of "design's excellence".

A complete new set of urban elements (from floors to lighting beacons) appear as fundamental elements to attract, on the one hand investments, on the other the "public" that must fulfil these areas.

Another important issue is the call for an intense aesthetic environment; Public Art programmes and policies are built up to make these places more interesting, attractive and "charmants".

AGENDA FOR FUTURE RESEARCH DEVELOPMENT.

Further research must set up a set of indicators able to find structural patterns in the different case studies.

It is not easy to get the correct information for each operation; the criteria are different depending on the political or economical aims of the body in charge of the operation's urban development.

Physical distribution of land uses depends on a multi-factor layout that is implemented in different ways in each city.

This multi-factor layout results from: (1) operation's ideological factors - the vision about the city; (2) the planning methodology - a strategic lead planning will operate in different ways than a classic planning approach; (3) the ability of the city or public body representatives to lead the "partnership" relationship; (4) the social models used in defining the relationship

between the specific operation and the general goals to make the city wealthier; (5) and others.

Our study emphasises that there exist “operating models” to plan land use in the actual waterfront developments - these “models” work like a framework that every body uses.

The immediate urban management goal of these operating models is to attract the private investments necessary to justify the necessary public investment and to assure intense future urban life to guarantee the success of the operation.

But it also represents the assumption of main city concepts for the post-industrial city, regarding urban life and having direct implication on the theoretical conception of the city – which city are we creating?

Through informed planning, like we set up in the introduction, we hope to draw some kind of future and the way to reach it, as a result of a conceptual idea for the city – political, temporal, functional and physical.

In literary terms we build up a “story”, a “plot” and try to provide the valid instruments to make it happen.

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