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European Regional Development Fund

SMART CITIES Conference

Sustainable Cities: Incorporating Sustainability into Seaport Redevelopment Approaches

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What are seaports?

- They are gateways between the sea & the land
- They are generally considered to be man-made locations where ships can load or unload using cranes or other equipment
- They have developed in response to the need to transport goods and people within a region or over vast distances
- They range from small fishing ports to very large container-ports
- They also range from those with a history spanning many centuries to new megaports being developed in areas such as Jebal Ali, Dubai



Port v other cities (1)

14 out of the 20 economically strongest cities in the world are port cities (see image); 36 out of 50 the most competitive cities are port cities (Girard, 2013)

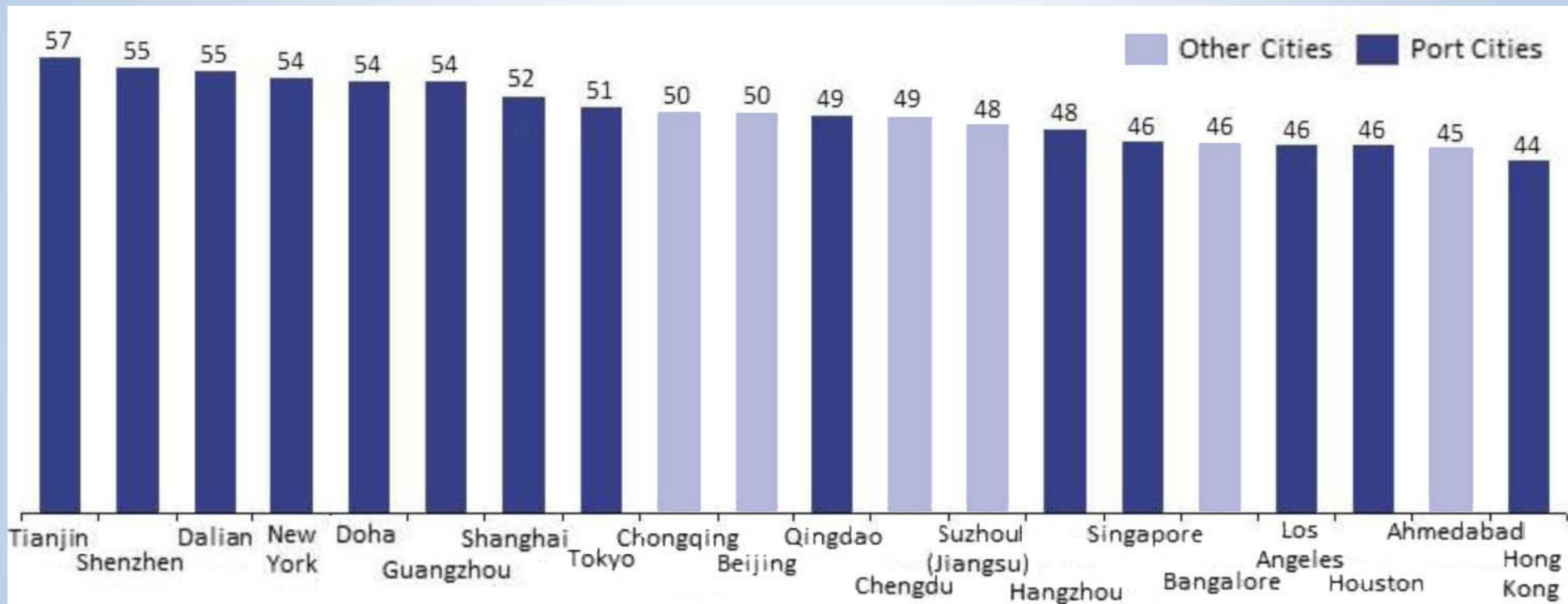


Image source: The Economist—Economist Intelligence Unit (2012)

Port v other cities (2)

Of the top 20 cities ranked according to Human Capital Indicators (see image)
14 are port cities (Girard, 2013)

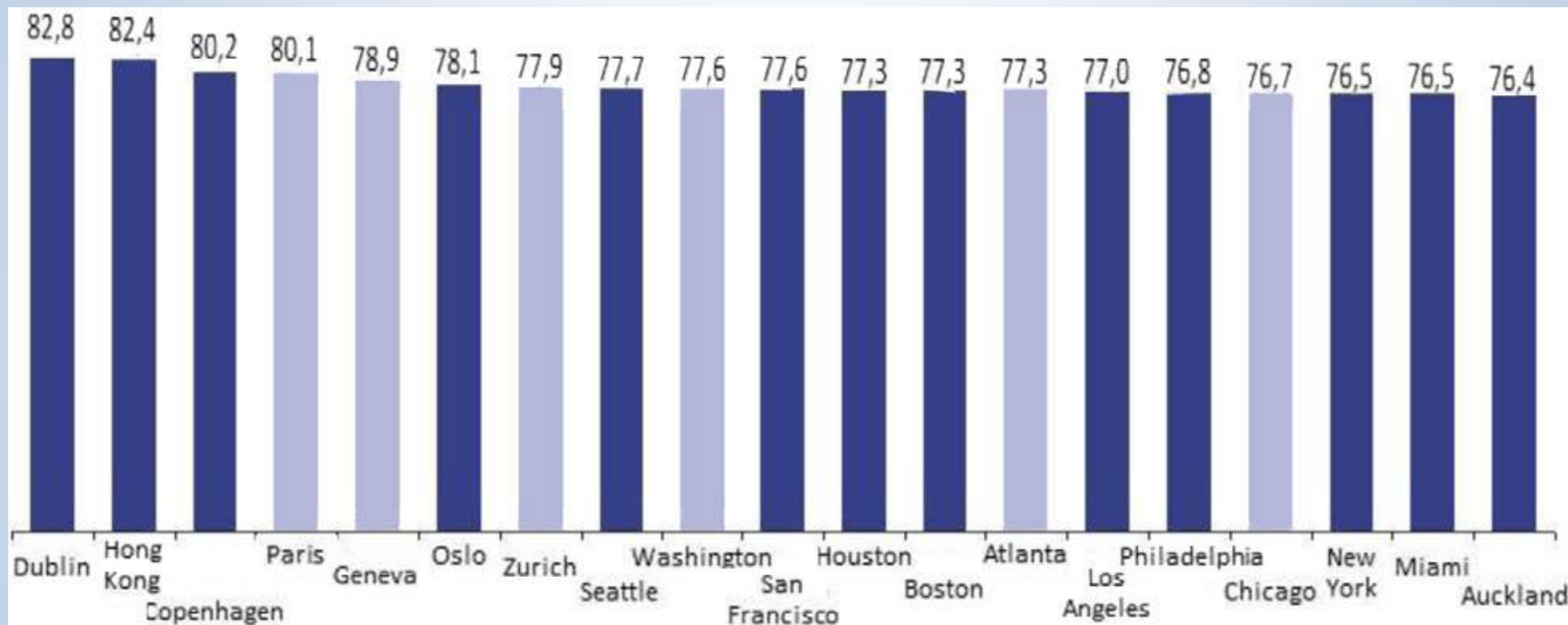


Image source: The Economist—Economist Intelligence Unit (2012)

Port v large ports



Small ports suitable for yachts and fishing vessels require only minimal equipment



Large cargo ports require gantry cranes and other heavy equipment to unload large cargo vessels

“Seaports are very complex systems with a wide range of environmental issues: releases to water, air and soil, waste production, noise, and dredging etc.”
(Darbra et al, 2005)



Some facts and figures

- 90% of EU imported goods come through ports
- 43% of intra-EU transport of goods is via ports
- There are around 1,000 seaports in the EU
- 3.5 billion tonnes of goods were loaded/unloaded in EU ports in 2006
- 10 EU ports each handle more than 50 million tonnes of goods every year – Rotterdam is the world's 3rd largest port
- 404 million passengers travelled through EU ports in 2006
- Around 350,000 people work in EU ports
- Ports and directly related services generate around €20 billion per year to the EU economy



Sustainability in Seaports – pressures for change

- **Legislative /policy drivers** – political developments; expansion of EU; existing legislation; environment; green/blue growth
- **Voluntary corporate initiatives** – new management techniques, environmental management systems, corporate social responsibility, sustainability reporting
- **Financial** – globalization; competition; wealth distribution; population movement
- **Cultural/social** – demographic change; employment issues; social inequality; societal values; communication
- **Physical** – change of land use; new technology; waste reduction and recovery; environmental issues (land / sea interface)



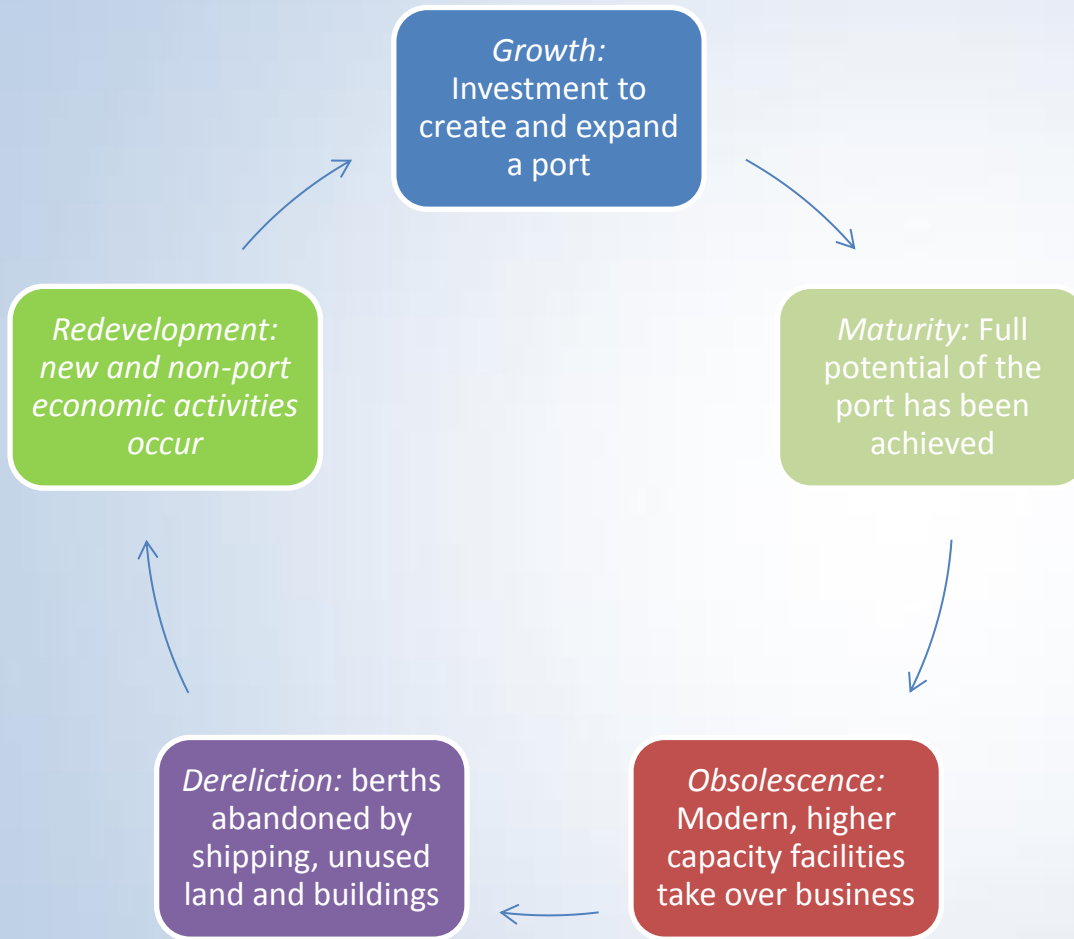
Why do ports need to change?

Factors requiring ports to adapt/change include:

- Urban surroundings – they are located in towns or cities with no room to expand
- They are too small or the water is not deep enough to accommodate larger ships used to transport goods
- Lack of space to accommodate large cargo cranes needed to load and unload modern ships
- Negative externalities – waste from port operations, dredging, shipping etc.
- Lack of adequate transport links to the hinterland (road, railway, inland waterways) ... or improved transport links so goods can be transported away from the port more rapidly so less need for warehousing = unused buildings and space



Why change? Port Life-Cycle concept



Adapted from Wiegmans and Louw (2011)

Often the port [is seen as] a driver of environmental deterioration .. a place to avoid rather than a place to go” (see Girard, 2013)

Many of the world's major cities, including London (pictured), New York, Toronto and Tokyo have revitalised their waterfronts by making use of the available space for new apartments/office developments.



... but an example of sustainable port redevelopment, at a city level, is the HafenCity inner-city eco-development around the peripheries of the Port of Hamburg.

What is needed for successful redevelopment?

- Successful redevelopment should capitalise on different ways of bringing the maximum possible benefit to the community around the port (city) and the waterfront area
- It should take into account the preferences of the local population
- It should preserve the cultural heritage and history of the port area including:
 - Cosmopolitan urban culture resulting from migration over many years
 - Naval ports are often associated with commercial ports with naval docks, military buildings, hospitals etc. located in the port or local urban area



- Port Redevelopment may be for a specific purpose such as for a World Exposition (Barcelona World Trade Centre, for example)
- Empty and disused buildings/unused land can be used to develop exhibitions of local marine life, such as The Deep, a large aquarium built near Hull (top image) or the National Marine Aquarium in Plymouth (bottom image) both of which are in the UK).



- Miller's Point, Sydney (Waitt and McGuirk, 1996)
 - Heritage tourism was a driver of redevelopment but what was retained covered British colony (1788) - merchant society (second half of the 19th Century).
 - Nothing was included of the aboriginal heritage or 20th Century heritage
- Old Town Waterfront, Mombasa (Hoyle, 2011)
 - Redevelopment had to take into account migration through the Old Town (since the 11th Century), Islamic expansion (Mosque area), and Portuguese colonisation (government buildings)
 - Varied cultures and attitudes – value placed on inherited structures and distinctive nature of the area versus what redevelopment could bring to the area

Maintaining an area's heritage and historic buildings

Previously the buildings in this picture were used to supply naval vessels entering Plymouth Harbour to take on supplies of food and water

Now these listed buildings are used for apartments, restaurants and shops



Royal William Yard, Plymouth



Economic imperative v Sustainability

- Many ports have unused or infrequently used buildings within the port area. Ports may have concentrated their main business activities into more compact and secure areas leaving them with resources that are costing them money to maintain without any current potential to generate income (Carpenter, 2014).
- A sustainability approach to port redevelopment recognises the need to diversify, reuse or adapt so maritime activities remain viable while considering the wider urban redevelopment of port cities and surrounding urban areas (Wakeman, 2007; Bunce, 2009; Girard, 2013)



Port Industry Initiatives: the European Sea Ports Organisation

- ESPO developed a *Code of Practice on Societal Integration* (ESPO, 2010) which called on port authorities to “optimise relations between the port and its surrounding societal environment
- ESPO established an *Award for Societal Integration of Ports* in 2009. Instead of ports being seen as necessary evils, this award promoted innovative projects which would improve integration and develop synergies between ports and cities



Main Themes of ESPO Code of Practice

Theme	Target Group	Aim
General public support and image	General public	By involving the general public the image of ports will improve and will result in public support which is needed to maintain the licence to operate of ports and to achieve expansion and development projects.
Education and labour market	(Future) employees	To have an impact on the supply side of the labour market in order to attract better educated workers to ports. This concerns investment in education, connecting port companies to educational institutions and to engage support of government bodies
Port-city relationship	People living in and around ports	To conserve good relations with inhabitants in and around port areas, but also to co-operate between cities and ports within transformation areas. This should result in a good quality of life in the surrounding areas of ports supporting an attractive business climate.

Source: ESPO Code of Practice, page 15



Potential Redevelopment Opportunities for Ports:

- There are a number of possible options when a port seeks to introduce sustainability within its core business
- These opportunities are relevant to ports irrespective of size and location
- The only requirement is they have unused buildings or land with potential to be redeveloped
- They should not interfere with normal port operations such as freight/passenger transport
- They may not generate income in the short term but they will generate interest in the port and may generate new income streams in the future



How ports might be redeveloped

- There are many opportunities for port redevelopment, depending on the specific circumstances of the port and the needs of local businesses and local government, identified by a scoping study:
 - Housing and Other Accommodation
 - Educational Activities
 - Cultural and Heritage Opportunities
 - Tourism Opportunities
- The scoping study was conducted using interviews with port representatives in 5 EU and 1 US port, discussions with ESPO, and responses to an article in a Trade Journal for the ports industry



- When ports have vacant buildings or unused land the most common form of redevelopment is to sell it off for urban redevelopment – expensive apartments that local people cannot afford – land and buildings are therefore lost and cannot be regained if the port has opportunities to develop new business in the future.
- Two other options, where the port retains some, or all of the land and buildings are:
 - Mixed Housing Option
 - Other Accommodation

- A port may sell off part of its land stock for expensive apartments but the developer is required to build low cost housing for local community/port employees
- Existing buildings may be converted/renovated – paid for by the port, which retains ownership, or with a partner e.g. building firm, local development agency (but large buildings may need to be demolished for individual houses)
- Housing for locals means they do not move away from the area (stronger links with community)
- Housing for employee means they do not need to travel so far (reduced transport emissions) plus port can attract workers by offering accommodation as part of their employment package



Other Accommodation Option

- Large buildings can be converted into hostels or accommodation blocks for temporary residents linked to educational or other activities – buildings do not need to be demolished
- This is a lower cost option as it needs shared facilities, e.g. single large kitchen, recreation areas, and dormitory-style sleeping areas
- Accommodation can be used by groups visiting the port area for a range of activities: outward-bound type courses (hiking, orienteering); local scout or guide group camps; students attending educational courses.
- Kitchens/recreation areas may also be used for tourists or port employees as cafe space



- Buildings may be used as classrooms for educational courses including: history of the port, its industrial heritage & ecology
- Lower cost option for building conversion – buildings not suitable for accommodation could be used as classrooms or laboratories
- Developing links with Universities offering courses in subjects where the curriculum and student learning experience are enhanced by working in/with a port
- Offering short term (weekend, one week) courses in local ecology/ecosystems, geography, environment, for example – or longer courses where students can collect long term data (e.g. water quality monitoring, impact of port activities on local species) and use laboratories to analyse data.
- Exhibition spaces – developments such as The Deep provide venues for school visits as well as a tourist attraction



Cultural and Heritage Opportunities

- Empty buildings are converted into workshops and training spaces, local heritage/museum spaces, or gallery spaces and craft shops (available to rent by local people)
- This can support local culture and heritage, or emphasize a significant historic event, to attract both locals and tourists
- Visitors to these spaces are likely to spend money on souvenirs/gifts made in craft workshops, or use cafe facilities (linked to other accommodation option)
- Linked to educational activities, local craftspeople may offer training courses, while the port may also host exhibitions of local culture, run special events, or provide a venue for local groups (e.g. music venue, on-water activities)



- Where buildings have been redeveloped to provide accommodation, they can be used for self-catering during main holiday periods (student accommodation rest of the year)
- But need to consider:
 - what accommodation is available locally - Ports need to avoid directly competing with local hotels and others providing accommodation for tourists;
 - where is there scope for development – lack of facilities or amenities in local area
 - Demographics – who visits the area and why
- Novel solutions – accommodation on ships moored in port and able to go on evening cruises; conference packages; wedding packaged; team building events



- Port redevelopment has generally been to build expensive waterfront apartments, or for specific events such as World Expositions (e.g. Barcelona)
- Some of the top ranking cities globally in terms of economic strength and human capital are port cities
- In a time of change – competition, larger ships etc. – ports have to consider how to stay profitable
- Port redevelopment have taken history and culture into consideration (since the late 1980s/early 1990s)
- Port redevelopment in Europe has started to take sustainability and community involvement in account, e.g. through the work of ESPO (late 2000s)



Thank You

For further information, or to provide feedback/suggestions,
please contact:
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