

Barry Hersh
Clinical Associate Professor
New York University
SCPS Schack Institute of Real Estate

Dr. Dariusz Pęchorzewski
IEADF Institute of Economic Analyzes, Diagnoses and Forecasts, Szczecin

Sharon (Xiohang) Yu
MSRED Candidate, New York University
SCPS Schack Institute of Real Estate

Redeveloping Waterfront Brownfields; Ideas, Plans and Experiences for Regeneration of Shipyards on Three Continents

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Abstract

The article presents selected worldwide examples of brownfield redevelopment, urban regeneration and especially waterfront revitalization; projects both completed and currently in progress, in which new spatial structures have been formed on the basis of the old ones. Projects in the United States, Poland, Germany, United Kingdom and China illustrate new concepts that respond to today's challenges and to the needs of urban centers with metropolitan ambitions, giving rise to a new architectural design quality whose greatest value is the coexistence of the past with the present. The description of examples of urban regeneration are preceded by an analysis of the legal, historical and economic factors that have had a decisive influence on the course of implementation of the revitalization actions, more extensively for European Union Member States. While the implementation varies, the overall role, opportunities and tools of waterfront brownfield redevelopment in creating new urban communities, are consistent and compelling.

Introduction

Regional development policy must be viewed from today's perspectives. The World Bank Report of 2009, analyzes the problems in three spatial scales – local, national and international and leads to this conclusion. According to the report, while one billion people in the world are currently living in backward areas of developing countries, these people very often live next to areas of intense economic activity. Thus, the challenge for governments and local authorities is to support spatially uneven economic growth, while equalizing living standards. One of the key aspects of social and economic change is urbanization, which is a necessary condition for development. This is true, in particular, at the local level. A major problem for local governments is suburbanization, which once viewed positively, today has become the cause of uncontrolled urban sprawl and is an important issue in urban development. This problem was first encountered by cities in the United States of America, in the 1950s. The reaction of the government and local authorities, although belated, gave positive results. Revitalization and the Rise of the Creative Class as Richard Florida described, has become the key to saving the struggling areas of gateway American cities. Experiences in this field have been successfully implanted first in European cities, which were also affected by suburbanization, and finally in post-communist cities and, in which the history of the urban space took a slightly different course. In these countries degradation resulted in part from a centrally controlled economy, and later, after the economic transformation, it was impacted by the phenomenon of suburbanization, which has been draining urban areas until recently.

Many urban areas available for redevelopment are brownfield (i.e. contaminated) sites, and in the cases selected these sites have direct access to water, and a key industry had been shipbuilding. In today's economic and spatial reality, the processes of adaptation of post-shipyard brownfield sites to new functions have become a common phenomenon worldwide. However, for these processes to give the desired results, their implementation must be based on social, political and economic awareness; stakeholder involvement, an awareness of the need for living in a new environment, which builds a bridge between the past and the present, becoming a permanent component of cultural continuity. Thus, alongside the need to create favorable mechanisms for such action, ongoing public education on the subject is necessary, whose mission is to convince that the historic nature of a specific area can act as a promoter and initiator in the creation of a

quality, economically and spatially new structure in which old and new elements will permeate and complement each other. This approach to adaptation of brownfields to new functions is a major challenge for the local communities, because it is an interdisciplinary process¹. Hence, the decisions in this regard should, on the one hand, mind the long-time horizon of the project, and on the other hand should be made taking into account the current and future requirements and standards to be met by the newly generated spaces, often located in the structures of a metropolitan character and aspirations.

Analysis of activities and achievements to date in the field of redeveloping waterfront brownfields in the United States of America, European Union and China

Concentration, diversity and centrality are the key words that define cities, as they change over time and adapt to a particular form of civilization of which they are an expression. Transformations of cities are a natural process, an inherent part of urban life. The reasons for the transformations are usually closely linked to social changes, an ongoing process that clearly entail changes in the physical nature of cities, so it's important to understand and recognize those reasons.

Thus, as noted by P. Lorens, cities are looking for their individual character, cultural identity, understood as one of the factors that ensure a stable and long-term growth. However, in this quest, there is often no attempt to create modern architecture and public spaces that would shape the image of the city.

A particular focus for revitalization has become urban brownfield sites. In the structures of most modern cities, we encounter brownfields that are no longer places of industrial production, or no longer perform the functions ancillary to the production, and other areas are impacted by industrial activities such as mining. In both cases, what stands out in the case of brownfield sites is the loss of their previous functions and partial or overall disuse. What connects brownfield sites is the fact that their degradation is a result of the restructuring of the economy, both worldwide and in individual countries.

A special case of urban brownfields are waterfronts, often within port cities. Thus, the article analyzes the experiences in this area, taking into account the specificity of each of these projects, their implementation timeframes and spatial, legal and economic conditions.

1. United States: Waterfront Redevelopment in a World-wide Context

The mixed use redevelopment of formerly contaminated waterfronts has become an important but also challenging part of urban revitalization – and a significant real estate opportunity.

Waterfront brownfield revitalization is extraordinarily complex; incorporating real estate economics, land use, community benefits, ecology, flood control, hydrology, sustainability metrics, design, politics and a host of associated disciplines.

Successful waterfront brownfield projects work at many levels; functionally serving the market, designs that amplify waterfront and other attributes, fully protective remediation, sustainability in a time of climate change, and most importantly, financial return. To accomplish successful projects requires developers to think strategically, and use techniques that reflect the unique nature of these projects, maximizing financial, aesthetic and community benefits. There remain many waterfront brownfield opportunities with enormous potential, awaiting the developer with the right skills, strengths, perseverance and a little bit of luck.

Among the shipyard redevelopments discussed are:

- East Toledo, Ohio, United States.
- Zhongshan Shipyard Park, China.
- Brooklyn Navy Yard, New York, United States.
- Philadelphia Navy Yard, Pennsylvania, United States.
- Maritime Museum, Erie, Pennsylvania, United States.
- Gdansk Shipyard, pomorskie Poland
- Energy Uses in Hong Kong, China and Buffalo, New York, United States.
- Entertainment Uses; Bethlehem, Pennsylvania, New York.

Many of these projects are playing a key role in reshaping their metropolitan region, bringing economic vitality to the historic waterfront core. The first two projects in Toledo, Ohio

and Zhongshan, China both won Waterfront Center design awards, but also illustrate the diversity of waterfront reclamation. In Zhongshan, a substantial shipyard was totally transformed, by a design by Turenscape, into a public park, providing a major amenity to the community.

Two Award Winning Redevelopments



Toledo Maumee Waterfront
Sasaki & Associates



Zhongshan Shipyard Park
Konjjian Yu, PhD, IASLA, Turenscape

The east side of the Maumee River in the City of Toledo has long been industrial, including power plants as well as port facilities. Efforts to revitalize this community started with the East Main Street shopping area which runs perpendicular to the river. As industrial use on the waterfront closed, and contamination assessments were conducted, some redevelopment, including restaurants and other commercial uses did occur, but major redevelopment sites struggled. Mayor Michael Bell was determined to accelerate the process, visited China twice, and was able to put forth an effort that used EB-5 Visa financing, meaning that foreign investors of \$500,000 or more could utilize a United States program and gain legal status. Such investors were secured, the site purchased and the project is moving ahead. One prime goal was to vastly improve public access to the waterfront, including the marina.

The Brooklyn Navy Yard had been a shipyard since the American Revolution, most notably during World War II, when seventy thousand workers turned out landing craft and other naval vessels. The property was transferred to New York City in 1967, and a local development corporation took control and promoted industrial redevelopment that successfully brought new industries to the property while preserving key historic buildings. A major addition is Steiner

Studios which provides over 200,000 square feet of highly sophisticated sound stages for film production. This has been an important element in creating “the new Brooklyn” a young, vibrant and highly creative community, part of the metropolitan transformation. A much needed new supermarket is also planned for a long vacant upland portion of the Brooklyn Navy Yard.



Before and after Brooklyn Navy Yard

The Philadelphia Navy Yard also has a long and proud history. The Navy facility was closed in 1995, but a portion of the shipyard remains active. Other parts of the site have been reused, by companies including Urban Outfitters, the hip retailer, which reused some of the historic buildings, with green, energy efficient, rehabilitation, bringing jobs back to the property.

Many urban waterfronts have a valued history, and redevelopment that incorporates that historic tradition. Notable example is the Maritime Museums in Erie, Pennsylvania, United States which include historic vessels as well as museum buildings, and have proven quite popular.

The Gdansk Shipyard is located on the Baltic Sea, and has a centuries long history, featuring noteworthy changes in national control in the 20th century and the formation of the Solidarity union movement in 1980 that led to the end of soviet “iron curtain” control of Eastern Europe. Closed for more than a decade, there is a small Solidarity museum. At a recent (May 2012) conference in Gdania, neighboring Gdansk, plans for redevelopment were discussed by public officials and academics. There is a redeveloper and interested users, but political issues need to be resolved. This sort of issue is not uncommon in waterfront redevelopments throughout the world.

There are many different ways to re-use a former waterfront industrial property. Bethlehem Steel was one of the largest United States steelmakers located on the Lehigh River. Its main plant was closed over the past three decades. Portions of the property were transferred to adjoining Lehigh University, and a steelworks museum is proposed. Another part of the site was

sold to an investment group that sought successfully to be designated as one of several gaming sites in Pennsylvania. The casino and adjoining hotel have proven quite successful.

Another alternative use for waterfront brownfields is for new energy production. A former steel mill near Buffalo, New York, and a former landfill in Hong Kong, have both been successfully re-used for wind power energy production. These projects have helped bring significant changes to their metropolitan regions. The use of contaminated site for clean energy is being widely promoted in the United States as well as other nations.

Wind Energy – Reclaimed Waterfronts



Accomplishing port redevelopment in the United States requires:

- Strong Leadership Team – including public officials, private developers and financiers
- Public /Private Partnership – Cooperation between sectors, mixed use projects
- Innovative Financing – These are not standard real estate projects
- Site Control Strategy – Dealing with complex title and access issues
- Synergy between Remediation and Redevelopment

Port redevelopment offers many advantages to communities. They are often an alternative to sprawl, focusing growth in the urban core. Waterfront sites often are close to existing infrastructure, including transportation, allowing transit oriented development. Redevelopment can often allow creative uses of waterfront, from parks to restaurants. There is often an opportunity to enhance historic structures and resources. There are many land reuse options; from

continued waterfront industrial to residential to recreational (even gaming), and also including less common uses such as clean energy (wind or solar) production.

Such redevelopment projects are inherently complex involving land use, design, ecological, land use, economic, historic and other factors. Successful project move forward in several areas simultaneously, requiring management of complex, multi-phased sub-projects. Such projects utilize the great benefits of bringing the people of a community to the waterfront.

People love waterfronts! It is often an excellent idea to have events that bring people to the waterfront, especially to a new redevelopment project – good from real estate, public relations and community perspectives.

2. China

The following is a revision of an earlier paper presented by the authors at the Global Chinese Real Estate Congress conference in Macau, 2012. Through case studies and empirical data brownfields redevelopment in China is considered in light of experiences in the United States and Europe.

The reuse of contaminated land is a growing worldwide phenomenon, an important sustainable development alternative to meet changes in urban spatial and real estate growth demands . China's historic reverence for nature has been often ignored due to the demands for economic growth in recent decades, but there are now increased concerns about contamination and long term sustainability. Land re-use is even more relevant today in China as rapid growth and urbanization has raised land values to where remediation and redevelopment are economically justified. In 2007, two redevelopment projects in China won top honors from the Waterfront Center, demonstrating the capability of Chinese professionals to recycle land utilizing outstanding design.

As Economy, Ding, and others have commented, the lines of communication and control between various levels and agencies of government in China are often not clear or well-defined legally. So the national or provincial environmental and design policies may not be effectively implemented at the local level where officials must deal with economic development and budget issues. Techniques for risk management, such as environmental insurance, are common in the United

States and Europe but all but unknown in China. The 2008 Olympics generated a flurry of innovative measures to control air pollution. If the same decisiveness, energy and innovation are put into land remediation and redevelopment that effectively control environmental risk, much can be accomplished. The two award winning projects illustrate the capability in China to design and build spatially creative and environmentally sound redevelopments. The race is to allocate resources to control environmental degradation, and allow brownfields redevelopment to move ahead so there is a net improvement of degraded ecological conditions.



Above is an image of Tangshan Ecological Community Park, located in the central area of Tangshan in Hebei. This earthquake prone region is attempting to rebuild as an ecological community. The Community Ecological Park, built upon an abandoned coal pit and landfill, and is a current example of redevelopment in China.

On November 2, 2007, two redevelopment projects in China were awarded top honors by the Waterfront Center; a Washington DC based non-profit that has promoted waterfront design and planning internationally for thirty years. In cases, the remnants of earlier use were retained, and new designs, focusing on the waterfront features, were built. These projects reflect the best of Chinese efforts to recycle land, and utilize innovative landscape architecture and environmental design. The two award winning projects reflect efforts to balance rapid economic development with environmental enhancement. In both cases, as in many brownfield projects worldwide, remediation and design play a key role in the sustainable

redevelopment of properties, providing positive environmental features and also enhancing the economic value of a total project. The award winning projects and the concept of brownfield redevelopment provide a paradigm that can be used in China or anywhere else for environmental management, an approach that remediates and redevelops contaminated land – and incorporates the important role that design, particularly landscape architecture, can contribute to the reuse of both land and water features.

The Floating Gardens, Yonging River Park, Taizhou City features the redevelopment of a formerly channelized, concrete riverbank, with wetlands and park features that meet flood control requirements but also provide new physical spaces and cultural amenities of value to this very urban population. Designed by Turenscape of Beijing, the park does not literally float; the name Floating Gardens reflects the desire for minimal impact on the land. The park was built in two layers. A natural layer uses the river’s flood pattern to reconstruct a wetland system in the floodplain backed by an outer network of ponds within the body of the park. Both systems flood during the monsoons but the outer wetland remains submerged during the dry season. Dense masses of native wetland plants, groves of “floating” trees, and bamboos planted throughout the park meld the site to the river and its urban surroundings.

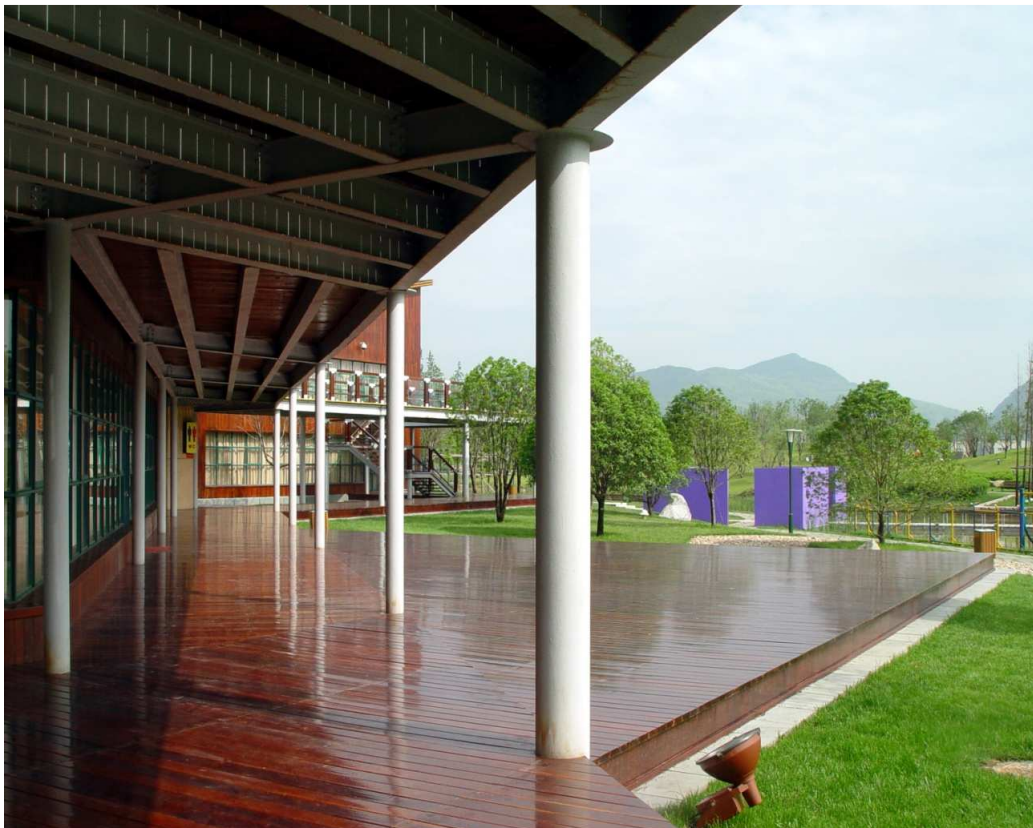


Figure 1: Floating Garden Building 20

The second top Waterfront Center award winner was Hong Kong Wetland Park; a 61 hectare recreated freshwater wetlands and tidal wetland network located in a tremendously dense suburb of Hong Kong, Tin Shui Wah New Town. Planned by the Architectural Services Department of Hong Kong, the Wetland Park cleans New Town's storm water and provides a dramatic outdoor classroom for understanding the natural succession of wetland plant ecology. The project features an educational facility with environmental exhibits, laboratory space and the dramatic and beautiful bird "hides" (viewing stations), all following green design principles such as use of indigenous and recycled materials, and green roofs. Set against the dramatic high rise backdrop of Tin Shui Wah New Town, the park blends the natural marshes, mudflats and fishponds of the Inner Deep Bay Ramsar area and provides a beautiful restful setting for residents. In a recent talk at Columbia University, Weatherhead East Asia Institute Senior Research Scholar, Jim Seymour, a critic of China's environmental policies, noted Wetlands Park as a positive effort within Hong Kong. Wetlands Park has already proven enormously popular with both residents and tourists.



Figure 2: Hong Kong Wetland Park Visitor Center from Lakeside

There are many brownfield redevelopment sites in the United States that are comparable in scale, including Atlantic Station in Atlanta Georgia and the former Schaefer Brewery, now Schaefer Landing development on the East River, are being properly remediated and redeveloped. This project, in the resurgent Williamsburg neighborhood of Brooklyn, is primarily residential, with some commercial space, but also includes an impressive waterfront promenade. Schaefer Landing rivals in height if not the overall

scale related to the two award-winning Chinese projects, and also shares the use of accessible water and landscape features as important design elements.

Shanghai

The city of Shanghai has been aggressively involved in efforts to develop many industrial brownfields into urban projects. One example in the city is Houtan Park. Shanghai; Houtan Park is 14-acre former industrial site in the process of being developed into a middle class residential community, and the Turenscape is again one of the design firms involved. What makes this strategy so unique is that there are many different approaches in place to developing this land. There has been significant emphasis on managing the environmental, physical and spatial challenges of the site, such as flooding from the Huangpu River, as well as contaminated waste, challenges that must be dealt with to ensure that the site can be transformed into a viable community in the future. Not only will this bring higher levels of price appreciation, but this site could also be used as a blue print for conducting future development projects throughout the country. It is important to illustrate how this type of strategy might be effective in addressing a wide range of challenges that come from abandoned factories or manufacturing plants, factories or gas stations and make brownfields an obstacle to city expansion.



Shanghai Disney removal of potentially contaminated soil



Shanghai Houtan Park

In 2004, the government was successful in remediation of the 2010 Expo sites. Because of a significant lack of expertise in this area, it was necessary to launch a global competition to address the remediation process of industrial buildings. As a consequence, environmental supervision and management have become a major responsibility of the government. In general, however, Brownfield development is not performed by the government alone.

In addition to the central government, the Brownfield strategy has stakeholders that include community residents, local governments, developers and enterprises. Indirect stakeholders also include financial institutions, research institutions, civic organizations, and the media. There is a complex web of

relationships among these stakeholders, as each would benefit from the remediation. Despite the environmental risks due to possible pollutants that may still be present, brownfield redevelopment can contribute to urban development, create new job opportunities, stimulate economic activity, develop green spaces and working land, and, if properly managed, become a significant component of all development methods in China.

A general quantitative target is suggested by Kang Cao and Hua Guan, who argue for the coordinated efforts of stakeholders in the remediation process. These writers conclude that the major functions of the Chinese government should involve “making general strategy, formulating legislation, specifying regulations and technical standards, estimating and categorizing brownfield sites, drawing up brownfield planning, providing information and financial support, guiding developers, publicizing the strategy to the public, and checking reuse results for development of the economy.”²-Xin agrees with this, concluding that a balanced participation in decision-making among stakeholders is necessary in order to achieve a sustainable land recycling. In addressing sustainability further, Wang Fan (2012), editor of “Ecns.cn.”, reported that many developers and stakeholders are suddenly interested in remediation because it is a big business worth billions of Yuan, and that there are more than 20 land developers currently who have registered their interests.

An issue to consider related to the role here of private enterprise is the liability of the new developer after a “cleaned” site has been purchased and developed. What is the extent of a developer’s future liability if the site is found to remain contaminated? There are liability issues relating to both past polluters and future developers of brownfield sites, which must be clarified and resolved.

The early history of remediation in China was troubled, as there was a poisoning incident of construction workers in the construction site of Songjiazhuang. Another incident that proved to be a brownfield problem occurred in 2007, when 18.7 hectares of land were sold to a developer. The land was supposed to be an ideal place for residential homes, but remained unoccupied for many years after the soil was found to be chemically contaminated following its use by the Hanyang Pesticide Factory, as a result, several workers were poisoned and hospitalized. The vendor of the lot failed to disclose this information to the buyer during the transaction. It is estimated that the remediation process of the site would cost around 500 million RMB. This episode is reminiscent of the Love Canal incident that led to the US Superfund law.

Out of the more than 2,400 apartments located in this area, approximately 60 percent are deemed “economically affordable housing.” Many of the current owners have spent almost their savings on the purchase of these homes. Home-owners have sought retribution from the developer, but with little

response. WEBP gave a press conference at which officials announced that they would take no action to help manage the land: “We have spent a lot to build economically affordable housing here,” noted a government official, “and we do not think it is worth it to spend more to manage it.” Some may believe that the government only sells contaminated property to poor people (the same concern expressed by environmental justice advocates in the United State), but others say that this is only be the tip of the iceberg. As polluting factories move to other places, many sites are not properly cleaned up before real estate developers rush in to build new houses and sell them to people from all walks of life, both rich and poor. Clearly, such practice is unacceptable, regardless of the underlying circumstances or social level of the victims.

As all the projects illustrate, engineered remediation and professional design can address many of the concerns related to brownfield redevelopment. The site plan for any development can utilize the site in a manner that recognizes and controls any remaining contamination. As has been noted by Economy and other critical observers the Chinese have shown a strong capability to not just use modern technology, but to experiment and innovate

Commentary

Land contamination is an enormous issue in China as its economy and real estate markets to grow. Those who are making multi-million dollar real estate investments in China are demanding environmental conditions that will not diminish the value of their assets. Environmental justice advocates on behalf of ordinary citizens demand the same. There are strong pressures in terms of land use, environmental and political concerns to reverse contamination and improve sustainability by remediating and redeveloping brownfields. At the prestigious Urban Land Institute World Cities Forum held April 2007 in Shanghai the land use experts assembled found, according to Riggs that “the truly sustainable cities of the 21st Century will be those that observe quality-of-life issues and environmental protection to keep their economies strong and competitive”. In a March 2012 China Radio International program, Barry Hersh along with Xiaoming Wang of the China Academy of Sciences and Jinghong Hu of the, University of Texas at Arlington³, spoke about the current capabilities and limitations of brownfield soil remediation in China, which to some degree following the pattern in the United States, in moving land revitalization ahead with a combination of government and private efforts, and improved professional skills within a complicated legal framework. China has the potential to utilize innovative technology and create a more stream-lined approach to site remediation and redevelopment that could succeed as part of firm commitment to long term sustainability.

Clearly, economic development and growth in Chinese cities are creating challenges associated with future planning for these communities. The lack of a central strategy for effectively dealing with these issues is leading to inconsistent policies. To address these problems, there must be a focus on specific approaches (i.e. brownfield development). The research project will determine the impact of current programs and how a workable strategy might evolve. In the future, this approach will also provide a foundation for creating a strategy to manage these challenges over the long term, while using all available land and natural resources prudently. Therefore, these ideas may become a part of the larger philosophy that is utilized by central and local governments to address these issues. Over the course of time, this will enable China to develop policies that will take the needs of all stakeholders and responsible economic growth into account.

As one of the award winning designers, Professor Kongjian Yu spoke at the Waterfront Center conference, and eloquently discussed how Chinese culture has long placed major value upon respect for land and water, and the maintenance of water features and benefits in even urban environments. In his book "The Art of Survival, Recovering Landscape Architecture, edited by Professor Yu and Mary Padua, there is a discussion of the land of Peach Blossoms and the Chinese heritage of respectful use of land and water. It is not a coincidence that the most popular US book about China was entitled "The Good Earth". China is moving towards greater environmental awareness specifically the importance and potential of properly done remediation and redevelopment. There is certainly much work left to be done, but China has the capability to redevelop brownfields, and to return to its traditional legacy of respect for land and water.

3. Germany

The political division of Germany after the Second World War into four zones of influence: French, British, American and Soviet was one of the factors which determined the development of German cities after 1945. Imbalance in their development could be seen, especially in the reconstruction and revitalization of the urban fabric and public spaces. The year 1961 was a landmark for cities, in particular those that were located in the Soviet sphere of influence. Erecting the Berlin Wall, dividing not only Berlin, but the whole of Germany into the so-called western and eastern part, had deprived German cities of sustainable development for almost 28 years. This was reflected particularly in the cities in the eastern states, which, like the rest of the Eastern Bloc cities were built-up with blocks of flats of pre-fabricated concrete while there was a lack of any significant activities aimed at revitalization of the existing urban

structures. In Germany, in the initial phase of the revitalization process, which began in the late 1960s, the western part of the country preferred a revitalization model focused on the demolition of buildings. Thus recovered many attractive areas were reused to build residential single family homes, limiting the need for technical infrastructure, deficit services and recreational infrastructure.

Urban regeneration in Germany is a wide-ranging and highly institutionalized process, subject to special regulations, partly stipulated directly in the law on spatial planning. These regulations are based on decades-old experience of the West Germany, and, in a comprehensive manner, establish urban planning, legal, financial and social procedures. They are widely used in practice, particularly in the processes of urban regeneration in the former German Democratic Republic, because of the very significant organizational and budgetary support from the federal government and the federal states. In this way, urban regeneration of the cities in eastern states has been a planned, country-wide process, largest of its kind in Europe in recent decades. The success of the revitalization processes in German cities would not have been possible if there had been no legal basis for their realization and no division of responsibility in this respect between the public authorities. To this end, in 1971, the law to promote urban renewal had been passed, and at the same time, special supporting measures were initiated.

The law on support of revitalization adopted and enacted in Germany allowed for the creation of governmental regeneration programs as soon as it came into force. The first of these programs, the revitalization and development of urban built-up areas, was established in 1971. In subsequent years, the federal government's revitalization programs included in its scope ever wider urban areas thus increasing the scope of their intervention in the reconstruction of degraded parts of those areas. The table below presents the German government's revitalization programs implemented since 1971, including their title, year of introduction and objectives.

Table 1. German Government's revitalization programs

Title	Revitalization and development of urban built-up areas <i>Städtebauliche Sanierungs-Und Entwicklungsmaßnahmen</i>
Year of introduction	1971 – old federal states 1991 – new federal states
Objectives of the program	Renewal and adjustment of the urban fabric to the new spatial functions.

Title	Protection of urban monument sites <i>Städtebauliche Denkmalschutz</i>
Year of introduction	1991 – new federal states
Objectives of the program	Protection of monuments and maintenance of historic city centers.
Title	Social City – Urban areas of special need for revitalization <i>Stadtteile mit besonderem Entwicklungsbedarf - Die Stadt soziale</i>
Year of introduction	1999 – the old and the new federal states
Objectives of the program	Organization of urban space in the context of prevention of socio-economic problems: - improving housing conditions - promoting entrepreneurship - creating and maintaining jobs - improving social infrastructure - increasing the attractiveness of public areas
Title	Rebuilding cities in the new federal states <i>Stadtumbau Ost</i>
Year of introduction	2002 – new federal states
Objectives of the program	Increasing the attractiveness of the city areas affected by the phenomenon of depopulation. Reducing the excess of residential housing and stabilizing the housing market.
Title	Active urban centers <i>Aktive Stadt- Und Ortsteilzentren</i>
Year of introduction	2008 – old and new federal states
Objectives of the program	Protection and development of centers as places of economic activity, culture, and as places to live and spend leisure time.
Title	Investment pact for the energy modernization of social infrastructure <i>Investitionspakt zur energetischen Sanierung der sozialen Infrastruktur</i>
Year of introduction	2008 – old and new federal states
Objectives of the program	Modernization of public buildings to increase their energy efficiency.

Source: Integrated urban development – the German model of revitalization, N. Krawczyk, M. Modelewska, Warsaw School of Economics, 24 June 2009, Cieszyn.

The flagship project of the German way of revitalization of degraded cities, was the renewal project of the city of Bremen. In order to start the project in June 1948 a public law

company was established, whose shareholders were the state and the city of Bremen, and rebuilt the fishing port in Bremerhaven.

German administration faced a real revitalization challenge, requiring huge organizational and financial commitment, after the unification of the country and incorporation of the east federal states into the western structures. Undoubtedly charming, but neglected cities and municipalities of the eastern states not aligned with the well-maintained and restored the urban West. Hence the great determination that accompanied the reconstruction of cities, especially driven by the will to bridge economic and social gaps. The process of urban renewal of the states of East Germany began in Leipzig – the second largest city in East Germany after Berlin.

Successful regeneration activities in Leipzig produced tangible results in the form of stabilization and a slight increase in the number of inhabitants of the city, halting the rapid process of suburbanization, improving the quality of the housing stock from 24% meeting standards before 1990 to 74% in 1990-2000, and reducing the number of vacant premises from 62.5 thousand in 2000 to 40 thousand in 2006. Successful examples of revitalization of Leipzig include process and projects that covered an area of 900 hectares, among them the revitalization of the Buntgarnwerke brownfields.

Although the socio-spatial conditions of life for the local community have been improved in many areas of the city, it cannot definitively be stated, as noted by N. Krawczyk, that the revitalization of the city has been completed. Leipzig still has unresolved social problems, such as e.g. high levels of unemployment. Therefore, the future of revitalization of Leipzig is seen in the development of integrated strategies that combine the spatial aspects with social and economic issues. The city only has a chance for long-term development if attractive urban fabric, well-functioning economy and healthy social relationships co-exist. Here are a few examples of revitalization in Leipzig (see pictures below).



Picture 1. Revitalization of the buildings and the square in the Old Town in Leipzig

Source: own work.

The revitalization projects in Germany have been successful primarily due to the sound and consistent approach to the problem. The processes of urban regeneration of cities in the western federal states, which have continued uninterrupted for many years, have not been disturbed by the burdens reunification. One may be tempted to say that this process has been even strengthened, because on the one hand, the competitiveness of cities increased, and on the other, the authorities needed to prove not only to their own nation, and the whole world, that the unexpected unification process was a success, especially for the eastern federal states..

As noted by M. Bryx, revitalization of German cities is inherent in the strategy of the German state and is to serve the welfare of its citizens. It is treated as a public interest and well ordered German solutions provide largely equitable sharing of responsibilities, tasks, and consequently – benefits of revitalization projects, to all participants⁴.

An example of effective revitalization of brownfield sites in Germany is the transformation of the port warehouses by the river Elbe in Hamburg into a set of apartments with accompanying services. As a result of architectural transformations devised by the German architect John Stormer, the former set of warehouses was changed into a residential space containing luxury penthouse apartments, 700m² of office space, 500m² of restaurants overlooking the water, and a self-service car park for over 100 cars. Quite expensive, because its value exceeded € 20 million, the restored area, despite the transformations made in the surroundings, has not lost its original character, and the new technologies embedded in its fabric have highlighted its former character.

An example of a waterfront revitalization in Germany is the revitalization of the old haven area HafenCity Hamburg, whose main purpose is to create a modern city district while adapting the existing space to perform new mixed functions, removing car traffic in preference of pedestrian traffic, subway and bus lines, and compacting the existing buildings by filling in the void space (see figure below).



Picture 2. The project of filling void space in the former haven area of HafenCity in Hamburg
Source: Hier kommt der designport (Illustration: Michael Korol, Quelle: HafenCity Hamburg GmbH)

The HafenCity project in Hamburg covers an area of 155 hectares, and its completion is scheduled for 2020. The intention of the authors of the project and the city government is to create a new heart of the city in HafenCity, which will create 40 thousand new jobs and housing for 12,000 people. The gradually implemented project also provides for the creation of an urban park and a boardwalk open to the existing river channel with small bays, where a yacht marina is to be built among residential buildings, emphasizing the exclusivity of the newly created space.

4. Poland

Degradation of urban areas in Poland is the result of past wars and neglect under the centrally controlled economy until 1989. Despite socio-economic transformations, to this day,

there is not a comprehensive approach that effectively supports the many urban centers and implements of the current principles adopted in this field.

In the opinion of P. Lorens in Poland after 1989, revitalization and urban development returned to the traditional solutions, characteristic of the nineteenth century, trusting that they will prove themselves in contemporary reality with equal success. Trying to make up for decades of neglect, the aspirations of local communities led to the use of shortcuts to quickly reach specific effects, resulted in long term difficulties⁵.

Revitalization in Poland has been the subject of strategic planning at the national level only since 2000, with the adoption of the National Strategy for Regional Development 2001-2006. Previous attempts to carry out activities in historical cities and regions requiring not only economic, but also social restructuring had been undertaken within the frameworks of a number of unrelated government programs. Despite adjustments to adopt EU regional policy procedures, the government's revitalization support program had little success in achieving the objective of revitalizing the economic base of Polish cities. The issue of revitalization of degraded urban areas gained special and new meaning with Polish accession to the European Union, which local authorities saw as an opportunity to obtain additional funds to support revitalization. In practice, however, it turned out that the amount of funds allocated for the implementation of projects in the field of regeneration, both in the financial perspective 2004-2006 and 2007-2013, were and are still is limited. Contrary to popular opinion it should be noted that the implementation of revitalization projects cannot depend only on the possibility of partial funding from the aid funds. On the contrary, local stakeholders should do everything in their power, taking into account existing legal circumstances, to carry out such projects on their own, engaging local partners to participate, and knowing that obtaining funding from the European Union should be subsidiary. Promotion of partnership approach to regeneration processes and implementing the concept of sustainable urban development has been embedded in the new instrument for the financing of urban renewal, which appeared in funding for 2007-2013 – the Jessica Initiative. So far, few local governments have shown interest in this instrument. Over time, however, it is highly probable that when support in the form of grants is reduced to the minimum, this solution will be the only form of financial support available. There is one good thing about this solution: like it or not, local governments will have to revolutionize their thinking about revitalization and finally step up

efforts to promote their cities and take such actions that will increase the chances of attracting outside investors who will support regeneration activities, and the development of cities⁶.

This begs the question, why in the new socio-economic reality after the Polish accession to the European Union, Poland has not been using the knowledge in this area resulting from the experience of other countries, members of the same Union, which allocate a high percentage of their budgets to support renovation of the old housing stock.

There is no doubt that in order to create such a system, steps need to be taken to implement reforms, which, according to K. Skalski are expensive and unpopular, but necessary, because in a democracy with self-government, investing in the modernization of degraded areas must be based on a simple economic profit and loss calculus. This means that no investor will be interested in revitalization, renovation or modernization of any area, if in the end the profits will not at least balance the costs⁷.

The basic documents, which include plans, ideas, and ways of financing revitalization of degraded areas, including waterfronts, in Polish cities are Local Revitalization Programs, which are closely linked with the strategic documents both at European level, including: Community Strategic Guidelines for Cohesion 2007-2013, the Leipzig Charter on sustainable urban development and the New Charter of Athens, on national level, including: the National Strategic Reference Framework 2007-2013, Operational Programme Human Capital 2007-2013, National Development Strategy 2007-2013, the National Strategy for Regional Development 2010 -2020. Regions, Cities, Rural Areas; Poznan Public Space Charter, on local level, including: Regional Operational Programme, Regional Development Strategies and Regional Innovation Strategies, and on city level, including: City Urban Development Strategies, Studies of Conditions and Directions for Spatial Planning, City Social Policy Strategies, City Transport Policies, Parking Policies, Road Programs, Environmental Programs, Urban Crime Prevention Programs, City Housing Stock Management Programs, Tourist Market Development Strategies, and Urban Waste Management Plans.

Revitalization of waterfront brownfields on the Baltic Sea, including former shipyards is based on the abovementioned strategic documents. The Polish cities facing these challenges are Gdynia, Gdansk and Szczecin. In each of these cities shipbuilding was a dominant industry and provided thousands of jobs. Since the socio-economic transformation after 1989, and especially after the Polish accession to the European Union, the manufacturing sector has been in gradual

decline until with time (as in the case of Szczecin) it ceased; creating a new for re-development and new ideas. .

Possible strategies for the transformation of waterfronts in these port cities are largely at the stage of economic and spatial analysis. Due to the complexity and number of factors affecting implementation it is difficult to predict the final result.. It is possible to identify potential factors in implementation to manage impacts

Comprehensive strategies and consistent implement are crucial; as is to clearly identify responsibility for the process, and to ensure permanent sources of funding for each of the planned activities. No less important, to manage the overall process of planned projects taking into account the economic, social, and spatial aspects, the policies of the local self-government and state agencies as well as the interests of companies and other stakeholders within the revitalization area⁸.

Gdynia, Gdansk and Szczecin are the few Polish cities that enjoy huge spatial potential for waterfront projects. All have direct access to the Baltic Sea, and, paradoxically, in each of them, the inevitable collapse of shipbuilding was the inspiration for the creation of new, modern space (see picture below).



Picture 3. Geographical location of Gdynia, Gdansk and Szczecin on the map of Poland.

Source: own work.

The difficulty in pursuing new challenges and projects does not result from a lack of willingness and openness of local authorities and local governments, but the mentality of local communities and sentiment to the old days when these spaces provided thousands of jobs in the production of ships. Another problem holding back the plans are also the legal and economic

issues arising from past neglect. These same issues had to be overcome in the United States (see Brooklyn and Philadelphia Navy Yards) and in China (see Zhongshan)

Despite the existing obstacles, each of the cities, applying the principle of one step at a time, makes constant attempts to change the current situation. It seems true to say that so far Gdynia has been the most successful in waterfront revitalization. While the other two cities declare increased activity, so far there is a lack of achievement and implementation of the Local Revitalization Programs.

The old sentiment for shipbuilding, loss of jobs, unregulated legal status of land, and pushing responsibility for the collapse of the shipbuilding industry are all brakes on the redevelopment of the old shipyard areas, which have enormous potential. The current owner of the land, the state-owned company Towarzystwo Finansowe Silesia has not determined how to effectively revitalize the area, despite showing multimedia presentations of their visions of how this land might be reused, proposing, to continue building ships on a smaller scale, to build an exhibition center for yachts, a technology park, a business incubator, and commercial facilities, all with a total of more than 6500 new jobs. The local authorities do not have nor the wherewithal to implement a 2007 resolution nor Szczecin Strategy 2025

Up to date photos of waterfront and post-shipyard areas of Gdynia, Gdansk, and Szczecin.



Picture 4. Revitalization of waterfronts in Gdynia – yacht marina.

Source: own work.



Picture 5. Post-shipyard areas in Gdansk.

Source: own work.



Picture 6. Post-shipyard areas in Szczecin.

Source: own work.

5. United Kingdom

The United Kingdom had gained early experience in the field of regeneration during the industrial revolution, which was accompanied by rising unemployment, poor housing and social problems, most prominent in working-class neighborhoods. A characteristic feature of UK's revitalization is its dynamic evolution and changing policy, both at government and local levels, resulting from the changing needs, economic and social circumstances and the electoral campaigns which opened the stage for presenting new ideas for revitalization policies, often implemented. This consistency is strengthened by British traditions in urban planning, efficiently and effectively functioning public statistics and strong academic and research centers.

Current 89.1% urbanization of the UK, and population density of 256 persons per sq. km; urban policy and spatial planning are key to the functioning of the country. . Limiting the growth of British cities, and thus the need to re-use areas for further redevelopment and transformation of functions, is one of the main emphases of British urban policy and planning. This puts the UK at the forefront of the European countries with the most experience in implementation of regeneration projects. As indicated by P. Roberts and H. Sykes, urban regeneration in the UK is one of the most widely experienced, yet least understood processes in British cities. There are numerous forms of revitalization which weave different sources of financing, types of partners, as well as revitalization projects and programs, often specific to the revitalized areas. There is no universal way to carry out revitalization, and its complexity, according to the above cited authors, prevents describing it in a brief work.

In 2001, the UK developed the National Strategy for Neighborhood Renewal, which was to be the response of the British government to the challenges of revitalization of urban centers for the next ten years, and had two major objectives. The first was to reduce the level of unemployment and crime, and to improve the health of people and their living conditions in the poorest neighborhoods in all cities in the UK. The second objective was to reduce the widening gap between the poorest neighborhoods and the rest of the country. Since the adoption of the strategy, it was hoped that these efforts and a growing economy would reduce the problems in Britain's cities. . In March 2010, a report was prepared, which evaluated the effects of the strategy adopted in 2001. It pointed out that although the gaps between districts had been reduced, the poorest were still far behind the rest of the country. In addition, the targeted drop in the unemployment rate had not been achieved. According to the report, the urban strategy had revealed many deficiencies in the British government's fight against the impoverishment of the inner-city neighborhoods and draw conclusions for the future; many neighborhood regeneration projects are isolated and go unfulfilled. Future success of their implementation is in binding them with a broader policy, especially in the fields of construction and economic development. Without clear vision the projects are not congruent with the economic reality. The level of intervention in specific areas, must be strictly tailored to the individual characteristics of each region and city and local socio-economic situation, in particular the local labor market and the housing market⁹.

A successful brownfield urban revitalization project is the revitalization of Sunderland, which started after the closure of large industrial plants at the turn of the sixties and seventies. However, the first large scale project implemented was revitalization of St. Peter's Wharf, at the mouth of the River Wear, which started in the nineties. The business district, which covers the Sunderland city center, underwent a major conversion. In 2000, the Bridges mall was expanded and the old bus station was reconstructed, attracting numerous retail outlets into the area. At the end of 2004, a new multiplex cinema was opened to the east of the city center, and in the place of the former ABC Cinema Theater, an entertainment complex with several bars was situated. Despite all these projects, much still needs to be done and transformed in the city. The biggest institution pursuing regeneration projects in the city is the developer company Sunderland Arc, which is one of 18 city regeneration companies established to carry out the revitalization of areas in special need. Since its inception, the company carries out development projects for key areas of Sunderland covering a total of 542 hectares, focusing on the areas along the river Wear and in the city center.

Britain's geography naturally forced the government and the local governments in cities that are in direct contact with waterways and canals to develop an idea for their use and their revitalization. Based somewhat on the achievements in this respect of cities in the U.S., it was concluded that the most appropriate, and most importantly, socially and economically efficient method is to revitalize them as waterfronts. Public authorities and private developers gained special confidence in this way of rehabilitation of these areas in the eighties. At that point, as noted by A. Jones, revitalization of waterfronts had become an important component of spatial policy in the UK. Examples of revitalizing Britain's waterfronts are waterside areas of cities such as London, Liverpool, Birmingham, Cardiff, Bristol and Glasgow. An example of a successful waterfront regeneration project is undoubtedly London's Docklands. In 1974, the Docklands Joint Committee was created for the preparation, implementation and coordination of regeneration in this area. The appointed committee, preparing the revitalization plan, had to take into account specific local factors, including the 55,000 residents in the area, the expected high unemployment associated with the planned closure of the port, limited financial resources, and the need to acquire land, which in 80% was public property. In 1977, the area became known as the Docklands area of partnership led by Olympia & York, a large Canadian developer, so that in the years 1978-1979, it received funding in the amount of 3.25 million pounds and 15 million per

year for three consecutive years, covering the period from 1979 to 1982. Those funds were to be spent in part to develop a program of land infrastructure, taking into account housing, transportation, filling the dock basins and remodeling of existing facilities. Despite the efforts of the Docklands Joint Committee, the conditions of life and work in the district, which were to be improved, deteriorated substantially. To remedy this, a council was set up in 1981, which took over responsibility for the future of London's docks. After thorough analysis of the docks area, both economic and social, the council presented a new framework program. It pointed out that the main potential of this area was to embrace the possibility of development by tapping into a sufficiently flexible revitalization framework that would take into account the changing economic and social needs of the area. In 1985, after the establishment of a comprehensive strategy to revitalize the Docklands, local offices of the council appointed in 1981 were established, whose task was to create closer relationships with the inhabitants of the district, community groups and businesses, putting forward concrete development proposals for consideration and implementation. Despite the strong commitment of all parties and large-scale works and revitalization projects, clearly observable improvement of the potential of the district, elimination of poverty and economic backwardness of these areas, there is still much to be done before the regeneration of London's Docklands will be complete, but this successful revitalization of a waterfront illustrates the huge impact of such a project on the functioning and image of cities. Waterfront regeneration projects, in a broader sense, open cities towards water bodies. These most expensive and most complex revitalization projects must be taken up carefully and carried out consistently, they move urban dwellers closer to the natural environment, and are also financial powerhouses.

Since 2007, the flagship project, though one causing much controversy has been the revitalization project of the eastern boroughs of London, carried out on a grand scale in connection with the organization of the world's Summer Olympic Games in 2012, somewhat similar to projects in Beijing for 2008 Olympics. This renovation project is expected to result in 12,000 jobs and 9,000 new residential units, along with and a lifelong learning system for the residents. At the same time, the transport system within the district, as well as connections with other areas of London will be improved. New facilities, especially the Olympic village, will cause changes in the population. The developers are actively seeking potential buyers of newly built dwellings after the Olympics, recruited targeting office workers and bankers working in the

nearby Canary Wharf in Dockland. Short distances to the workplace, home or the city when using the underground, allowed developers to achieve high sale prices or rents in the buildings. British revitalization, considering the above, can be summed up with the following: exceptional efficiency and consistency in action. These characteristics should guide revitalization projects in other countries and cities. The idea for winning organization of the Olympics using revitalization of the district as the main argument puts the British among the leaders of revitalization activities. As the experiences of the United States, so those of the United Kingdom in revitalization not only can, but rather should be a model of how to avoid possible errors. In the opinion of R. Guzik, the most valuable message, and also an indication coming from the British experiences is the need for and desirability of public intervention in the field of regeneration and urban policy, which the liberal British state neither shuns nor is afraid of. It is not explained by the ideology of social justice, but by the principles of efficiency and public interest. In addition, it is currently underpinned by the whole ideology of sustainable development, in which the UK is keen to play a leading role, and this in turn yearns for better use of already developed areas. A valuable idea, as R. Guzik further notes, which is worth promoting, for example, in post-communist countries, including Poland, is the renaissance of cities, whereby an attractive city, offering a high standard of living, would be able to attract or keep those residents who are currently participating in the suburbanization processes.

The long-standing experiences of English Heritage should be carefully analyzed and propagated among the stakeholders in revitalization in the ten new Member States of the European Union¹⁰.

Conclusions

The reuse of former industrial properties is a world-wide phenomenon that is driven by public policy, real estate economic opportunity and urban design, as well as historic preservation and overall metropolitan development. This paper discusses the internationally shared elements, alternative approaches and some examples illustrate how that waterfront revitalization can help shape metropolitan development.

Waterfront brownfields are especially complicated and shipyards are even a more special case. The environmental concerns include the cost and timing of cleanups, and potential liability concerns for past, current and future owners. Often the history of waterfront brownfields site assemblage and makes the allocation of clean-up responsibility difficult. United States and European cities often have complex approvals, and political turnover to deal with, while China is noted for moving quickly which has both benefits and risks.

Waterfronts also pose unique design demands; the case studies cited illustrate how critical high quality design, incorporation of historic context and the provision of public access to the water are to success. Determining an appropriate mix of land uses, including adequate provisioning for water-dependent uses dry as marinas, ports, fishing piers and remaining shipyard functions, is extremely important. The design also needs to maximize the benefits of waterfront views for the public, visitors and residents.

As noted by K. Skalski, it is the tool that creates a masterpiece. To a large extent, what instruments the operators of transformations in the revitalization programs wield, will shape the redevelopment project. In the case of European cities, EU Structural Funds while not providing comprehensive guidelines, may have positive effects, if used with sufficient thought to address deficiencies and omissions in the revitalization of urban spaces. Very often, their historical values are critical by themselves.

There is no single verified and effective model of revitalization, which works always and everywhere. As the experiences of the old EU, Chinese and American cities show, each of them over time had their own instruments to support the revitalization process. Hence, their experiences, as well the experiences of precursors of revitalization, should provide a canvas for the legal, institutional and financial contexts of current revitalization processes¹¹.

A comprehensive revitalization process and its implementation require consistent cooperation of people of different professions, local governments and local communities. The present authors' practical clearly shows that – economic aspects of regeneration processes generally determine outcomes. The first stage, design, the vision, is crucial but should be preceded by at least a preliminary economic analysis.

There must be a community commitment commensurate with the project, which may involve withstanding political and economic cycles. Elections and recessions have ended many projects in the US and Europe. In China, the political stability and speed of projects may increase

the likelihood of completion. As noted by S. Palicki, Polish cities will not be using matured and tested methods for assessing regeneration programs, as long as they are not imposed by EU methodology, according to which the use of multiple types of analysis helps to avoid or reduce the risk of failure of revitalization initiatives, and concerning implementation procedures, offers a better starting point for the control and flexible response to changes in the environment¹². In addition to long term commitment, there are other factors that cross international lines:

- Whether from government or private sources, adequate financing for the project must be secured; and there must be a market for uses proposed
- Climate change and sustainability must be considered, especially adequate flood controls and other modern infrastructure
- The retention and improvement of natural ecological features are a key element of successful projects.
- Quality urban design, spatial planning, that utilize the unique qualities of waterfronts is critical, as is provision for public access to the waterfront
- Site control and ownership must be resolved
- In the US and Europe environmental remediation that is protective of human health and the environment is a given, China is moving in that direction. There can be synergy between remediation and redevelopment.
- Waterfront redevelopment is complex, demanding real leadership in government, in the community and in the private developer

Introducing and interweaving new functions in the old safe places which are part of local communities around the world, but include waterfront brownfields and redeveloping them into vibrantly bustling with life can be the best binder of the old and the new, which gives these places a revitalized identity and supports the identification of local communities with these spaces, adds value, immeasurable by any means.

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