



Paper 172 - Development and Rehabilitation of Waterfronts in Internal Waters

CIRALLI E.

Civil and Costal Engineering Office – (Envitek) Progetti e Opere srl – Palermo, Italy

Email: elio.ciralli@cirallistudio.com

ABSTRACT: Nowadays investments for projects of rehabilitation or new developments in waterfronts, both urban or industrial, can help in recovering marginal, misused or abandoned areas. Good and bad things were done and lessons are learned for best practice. In these kind of projects, recreational navigation infrastructures can help for successful interventions.

1. URBAN WATERFRONTS: A RESOURCE FOR COMMUNITIES

The Third Industrial Revolution imposes huge changes to the world economy and social systems.

Never in human history and in recent decades the spread of wealth and access to information has created new environmental pressures and new social tensions.

Towns, places dedicated to the activation and use of human capital, are the equipment of the community for absorbing and relieving these tensions. Some impacts are not easily managed or mitigated and sometimes the result is unacceptable.

The exploration and exploitation of reserves of resilience of anthropic territories then becomes an unavoidable imperative.

This is the reason that authors argue that our regions and cities need to be re-imagined, re-activated and re-cycled.

These three Rs will eventually likely to replace the principles of traditional urbanism, always symbolized by the three Rs: Public Resources, Revenues, Regulations.

The meaning of these principles is quite obvious and reference is made to the substantial literature for further information (Carta, 2014).

The common result of studies on contemporary urban development is often the same: communities need more and more new common shared spaces.

The paradigm of these new spaces, places that offer adequate services, creative opportunities and therefore better quality of life, is the continuous attendance by the people. This should happen without blackout dates for seasons, hours of day or days of the week, and without social

marginalization. In short, communities need inclusive spaces, open and easy to be attended by all in a pleasant way.

It is difficult to find completely new areas downtown, easily reachable. The real challenge is exploration and research of resilient areas, capable of undergoing new imaginations, reactivations and possibly, recycling of parts of the urban fabric.

It was already proven by many successful interventions that waterfronts are excellent resilient urban areas.

2. PATTERNS OF WATERFRONT DEVELOPMENTS

The path to the rediscovery of the waterfront is very similar in many areas of the planet. This process has been recognized and described by several authors, since decades ago (eg Wrenn, Casazza, Smart, U.L.I., 1983).

Lands that overlook waters have been preferred for community settlements, thanks to the resources of livelihood exploitable (primarily fishing and minerals), or for need to navigate for commercial traffics. Waters and banks for sheltering or berthing vessels was closely joined with the primordial village.

Port activities often grew up until to predominate. The old dominant attitudes, related to the needs and feelings of the time, which inevitably lead to the separation of functions, caused in the decades to come the separation of urban spaces from port.

So long as the variability of historical and economic conditions, market trends and traffics,

sometime they caused mutations of the needs and the decline of some port functions, whose areas were therefore abandoned or underutilized.

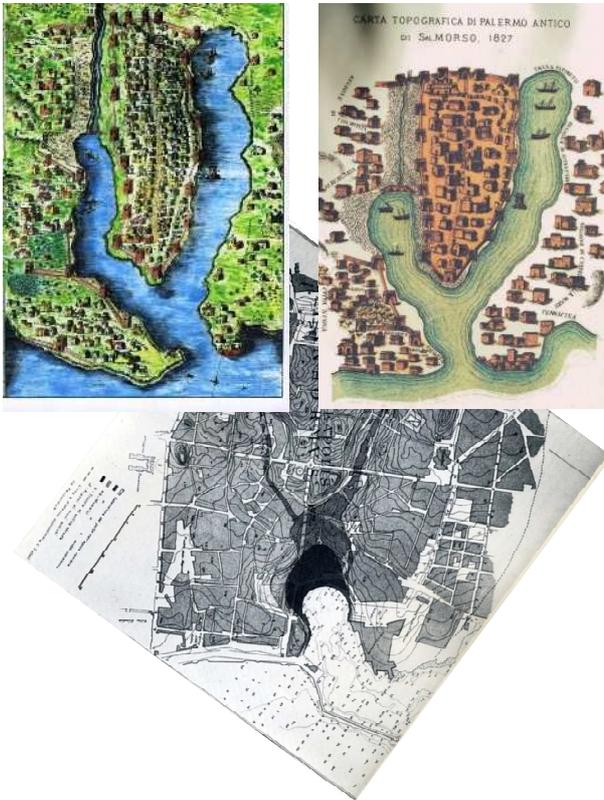


Figure 1: Development of Port of Palermo, Italy, originally between Kemonia and Papireto rivers

From the middle of the twentieth century, with changing social patterns and hence the specific needs, it was rediscovered the existence, importance and the charm of these abandoned areas and were then conducted conspicuous actions of urban renewal (Baltimore, for example). The economic and social success of these investments resulted in the spread of this logic of intervention around the world.

2.1 Successful stories or not?

Several billion Euros were spent, and will be invested in future in each of the seven continents for new developments or restoration actions on waterfront. Many projects of varying sizes, are currently underway around the world. Good and bad things have been done.

Besides the interventions that are ritually cited as the most successful (Baltimore, San Francisco, New York, Barcelona) many others have been added, some with questionable results or needing a greater maturity to assess the full effects.

In the Middle East some interventions have astonished the world by the grandeur and innovation connected.

With different conditions and size, but with projects not less significant for the positive effects, should be mentioned interventions in Europe (Dublin, Liverpool, London, Genoa, et cetera).

Many scholars have therefore analyzed the stories of these interventions and their effects and they have tried to identify best practices to be implemented for the success.



Figure 2: Baltimore Inner Harbour (mid 1960's) - a) before b) today

3. PRINCIPLES FOR RESTORATION OF WATERFRONTS

Considering it much more practical and useful to the reader, the following paragraphs shows the lists of the main conceptual results of the studies, as mostly agreed among several authors.

3.1 Strengths

Some strengths of these actions are finally part of the store of knowledge of many planners and developers.

Strengths of urban waterfront regenerations can be considered (Pekin Timur, 2013, after many authors):

- increase of real estate property values
- preservation of historical heritage, through re-Vitalizing historical buildings
- improvement of water quality and restoring bio-diversity acting advanced management processes
- provision of opportunities for new uses and activities
- new social and economic occasions for declining city areas
- attraction of tourists at regional, national and international level
- provision of new quality houses
- provision of new real jobs
- improvement of the general environmental conditions



improvement of transport systems and other social services

- improvement of relationship between water and city / town
- encouraging economic investment on degraded areas That result in an improvement of the city's image, facilitating positive territorial marketing strategies.

3.2 Risks

In the same time, they have to be underlined potential negative effects connected with wrong urban waterfront regeneration approaches (Morena, 2011):

- standardization of interventions
- exaggeration in pure real estate logics
- excessive tourism-commercial functions
- separation with the urban fabric
- aim of high profit
- excessive limitation of public access to the waterfront

4. IMPORTANCE OF AN EFFECTIVE PLANNING PHASE WITH STAKEHOLDER INVOLVEMENT.

Another element to be considered as critical to the success of restoration of the waterfront is connected with the increasingly heated debate with political-economic groups and environmental groups.

More and more often the social dialectic, much stronger in democratic organizations, has created a cultural sub-product that we could call "cheap relativism". This refers to the increasing difficulty of distinguishing the good ideas from the less good, because a lot of debates on, often screaming, with strong preconceived connotations.

The environmental sensitivity, developed only in recent decades, has often become a mere tool in the hands of opponents of the projects.

Behind slogans that include words (today abused) such as "sustainability" and "environmental protection", that should identify only noble concepts about true best practices and behaviors, they hide other interests that aim to manipulate the weakest parts of society, which in fact cannot distinguish which are the most correct development models to be applied to improve the quality of life.

The only way to mitigate the waste of resources and time often associated with the approval of the projects is to draw up very well conceived and justified plans, taking into account the views of stakeholders since the earliest stages of development.

Special procedures for environmental assessment of plans and programs (in Europe, for planning, it is mandatory the procedure named

Strategic Environmental Assessment, SEA) can ensure the involvement of all parties environmentally responsible and the opportunity for all stakeholders to have access to specific documents and then intervene in the process, placing remarks, comments and questions.

It goes without saying that after the approval of the plans, specific projects must be drafted, with successive levels of depth and detail. Depending on their characteristics these projects, consistent with the approved plans, are subject to additional procedures of Environmental Impact Assessment, EIA, in order to get their approval. Even at this stage the regulated presence of stakeholders in the approval process should ensure the most effective design.

The European experience shows that, unfortunately, where there is no regulatory system that adequately controls for appeals and to block projects with decreasing possibility after approvals by law, the results can be disastrous. Stop to multimillionaires projects, albeit planned and duly approved at each stage, it causes huge damages at environmental, landscape, economic and social level. On this it would be good to intervene legislatively (Ciralli, 2012).

5. OBJECTIVES FOR PLANNING AND DESIGN OF WATERFRONTS

Frequentation of waterfront by residents, citizens and visitors, that should be a relaxing, pleasant and recreational experience, is a key objective to be achieved.

Three main elements have to be considered carefully, amongst the others:

- public access, walkways and open spaces
- urban design and landscaping
- land uses along the water edge.

Planning phase has to take in account the water dependency of landside activities:

- Water-dependent uses: near water location is indispensable (ferryboat stations, marine terminals, yards for ship and boats repair and construction works, sailing and boating facilities, e.g.)
- Water-related uses: near water location gives a vantage to the uses (industries and factories, storage facilities, public spaces, e.g.)
- Water-independent uses: neither dependent nor necessarily related to water (public parks, malls, offices and business centres, e.g.).

Waterfront regeneration will succeed if the following aspects are taken in consideration (Wang, 2008):



defining the waterfront, thinking the future role of the waterfront in the city;

- making the master plan, especially to involve the communities and developers in the earliest stage;
 - fostering the physical and economic climate for the waterfront regeneration;
 - working in partnership with public authorities, private organizations and community groups;
 - reviewing the master plan so as to respond the market change and to reduce the financial risk.
- All the stages must be led by a powerful and independent development agency.

In synthesis, sustainability aspects of urban waterfront projects can be resumed as follows (Giovinazzi & Moretti, 2010, after others):

- secure the quality of water and of environment
- waterfronts are part of the existing urban fabric
- the historic identity gives character
- mixed use is a priority
- public access is a prerequisite
- make the waterfront a priority for the community
- planning in public private partnerships speeds the process
- secure strategic public investment and attract private resources
- public participation is an element of sustainability
- waterfronts restorations are long term projects
- regeneration is an ongoing process
- it requires a multidisciplinary work
- look beyond your boundaries.

6. RECREATIONAL NAVIGATION INFRASTRUCTURES (RNI) AND WATERFRONTS

Recreational Navigation Infrastructures (RNI), universally called “marina”, if well planned and designed, are perfect candidates to be important, supportive part, for waterfront development projects.

The concepts expressed in the paragraphs above could be summarized with the following sentence (The Urban Land Institute, 2012):

“Cities seek a waterfront that is a place of public enjoyment. They want a waterfront where there is ample visual and physical public access – all day, all year - to both the water and the land. Cities also want a waterfront that serves more than one purpose: they want it to be a place to work and to live, as well as a place to play. In other words, they want a place that contributes to the quality of life in all of its aspects – economic, social, and cultural”.

Actually RNI, to be sustainable and successful projects, have to encounter the principles and criteria above expressed.

The role and the scopes that should have RNI are clearly expressed in the Position Paper “Recreational Navigation in Coastal and Inland Waters” of the PIANC Recreational Navigation Commission (www.pianc.org), translated in several languages.

6.1 Social importance of RNI

Both in countries where boating activities are fully developed (Northern Europe, USA, etc.) and where recreational navigation activities are becoming more and more appreciated, marinas have to be a safe, sustainable and pleasant place for boats and people.

Marinas are not at all only a place for berthing. They have to provide:

- services to boats (fleets of very different kind of vessels)
- services for users of the boats (a wide range of them)
- services to the whole community (a new urban occasion).

A well-planned marina and better designed, built and operated, can result substantial benefits to the whole territory and to its community:

- it may become a new urban space
- increases the value of real estate
- involves a significant impact on employment
- can offer a new promenade
- can give opportunity to solve hydraulics problems (flooding, erosion)
- can give opportunity for recovery or for reconstruction of rivers and lake banks.

7. POLICIES FOR COASTAL SUSTAINABLE DEVELOPMENT: PPP

The above concepts should definitely encourage private investors and public administrations to work together. In situations where waterfront areas are underused or abandoned, the creation of a new nautical pole with urban services facilities, together with other development interventions, may be a solution worth considering.

Just a remediation or an urban renewal projects might be characterized by a prohibitive cost-benefit analysis, as not to permit the public intervention at all.

Instead, in a common public-private effort, proposing a development project that includes a marina with facilities and services typically residential, commercial and urban oriented, should ensure the economic sustainability, as well as the aimed environment and landscape enhancement.



8. QUALITY OF DESIGN: THE MARINA DESIGNER

Quality in planning and design waterfront rehabilitation and RNIs is fundamental.

Owed to the very special and unique mix of features that this kind of projects have to encounter, the planning and design activities need professionals specially trained and experienced: the marina designers.

This kind of professionals must balance several different knowledge in engineering (coastal, structural, plants, etc.), architecture and landscape, protection and preservation of the environment, urbanism, management, to name a few.

PIANC, helping to fill this gap that still does not see a specific academic education for this figure, started a specific "Marina Designer Training Program - MDTP" which aims to encourage specialized training of professionals in this field (pianc.pianc.org or reccom.pianc.org).

9. CASE STUDY: LA BANDITA, PALERMO

Progetti e Opere srl, italian firm, in 2009 was asked by investors to start a study for a possible PPP (public private partnership) with the aim of preparing proposals of projects for recovering the waterfront between “Lo Sperone” and “Acqua dei Corsari”, including “La Bandita” (in Italian means “banished woman”).

The firm set up a multidisciplinary group of experts (architects, engineers, biologists, geologists and a sociologist). The program of the work had these main steps:

- environmental condition studies
- urbanism studies
- social analysis
- meetings with the local community leaders and principal stakeholders
- defining strategic alternatives
- master planning
- development of feasibility projects

The approach that permitted the general planning was the typical one of the “logical framework”.

After preparing the fact-finding studies and having done the first meetings with the potential stakeholders, it was conducted a typical SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

Having recognized the most sensitive aspects, thresholds of performance levels were set. In this way a “Tree of Problems” was designed. From problems, the further step was recognizing objectives and then were drafted the alternative strategies, all feasible and compliant with the objectives.

All the strategies compared showed an important critical aspect: the lack of financial sources.

A great urgency to solve the urban problems and less and less public resource to invest. The only possibility to balance the PPP, was a strong presence of private investments. The chosen strategy was a complex program in three main steps:

Phase A) “hot” actions, with a more decisive possibility of revenue for investors

Phase B) “lukewarm” actions, oriented to a more public rather than private interest

Phase C) “cold” actions, with a strong public identity.

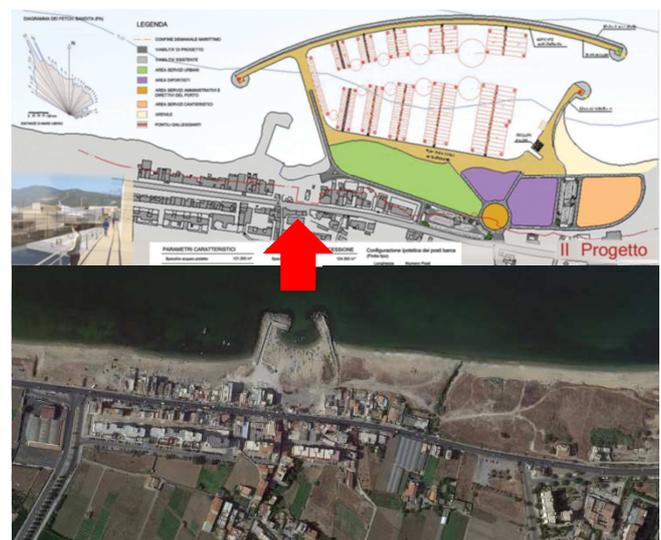


Figure 3: Proposed projects for “La Bandita” waterfront regeneration – Phase B)

9.1 Phase A) Hot actions

It was recognized to be one that gives value at the water dependent activities, respecting the ancient vocation of the burg.

So it was designed the completion of the port of “La Bandita”, that have to remain for fishermen only.

It was then developed a RNI, with a large open spaces to public and a special attention to the urban waterfront recovery in respect of the soul of the place.

9.2 Phase B) Lukewarm actions

that has to follow the precedent one for permitting the financial sustainability and for avoiding very strong disequilibrium in the social fabric, is represented by an iconic and valued intervention: the project of the “Parco Tematico della Storia, delle Arti e delle Tradizioni del Mare – SATM”.

The SATM park will be a multicultural center and theme park, with museums, an aquarium, a media library, schools, a research center, all dealing with



the themes of history, arts and traditions of the Mediterranean Sea.

The sea for Sicilians, being Sicily an island, is in fact an important part of their soul and their culture. Using the modern multi sensorial expositive languages it will be possible to explain to visitors, students and researchers the importance and value of the Mediterranean Sea, true hinge of three continents, “port of history and port of the world”.

9.3 Phase C) Cold actions

that could be contemporary to the B one, will be the large scale restoring waterfront intervention between Acqua dei Corsari e lo Sperone. This intervention follows an enhance other started by the Municipality.

The main goals, completely oriented to the public free use, will be:

- The creation of a new promenade, with a long, safe, pleasant way for cycles and pedestrian
- Green and garden areas
- Urban meeting points and relaxing area
- Restoring the private buildings facades, respecting a precise “color and types” plan.

10. CONCLUSION

Being between the most sensitive, and, in the same time, resilient areas, more and more part of existing ports, urban, industrial and commercial waterfronts are a truly resource for communities.

Both in internal waters (rivers, lakes) or sea, communities look at waterfront area in similar ways, with some interesting differences.

Different interests, conflicts between contrasting uses, environmental and administrative constraints are always present. As well they are needing of respect and recover of environment and the improvement of quality of life.

Several studies were done by authors about many projects completed all over the world: good and bad things were done and rules for best practice nowadays can be almost fully recognized.

After several lessons learned, some principles for restoration of waterfront have to be applied, mainly in planning and design phases. These principles in very few words regard sustainability in the wider sense of it.

The aim of this kind of project have to range from making interesting investments for public and private bodies, to the acceptance from communities and stakeholders, gaining a real improvement of quality of life.

In projects of development or restoration of waterfront, more and more often recreational navigation infrastructures (RNI), for resident, transient, sport and tourism, are included as a fundamental part. These RNI (commonly called

marina) have to include services to boats, to their owners and users, as well to citizens, including people non interested in boating.

In fact is out of doubt that in several cases, under specific conditions, the RNI can help in recovering and enhancing good relationship between people, water and environment. Meantime RNI can represent a real new urban occasion, a space for the social fabric and an economic opportunity, adding an amount of real new jobs. These are the main reasons, for instance, that cause the recognized increasing of the real estate value near a marina, if it is well planned, designed, built and managed.

As it is clear, projects of this kind succeed if policies for sustainable development are fully applied. This could seem very difficult to manage in actual situations, but it is not true. Good projects always result in a correct mix that encounter the major requirements for their success.

It appears clear that centrality of these processes lies in very high quality of planning and design activities. The marina and waterfront development projects requires very deep knowledge in several different disciplines: urbanism, architecture, engineering, environment, management, e.g..

Experts in this field, between these the so called “Marina Designers”, can manage correctly teams of professionals that can give the correct answer to the several questions that are posed.

We focused on the main principle to be considered in development and rehabilitation of waterfronts projects, showing the results of several studies.

Then it was explained how RNI can been implemented in these projects, to give support to their success, boosting people attention and relationship toward water and environment, resulting meantime in new urban and economic opportunity.

The case study presented showed an example of the described approach.

11. REFERENCES

Carta, M. 2014, Reimaging Urbanism, ListLab, Trento, Italy

Ciralli, E., 2012, Planning and design of ports in very sensitive areas: case studies, in acta “4th National AIPCN-PIANC Congress, Infrastructure, logistics and sustainability - 2nd PIANC Mediterranean Days of Coastal and Port Engineering”, Valencia, Spain

Giovinazzi, O. & Moretti, M., 2010, Port Cities and Urban Waterfront: Transformations and Opportunities, TeMALab Journal

Morena, M. (2011). Morphological, Technological and Functional Characteristics of Infrastructures as



a Vital Sector for The Competitiveness of a Country System, Milano.

Pekin Timur, U., 2013, Urban Waterfront Regenerations, in "Advances in Landscape Architecture", Chp. 7 , InTech

The Urban Land Institute, 2012, Remaking the Urban Waterfront, Seattle Department of Planning and Design, USA

Wrenn D. M., Casazza J., Smart E., Urban Land Institute, 1983, Urban Waterfront Development, Urban Land Institute, Washington, D.C., USA