Towards a Green Metropolis | Designing a Waterfront in Riga, Latvia

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Colophon|

Towards a Green Metropolis: Designing a Waterfront in Riga, Latvia

Integral Report

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28-06-2012

Introduction |

Waterscape plays a crucial role in coastal cities. Waterscape defines identity of cities and contributes into the quality of urban environment. Nowadays an urban waterfront is a venue for recreation, entertainment, sport and other public activities. Although in many North European cities the waterfront is eventful during summer season, it is lifeless for most part of the year due to harsh weather conditions and unsafe or hard access. The thesis explores spatial conditions for a weather-proof and accessible waterfront in the case of Riga (Latvia) in a framework of green/ open space development strategy.

The project proposes to develop a recreational space network in the city which would supply the residents with local daily-use recreational spaces and simultaneously provide the access to the large seaside, woodland and lake landscapes outside the city. The city centre waterfront which combines the benefits of the green/open and the water landscapes is designed as a pilot development.

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[0] Studio Framework Delta Interventions



Fig.0.1 Studio research framework Source: author

In the graduation studio 'Delta Interventions' students work on the comparative analysis of four river deltas: Mekong (Vietnam), Rhine-Meuse (Netherlands), Daugava (Latvia) and Ems (Germany). Although, the four deltas are of different scale and character, they face similar problems concerning the coexistence of settlements and the river. Therefore, the main topic of the studio research is 'Living with the water' (fig.0.1). The theme involves climate change related issues and consequently, water management.

In other words, the main question of the studio is **how do cities deal with** water level fluctuations and increased flood risks caused by the global warming? In the selected deltas there are three ways how to treat this problem:

1) to **fight** - by building dams, barriers and dikes and protect settlements from the river influence, typical for Rhine-Meuse and Ems river deltas;

2) to **adjust** - by benefiting from the seasonal cycle of the river, growing rice during the wet season and shrimps during the dry season, for example, typical for the Mekong river delta (Brennan et al., 2002);

3) to **ignore** - the river is not involved into the city life, except for port activities in the estuary, occasional floods cause minor economic damage, typical for Daugava river delta.

However, nowadays these trends are changing. In the Mekong river delta with the growth of cities the government adopts the Dutch-German approach towards water management, t.i. 'to fight', while in the Rhine-Meuse river delta urban designers and planners propose ecologically friendly strategies, t.i. 'to adjust'. In Daugava river delta the city council supports flood awareness raising projects, such as Riga against flooding (*Riga pret pludiem*) (PAIC, 2011).

The aim of the studio in this context is to research the impact of climate change on the water regime in the deltas and to study multiple 'living with the water' strategies and their spatial influence on the urban tissue. The results are to be summarized in the integrated studio report.

[0] Project Approach From City Scale to Local Scale



Fig.0.2 Project approach scheme Source: author

Apart from the group research within the studio, each student had to develop an individual project. The author decided to pick up a location in the city of Riga, the home town of the author.

The initial idea of the project was to develop a waterfront segment within a city center, focusing on water management issues and functions which would maintain activity at the waterfront the whole year long. However, it became obvious, that it is necessary to zoom out to the larger scale and understand what is the main problem of the city and how does the waterfront development can improve the current situation. At the same time, the author realized, that it was impossible to develop the whole waterfront within the given time slot, therefore she focused on the most important node of the waterfront line.

Consequently, the project addressed multiple levels of scale, such as city scale, waterfront scale and the local scale (fig.0.2). Each scale had a different focus and a different kind of output. These are:

1) **city scale** - the author focused on recreational spaces of the city in general, because the waterfront is a part of recreational space network. Key problems of the city were identified and the vision on recreational spaces was developed;

2) waterfront scale - the author developed scenarios for waterfront regeneration, which were aimed to solve city scale problems and identified strategic intervention locations;

3) **local scale** - the author developed a detailed design for a chosen location within a framework of the most beneficial scenario.

Furthermore, the levels of scale were interconnected in such a way, that the changes on the finer level triggered the changes on the greater level and *vice versa*.

To sum up, the main approach of the project is working through the scales in such a way that all of them are aimed to solve the key problem of the city.

[1] Context | City of Riga Analysis

Historical Development



Fig.1.3 The city of Riga, 1800 Source: author



Fig.1.4 The city of Riga, 12 century Source: author based on Zeids, 1978



Fig.1.5 The city of Riga, location Source: author



Fig.1.6 The city of Riga, 1900 Source: author

The current territory of the city of Riga used to be an overflow area which has been flooded during spring snowmelt. Therefore, there were no permanent settlements, but temporary fishermen villages. Permanent settlements of indigenous tribes have developed upstream from the delta in higher and safer areas, as for example, the hill fort of Daugmale. (Bebris, 2011).

However, the territory of the old town of Riga had an advantageous position close to the sea, in the estuary of the river Ridzene and on a small elevation. Therefore, at the turn of 12th and 13th centuries German missionaries have settled here next to existing villages. Early street and house patterns were strongly related to the underlying landscape. Landmark buildings were built on the hills and streets followed the river and the valleys (fig.1.2). However, as the city expanded and building techniques advanced the city tissue gradually became detached from the landscape. At the early stages the landscape shaped the city, but later on the city shaped the landscape.

Population growth and development of the city of Riga was uneven and affected by external events. Four major periods of growth and subsequent decline may be distinguished:

1) From 13th to 16th century the city experienced economic growth being a member of Hanseatic League and the population increased up to 12-16 thsd inhabitants. The city expanded beyond fortification walls.

2) During 17th and 18th centuries because of wars and plague the economy declined and the population shrunk up to 6-10 thsd inhabitants. For military purposes the first temporary floating bridge across the Daugava river was



Fig.1.10 The city of Riga, 2010 Source: author

increased up to 300 thsd inhabitants. The fortification system was replaced by the park system, railway tracks and stations were built. Boat service and the floating bridge connected both sides of the city across the river. (Fig.1.4 - 1.7)

In the 20th century after the accession to the Soviet Union due to industrialization and internal migration the population grew up to 900 thsd inhabitants. In comparison to the 18th century the area of the city increased 25fold. Multiple large-scale neighbourhoods and suburban villages grew around the city core to satisfy the need for new housing. Three permanent car/pedestrian bridges were built across the river. The port moved towards the estuary of the river. The inner city boat service became unnecessary.

4) After the dissolution of the Soviet Union in 1991 and with accession to the EU in 2004 because of complicated economic and political situation and emigration the population of Riga gradually decreased to 710 thsd inhabitants. The current trend is population shrinkage (Krišjāne & Bauls, 2011). (Fig.1.8)

However, there is a need for new affordable housing. The current floor space per resident in Riga is 27 m^2 , while the Europe average is 40 m^2 (LR Centrālā statistikas pārvalde, 2009; ECOTEC Research and Consulting Ltd., 2007). The city has already expanded to its limits, therefore the only possibility to keep the inhabitants in the city borders is to densify. Furthermore, the city suffers from severe traffic jams. The four car/pedestrian bridges (the fourth one built recently) are not capable to solve the problem.



Fig.1.7 The city of Riga, 1915 Source: author



Fig.1.8 Floating bridge, Riga, 191-Source: www.zudusilatvija.lv



Fig.1.9 Balasta dambis, peninsula of Kipsala, Riga, 191-Source: www.zudusilatvija.lv

built. The bridge was in use during the warm season, but in winter inhabitants used to walk across the river on ice. (Fig.1.1)

3) In the 19th century with the industrial revolution and the end of the serfdom which stimulated urbanization process the city flourished again and the population

[1] Context|City of Riga

Analysis Timeline





[1] Context | City of Riga Analysis Current Situation



Fig.1.11 Passenger airports Source: Nordregio, 2008



Fig.1.12 Rail connections Source: Nordregio, 2008



Fig.1.13 Road traffic intensity Source: Nordregio, 2008



Fig.1.14 Ferry connections Source: Nordregio, 2008



Fig.1.15 Cargo port import/export Source: Pukaine, 2009

Riga is a capital of Latvia, one of the three Baltic countries. It is located at the East coast of the Baltic Sea and in the delta of the Daugava river (Western Dvina) (fig.1.3).

Riga is a port city with cargo and passenger port terminals which are the biggest in the country and function all year round (fig.1.13). It a rapidly developing and the biggest international passenger airport among the three Baltic countries (Estonia, Latvia, Lithuania) (fig.1.9). It is well connected via railway and highway network to CIS countries (Commonwealth of Independent States) and via highway network to Western Europe (fig.1.10, 1.11)(Smitt and Dubois, 2008) . Ferry lines connect Riga to other ports in Germany and Scandinavia (fig.1.12). Furthermore, it is planned to connect the Northern Europe through the Baltic states to the Western Europe via a Rail Baltica high-speed railway.

Due to good sea, air and land connections Riga attracts a large number of transit passengers and tourists, especially in high-seasons in summer and on Christmas holiday.

Riga is a dominant city which concentrates all the major functions in the country, such as governmental institutions, hospitals, universities, trade and entertainment centers. It makes up more than a half of the country GDP and one third of the population, t.i. approx. 710 thsd. inhabitants (Rīgas Dome,



Fig.1.16 Seaseide Source: jurmalaphoto.wordpress.com / Gubumakonis



Fig.1.17 National nature reserve 'Kemeri' Source: www.travelnews.lv / Ilze Vanaga

Metropolitan cluster

Riga

work and study center

- travel time to satellites 20 min - 2h
- 1/2 country GDP
- 1/3 of country population
- major universities
- major hospitals
- governmental institutions
- trade centers
- entertainment centers

statistically, has

- 15.7% of water surface from the total city area
- 28.0 % of green spaces from the total city area

Jurmala

recreation center

- travel time to Riga 20min - 1h
- seaside
- nature reserve

Sigulda

recreation center

- travel time to Riga 1h 05min - 1h 15min
- riverside
- nature reserve



Fig.1.18 Riga metropolitan cluster, 2010 Source: autor



Fig.1.19 Intercity train and bus connections within Riga metropolitan cluster, 2010 Source: author

2003-2011; LR Centrālā statistikas pārvalde, 2011).

Riga has large nature areas, such as the river, lakes, forests and a coastal nature park with a sandy beach within its borders.

Riga is a center of a metropolitan cluster (fig.1.16) where people travel for work and study. The travel time from satellite towns varies from 20 minutes to 2 hours depending on the town and the means of transport. Most satellites are well-connected via railway network, with train frequency up to 4 times per hour. In the north eastern direction, where train connection is less developed, there are regular busses with up to 7 lines going to Riga in the morning hours (fig.1.17).

For recreation, Riga residents travel outside the city to satellite towns Jurmala and Sigulda, which are located close to large nature reserves and to the seaside settlements.

Riga has a moderate maritime climate which is influenced by the Atlantic Ocean and the continent. The coldest month is January with average -3.5° C, the warmest - July with $+17^{\circ}$ C (Ka3akob, 2004-2012). Snow cover usually exists from mid-December to mid-March.

In winter the Daugava river freezes and has a 20-40cm thick ice cover. Occasionally, the Gulf of Riga freezes as well. In this case to maintain the shipping the port uses icebreakers.

[1] Context|City of Riga Analysis

Future Development Proposals



Fig.1.20 Nature areas in Riga, 2010 Source: author



Fig.1.21 Brownfield and industrial areas in Riga, 2010 Source: autor



Fig.1.22 Island of Zakusala Source: www.panoramio.com / vipe



Fig.1.23 Brownfield site between the streets Hanzas and Pulkveza Brieza Source: www.1188.lv/karte360



Fig.1.24 Island od Zakusala development proposal Source: Space Group & Arup, 2005



Fig.1.25 Brownfield sithe between the streets Hanzas and Pulkveza Brieza development proposal Source: Shaller Architekten, 2012

In the 20th century Riga used to be an industrial city which manufactured export goods. Most of the industrial areas developed on a reclaimed land along the waterfront and along railway lines. Due to the rapid expansion in the second half of the 20th century the peripheral industrial areas turned into inner city areas. However, after the dissolution of the Soviet Union many large factories had to close because they used to either produce specific components for other factories in the Soviet Union or were manufacturing goods using the pre-fabricated components. These manufacturing chains collapsed together with the Soviet Union.

Furthermore, during a long period of economic decline in the 1990s and the financial crisis of 2009, many self-sustainable local factories and businesses had to either change the profile or close down. Therefore, the large industrial areas which used to belong to big factories currently house large shopping malls and small companies. Some of these sites are vacant and degraded. All these areas have a chaotic car-oriented environment. They form an industrial ring around the city centre (fig.1.19) which marks the border of the historic town. Furthermore, following the global trends, the port is moving towards the river estuary, leaving behind large brownfield areas in the city centre at the waterfront.

Despite the post industrial character, Riga has large green areas and lakes within city borders which are located mostly on the periphery (fig.1.18). The historic town is compact and therefore has little recreational spaces. However, there are two large green islands in the city centre (fig.1.20). Until the upstream dam construction in 1930s the islands were endangered by the annual spring snowmelt floods, and until the Island bridge construction in the 1970s the connection between the islands and the city was rather poor. Although historically





the islands had some small settlements, due to the above mentioned reasons they were never densely populated. Currently, one of them houses a TV centre, and the other - private gardens. Nowadays, the island development is the matter of time and finance.

Riga development plan 2006-2008 (fig. 1.26) proposes the following actions regarding the nature and industrial areas:

1) built up vacant brownfield sites in the city centre;

2) turn loosely built industrial sites in the centre into dense mixed use areas;

3) built up some of the vacant nature areas in the centre, including the islands.

There have been a number of competitions on brownfield site (1.21) and island development and a number of architectural visions was proposed (fig. 1.22 - 1.25). Some of these projects, namely, the peninsula of Riga Port City (former port area) and the New Hanza City (brownfield site), are already approved. Currently, due to the crisis, the realisation of these projects is temporarily frozen. However, there are still no certain plans regarding the improvement of industrial sites. Indeed, development of vacant greenfield and brownfield demands less investment and effort, while the development of industrial areas requires negotiation with current occupants, well-considered interventions and investment that cannot have immediate and direct returns.

If the current city development plan will remain in force without changes, there is a danger when the crisis passes central greenfield and brownfield areas will be built up and gentrified, while the degraded industrial areas will remain as they are, as it has happened in many other post-industrial cities.



Fig.1.26 Island of lucavsala development proposal Source: Arhis, 2005



Fig.1.27 Peninsula of Andrejsala development proposal Source: Forma, 2008

Spatial quality problems

degraded urban spaces

- industrial sites
- brownfield sites

little green spaces in the city centre

unfriendly pedestrian | cyclist environment

Need for

well designed | maintained public spaces

pedestrian | cyclist friendly urban environment

[1] Context | City of Riga Analysis Economy



Fig.1.29 13 January 2009 riots in Riga caused by rapid economic decline Source: balticreports.com / Arturs Budahs



Fig.1.30 Latvian migrants abroad Source: www.anglobalticnews.co.uk

Economy

- financial crisis
- population
- shrinkage | emigration

Spatial relevance | need for

- attractive city image
- small intervention | win-win strategy



Fig.1.31 Economic migration, Latvia Source: Pukaine, I., 2009. Latvijas Geografiskais Atlants, Riga, Jana Seta.

Scenario	2000 - 2010	2000 - 2003	2004 - 2008	2009 - 2010
Minimum (documented)	140.6	24.4	68.0	48.2
Medium (documented)	169.2	30.6	68.3	70.2
Moderately high (expert opinion)	200.0	40.0	80.0	80.0
High (expert opinion)	250.0	50.0	100.0	100.0
CBS official data	33.2	13.4	7.3	12.6

Fig.1.32 Latvia resident net outflow (thsd.), prof. Hazans evaluation Source: M. Hazans (2011). Kas sodien dzivo Latvija? Reala demografiska situacija

After accession to the EU and the financial crisis of 2008 the city of Riga experienced two waves of emigration (fig.1.29, 1.30). The main reasons for citizens to go abroad are better job/study opportunities and higher wages. Furthermore, large part of the emigrants used to be employed before going abroad (fig.1.33). However, many people stay abroad for the working season (fig.1.28) or study period only and do not change their permanent residence (Krišjāne & Bauls, 2011). Under these circumstances it is possible to minimize migration by creating favourable conditions in Riga. It is necessary to create new well-paid working places and to bring foreign investment to the city.

However, the city of Riga is not attractive for foreign businesses. The real city compared to the advertised image is degraded and does not have an identity.

To create an appealing city image city authorities should improve the public space quality focusing on unique features of the city, namely abundant green and water landscape which constitutes 28,0% and 15,7% of the total city area respectively (Rīgas Dome, 2003-2011). Currently, these high potential spaces are either unused or used for special events only and do not attract visitors on a regular basis.

It is obvious that in current economic situation the city is unable to realize big urban projects, therefore every improvement should be subdivided into small interventions which would bring immediate benefits.

[1] Context | City of Riga Analysis Environment



Fig.1.33 Rainfall flooding, Riga, summer 2010 Author: Palens E., LETA



Fig.1.34 Children bathing in Daugava river, Riga, summer 2010 Author: Kalns K., Diena

Environmental

- increased rainfall | storm surge flood risk
- summer urban heat island effect

Spatial relevance | need for • cool public

spaces summer

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• flood
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protection | summer | winter



Fig.1.35 Status of Latvian residents before going abroad for work/studies Source: author, based on Krisjane; Bauls, 2011



Fig.1.36 Proportion of Latvian residents going abroad for work/studies by region, 2007 Source: author, based on Krisjane; Bauls, 2011

During the last decade the city of Riga faces global climate change related challenges. The difference in temperatures between the seasons increased. Winters are cold with thick snow and ice cover, while summers are hot and humid.

Although with construction of HEP the risk of snowmelt floods in the delta was minimized, the risk of summer rainfall and winter storm surge floods increased.

The existing flood defence system is able to protect the city during storm surge floods with maximum possible water level of +2.20m AMSL. In the observed 140 years the critical water level was exceeded only once, during the storm surge of 1969 (Ābeltiņa, 2010). However, it is expected that next century the maximum possible water level will rise up to +2.60m AMSL (PAIC, 2011). In addition, the existing sewage system is unable to cope with increased rainfall, therefore in the last decade the city was heavily flooded twice, in 2005 and 2010 (fig.1.31). It is clear that additional flood protection measures, such as flood barriers and water retention areas are necessary.

Besides, summer heat waves in the city became more frequent (fig.1.32). July 2010 was the hottest in the last 95 years. The day temperatures in Riga were between +27°C and +32°C. Summers of 2002 and 2006 were extremely hot as well. Moreover, days with temperatures above +30°C became characteristic for climate in Latvia (LVGMC, 2010). Despite all these facts the city of Riga does not provide the citizens with cool public spaces.

[1] Context | City of Riga Strategy Economic



Fig.1.38 Economic Strategy for Riga Source: author



Fig.1.37 Balboa Park,San Diego, California Source: en.wikipedia.org / Stephane D'Alu

To deal with the problems declared in in previous section the strategy has been developed. The strategy is subdivided into economic and environmental strategies (fig. 1.36, 1.38), spatial strategy being included in the both.

The economic strategy is based on the assumption that by strengthening an international position of the city it is possible to attract human capital to the city, which in turn will boost the economic growth of the city (Florida, 2003). For the financial wellbeing it is important to attract highly educated and productive individuals, the so called 'creative class' (Florida, 2002).

There are many factors that determine the location choice of the creative class. However, for the current project only spatial factors and the factors that can be translated into spatial are the important ones. From this perspective the key attraction factor is the qualitative urban environment (Assink & Groenendijk, 2009), which in turn consists of multiple sub-factors, such as:

• well-developed, designed and maintained

- public space structure,
- qualitative architecture,
- access to water and green landscape,
- · relaxed atmosphere,
- well-developed public transport system,
- pedestrian/cyclist friendly urban environment
- (Lorenzen, 2010).

The diagram (fig.1.36) shows that if the spatial quality of the city improves, it will become internationally recognized for its outstanding urban features and attractive for the creative class. An international name and the creative class professionals are valuable attraction factors for the international trade compa-

[1] Context | City of Riga Strategy Environmental

Fight with

- · urban heat island effect
- flood risk

Focus on the waterfront, because

- it is a potential green open space
- provides access to the water landscape



Fig.1.40 Environmental Strategy for Riga Source: author



Fig.1.39 Beach, San Diego, Calofornia Source: www.oceanfront-hotels.net

nies, high-tech businesses and tourists, which in turn stimulate the economic development of the city. A wealthy city with strong economy has extra financial resources to invest into spatial quality.

However, it is impossible to focus on all the aspects contributing into spatial quality of the city within the framework of the Master Thesis. Therefore, the project deals with green/open spaces of the city as the key element that contributes to most of the above listed sub-factors. Indeed, not only green/ open spaces improve the urban environment on the whole, but are a powerful tool in the international city branding (Konijnendijk, 2010). The importance of green/open public spaces is supported by the fact that the top 10 creative class cities in USA according to Florida (2002), have large city parks, gardens and beaches (fig.1.35, 1.37).

The city of Riga with 28,0% of green surfaces of the total city area (Rīgas Dome, 2003-2011) has a big development potential. Although a large part of these spaces is not maintained and is unattractive for public, a clear development strategy and investment will turn the currently degraded and dangerous places into qualitative and eventful recreational spaces for citizens.

The environmental strategy, in turn, implies that green/open spaces and water bodies can benefit from mutual proximity and solve current climate-related problems (fig.1.38). On the one hand, green/open spaces are flexible and can serve as overflow areas in case of storm surge floods and heavy rainfall. On the other hand, the water bodies generate breeze, which cools down adjacent areas and this way mitigates the urban heat island effect. Moreover, water vapour improves the air quality by purifying it from small dust particles.

The waterfront is the space on the edge of 'green' and 'blue' landscapes. On the one hand, it is possible to turn the river quay into green/open space, on the other hand, it provides access to the water. Therefore, public spaces at the waterfront will use the benefits of both.

To sum up, the project focuses the waterfront redevelopment in a framework of green/open space strategy.

[2] Scientific Approach Research Questions

City Scale GRQ How do recreational spaces contribute into spatial quality of the **Recreational Spaces** city? How important is spatial quality in comparison to other human Vision capital attraction factors? MRQ Why recreational spaces in Riga are not intensively used by city residents? SRQ1.1 What are recreational spaces in Riga? Are they capable to supply the needs of local residents? (quantity and functional levels) SRQ 1.2 Are recreational areas easily accessible via pedestrian / cyclist infrastructure? (accesibility) SRQ 1.3 What is the relation between main city functions / residential neighbourhoods and recreational spaces? (connectivity) SRQ 2.1 Why is it important to develop the waterfront as a flagship project? Waterfront Scale SRQ 2.2 What are the current spatial problems of the waterfront? How Highway do they relate to the problems identified on the city scale? Scenarios

SRQ 2.3 What are possible future development scenarios for the waterfront? Which scenario is most beneficial for the city?

SRQ 2.4 What are the strategic design interventions for the waterfront development?

SRQ 3.1 Why the chosen design location is crucial for the waterfront development?

SRQ 3.2 What are the current spatial problems of the design location? How do they relate to the problems identified on the city scale and the waterfront scale?

SRQ 3.3 What is the definition of centrality in the current design project? What are the centralities and the flows between these centralities in the chosen location? How does the current design intervention affect these centralities and flows?

SRQ 3.4 How does the current design intervention contribute to city vision?

Local Scale Public Space Masterplan

[2] Scientific Approach Methodology

GRQ	Literature review on human capital and experience economy text	theoretical framework
MRQ	Literature review on recreational space provision and accessibility standards	size - functional level - distance relationship table
SRQ 1.1	diagrams	historical development
SRQ 1.2	on governmental plans related to recreational spaces	distribution and quality provision and accessibility
SRQ 1.3	maps text	densities
	Spatial analysis	workers
	on historic and current situation maps	problem statement
	1	
SRQ 2.1		waterfront significance statement
SRQ 2.2	Fieldwork at Riga waterfront photos maps	historical development current situation
	Inter-scale analysis	list of spatial quality criteria spatial quality evaluation
	of city and waterfront scales text	problem definition
	Scenario building	1 scenarios
SRQ 2.3	for the waterfront maps sections	their benefits and drawbacks
	SWOT analysis of developed scenarios <i>text</i>	final choice
SRQ 2.4	for the waterfront development	waterfront strategy phasing
SRQ 3.1		location choice
		statement
SRQ 3.2	Spatial analysis of historic and current situation <i>maps</i>	historical development current situation
	Inter-scale analysis of waterfront and local scales <i>text</i>	
SRQ 3.3	Literature (maps) review	centralities, their functions
	on functions and users Application	and flows
	of the results derived from analysis on metropolitan scale Spatial analysis of the users and traffic flows <i>maps</i> <i>diagrams</i>	functions pedestrian and traffic flows
	Inter ecolo enclucio	
SRQ 3.4	all scales	conclusions

[2] Scientific Approach Output Products

City Scale Recreational Spaces Vision

Vision

- · traffic and centralities
- landscapes
- fill-inslinks
- maps | images

Waterfront Scale Highway Scenarios

Scenarios

- slow traffic
- high-speed tunnel
- high-speed tunnel and public transport on tophigh-speed tunnel and slow traffic
- high-speed tunnel and slow traffic maps | sections

Strategy map

Local Scale Public Space Masterplan

Strategy and Phasing

map [text

Master plan

- traffic flows and functions
- pedestrian flows and functions
- landscapes
- edges
- squaresbuildings
- plan | sections | 3D model | images

[2] Scientific Approach Output Location



[3] City Scale Analysis Recreational Spaces | historical development





Fig.3.42 Settlement structure, Riga, 1800 Source: author



Fig.3.43 Park 'Arkadijas', left river bank, Riga, 191-Source: www.zudusilatvija.lv



Fig.3.44 Recreational spaces, Riga, 1900 Source: author

Until the middle of the 19th century military requirements defined the city structure. The city consisted of a fortified town and a castle, surrounded by bastions, ravelins and a moat. All the buildings outside the city walls had to be wooden because they were to be burned down in case of a military attack. Between the fortress and the wooden settlement there was a large esplanade.

From the maps of 1800 and 1860 (fig.3.2, 3.1) is clear that the structure of the city did not change and the expansion of the city was relatively slow.

Until the 1860s there were no green parks within the city. However, the city was surrounded by a variety of green spaces, namely villages, gardens, pastries and forests. Taking into consideration the small size of the city, approx. 4km, the green was accessible to all the citizens.

In the middle of the 19th century with the change in military strategies fortifications were demolished. The esplanade was redeveloped into a landscape park, but the wooden settlement - into a ring of boulevards with perimetral building blocks. In addition, the construction of a railway and a floating bridge stimulated the urbanization of the left bank of the river. From this point on the city started to expand rapidly into the open landscape.

As the city grew, cemeteries, forests and pastries which used to be outside the city, were incorporated into the city (fig.3.4). The former villages and gardens developed into suburban settlements. As the left side of the city stayed relatively green, the inner city on the right bank due to its large size became detached from the open landscape.

As the forests and pastries were gradually built up, the suburban settlements merged together (fig.3.5). The open landscape around the city was divided into large green country estates. At this stage of the city development, both sides of the city became detached from the open





Fig.3.45 Recreational spaces, Riga, 1915 Source: author

Recreational landscapes project definition green spaces

- park
- pastry
- forest

built|green spaces

- village
- garden

potential recreational spaces

- open spaces
- semi-open spaces

edges of water bodies

- riverside
- lakeside



Source: author

After World War II the size of the city doubled. Large green areas around and inside the city were built up (fig.3.7). The amount of green spaces within the city diminished. Remaining green spaces are small and scattered. Because of the large size of the city, approx. Ø18km, peripheral green is out of reach for many citizens.

To conclude, starting from the middle of the 19th century the city has expanded on the account of large green areas. The amount of green/open spaces within the city diminished, the open landscape around the city became inaccessible. The variety of green spaces, which used to include landscapes of different character, such as village, garden, forest, pastry and park decreased. The city became detached from the 'green' landscape.



Fig.3.46 Waterfront, city centre, Riga, 193-Source: www.zudusilatvija.lv

[3] City Scale

Analysis

Recreational Spaces | current situation | distribution and quality



Fig.3.50 Built and recreational space patterns, samples, Riga, 2010 Source: Google Earth



Fig.3.51 Built and recreational space patterns, samples, Riga, 2010 Source: Google Earth

According to the green/open space development analysis (fig.3.1, 3.4 -3.7), the city has little green spaces in the center and large green areas on the periphery. Besides, suburban green spaces are out of reach for city center inhabitants.

At the same time city maps do not show how green are the neighbourhoods. Therefore, it is not clear weather citizens have to use peripheral green spaces or there are recreational opportunities within the neighbourhoods.

To understand the supply and accessibility of green spaces in the city, it was important to evaluate the amount of green in the neighbourhoods. For that a detailed sample analysis of the neigbourhoods was carried out.

The area of the city was divided into three basic categories: neighbourhoods, green/open spaces and industries (fig.3.8). Since the borders between the different neighbourhoods and industries were not clearly defined in city maps, it was essential to establish these borders on the basis of building type and street pattern (fig.3.9). Once it was done, typical samples showing the amount of green/ open versus built space were picked in each neighbourhood (fig.3.10, 3.11).

Relying the two source sample maps (fig.3.8, 3.10) the conclusion table and maps were developed (fig.3.12, 3.13, 3.17, table 3.1), where the neighbourhoods were divided



Fig.3.48 Neighbourhoods, industries and recreational spaces, Riga, 2010 Source: author



Fig.3.49 Neighbourhood building types and street patterns, samples, Riga, 2010 Source: Google Earth

greenness of a neighbourhood



type of a neighbourhood I street pattern

mediaval townhouses I irregular 19th-20th c wooden townhouses I regular 19th-20th c perimetral housing blocks I regular 19th-20th c villas I organic 19th-20th c townhouses I regular or chaotic contemporary suburb single-family houses I regular or chaotic gardens I regular or chaotic modernist housing blocks I chaotic modernist housing blocks I cauliflower

industrial areas I chaotic



Fig.3.52 Neighbourhood types and street patterns, Riga, 2010 Source: author

into types and ranked according to their greenness.

It turned out that there is an interdependence between neibourhood types and greenness. Indeed, medieval and 19th century neighbourhoods have low amount of green spaces, while contemporary suburban neighbourhoods have high amount of green spaces. In modernist 20th century neighbourhoods the amount of green spaces varies from low to moderate (table 3.1). Indeed, the periphery of the city is 'greener' than the dense inner areas (fig.3.14). Besides, the left river bank is less urbanized and has more green than the right one.

It means that the inhabitants of the inner city do not have access to the green/open spaces neither on the periphery, nor within the neighbourhoods. At the same time the inhabitants of the suburbs have access to both.

The peripheral green and the asymmetry between the left and the right parts of the city can be explained by the historic development of the city and its green spaces. The settlement on the right bank used to be a fortress which concentrated all the most important functions of the city, while settlements-villages on the left bank used to be suburban extensions. Despite the latest notions of urban planners to equalize the both parts of the city by introducing new sub-centralities on the left bank, the historic center on the right bank is still dominant. Furthermore, the city expands from the urban core into the open landscape, therefore the suburbs due to the lower density maintained their greenness.

Although, inner areas of the city have less green/open spaces, the quality of these spaces is much higher than of those on the periphery (fig.3.15, 3.16). Green/open spaces in the city center tend to be well-designed and maintained and attract a lot of visitors, while suburban green/open



Fig.3.53 Neighbourhood greenness, Riga, 2010 Source: author

spaces are often natural, with no design and maintenance and little visitors. The typology of these spaces is different. The central green/open spaces are parks and squares, while the peripheral are forests and meadows. Although, the wilderness of suburban spaces is valuable, these spaces need to have at least minimum design and maintenance to make them safe and walkable.

There are little green spaces close to the river quay in the city center and no directly adjacent spaces at all. However, there are plenty of industrial and open spaces along the waterfront which can be redeveloped into green spaces.

To sum up, the analysis clearly shows that green/open spaces are unequally distributed within the city. On the one hand, the city center has high quality green/open spaces, but there are too few of them to supply all the city center inhabitants. On the other, the suburbs have plenty of green/open spaces, but the low quality of these spaces limits their use.

In addition, the river quay does not use the advantage of being on an edge between the 'green' and the 'blue' landscape.

It is obvious, that there is a need for an open/green space strategy with an emphasis on the areas along the waterfront and in the city center.

[3] City Scale

Analysis

Recreational Spaces | current situation | distribution and quality



Fig.3.55 Bastejkalns, city park in the center, Riga, 2010 Source: Buks A.



Fig.3.56 Anninmuizas parks, city park on the periphery, Riga, 2010 Source: www.panoramio.lv

Problem statement | recreational spaces

in the city center

in the suburbsquality

'blue' landscape

 recreational space development strategy

along the river quayquantity & quality

• detachment from 'green' &

• quantity

general

Need for



Fig.3.54 Interdependence of location, quality and quantity of green space Source: author

type of neighbourhood	street pattern	typical greenness
medieval townhouses	irregular	very low
19th-20th century wooden townhouses	regular	very low low
19th-20th century perimetral housing blocks	regular	very low
19th-20th century villas	organic	high very high
19th-20th century townhouses	regular chaotic	low moderate
contemporary suburban single-family houses	regular	moderate high
gardens	regular chaotic	very high
modernist housing blocks	chaotic cauliflower	very low low moderate
industries	chaotic	very low

Table 3.1 Neighbourhood types, typical street patterns and greenness Source: author



Fig.3.57 Interdependence of greenness, neighbourhood types and street patterns, Riga, 2010 Source: author

[3] City Scale Analysis Recreational Spaces | current situation | provision and accessibility



Barriers

linear

highwaysrailway linespermeable in certain points

spatial

- rail yards
- industrial areas
- non-permeable



Fig.3.58 Recreation space provision, no barriers, Riga, 2010 Source: author

For the further research, the author has used a theoretical framework developed by Herzele and Wiedermann (2002) (box 3.1). According to the framework recreational spaces can be divided into functional levels, such as residential, neighbourhood, district, quarter, city and metropolitan, according to their size. Each functional level has a maximum distance/walking time from home requirements. Distance/walking time from home is a key precondition for use, which determines weather the residents are, actually, going to visit the place. Spatial quality of place, in turn, determines how long the visitors are going to stay in the place.

Therefore, to measure the provision of recreational spaces, all of them were measured and divided into functional levels (fig.3.20). On the city scale, the residential level was omitted. Next, the maximum distances were applied. It turned out, that, recreational spaces cover all the neighbourhoods (fig.3.18). However, inner city neighbourhoods are covered mostly by neighbourhood, quarter and district level spaces, excluding higher levels. At the same time the suburban neighbourhoods were covered by metropolitan level spaces, excluding lower levels. Furthermore, city level spaces were lacking. These conclusions co-respond with the conclusions of the previous section.

However, to estimate the actual recreational space provision, it was important to take into account spatial barriers, such as infrastructure and run-down areas. In case of Riga, two types of barriers were identified:

- 1) linear, namely, highways and railway lines;
- 2) spatial, namely, large rail yards and run-down industrial areas.

Furthermore, linear barriers were considered to be more permeable, than spatial. Indeed, a highway or a railway track with crossings at certain points is more permeable with a large degraded industrial site. Therefore, in the study spatial barriers were considered non-permeable, a single linear barrier - perme-

Urban recreational space provision principles

citizen-based

recreational spaces are intended to improve resident quality of life and supply their needs

functional levels

recreational spaces of different size and character are not substitutes for each other,

because they are perceived and used in different ways

ideally, each neighbourhood should be supplied by different functional levels

preconditions for use

such as proximity, accessibility, safety, surface, etc.

determine if residents are, actually, going o use the space

variety of qualities

variety of functional levels

variety of qualities within a recreational space which ensure an array of activities and experiences related to recreational space

multiple use

a recreational space allows a variety of uses, regardless of its original purpose

Box 3.1 Recreational space provision principles Source: adopted with changes from Herzele and Wiedermann (2002)



Fig.3.59 Recreation space provision, with barriers, Riga, 2010 Source: author

able, two and more linear barriers in a row - non-permeable.

To measure the actual provision of recreational areas, the barriers were applied (fig.3.19). It turned out, with the barriers, the provision of recreational spaces is insufficient. Some residential areas do not have access to any kind of recreational spaces at any functional level. Furthermore, inner city recreational spaces are totally cut off from the periphery, and urban forests, are in turn, cut off from city center.

Furthermore, recreational areas in themselves are frequently interrupted by linear barriers or spatial barrier islands. This significantly lowers the attractiveness of these areas (table 3.2).

To sum up, the city of Riga, statistically, has large recreational areas. However, most of these areas are on metropolitan level. There are not enough recreational areas on lower levels, especially, on city level. Furthermore, large recreational areas are fragmented.

[3] City Scale

Analysis

Recreational Spaces | current situation | provision and accessibility

quality factors	main variables	upgrading variables	downgrading variables
space	not fragmented; consists of elements which fit harmoniously together and/of function as one whole	attractive visual context; visual variation	disturbing visual context; little visual variation
nature	wilderness; richness in species	grove/ river/ lake; density of small landscape elements (tree rows, hedges, bushes, ditches)	
culture and history	relicts of traditional landscape; cultivated/old parks	contextual integrity	contextual disturbance; bad maintenance; vandalism
quietness	proximity of highways/airports; noise levels	noise level/source coherent with context; positively experienced types of sound (birds, water, etc.)	noise level/source not coherent with context; negatively experienced types of sound (traffic, industry, etc.)
facilities	access (entrances and paths)	supply of facilities (benches, playgrounds, sport facilities, etc.)	oversupply of facilities unsafe facilities

Table 3.2 Recreational space attractiveness factors Source: adopted with changes from Herzele and Wiedermann (2002)



max distance (m) - min surface (ha)

Fig.3.60 Min standards for urban green spaces, MIRA-S 2000 Source: author based on Herzele and Wiedemann, 2002

[3] City Scale Analysis Densities | population | employees



Fig.3.61 Population number in neighbourhoods, Riga, 2010 Source: author based on www.apkaimes.lv



Fig.3.62 Traffic jam on Cable-stayed Bridge, Riga, 2010 Source: Svirskis L., shotsharing.com



Fig.3.63 Traffic jam on Island Bridge, Riga, 2010 Source: www.spoki.lv



Fig.3.64 Employee number in neighbourhoods, Riga, 2010 Source: author based on www.apkaimes.lv

The research done so far has focused on neighbourhoods, their types and greenness, and on recreational spaces, their character, functional level and accessibility. Here recreational spaces are related to the population, namely, residents and employees.

The absolute numbers of inhabitants and employees in each neighbourhood were co-related with neighbourhood greenness and recreational areas. The distribution of inhabitants and employees differ dramatically. Most employees are concentrated in four city districts, three of them are located near the city centre along the waterfront on the right river bank (fig.3.24). There is a clear asymmetry in workforce distribution in the city.

Residents, in turn are more evenly distributes in the city. There is no asymmetry between the river banks. Most people live in peripheral neighbourhoods, though inner city neighbourhoods are intensively populated a well (fig.3.21).

These differences are rooted in the historical development of the city. Modernist peripheral districts concentrate highest amount of inhabitants, because their primary function was residential and they were built for newcomers in the second half of the 20th century when the city expanded rapidly and its tripled. The historic town reinforced its position and remained a business core of the city.

In fact, the central areas on the right river bank along the river are both densely populated and concentrate most part of the workforce. At the same time these areas are cut off from the urban forests and have less recreational areas in comparison to other city parts. The situation is deteriorated by intensive air and noise pollution, as the employees commute from the periphery to the city centre and back (fig.3.22, 3.23).





The city centre concentrates main city functions, such as cultural (theatres, museums) and educational (universities, colleges) institutions, commercial (shopping malls), leisure (swimming pools, bowling centres, hockey and football arenas) and entertainment (cinemas) amenities, some hospitals, traffic hubs (passenger port, central train station, bus terminal). Furthermore, city council plans to develop new centralities to the north from the existing city centre, in former port areas (RDPAD, 2005), this way reinforcing the city core (fig.3.25).

Old town which measure one kilometer in diameter is rather walkable. However, the surrounding city core, which similar to old town concentrates a significant amount of amenities, is larger than three kilometers in diameter. Therefore, for commuting within the city centre it is preferable to use other means of transport, rather than walk. Besides, pedestrian paths, especially along busy roads are narrow, with little green and often no trees or any other barriers which would separate them from the vehicle traffic.

Currently, the main means of commuting within the city centre and between the city centre and the suburbs are public transport (train, bus, trolleybus) and private cars. Cyclist infrastructure is not developed. However, there is a plan to built an extensive cyclist path network in the future (RDSD, 2012). For instance, it is planned to build major bicycle paths along the waterfront and extend the existing paths to the seaside, this way connecting the neighbourhoods in the south to the city centre and the city centre to the beach. Furthermore, these paths would connect the well-functioning recreational spaces of the city to the neighbourhoods and with each other.

To sum up, city centre concentrates most city functions, large numbers of employees and inhabitants. However, there is no well developed pedestrian/cyclist infrastructure. Main means of transportation are cars and public transport.

[3] City Scale Analysis Problem Statement

Rīgā sāks līdz šim vērienīgāko parku un dārzu sakopšanu (53)



vigas pasvalnoa iecerejusi venenigus parku, severu un citu zajo zonu balekārtošanas Eiropas struktūrfondu līdzekļus. Kopumā pišetas zajās zonas sakārtošanā ieguldis aptuveni 2,5 mijori latu no pišetas budžeta un 4,7 mijoni latu no Eiropas Savienības fondiem, informēja Rīgas domē.

Dome plāno sakārtot Lucavsalu, teritorija apkārt Māras dīķim, AB dambim, Grīziņkalnu un tā apkārtne, Pļavnieku parku un citas vietas. Pašvaldība jau sakopusi Lucavsalas ziemeļu daļu, attīrot to no pamestiem mazdārziņiem.

Fig.3.66 News web site article on park development strategy in Riga, 2012 Source: www.delfi.lv

Network of Recreational Spaces

direct benefits

- [1] provides the residents with daily use recreational spaces
- [2] connects neighbourhoods to weekly use recreational spaces via pedestrian | cyclist paths
- [3] connects all recreational spaces into one system
- [4] improves spatial quality of the city

indirect benefits

- [1] improves image of the city
- [2] attracts human capital

(according to human capital theory)

[3] attracts new businesses that follow human capital

1) Functional levels |

The share of water and green areas from the total city area in Riga is relatively high. These areas are large and intended for weekly use. There are little recreational spaces intended for daily use in neighbourhoods and city centre.

2) Coherence |

Recreational spaces are fragmented and not connected with each other. Many of large recreational areas are interrupted by infrastructure. The connections between the neighbourhoods and existing recreational spaces either do not exist, or are not articulated.

3) Accessibility |

Weekly use large recreational spaces are located on the periphery and are not accessible via pedestrian/cyclist infrastructure. Furthermore, the access is hampered by spatial and linear barriers, namely, industrial sites and infrastructure.

4) Other |

The existing recreational spaces, excluding those in the city centre and a few on the periphery, are in bad condition and do not have required facilities. There are no basic facilities, such as pedestrian/cyclist paths, benches and no extra facilities, such as sport fields, playgrounds, food kiosks, fishing and water sport places. Often, especially in low season, there are no visitors and no other means of visual control, therefore these spaces are unsafe.

As already mentioned (see Chapter 1), the city is shrinking. Residents go abroad for work and studies and do not return back. However, many of them do not change the permanent place of residence and consider returning back when the economic situation will improve. At the same time city development plan proposes densification of existing areas and building up vacant areas, including recreational spaces. There is a danger, that centre locations are going to be upgraded and gentrified, while other areas are going to stay degraded.

Taking into account the above mentioned arguments, it is a big question if the city needs new retail/office spaces and if new residential spaces are going to be sold out. Indeed, currently the residents cannot afford buying hew apartments/houses. Furthermore, it is doubtful, that these developments are going to improve the spatial quality of the city and help to bring residents back. Instead, they are going to increase the polarisation of the society and the tensions between high and low income residents. If the city does not need new build up spaces, what are the actual needs of the city and how is it possible to bring the residents back?

The project proposes, that Riga needs a network of recreational spaces, that would simultaneously:

1) provide the inhabitants with high-quality daily use recreational spaces in proximity to their homes;

2) connect the neighbourhoods to large weekly-use recreational areas in the periphery via cyclist/pedestrian corridors;

3) connect all the recreational spaces into one coherent system.

The proposal would significantly improve the spatial quality of the city and contribute into creating a positive image of the city, which in turn, would help to strengthen the international position of the city, attract new residents, and, possibly, according to human capital theory, new businesses which follow human capital.

In support of the ideas proposed by the author, the city municipality recently expressed the intention to upgrade all the city parks and gardens and create a recreational place with sport fields and the beach on the island of Lucavsala


←→ city links, secondary

→ local links



Fig.3.67 City vision, conceptual sketch Source: author

(fig.3.26).

The recreational space network would connect all the recreational areas via multiple green corridors. With time the number of corridors would increase, until the city would turn into a landscape unity with neighbourhoods-islands (fig. 3.27). This is a utopian vision. In reality the number of green corridors is going to be lower and the corridors are going to be less articulated. For further elaboration the author has chosen three most important corridors:

1) metropolitan level corridor,

marks the connection of the city to large national scale nature reserves, namely, Kemeri and Gauja National Parks, and to recreational satellite towns of Jurmala, Sigulda and Cesis;

2) city level corridor,

connects all the functioning urban forests, the lakes and the seaside through the redeveloped industrial areas;

3) waterfront level corridor,

connects all the waterfront neighbourhoods and city centre with each other and with the water.





The corridors aim to reconnect all the recreational areas where possible, t.i. through vacant, brownfield and low density industrial sites. Thus, the corridors are created in-between the neighbourhoods and mixed use areas, to avoid resident relocation. Where it is not possible, small residential areas are incorporated into the corridors. In such a way the corridors eliminate most spatial barriers (industrial sites) and break through the linear barriers (infrastructure).

Currently, within future corridor contours certain land uses are identified (fig.3.28):

1) recreational spaces,

the beach, forests, woodland parks, parks with/without sport facilities (most of sport facilities are out of use), semi-open and open green spaces;

2) restricted access recreational spaces,

golf clubs, zoo, open air museum, private gardens;

3) potential recreational spaces,

brownfield sites, open spaces, garages;

4) industrial sites;

5) occupied areas,

cemeteries, public and commercial amenities, residential areas.

In addition, within industrial sites all the important industries and public transport service points are mapped.





In the vision (fig.3.2, the above mentioned land uses are adjusted to fit the corridor purpose.

Existing recreational spaces and occupied areas are left as they are (fig.3.30), apart from some centrally located cemeteries and prison areas which are redeveloped into passive recreation parks and public amenities respectively.

Industrial areas are redeveloped into mixed use industrial/commercial areas with significant amount of vegetation and high-quality public spaces. There industries are not relocated. On the contrary, the existing industrial sites are reinforced. However, in-between industrial structures small public squares, gardens and cyclist paths are created, similarly to the Emscher Park in Rurh Valley (fig. 3.32).

Some centrally located vacant non-green areas and brownfield sites are redeveloped into mixed use and residential areas with significant amount of vegetation and high-quality public spaces, like Dockside Green in Victoria (fig.3.33). Other vacant non-green areas and brownfield sites are redeveloped into woodland parks. The garages are redeveloped into community gardens.

Where possible, new sport facilities are established and existing sport facilities are renovated (fig.3.31).

The railway tracks within the corridors are put underground and the busy highways are downgraded into slow traffic roads.

[3] City Scale Vision Proposed | landscapes | fill-ins



Fig.3.74 City vision, landscapes Source: author



Fig.3.75 City vision, fill-ins Source: author

In the images above (fig. 3.34 and 3.35) the structure of the corridors is visible. Following the concept, the corridors consist of recreational spaces and the fill-in spaces.

The recreational spaces are: the beach, forests, woodland parks, parks with/ without sport facilities, passive/active recreation parks, open green landscapes in the proximity of lakes and rivers, community gardens and some restricted (paid) access spaces (golf clubs, zoo, open air museum).

The fill-inn spaces are those with residential, commercial and public functions, as well as industrial sites. These areas are generally loosely built with no clear street structure, therefore in-between the buildings it is possible to create small public spaces and pedestrian/cyclist paths, plant vegetation. Some of these areas are severely degraded with low quality buildings. In these cases it is possible to replace the existing buildings with new structures.



Fig.3.70 Lake Kisezers, Riga Source: www.panoramio.com / alinco_fan



Fig.3.71 Urban basketball, New York Source: www.urbancincy.com / Randy A. Simes



Fig.3.72 Emscher Park, Ruhr Valley Source: www.flickr.com / dysturb



Fig.3.73 Dockside Green, Victoria Source: www.docksidegreen.com

[3] City Scale Vision Proposed | infrastructure | links



---- highway downgrade, proposed, significant



Fig.3.76 Malmo, Sweden Source: walkeaglerock.wordpress.com



Fig.3.77 'Parklets', San Francisco Source: sfpavementtoparks.sfplaning.org

Links |

linear pedestrian/cyclist friendly streets

spatial small scale public spaces within other spaces



Fig.3.78 City vision, infrastructure Source: author



Fig.3.79 City vision, links Source: author

Since the corridors go through industrial sites, they well-connected via railway. Currently, the railway functions as an intercity connection. However, in the vision it is adjusted to connect city centre and the periphery. Taking into account possible future centralities, a traffic node in the north of the city is established which would serve the increased numbers of employees and residents in the area in the future Several new train stops are introduced. Two of them connect large urban forests and lakes in the east of the city to other city parts. The third one serves the future light aviation airport and a future mixed use area.

Despite the fact that the corridors are connectors in themselves, there are still some missing links in-between the corridors. These broken links appear in the places where it was impossible to create a corridor, namely, in a dense residential and mixed use environment with strong street pattern and/or in the large infrastructure intersections. In these places additional links are established. These links are pedestrian/cyclist friendly green streets with tiny public spaces incorporated into other spaces.

This way the coherent continuous recreational space network is established.

Analysis Historical Development



Fig.4.80 Waterfront, Riga, 1800 Source: author



Fig.4.81 Waterfront, Riga, 1915 Source: author



Fig.4.82 Waterfront, Riga, 2010 Source: author



Fig.4.83 Conceptual section, waterfront, Riga, 1800, source: author Fig.4.84 Panoramic view, Riga, 1575, source: Munster S. 1575. Cosmographia Universalis. Fig.4.85 Panoramic view, Riga, 1815, source: www.letonika.lv, ©Tilde, 1998 - 2012



Fig.4.86 Conceptual section, waterfront, Riga, 1800, source: author Fig.4.87 Waterfront market, aerial view, Riga, 1930, source: www.rigasvesture.lv Fig.4.88 Waterfront market, street view, Riga, 1930, source: www.russkije.lv



Fig.4.89 Conceptual section, waterfront, Riga, 1800, source: author Fig.4.90 Waterfront, aerial view, Riga, 2011, source: author Fig.4.91 Waterfront, street view, Riga, 2011, source: author



- → possible access



Fig.4.92 Peninsula of Kliversala, Riga, 193-Source: www.zudusilatvija.lv



Fig.4.93 Peninsula of Kliversala, Riga, 2011 Source: author

Being a political, economic, culture and transport center of the country gives the city of Riga certain advantages, such as relative independence from the central government and larger financial opportunities than the ones of other cities.

However, the dominant position results into a dense urban environment with heavy traffic congestion and all kind of nuisance from vehicles and industries. During the warm season citizens suffer from urban heat island effect, noise and air pollution. At the same time the huge potential of the city water landscape, which constitutes 15.7% of the total city area, is not being used (Rigas Dome, 2003-2011). There are hardly any areas within the city centre with public amenities at the river quay and an easy access to the water (fig.4.3). The urban beach in the North of the city is poor connected to central and south areas of the city and does not have any public amenities and safe swimming places. Instead of recreation within the city, the citizens go either to the satellite coastal town Jurmala to the West from the capital or to small villages in the East. Because of travel time issues and poor public transport, the citizens go to the beach on weekends only for the full day, while the working days they have to spend in an unhealthy urban environment with no recreation opportunities nearby.

The city of Riga is located over the both sides of the River Daugava and has a concentric road structure with all the major traffic routes going through the city centre. Therefore the urban waterfront should be the most accessible and lively recreational area in the city. However, this is not the case. Highways and industrial zones cut off the river from the city. There are no public amenities, such as cafes and restaurants or green public parks or squares by the water (fig.4.3). The quality of public spaces at the quay is low. Although, the river embankments are used time to time for big city events, such as summer festival, they are abandoned for the most time of the year. There is hardly anyone at the quay in winter. At the same time city of Jurmala is lively the whole year long despite having the same climate conditions as Riga.

The current segregation of the waterfront from the city is rooted in the historical development of Riga. The relationship between the city and the river has changed with time. The three phases can be distinguished:

[Ph1] defense (fig.4.1, 4.4 - 4.6)

The city of Riga emerged as a trade center at the cross point of maritime routes. The Baltic Sea connected Riga to the Northern Europe and Germany, while the Daugava-Volga and Daugava-Dnieper waterways provided access to Russia and through the Black Sea to the Byzantine Empire. The strategic location of the city turned it into an apple of discord between the neighbouring countries. Being in a constant state of war Riga developed into a fortified town with defensive walls facing the river. The river was a successful waterway and at the same time a source of danger, therefore there was no waterfront. The city and the harbour outside the city co-existed as the two separated entities. The riverbanks with no permanent structures served as a North-South connection.

[Ph2] integration (fig.4.2, 4.7 - 4.9)

In the middle of the 19th century following the advances in European politics and military strategies the fortifications were demolished and the city experienced a rapid growth and dramatic urban changes. The river quay became an integral part of the city housing important public functions such as the port and the market. The boat service connected all parts of the city. With the construction of multiple dams the flow of the river was under control. The newly reclaimed land was turned into industrial sites, housing port related activities.

[Ph3] ignorance (fig.4.3, 4.10 - 4.12)

Starting from the middle of the 20th century the city adapted the policy of industrialization. With the construction of HEP upstream from the city the risk of snowmelt floods was abolished and the areas adjacent to the river became safe. The vacant sites including green/open spaces and the river banks were redeveloped into factories. The construction of three permanent car/pedestrian bridges over the river decreased the intensity and changed the profile of the boat traffic which turned into occasional leisure activity. As the city became dominated by car/public transport traffic the port and the market were relocated and the highways cut off the city from the river. Despite the attempt to improve the quality of the waterfront replacing the old wooden river quay by a new stone one, the absence of functions, the inaccessibility and the public space with no identity made the area abandoned for the most time of the year.

To sum up, the highways and large industrial sites which block the access towards the river are the result of historic development of the city. Furthermore, the waterfront degraded as the important city activities, such as the port and the market, were relocated.





Since the 12 century, when the first permanent settlement in the delta was founded, the Daugava river flow has changed dramatically. The delta was shaped both by natural processes and human interventions (fig.4.15). According to Bebris (2011)it is possible to distinguish four milestones in the urbanized delta development:

1) The construction of the channel of Milgravis (13th century) which connected the lake system of Kisezers-Baltezers-Jugla with the Daugava river. The channel has caused approx. one meter decrease of the water level in the lake system to the AMSL and thus contraction of the lake system surface.

2) The natural separation of Daugava and Lielupe river estuaries (from 16th to 18 centuries) caused by winter storms and snowmelt floods. The old common estuary, the so called 'Vecdaugava' gradually degraded and was filled in the 19th century whereas the new estuary of the Daugava river was reinforced for better shipping by dams and groynes.

3) The construction of flow direction dams (18th and 19th centuries) aiming to narrow and deepen the river bed for better shipping. The dams have caused sediment accumulation in the side flows of the Daugava river. In a result of sedimentation process the side flows were gradually filled in and the small delta islands either consolidated into big islands or became part of the mainland.

4) The construction of three hydro power plants (20th century) upstream from the city which supply the city with energy and control the river flow. The dams have abolished the risk of snowmelt floods and decreased the natural flow of sediment to the delta. Although the fig. 4.15 clearly shows the natural trend towards the growing delta, the scarce sediment is not enough to compensate the coastal erosion caused by frequent winter storms. Thus, the Daugava river delta from the river dominated turned into the wave dominated delta.

It is obvious that humans interventions have played a crucial role in the shaping of the Daugava delta. The Daugava river flow in the delta has narrowed and deepened, the island archipelagos consolidated or merged with the mainland, the snowmelt floods were abolished. However, storm surge and rainfall floods are still a problem in the delta.

Towards a Green Metropolis: Designing a Waterfront in Riga

Analysis Current Situation | fieldwork



uniform character western river bank



diverse character eastern river bank



well-maintained environment western river bank



degraded environment western river bank





The project deals with the green/open space development in the city of Riga and the waterfront is chosen as a strategic intervention place. The prime objective of green/ open space design is the space made for people, namely, pedestrians and cyclists, but not for the cars. Therefore, to intervene it was important to evaluate how walkable/ cycleable the current river quay is. The author has performed a fieldwork experiment and cycled along the both sides of the river between the Cable-stayed bridge and the Island bridge. The experiment resulted into a sequential analysis of the waterfront and into the diagnosis map (fig.4.18).

Here are some of the most characteristic snapshots of the waterfront in Riga (fig.4.16).

In general, the left bank of the river has a uniform character, while the right bank consists of multiple segments of various section and spatial quality. Furthermore, compared to the right bank the left bank is well-maintained and has several high-quality public spaces, whereas many sections of the right bank are completely degraded and not safe. Besides, bad road surface makes some parts of the right bank completely unsuitable for cycling.

However, the spatial uniformity of the left bank makes it monotonous, while the spatial diversity of the right bank makes it interesting and, therefore, should be maintained.





Fig.4.95 Sequential analysis of the waterfront , Riga, 2011 Source: author

Analysis **Current Situation** | fieldwork





is | no access to the water

is | no pedestrian crossing to the waterfront

is | no visual link to the river

easy|hard to the bridge



safe|unsafe for pedestrians|cyclists



friendly | unfriendly for pedestrians | cyclists





pass under

easy|hard to get on|off the bridge





During the experiment a number of criteria for walkability/cycleability were established. The most important criteria are:

1) access to the water,

2) pedestrian crossing across the highway to the river quay,

3) visual link with the river (wayfinding),

4) how easy/hard it is to pass under the bridge,

5) how easy/had it is to get on/off the bridge,

6) quality of the road surface,

7) safety.

It turned out that in many places, especially on the right river bank, there is no access to the water either because of spatial barriers, such as fences and high quays, or because of private estates directly adjacent to the river.

Furthermore, there are too few pedestrian crossings across the highways on both river sides. On some segments of the waterfront the distance between the crossings is up to 3km. It means, that there is no opportunity to safely cross the highway and go from the city to the river and *vice versa*.

Besides, on several stretches of the waterfront there is no visual link with the river and the pedestrian road structure interrupts which makes the wayfinding very difficult.

On the examined segment of the river quay there are four bridges. Three of them are car/pedestrian. However, it is often hard to pass under the bridges because the pedestrian path is on one side of the passage only and the path itself is very narrow. Moreover, for cyclists and physically challenged people it is hard/impossible to get on/off the bridge because there are no ramps and the only way to get there is via a steep staircase. Besides, the pedestrian paths on the bridges are narrow or there are no paths at all. Therefore pedestrians and cyclists have to use the unsafe passage under the bridge with no visual control from the outside.

In addition, the road surface on both sides of the river is unsuitable for bicycles, children prams and wheelchairs because it has a lot of pits and kerbs. There are no separate lanes for cyclists and the existing pedestrian paths are often too narrow to be divided into several lanes.

All these findings are displayed graphically on a waterfront diagnosis map (fig.4.17).

Fig.4.96 Sequential analysis of the waterfront , Riga, 2011 Source: author





Apart from poor spatial quality, the urban waterfront has programmatic problems. First of all, there are few public spaces directly adjacent to the river quay and most of them are segregated from the waterfront by highways.

Furthermore, the waterfront has a very limited number of functions. These functions are:

in summer

a promenade, an informal city beach; **the whole year long** passenger and private yacht ports, informal fishing places, industries (some of them - abandoned), private parking lots and gardens.

It is obvious, that such functions as industries, private parking lots and gardens are unsuitable for an urban waterfront, because they block the access to the water and degrade the space. Besides, it is not rational to use the precious land on the river banks for the functions which do not require the proximity of open water.

In addition, there are no public amenities, such as cafes, restaurants or any other kind of indoor public activities, which would intensify the use of the river quay during the cold season. Moreover, there are very few special public events, such as, for instance, city summer festival.

Finally, there is no link between the city and the respective segment of the waterfront, namely, the functions and the spatial character of the waterfront is relatively uniform over the whole length, while the functions and the spatial character of the city vary, for example, the old town gives place to the market which is followed by a neighbourhood.

Problem statement | urban waterfront

spatial

- no access to the water
- no pedestrian crossing to the river quay
- no visual link with the river
- difficult wayfinding
- hard it is to pass under the bridge
- had it is to get on/off the bridge
- poor quality of the road surface
- poor safety

spatial programmatic

• few public spaces for example, parks|squares|city beach

programmatic

- limited number of functions
- unsuitable functions
- no seasonal functions for example, swimming | sunbathing in summer restaurants | cafes in winter
- few special activities for example, summer city festival
- the waterfront does not react as the different parts of the city change function and spatial character



Fig.4.98 Akker Brygge, Oslo Source: www.pps.org

To solve the Riga waterfront problems stated in the previous section, namely, multiple spatial and programmatic problems related to accessibility and lack of functions, the following vision is proposed (fig.4.23).

The river quay is envisioned as a linear continuous public space through the dense part of the city from the Island bridge to the Cable-stayed bridge. The riverside park will provide the citizens with qualitative recreation, sport and entertainment spaces and will connect the city in North-South direction via a pedestrian and cyclist friendly green corridor, similar to the waterfront in Frankfurt am Main (fig.4.22). However, in contrast to the reference project, the riverside park in Riga will house many more functions and have different character on each segment.

Besides, the waterfront will be connected to multiple small-scale neighbourhood public spaces and in this way provide a link between these neighborhoods.

Furthermore, the project will stimulate the integration of the islands of Lucavsala and Zakusala into the city. The waterfront will be redeveloped to meet the following requirements:

1) accessibility

to the inhabitants of adjacent neighborhoods and all the citizens simultaneously;

2) multi-functionality/flexibility

which would intensify the waterfront use in all the four seasons and by various weather conditions;

3) smart design

which, firstly, provides access to water in drought periods and protection against high-tide during storm surges,

and, secondly, mitigates an urban heat island effect in summer and protects against wind in winter;

4) high architectonic quality

of the public space;

5) win-win strategy,

t.i. ability to be developed in phases and in small interventions with immediate benefits for the city and the inhabitants;

6) connectivity,

t.i. ability to improve physical and mental link between the both banks of the river Daugava and the islands;

7) coherence,

t.i. spatial and functional harmony and correlation between the segments of the city and stretches of the waterfront;

8) variation,

t.i. spatial diversity among the segments of the waterfront.



Fig.4.99 Urban waterfront, Zurich Source: Noel, V. A.A. , Assoc. AIA



Fig.4.100 Urban waterfront, Belleville Source: bayofquinte.com



Fig.4.101 Waterfront park, Frankfurt am Main Source: Chambers J.





Fig.4.102 Waterfront vision Source: author.

Current Situation





Fig.4.103 Traffic at the waterfront, current situation, Riga, 2011 Source: author



To put the idea about the waterfront park into practice, it is necessary to solve the traffic problem at the waterfront (fig.4.24, 4.25).

Currently, the space between the river and the city is occupied by a busy highway, which developed historically from a path running along the river. However, the current highway is relatively new.

Historically, Daugava river used to be much wider, shallower and with large archipelagos of small islands. As a result of damming, sediment was deposited along the river banks and this way large areas were reclaimed. The highway section from the Island Bridge to the market place was entirely built on the newly reclaimed land, in 1980s. Before 1980s, the traffic to/from the island bridge went through Maskavas and Gogola streets, not along the waterfront, but through the city tissue (see also Chapter 5). The fast through traffic along the riverside, which became possible during the last decades only, was reinforced by the construction of a large car-oriented shopping mall area to the south from the Island bridge, which started in the late 1990s.

The highway has two lanes both directions and the parking places on both sides on the segment between a Cable Stayed bridge and the Railway bridge. Between the Raiway bridge and the Southern bridge the traffic becomes more intense, due to additional traffic from the side roads, and the highway has three lanes both directions. There is no through traffic through the old town.

All four bridges have a heavy traffic situations, with frequent traffic jams in rush hours, due to numerous commuters. However, the stone bridge serves in addition multiple public transport routes, namely 20 bus lines, 4 train lines and 2 trolleybs lines. To compare, Cable Stayed bridge serves 5 bus lines and 3 trolleybus lines, Island bridge - 2 bus linea and 3 trolleybus lines, Southern bridge (built in 2008) - 1 bus line.



Fig.4.104 Traffic at the waterfront, sections, current situation, Riga, 2011 Source: author

Scenarios Slow traffic





Fig.4.105 Traffic at the waterfront, scenario No.1 Source: author



The highway is redeveloped into a slow traffic road (fig.4.26, 4.27).

The highway has two/three lanes in each direction. These in some segments these lanes are wider than the minimum 3.25m, and can be up to 4.50m wide. On other segments, there street parking on one or both sides of the highway which is 8.50 m wide.

In the proposal the number and the width of traffic lanes is reduced to two lanes in each direction with one lane reserved for the public transport, and each lane is 3.25m wide. The number of side streets is increased, including exits from the old town.

This way the extra space is gained which is used to widen the waterfront and introduce an extra thee lane in the middle of the road for pedestrians and tram. Cyclist paths are added on both sides of the road.

[+]

- no significant intervention into the traffic system of the city.

[-]

- the barrier between the waterfront and the old town still remains;

- the road might remain busy with traffic jams and consequently air and noise pollution.





Fig.4.106 Traffic at the waterfront, sections, scenario No.1 Source: author

Scenarios High-speed tunnel with urban park on top





Fig.4.107 Traffic at the waterfront, scenario No.2.1 Source: author



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The highway is put underground in a high-speed tunnel, the urban park is developed on top (fig.4.28, 4.29).

Since ther eis no through traffic in the old town, there are only three roads to be eliminated. The traffic from these roads can be redirected to the ring roads around the old town and to the bridges flanking the city core, namely Cable-stayed bridge and Island bridge.

For the car traffic it is not a fundamental change because they can go through the side bridges as usual.

However, the public transport system in this case should significantly replanned because most of the public transport goes through the Stone bridge which is in the middle of the old town. Furthermore, all the tram lines go through the Stone bridge and there is no tram lines on other bridges.

Full elimination of thraffic will affect the other side of the river. The watefrtont highway will become less busy and the through traffic in the Park of Victory can be eliminated. The whole area which is currently car-oriented with large shopping mall and industries, will require a significant redevelopment to meet new pedestrian/cyclist standarts.

[+]

- no barrier between the old town and the waterfront;

- the city on both sides of the river are pedestrian/cyclist friendly;

- the western river bank is redeveloped into a high-quality mixed use area.

[-]

- requires a fundamental intervention into the traffic system of the city with public transport heavily affected;

- the recreational areas in the city centre might be too large to be used intensively;

- the western river bank with no intervention may become a nonpalce.





Fig.4.108 Traffic at the waterfront, sections, scenario No.2.1 Source: author

High-speed tunnel with public transport and urban park on top





Fig.4.109 Traffic at the waterfront, scenario No.2.2 Source: author



The highway is put underground in a high-speed tunnel, the public transport stays on top, in vacant areas urban park is developed (fig.4.30, 4.31).

Basically, the same as in previous proposal, but with no intervention into the public transport network. Thus, the western river ban will be much less affected.

[+]

- no barrier between the old town and the waterfront;

- no intervention into the public transport network;

- public transport provides urban park with visitors-commuters.

[-]

- to a certain extent still affects the city traffic system and the western river bank.

This scenario is chosen as a base for the design intervention because it is the most efficient. In other words, it provides most benefits for the efforts invested. Besides, it shows how the waterfront area might look like with no car traffic which was never the case since the early 20th century.





Fig.4.110 Traffic at the waterfront, sections, scenario No.2.2 Source: author

High-speed tunnel with slow traffic on top





Fig.4.111 Traffic at the waterfront, scenario No.3 Source: author



The high-speed car traffic is put underground into the traffic tunnel. Other traffic, including public transport remained on top. The highway is redeveloped into a slow traffic road (fig.4.32, 4.31).

The combination of the first and the second proposals.

[+]

- almost no intervention into traffic system of the city, during construction only.

[-]

- the barrier between the old town and the waterfront still remains, although the road might be less busy;

- in comparison to other proposals, most investment and least benefits.





Fig.4.112 Traffic at the waterfront, sections, scenario No.3 Source: author

[5] Local Scale Analysis Historical Development



Fig.5.113 Bridge 'Zemgales', Riga, 1900 Source: www.spoki.lv



Fig.5.114 City harbour, Riga, 20 c beginning Source: www.ruterminal.lv



Fig.5.115 Bridges 'Zemgales' and Iron, Riga, 1930 Source: www.rigasvesture.lv



Fig.5.116 13 January street, 1930 Source: www.rigasvesture.lv



Fig.5.117 City market, Riga, 1933 Source: www.zudusilatvija.lv



Fig.5.118 13 January street, Riga, 196-Source: www.spoki.lv



Fig.5.119 Oldtownreconstruction, Riga, 1900 Source: author



Fig.5.120 Oldtownreconstruction, Riga, 1915 Source: author



Fig.5.121 Oldtownreconstruction, Riga, 1930 Source: author

To chose the design location and get possible design direction the historic reconstruction of the central segment of the waterfront was performed.

There were no maps available with the required resolution, therefore the reconstruction is based partially on old photographs, schemes and text information, especially regarding traffic routs.

Generally, the historic town structure remained without significant changes since 1900. After World War II destructions, a number of public squares in the old town were created.

The only area which changed dramatically is the one between the train station, old town and current city market location. Until the 20th century there was a boat harbour with rows of warehouses (fig. 5.7, 5.2). Back into 13th century, it was the place where the river Ridzene flowed into the river Daugava and the first Riga port location. Starting from the 14th century, when sea ships began to anchor along the waterfront, the port turned into a dock and river boat harbour. In the 18th century the river was filled in, but the harbour remained as a part of a city channel. The construction of railway tracks began in 1860s. In 1872 the first one track railway bridge over the river was built (fig.5.1). At this time city market was located at the waterfront next to boat piers and the floating bridge which was used for boat and ship mooring as well.

On the edge of the 19th and 20th century the waterfront capacity was exhausted, therefore the port started to move towards the estuary, to the locations at Andrejsala and Exportosta. The same happened with the railway bridge, therefore in 1914 the second double track railway bridge was constructed, next to the existing one (fog.5.8, 5.3). The old railway bridge was adjusted for horse carriages. Both bridges were built on a slope, with access ramps (fig. 5.4).

In the 1920s the construction of the city market began and the market as it is now was finished by the



Fig.5.128 Old town reconstruction, Riga, 1980 Source: author



Fig.5.124 Central Station, Riga, 2010 Source: www.hotelirina.lv



Fig.5.125 13 January street, Riga, 2010 Source: www.panoramio.com / Dzenis I.



Fig.5.126 City market, Riga, 2010 Source: www.citariga.lv



Fig.5.127 13 January street, Riga, 2012 Source: maps.google.lv



Fig.5.129 Old town, Riga, 2010 Source: author



1930s (fig. 5.9). The market consists of trade pavilions and large underground refrigerators which are accessible from the ramps at the city channel side (fig.5.5, 5.14). From 1930s to 1960s the bus terminal was located between the old town and the railway tracks, at the triangular 13 January street loop next to the train station (fig.5.6).

In the 1960s the new railway station building was erected at the same place. At the same time the new bus terminal between the city market and the railway tracks was built (fig.5.16, 5.10, 5.11). The 13 January street was straightened to facilitate increased car traffic. In 1976 and 1981 the two bridges flanking the old town were constructed. In 1980s the new land on the segment between the railway tracks and the Island bridge was reclaimed which allowed to create a waterfront highway between the bridges.

In 2000s a new shopping mall with cinema complex between the train station and the city market were erected (fig. 5.17). As a result the city channel was interrupted and the pedestrian and car traffic were disturbed. Recently, to solve these problems a new underground pedestrian tunnel was constructed. On the other side of the railway tracks another shopping mall was built. The train station was extended with a third shopping mall. Currently, 13 january street is a problem spot with very busy traffic intersection, public transport stops and a network of pedestrian underground tunnels (fig. 5.12, 5.13, 5.15).

Recently, a new creative quarter in the historic warehouses was established. There is a plan to redevelop a city market with new parking spaces and catering facilities in order to make it more attractive for all groups of visitors, including tourists, families and office workers.

Fig.5.122 13 January street, Riga, 196-Source: www.kambaris.lv

[5] Local Scale Design Strategy

built

- important buildings
- city channel park
- waterfront promenade
- -- railway slope
- city channel
- public transport only
- all traffic
- traffic tunnel
- -- railway
- bridge
- activity hub
- ← pedestrian links
- riverfront

Relation to City Strategy |

- [1] elimination of barriers infrastructure
- [2] creation of recreational spaces with double function
- attraction
- link between other attractions

Phasing |

- [1.1] high speed tunnel construction
- [1.2] waterfront promenade construction
- [2.1] bus terminal, shopping mall, cinema relocation
- [2.2] open the channel and close the park ring
- [3.1] creation of attractions like water access places
- [3.2] establishment of public transport and pedestrian links



Fig.5.130 Design strategy Source: author

As already mentioned the location between the old town, the train station and the city market is very problematic. It has undergone dramatic changes in the 20th century and currently it is the most difficult location within the whole waterfront. It is a place where multiple centralities come together and at the same time these centralities are separated by heavy traffic barriers. It has a high landscape potential due to the city channel, the railway slopes and the river, but this potential is being destroyed by recent constructions. Therefore, this location was chosen for a design intervention.

The basic idea is to reconnect the existing attractions, namely the old town, the train station, the city market and the recently developed creative quarter, by means of a landscape park which is an attraction in itself and at the same time a link between other attractions.

The park would be a continuation of an existing park chain around the old town. In fact, the park semi-circle was an initial idea of the city reconstruction in the middle of the 19th century, but it was never fully realised. The city channel would be opened up towards the river in both ends, and will have a small boat harbour at the historic location. The railway slope would be redeveloped into a landscape structure. Several new bridges across the channel would be constructed. The current bus terminal, shopping malls and the cinema complex would be relocated to the vacant area next to the train station. This way the bus terminal and the train station would form one traffic hub which would facilitate the commuting between the trains and the busses. In addition, a currently degraded areas behind the train station would be redeveloped. The traffic along the waterfront would be placed into an underground tunnel, and a boulevard with multiple functions would be developed on top. Public transport lines, including tram lines, would be adjusted.

[5] Local Scale Analysis Centralities and Flows



Fig.5.131 Old Town, Riga, 2006 Source: lv.wikipedia.org



Fig.5.132 City Market, Riga, 2011 Source: www.panoramio.com / Klavins D.



Fig.5.133 Central Station, Riga, 2009 Source: Iv.wikipedia.org / Vilnins J.



Fig.5.134 Creative Quarter, Riga, 2010 Source: spikeri.lv



Fig.5.135 City, Riga, 2010 Source: www.panoramio.com / VonRIX



Fig.5.136 Centralities, their functions and user flows Source: author

In the location multiple centralities come together, therefore, to understand how does the location functions and which links are necessary, it was important to define the centrality, its functions and the flows between the centralities.

In the project the centrality is defined as a key attraction with multiple functions. In total six centralities are identified: the old town, the central station, the city market, the creative quarter, city 1 and city 2 (fig.5.24). City 1 is a 19th/20th century development, which currently together with an old town forms a city core. City 2 is an industrial extension of a old town, which less functions. City 1 and 2 are large areas which in reality extend far beyond the conceptual scheme and are the user sources for other centralities. Since the project aims to establish the links between the old town, the central station, the city market and the creative quarter, these centralities are considered to be primary, while city 1 and 2 - auxiliary.

The old town and city 1 have most culture, education, entertainment, shopping, and tourist venues. In the old town there are 20 000 to 30 000 employees and 2 500 to 5 000 inhabitants. In city 1 - 30 000 to 40 000 residents and more than 50 000 employees. In city 2 - 30 000 to 40 000 inhabitants and 20 000 to 30 000 employees.

City market has 80 000 to 100 000 visitors every day. It functions from 7 a.m. to 5 - 6 p.m. seven days per week. In comparison to other retail centers, city market visitors have lower income, 63% of visitors are older than 44 years and a quarter of all the visitors are retired. An average consumer spends 10 to 15 euros per visit and most popular products are vegetables, meat and fish. The visitor emphasize, that the city market has poor connections to public transport and not enough parking spaces.

Creative quarter is not yet fully developed, and houses a chamber orchestra, performance and exhibition spaces, shopping and catering facilities.





Central train station has 38.0 millions visitors anually (city market - 29.0 millions) and has extensive catering and shopping facilities. It serves mostly satellite town commuters on daily basis, Riga residents who go outside the city for recreation on weekly basis and tourists. There are a lot of visitors who come to central station exclusively for shopping.

Between the primary centralities six types of user flows are identified:

1) market visitors;

2) everyday intercity commuters who come from satellite towns to Riga for work and/or studies,

3) occasional intercity commuters who come from other towns to Riga for business matters;

4) tourists;

5) workers from the city 1, 2 and the old town;

6) residents, mostly from city 1, 2.

Since user groups 3 and 4 have similar flow pattern they can be united into one group. At the same time group 2 can be subdivided into commuters and commuters-market visitors. Regular rents in satellite are lower (excluding some areas in Jurmala) therefore satellite town residents average income is lower than of Riga residents. They tend to have jobs with lower wages which are shift jobs, parttime jobs or have a working day shifted to the morning. Therefore, they can potentially be regular market customers who go there after the working day.

The design intervention and the above mentioned arguments regarding insufficiency of parking spaces caused some changes in the scenario 2.2 (fig..

Since all the car traffic and street parking is removed from the surface, it is necessary to introduce new parking garages around the old town. The multi-storey garages are preferable because they occupy less space and have higher capacity. The maximum walking distance from the garages to the destination is estimated to be 500m. One extra garage is introduced under the current industrial goods market to facilitate the access to the city market. The location corresponds to the one mentioned in Riga City Market Strategic Development Plan (2011). The other garage is introduced next to the opera house, under the opera stage scenery storage.








[5] Local Scale

Analysis Traffic flows | existing



Fig.5.140 Car flows, Riga, 2012 Source: author



Fig.5.141 Bus lines, Riga, 2012 Source: author

The most difficult issue in the current design are the traffic flows. All the traffic flows, including, public transport need to be redirected.

The 13 January street loop is restored to cross the city channel, so that the street goes perpendicularly to the channel and the bridge is reduced to minimum. This way the channel is maximally open.

The car traffic is completely removed, excluding service traffic. The cars, including service cars, access the city market from the south eastern direction (fig, 5.28, 5.30).

The busses go through the park area and cross the river via Stone bridge (fig.5.29, 5.31). However, there is no left turn for all traffic, excluding tram, at the crossing between the train station and the city market. that is why the bus/trolleybus traffic had to be separated from the tram traffic. The bus lines which used to have an end stop on the 13 January street and used to make a turn



[5] Local Scale

Design Traffic flows | planned



Fig.5.142 Car flows Source: author



Fig.5.143 Bus lines Source: author

around on the same street, in the new design make a loop around the university building and park segment. No bus stops need to be removed. New bus stops are established for the bus line no. 12 (the blue one) next to the city market.

[5] Local Scale Analysis Traffic flows | existing

- building
 new building
 green space
 water body
 viaduct / bridge / platform
 short bridge
 trams no. 2, 4, 5, 10
 trams no. 3, 7, 9
 trams no. 6, 11
 tram stop both directions, existing
 tram stop one direction, existing
- O tram stop both directions, new
- tram stop one direction, new



Fig.5.144 Trolleybus lines, Riga, 2012 Source: author



Fig.5.145 Tram lines, Riga, 2012 Source: author

Trolleybus lines are solved in a similar way to bus lines (fig. 5.32, 5.34). Additional stops are introduced next to the market.

Tram lines undergo significant redirection (fig. 5.33, 5.35). Currently, there are two tram loops, one of them goes around the university building and the other - around the railway slope and the city channel. In the new design both loops are united, to cut the park space in minimum points. Instead of two small loops, one big loop is created which wraps the market and the park area. This way the park, the city channel and the market area become one uninterrupted unit. New tram stops are established on both sides of a tram ring, so that market visitors can go through the whole market area and do not need to return back to the tram stop, but enter the trams on the other side of the ring. In fact, new bus and trolleybus stops were introduced for the same reason - to minimize the return distance.

- trolleybusses no. 9, 27
- trolleybus no. 13
- trolleybus no. 3
- trolleybusses no. 18, 23
- trolleybus stop, existing
- O trolleybus stop, new

[5] Local Scale

Design Traffic flows | planned



Fig.5.146 Trolleybus lines Source: author



Fig.5.147 Tram lines Source: author

In the new design all the public transport lines come together between the city market and the train station/bus terminal. All the public transport lines have stops here. This way the connection between the public transport lines, the train station and the bus terminal is facilitated.

[5] Local Scale Analysis Pedestrian flows | existing



Fig.5.148 City market visitors, Riga, 2012 Source: author



Fig.5.149 Intercity commuters, Riga, 2012 Source: author



Fig.5.150 Intercity commuters -- market visitors, Riga, 2012 Source: author



Fig.5.151 Old town workers, Riga, 2012 Source: author



Fig.5.152 Tourists, Riga, 2012 Source: author



Fig.5.153 All pedestrian flows and pavilion specialisation, city market, Riga, 2012 Source: author

As already mentioned in the previous section, there are five types of pedestrian flows in the area:

- 1) market visitors (fig.5.36, 5.42);
- 2) intercity commuters (fig.5.37, 5.43);
- 3) commuters market visitors (fig.5.38. 5.44);
- 4) workers (in the future) (fig.5.39, 5.45);
- 5) tourists (fig.5.40, 5.46).

The design is tailored to meet the needs of these user groups and facilitate the flows. Traffic barriers are reduced. Three new bridges are introduced:

1) diagonal bridge which connects the old town, the city market, the harbour and the creative quarter and which corresponds to the notion of market authorities to introduce an additional link across the channel;

2) viaduct which connects first three platforms of the train station directly to the old town and the park;

3) bridge which connects all public transport stops next to the station/bus terminal to the old town.

The diagonal bridge provides a missing connection between the eastern side of the old town, the harbour and the creative quarter. In addition, it directs the visitors towards the most popular market pavilion - the vegetable pavilion. Next to the bridge the stage and the amphitheatre are located.

The train traffic can be arranged in the way that first three platforms serve the satellite town and peripheral recreational area directions. This way the commuters and city residents will receive an opportunity to go directly from the old town to the platforms via a viaduct.

As the big shopping malls are eliminated and the third bridge is introduced, the commuters and the residents will be able to go directly to the old town, instead of making a big loop.

With the introduction of additional public transport stops and the parking, the access to the market is facilitated.

The new design allows pedestrians and cyclists to stay on the surface, instead of going underground, while crossing the traffic lines.

[5] Local Scale Design Pedestrian flows | planned



Fig.5.154 City market visitors Source: author



Fig.5.155 Intercity commuters Source: author



Fig.5.156 Intercity commuters -- market visitors Source: author



Fig.5.157 Old town workers Source: author



Fig.5.158 Tourists Source: author



Fig.5.159 All pedestrian flows and pavilion specialisation Source: author

Since the city market aims to attract a variety of user groups, including families, tourists and nearby office workers, some new functions are introduced, namely the catering facilities and the tourist information centre. Both are located next to the channel and the park, as close as possible to the old town and in the scenic location (fig.5.47).

[5] Local Scale Design Landscape|spaces|edges



Fig.5.160 Landscape park City Channel Park, Riga Source: www.panoramio.com



Fig.5.161 Railway slope Parc de la Marina, Viladecans Source: Battle i Roig Arquitectes



Fig.5.162 Waterfront promenade Battery Park, New York Source: worldislandparadise.com



Fig.5.163 Waterfront terraces Hafencity, Hamburg Source: author



Fig.5.164 Landscape type Source: author



Fig.5.165 Edge type Source: author

There are four types of landscapes in the design. Each landscape is characterised by a different pavement and vegetation pattern, functions and the relationship with the water, t.i. edges (fig.5.54 - 5.58).

1) **The landscape park** (fig.5.48) has large trees planted in a 'natural' pattern. It has smooth grass slopes towards the river and the channel. Across the harbour it has a curved path going down to the water which is decorated with rip-rap slopes (fig.5.55). Across the city market and the stage the park has two amphitheatre slope with wooden places to sit (fig.5.56).

2) **The railway slopes** (fig.5.49) have a variety of small vegetation, like various species of grass bushes and small trees which a planted to form scenic patterns.

3) The waterfront promenade (fig.5.50) has an urbanized character with trees planted in lines. In the middle section of the promenade trees form a



Fig.5.166 High urban edge Battery Park, New York Source: en.wikipedia.org



Fig.5.167 Smooth slope Brooklyn Bridge Park, New York Source: Michael van Valkenburgh Asoc.



Fig.5.168 Terrace 21st C Waterfront Park, Chattanooga Source: Hargreaves Assoc.



Fig.5.169 Low urban edge Kalvebod Waves Source: JDS Architects









Fig.5.170 Sections (for location see Masterplan) Source: author

more 'natural' pattern and are bigger. In the trees are alternated with children playgrounds and sport fields. The amount of paved surfaces is higher than in the landscape park. The promenade has a high urban edge which is interrupted by the terraces (fig.5.54, 5.57).

4) **The terraces** are located very low by the water and can flood by higher water levels in spring and autumn. They do not have vegetation and are all paved (fig.5.51, 5.57).

[5] Local Scale Design Landscape topography		
+13 n +13 n +6 buildings existing buildings new +/-0 canal		
Fig.5.171 Site topography, modified Source: author		



Towards a Green Metropolis: Designing a Waterfront in Riga

[5] Local Scale Design Public spaces | squares



Fig.5.173 Through traffic square Bailey Plaza, Ithaca Source: Michael van Valkenburgh Assoc.



Fig.5.174 Square for staying Pioneer Corthouse square, Portland Source: www.pps.org



Fig.5.175 Shopping square Grass market, Dome square, Riga Source: epadomi.lv



Fig.5.176 Square for playing Urban volleyball, Battery Park, New York Source: Project 90 days



Fig.5.177 Semi-private square Berga bazars, Riga Source: www.liveriga.com



Fig.5.178 Mood creating square Carlsberg factory patio, Copenhagen Source: author



Fig.5.179 Square and their functions Source: author

The design adds a number of new public spaces to the location, namely squares and green playgrounds/sport fields (fig.5.61 - 5.67). These public spaces have various functions and character. The squares are relatively small compared to other squares with similar function (fig.5.68, references from Copenhagen and Portland), therefore they should function well.



Fig.5.180 Square send references e: author

Among other squares, a tree square is worth mentioning (fig.5.66, fig.5.67, top section). This square is filled in with the trees and marks the end of the waterfront promenade and the underground high-speed traffic tunnel, where traffic enters the surface.

Some squares, as for example, those in creative quarter, are semiprivate (fig.5.65, 5.67, bottom section). They belong to the organizations and companies, located in the quarter and are meant for the visitors and workers.

[5] Local Scale Design Public spaces | buildings



Fig.5.185 Buildings and their functions Source: author

In addition to public spaces, some public buildings are introduced (fig.5.73).

Multi-functional pavilions are located all over the waterfront promenade and on the platforms. They house small catering facilities, sport equipment rental, local artisans and toilets. Pavilions can be used for children day care centers and temporary art exhibitions if necessary. All pavilions are designed in the same style, like Parc la Vilette Pavilions (fig.5.69) and are meant to bring unity and continuity into the promenade design.

Under the railway tracks an **alternative art gallery** is erected (fig.5.70), which 'addresses neglected spaces' (Malka, 2001-2011). The gallery reminds of the previous condition of the current park which used to be a non-place.

On both sides of the city channel, next to the new bridge, an **open air theatre** is constructed (fig.5.71). Regent's park Open Air Theatre shows that the amphitheatre could function in local weather conditions in summer. The market pavilions provide a setting for the stage. The theatre addresses the notion of the market authorities to develop culture at the market. The theatre could house the summer opera festival and regular open-air concerts during public celebrations.

At the harbour a water sport centre is located. The building is partially located on a low terrace and faces the fiver and the channel. Therefore it can be occasionally flooded by high water levels. To avoid the damage, the first floor of the building houses a boat storage and has flood-proof doors, like Hafencity buildings in Hamburg (fig.5.72).



Fig.5.181 Pavillions Parc la Vilette, Paris Source: www.flickr.com / Saaby T.



Fig.5.182 Museum under the railway Galerie Bunker Source: Malka Architecture



Fig.5.183 Stage Regent's park Open Air Theatre, London Source: openairtheatre.org, Staro Riga 2010



Fig.5.184 Marine center Hafencity. Hamburg Source: author

[6] Reflection

Scientific framework Studio I theme I methods I organisation

studio themes

water management city and port

student themes

recreational spaces

- typology
- levels
- · accessibility

barriers

- spatial
- linear

centralities and flows

The relationship between my project and studio themes and methods is quite weak. I wanted to work on the theme I am interested in and I chose the research methods which would help me to answer the research question. It was not my goal follow the studio theme and specific methods. I must admit though that initially I chose the subject with respect to the studio topic.

Theme

Initially, I wanted to graduate in the Design as Politics Studio, because I was fascinated by the subject and the way it was taught, but in autumn semester 2011 it was not on the Graduation Studio list. Therefore, I had to pick out of four offered studios which were Complex Cities, Delta Interventions, Urban Regeneration and The Why Factory. I did not want to join the Complex Cities and Urban Regeneration because I have been working with the mentors from these studios in previous semesters and for my Master Thesis I wanted to change the perspective and work with different mentors. Besides, Urban Regeneration did not have a studio web site and I have missed studio presentation due to being busy with the project work, so I cold not find detailed information about the studio, student projects and mentors. I did not want to join The Why Factory as well because it did not offer the opportunity to choose the research and design subject. Thus, the only studio left was Delta Interventions. Furthermore, water management is a expertise field of the Netherlands, so I thought I could learn a lot of new and interesting information about that. Besides, the studio was advertised as being versatile and focusing on delta settlements in general, rather than solely on flood protection. The studio was chosen by the method of exclusion, t.i. I was not interested in this particular studio and its theme, I could not join the studio that I wanted, and I did not want to join other studios either. I think, that is why my project and the methods are not corresponding with the studio.

In contrast to what was advertised, the studio focused mainly on water management. In my view, there was a strong shift towards engineering and environmental studies. Namely, we had guest experts from engineering faculty and lectures on water management strategies and the means of flood protection, like dikes, flood barriers, locks, soft protection etc. We also had to make a studio booklet which would include the research on different rivers on such topics like climate, discharge, landscapes, geomorphology, salinisation, sedimentation, soil subsidence, settlement patterns etc. The booklet, finally, was not finished because some students failed to deliver their sections of the booklet. In my view, these themes are too specific and not useful for every project. Furthermore, for some rivers it is hard to find information or there is no such information. Besides, the research on the whole river scale on all these aspects, in may case, was useless. However, the results of the research on the dam construction and subsequent land reclamation and island consolidation in the delta were interesting. Furthermore, the study of the changing relationship between the city and the river helped me to come to my design. However, in the studio, I was really lacking an urban planning/design aspect.

Respecting the studio theme, initially, I wanted to develop a waterfront in the city of Riga focusing on water management and seasonality issues. I have chosen Riga because it is my home city and I know it very well, besides currently the waterfront development is topical question for the city. However, further research and the necessity to look at the city scale changed my priorities and research question. Turned out that in comparison to other deltas, namely, Rhine-Maas, Elbe and Mekong (the deltas that we have studied /visited with the studio), Daugava river delta with average water level fluctuations of two meters is not endangered. Furthermore, while some peripheral areas of the city do occasionally flood, the city centre, the area of my interest, is rela-

studio methods

3x3 analysis multiple case studies

student methods

spatial analysis

- sampling
- size-distance studies

fieldwork incl. sequential analysis

scenario building incl. SWOT

historic reconstruction

tively well-protected. Certainly, the flood protection should be incorporated into design, but it should not be the main focus of it. Furthermore, keeping the waterfront attractive is important in all seasons, but seasonality is not a main problem that keeps the waterfront empty. Instead, the accessibility, low spatial quality and the lack of functions are the key issues. This forced me to zoom out to the city scale and look at the waterfront area in the city context. At this point I understood that the waterfront is a local manifestation of fundamental city problems, that are related to inaccessibility of recreational spaces and infrastructure barriers. That is how the project became detached from the studio framework, because the problems were not related to water management anymore. The accessibility theme seemed to have more potential in case of Riga, therefore I decided not to pursue the studio research theme anymore.

Methods

The methods exploited by the studio were 3x3 analysis (landscape, infrastructure and occupation in three time periods) and multiple case studies. These methods were not suitable for my project. The 3x3 analysis implies, that there is information on all these aspects in three time periods, however for the city of Riga there were no historic topographic maps available. For 3x3 analysis I made the landscape layer based on text information and conceptual drawings. The concept of layers in different time periods was useful. Therefore , I have modified the analysis by adding the layers that I was interested in and excluding the irrelevant layers. In such a way I got all the historical development analysis in my project.

The multiple case studies implies that multiple settlements are analysed on one scale and one aspect. This is useful for the regional scale strategy or for the general guidelines, namely if there are multiple similar settlements in similar situation, that are to be developed in one or several ways. For instance, seaside towns in the Netherlands (developed in the studio by Maike Warmerdam) or Rijnmond delta settlements (developed in the studio by Robert de Kort). In my case, when I work with one large complex city, the method is not applicable. Instead, of studying many settlements on one scale and aspect, I chose to study one city on many scales and aspects.

The main method I have used was spatial analysis of current situation on various aspects. All the maps were done manually, however some studies could be done with GIS applications. These are sampling (on typology and greenness of neighbourhoods) and size-distance studies (with/without barriers, on provision/accessibility of green spaces). The simplified version of size-distance studies was adopted from Herzele and Wiedermann (2002). Manual maps were very time consuming. Unfortunately, I did not have enough time to explore the existing software opportunities.

The other methods included scenario building, fieldwork and historic reconstruction. Scenario method was exploited by other students in the studio as well to illustrate possible future development directions. I think it is useful to combine it with SWOT analysis of each scenario and in this way to chose the best option.

I have used historic reconstruction where no existing fine scale were available, namely in the design location historic development study. I have used historic maps as a base, but they were on a very large scale and with no details that I needed. Therefore I had to use old photos, drawings and text information. It was a very interesting process, because apart from the information needed I have found a lot of facts about my city and how it used to look like.

In general, for Riga it was really hard to find the data and the maps. Most of the information is not digitalized, so I had to go to a local archive during my visits to Riga or ask someone to scan the data I needed and send to me. For many aspects there was no research conducted, and consequently no information at all.

Organisation

We had studio meeting during the first graduation semester only. It was a pity, that for many meetings there were only one studio mentor available. There were guest mentors, but they were in the studio for a limited time only, besides they were not familiar with student projects and the feedback they provided was quite superficial. In my view, it was the reason why the studio had such a narrow focus. I believe, there had to be at least two regular mentors with different areas of interest and expertise to ensure a broader scope.

It was also unnecessary to invest as much time into the studio booklet, as we did. In fact, I doubt if it necessary to make it at all. I think it would be better if we used this time to work on our individual project.

Furthermore, due to construction works, we had to change our studio space several times, which was rather inconvenient. However, the space problem is not just the studio problem, but the problem of the faculty of architecture in general.

For the Thesis Plan I have developed very detailed time schedule and the list of interconnected research questions, methods and products. In the work process many aspects that I initially intended to research turned out to be unimportant, at the same time, many new questions arouse. That is why the schedule changed as well. In general, I succeeded to deliver the products on the expected due dates, namely, main body of research - on P2, vision and scenarios - on P3, design - on P4. However, all the products had to be adjusted later and extra research had to be added. In fact, there was no need for such a detailed plan.

[6] Reflection Scientific framework Research and Design





Fig.6.186 Research, design and scale relation, how it is in the project Source: author

The author's fundamental approach was working through scales, in a way that research and design on a finer level adds to the greater level and *vice versa*. Due to the studio framework and the necessity to clarify some aspects on a larger scale, the project has five scales. The research is conducted on all the five scales, but the design is restricted to three because the design on a certain scale requires the research on a greater scale. Thus the delta and metropolitan scale research are additional scales, required to understand the finer scales.

Ideally, all the design and research scales should be interconnected, and the process between the research and design should be circular. T.i. the initial design stems out of the research, and triggers new research as new questions arise in the design process. The research on a greater scale adds knowledge to the finer scale and research on a finer scale generates questions for the greater scale and *vice versa*.

In reality (fig. 6.1) it did not work in this way partially because of time limitation and partially because all the principal questions were answered. In fact, the circular design-research relationship was necessary and conducted on the local scale only. On other scales the design followed the research.

Not all the research scales are interconnected. Although, all the important connections are there, some of them could be stronger. Especially, between the delta and the waterfront scales. There are some interesting findings on the delta scale, which could have been better articulated on the waterfront scale in maps. Between some scales, as for example, between the research on local and city scales, the connection was not necessary, because they are already connected through a waterfront scale. At the same time, as the metropolitan and delta scales are there to answer specific questions, they are not connected to all scales as well.

Generally, all the research questions were answered. However, in the work process the questions had to be reformulated twice (see Thesis Plan). First set of questions, as already mentioned, was focused on the water management and seasonality. Second set was focused on city branding. However, in further research it became clear, that, on the one hand, problems related to those questions are not principal, but rater consequence of fundamental city problems. On the other hand, other problems, like attracting residents to the city, could not be solved solely within the discipline of urbanism. The delta scale related questions were not finally included in the project, because they were studio related, and were not strongly related to final design.

[6] Reflection Social framework Project Relevance



Fig.6.187 City Architect's office web-page

Rīgas ūdensmalu apbūves perspektīvas

Ārvalstu arhitektus un pilsētas plānotājus, kas nesen pulcējās plašajā "Waterfront Expo 2005" konferencē Rīgā, pārsteidzis cilvēkiem nepieejam un neizmantojamo piekrastes teritoriju daudzums mūsu valsts galvasolisētā.

> Fig.6.188 Newspaper article on the perspectives of waterfront development



Fig.6.189 Daugava River waterfront development proposal Source: PVB, 2004-2009

Before the 2008/2009 financial crisis there was an active debate about the development of Daugava river quay and the islands. Multiple architecture visions were created and competitions were held. Foreign and local architecture offices came up with their proposals. There were multiple visions of island and riverside development, including the floating constructions attached ti the quay (fig.6.4, see also Chapter 1). However, as it is obvious from the drawings and impressions, all the visions generally involve architectural dimension and do not propose any substantial changes for improvement of the urban environment. Indeed, the location by the water is advantageous for real estate commercial development as it allows to make fast and high profits, but involvement of public interests might slow down the building process and reduce the benefits.

After the financial crisis the urban development slowed down, but there is still a debate going on. The Riga City Architect's office has commissioned to the local architecture office 'EgG' the strategy for the waterfront development (fig.6.2). At the same time a slow, but steady regeneration of a former port area on the peninsula of Andrejsala is going on.

It is clear, that the waterfront is a ongoing topic of public debate and urban visions. Besides, the riverside has a large future development potential and is capable of attracting significant private investment.

The project is aimed to trigger public discussion about the future development of the waterfront, showing the redevelopment options which primarily serve public interests with no private sector involved. The author intends publish some extracts from the projects in the local newspaper.

[6] Reflection Social framework Ethical Problems



Fig.6.190 South Bridge, Riga, 2009 Source: www.panoramio.com / Klavins D.



Fig.6.191 South Bridge, Riga, 2009 Source: www.panoramio.com / Renatorius



Fig.6.192 South Bridge, Riga, 2008 Source: AFI

Such an ambitious project as a waterfront redevelopment requires large investments. However, it is expensive to realize national and/or city funded projects in Latvia. The experience shows that such mega-projects as Southern Bridge (Dienvidu tilts) (fig.6.5 - 6.7) in Riga, for example, become a device for peculation of the state funds. According to the head of the state control committee Sudraba (LRVK, 2009) 27 billions lats (38 billions euro) out of 570 billions lats (803 billions euro) of total expenses were embezzled and 264 billions lats (372 billions euro) were spent on acquiring the funds. TV5 reporters argue that the construction of the Southern Bridge was much more expensive than the construction of Puente Rion (Greece) and Millau Viaduct (France) which are internationally recognized engineering wonders (Смирнов, 2009).

Private investors are much more money efficient, but it is impossible to realize such big projects with private sector funding only (Piterniece, 2006). Furthermore, private investors tend not to consider public interests. Anyway, due to a strong link between private companies and governance structures and lack of public control the realization of mega-projects for public needs turns out to be complex.

Besides, a large amount of land in Riga belongs to private land-owners which are interested to sell it for the highest price which becomes another source of speculation.

In general, to be realised the project needs a political decision. The recreational space network strategy is very difficult to realise as designed. There is a danger, that centrally located areas only will be redeveloped, while the other locations will remain degraded.

The waterfront proposal and the actual design intervention are more feasible. However, they require the elimination of a highly profitable shopping mall. In fact, that shopping mall was built against the city development rules and the city authorities did nothing to protect public interests. Most architects consider the building an eyesore and express the opinion that the city should get rid of it. Therefore, it is questionable weather city authorities will have enough political will to follow public interests and go against the private investors and developer.

[0] Keywords | References

Keywords|

Daugava river delta; Daugava river delta development; island consolidation and land reclamation in Daugava river delta;

city of Riga;

spatial quality of urban environment;

Riga city recreational spaces; recreational space development strategy; recreational space quality; recreational space functional levels; recreational space accessibility;

Riga city waterfront; waterfront redevelopment; waterfront regeneration; waterfront spatial quality; waterfront accessibility; waterfront development scenarios.

Literature

1899. Планъ г. Риги съ окрестностями (Иллюстрация из энциклопедического словаря Брокгауза и Ефрона (1890—1907)).

1916. Планъ г. Риги, 1:25200. Рига: Іонкъ и Поліевскій.

2011a. Delta Interventions Semester Book [Online]. Available: http://www. deltainterventions.com/ [Accessed 09 2011].

2011b. Rīga. Centra plāns, 1:10 000. Rīga: Jāņa Sēta.

2011c. Rīgas plāns, 1:20 000. Rīga: Jāņa Sēta.

2012. Rīgā sāks līdz šim vērienīgāko parku un dārzu sakopšanu. DELFI [Online]. Available: www.delfi.lv [Accessed 15/06/2012].

ĀBELTIŅA, M. 2010. Līdz gadsimta beigām Rīgā iespējami ievērojami plūdi. Available: www.rigapretpludiem.lv [Accessed 09/2011].

ARHIS 2005. Lucavsalas teritorijas attīstības vīzija. Rīga.

ASSINK, M. & GROENENDIJK, N. 2009. Spatial quality, location theory and spatial planning. Regional Studies Association Annual Conference 2009: understanding and shaping regions: spatial, social and economic futures.

AUTOOSTA.LV. 2005. Kustību saraksts [Online]. [Accessed 06 2012].

BEBRIS, R. A. 2010. Visapkārti smilšu kalni, pati Rīga ūdenī. Vides Vēstis [Online]. Available: www.rigapretpludiem.lv [Accessed 11/2011].

BRENNAN, D., PRESTON, N., CLAYTON, H. & BE, T. T. 2002. Shrimp Farming and the Environment: an evaluation of rice-shrimp farming systems in the Mekong delta.

BROTZE, J. C. 1798. Riga nebst den unter dem Polizeyamt stehenden Vorstädten.

BROWN, J. & MECZYŃSKI, M. 2009. 'Complexcities': Locational choices of creative knowledge workers. Built Environment, 35, 238-252.

CARMONA, M. 2007. Public places - urban spaces the dimensions of urban design, Oxford, Architectural Press.

CHATTERTON, P. & HOLLANDS, R. 2002. Theorising urban playscapes: Producing, regulating and consuming youthful nightlife city spaces. Urban Studies, 39, 95-116.

CYBRIWSKY, R. 1999. Changing patterns of urban public space. Observations and assessments from the Tokyo and New York metropolitan areas. Cities, 16, 223-231.

ECOTEC RESEARCH AND CONSULTING LTD. 2007. State of European Cities Report - Adding value to the European Urban Audit. European Comission.

FLORIDA, R. 2002. The rise of the creative class: why cities without gays

and rock bands are losing the economic development race. Washington Monthly [Online]. Available: www.washingtonmonthly.com [Accessed 12/2011].

FLORIDA, R. 2003. Cities and the creative class. City & Community, 2, 3-19.

FORMA 2008. Andrejsala, Rīgā detālplānojuma apbūves risinājums un apbūves vizuālās ietekmes analīze. Rīga.

GEHL, J. 2010. Cities for people, Washington, Island Press.

GLAESER, E. L. 2004. Review of Richard Florida's The Rise of the Creative Class. Review of Richard Florida's The Rise of the Creative Class.

HAZANS, M. 2011. Kas šodien dzīvo Latvijā? Reālā demogrāfiskā situācija šķērsgriezumā. LU Ekonomikas un vadības fakultāte.

HOOIMEIJER, F., MEIJER, H. & NIENHUIS, A. 2009. Atlas of Dutch water cities, Amsterdam, SUN.

KAVARATZIS, M. 2004. From city marketing to city branding: Towards a theoretical framework for developing city brands. Place Branding and Public Diplomacy, 1, 58-73.

KAVARATZIS, M. 2008. From City Marketing to City Branding: An Interdisciplinary Analysis with Reference to Amsterdam, Budapest and Athens. PhD Dissertation, University of Groningen.

KAVARATZIS, M. & ASHWORTH, G. J. 2005. City branding: An effective assertion of identity or a transitory marketing trick? Tijdschrift voor Economische en Sociale Geografie, 96, 506-514.

KONIJNENDIJK, C. C. 2010. Green cities, competitive cities – promoting the role of green space in city branding. 22nd IFPRA World Congress: quality services – parks, recreation and tourism. Hong Kong, China.

KRIŠJĀNE, Z. & BAULS, A. 2011. Latvijas iedzīvotāju starpvalstu mobilitāte pēc Eiropas Savienības paplašināšanās. Latvijas Zinātņu Akadēmijas Vestis, 65, 71-85.

KUBS 2009. Daugavas labā krasta telpiskās un plānojuma attīstības koncepcija. Riga: A4D.

LATVIJAS DZELZCELŠ. 2004-2007. Interaktīvais iekšzemes satiksmes vilcienu kustības saraksts [Online]. Available: www.ldz.lv [Accessed 06 2012].

LATVIJAS NACIONĀLĀ DIGITĀLĀ BIBLIOTĒKA LETONICA. 2012. Zudusī Latvija senos zīmējumos, atklātnēs un fotogrāfijās no 19. gs. beigām līdz mūsdienām [Online]. Available: www.zudusilatvija.lv [Accessed 05 2012].

LATVIJAS REPUBLIKAS VALSTS KONTROLE (LRVK) 2009. Dienvidu tilta pār Daugavu Rīgā projektēšanas, būvniecības un finansēšanas atbilstība normatīvo aktu prasībām. Riga.

LATVIJAS VIDES ĢEOLOĢIJAS UN METEROLOĢIJAS CENTRS (LVĢMC). 2010. Gaisa temperatūra virs +30°C - vai šāds karstums Latvijai ir

raksturīgs? [Online]. [Accessed 02 2012].

LATVIJAS VIDES ĢEOLOĢIJAS UN METEROLOĢIJAS CENTRS (LVĢMC). 2010. 2010. gada jūlijs – vissiltākais Latvijā pēdējos 95 gados [Online]. [Accessed 02 2012].

LORENTZEN, A. 2008. Knowledge Networks in the Experience Economy: An Analysis of Four Flagship Projects in Frederikshavn. Department of Development and Planning, Aalborg.

LORENTZEN, A. 2009. Cities in the experience economy. European Planning Studies, 17, 829-845.

LORENZEN, M. 2010. Knowledge city models: lessons from a study of the Danish creative class. The 3rd Knowledge Cities world summit: from theory to pretice.

LR CENTRĀLĀ STATISTIKAS PĀRVALDE 2009. MAG06. Dzīvojamais fonds gada beigās (milj. m2 kopējās platībās).

LR CENTRĀLĀ STATISTIKAS PĀRVALDE. 2011. Latvijas Statistika [Online]. Available: www.csb.gov.lv/ [Accessed 02 2012].

MEYER, H. 1999. City and port urban planning as a cultural venture in London, Barcelona, New York, and Rotterdam: changing relations between public urban space and large-scale infrastructure, Utrecht, International Books. P.V.B. 2009. Riga Marine City. Riga.

PADDISON, R. 1993. City marketing, image reconstruction and urban regeneration. Urban Studies, 30, 339-350.

PECK, J. 2005. Struggling with the creative class. International Journal of Urban and Regional Research, 29, 740-770.

PITERNIECE, I. 2006. Ūdensmalu attīstība - vilinoša, bet lēna. Jaunie Projekti, [Online]. Available: http://www.apollo.lv/portal/ipasums/articles/71345 [Accessed 10/2011].

PRILENSKA, V. 2010. Riots in Riga. Delft.

PROCESU ANALĪZES UN IZPĒTES CENTRS (PAIC) 2011a. Ar klimata pārmaiņām saistīto hidroloģisko procesu patreizējā un potenciālā ietekme uz Rīgas pilsētas teritoriju. Riga.

PROCESU ANALĪZES UN IZPĒTES CENTRS (PAIC) 2011b. Ar klimata pārmaiņām saistīto hidroloģisko procesu patreizējā un potenciālā ietekme uz Rīgas pilsētas teritoriju un rekomendāxiju izstrāde Rīgas pilsētas teritorijas aizsardzībai. Riga.

PŪKAINE, I. 2011. Latvijas ģeogrāfijas atlants. Rīga: Karšu izdevniecība Jāņa Sēta.

RĪGAS DOME. 2003-2011. Rīgas Pašvaldības portāls [Online]. Available: www.riga.lv [Accessed 02 2012].

RĪGAS DOME. 2006-2008. Rīgas Vēsture [Online]. Available: www.ri-

gasvesture.lv [Accessed 02 2012].

RĪGAS DOMES PILSĒTAS ATTĪSTĪBAS DEPARTAMENTS (RDPAD) 2005a. Rīgas attīstības plāns 2006.-2018. gadam.

RĪGAS DOMES PILSĒTAS ATTĪSTĪBAS DEPARTAMENTS (RDPAD) 2005b. Rīgas attīstības programma 2006.-2012. gadam.

RĪGAS DOMES SARIKSMES DEPARTAMENTS (RDSD). 2012. Veloceļi Rīgā [Online]. Available: www.rdsd.lv [Accessed 06 2012].

SCHALLER ARCHITEKTEN BDA RIBA 2007-2012. New Hanza City, Rīga. Riga.

SCHMITT, P. & DUBOIS, A. 2008. Exploring the Baltic Sea Region – On territorial capital and spatial integration. Stockholm: Nordregio.

SCOTT, A. J. 2006. Creative cities: Conceptual issues and policy questions. Journal of Urban Affairs, 28, 1-17.

SIA 'ERNST & YOUNG BALTIC' 2011. RPAS 'Rīgas Centrāltirgus' Stratēģiskās attīstības plāns 2011.-2018. g.

SIA 'METRUM' AND RĪGAS DOMES PILSĒTAS ATTISTĪBAS DE-PARTAMENTS 2007. Apkaimju attīstības projekta apakšprojekts Apkaimju ekonomiski-ģeogrāfiskais apraksts, 1. daļa. Rīga.

SMITH, A. & VON KROGH STRAND, I. 2011. Oslo's new Opera House: Cultural flagship, regeneration tool or destination icon? European Urban and Regional Studies, 18, 93-110.

SOLECKI, W. D. & WELCH, J. M. 1995. Urban parks: Green spaces or green walls? Landscape and Urban Planning, 32, 93-106. SPACE GROUP 2007. Zakusala. Riga.

TEMELOVÁ, J. 2007. Flagship developments and the physical upgrading of the post-socialist inner city: The Golden Angel project in Prague. Geografiska Annaler, Series B: Human Geography, 89, 169-181.

TOCKNER, K., ROBINSON, C. T. & UEHLINGER, U. 2009. Rivers of Europe Online resource, London, Academic Press.

TRIP, J. J. 2007. Assessing Quality of Place: a comparative analysis of Amsterdam and Rotterdam. Journal of Urban Affairs, 29, 501-515.

VAN HERZELE, A. & WIEDEMANN, T. 2003. A monitoring tool for the provision of accessible and attractive urban green spaces. Landscape and Urban Planning, 63, 109-126.

VANOLO, A. 2008. The image of the creative city: Some reflections on urban branding in Turin. Cities, 25, 370-382.

ZEIDS, T. & VĒSTURES INSTITŪTS (LATVIJAS PSR ZINĀTŅU AKADĒMIJA) 1978. Feodālā Rīga, Rīga, Zinātne.

ZVIRGZDIŅŠ, A. 2006a. Snøhetta uzvar plenērā par Spīķeru kvartālu

[Online]. Rīga. Available: www.a4d.lv [Accessed 05 2012].

ZVIRGZDIŅŠ, A. 2006b. Spīķeru kvartāla labākais projekts [Online]. Rīga. Available: www.a4d.lv [Accessed 05 2012].

ZVIRGZDIŅŠ, A. 2007. Stockmann plenēra rezultāti [Online]. Rīga. Available: www.a4d.lv [Accessed 05 2012].

ZVIRGZDIŅŠ, A. 2012. Centrāltirgus attīstības vīzija [Online]. Rīga. Available: www.a4d.lv [Accessed 06 2012].

КАЗАКОВ, К. 2004-2012. Погода и климат [Online]. Available: www. pogoda.ru.net/ [Accessed 11 2011].

СМИРНОВ, Д. & AL., Е. 2009. Вся правда о Южном мосте. Riga: TV5.