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Management of industrial brownfields
in the context of the post-socialist city.
The case study of Kostanay (Kazakhstan)

La gestion des friches industrielles
dans le contexte de la ville postsocialiste.
L'étude de cas de Qostanaï (Kazakhstan)

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PREFACE

The present thesis is the result of two years (2014-2016) studies within the Master Programme Erasmus Mundus TPTI (Techniques, Patrimoine, Territoires de l'Industrie) coordinated by the University of Paris 1 Panthéon-Sorbonne (France) in collaboration with the University of Padua (Italy) and the University of Évora (Portugal). The thesis consists of two parts: first part is the personal project entitled "*Management of industrial brownfields in the context of the post-socialist city. The case study of Kostanay (Kazakhstan)*"; and the second part is the collective project or "projet tutoré" on the topic of tramway.

The Master course started in University of Paris 1 Panthéon-Sorbonne. The main subject of the semester was dedicated to History and Anthropology of Techniques. Various discourses and rationalities were opened within seminars and lectures with participation of specialists and researchers from the different countries and various fields. Thus, it allowed us to look at the presented topics from several angles and construe more rational analysis in the end of the course. The semester in University of Paris 1 Panthéon-Sorbonne has introduced us to the problematic of industrial heritage later developed in University of Padua. Therefore, it gave us possibility to make the first steps in the personal project closely related to the subject of industrial heritage. The periodical meetings with assigned adviser from the Center of Social History as well as well-developed network of libraries in Paris have allowed us to advance in research of bibliography for the personal project. The work on collective project also have started during the semester in Paris. By means of the web-conferences with tutor we defined objectives and general tasks of the research team. Moreover, the lectures and seminars on property law and law on cultural heritage gave us theoretical tools to approach the collective project through the legal aspect. Generally speaking, the semester in Paris was the starting point both in the personal and collective research and have introduced us to the work in a multicultural environment.

The second semester in the University of Padua was dedicated to Conservation, Management and Communication of Industrial Heritage and Landscape. Here, industrial heritage was approached from various disciplines such as museology, business archives, urban renewal, local development and industrial archeology. The seminars with participation of specialists and researches from Italy, Argentina, Spain and Poland were accompanied by numerous study visits. Thus, the perfect balance of theory and practice have allowed us to discuss and construe more rational approach to industrial heritage.

The third semester in the University of Évora was devoted to Management and Enhancement of Historical and Cultural Heritage. The courses were organized through the seminars and lectures such as methodology of research, images as sources of heritage of technic, the landscape of

technical innovations, ecosystems, landscape and management of heritage. The semester was as well reach for study visits to industrial landscapes where through discussion with specialists in situ we could understand the eventual issues in management of industrial landscapes. One of the greatest experience during the semester in University of Évora was the Workshop “Narratives of heritage”. The public presentation of the research helped us to make the first corrections and advance in personal project. The workshop as well was a great opportunity to exercise collective organization of scientific events.

After the semester in Évora we started “mobility of specialty” or “la mobilité de spécialité” within Czech Technical University (CVUT) in Prague. The main objective of the mobility was the comparative research of post-socialist cities. In the course of 5 weeks, data was collected in the local museums (National technical museum, National museum), libraries (National technical library, Library of French Research Center in Humanities and Social Sciences), Archives (National Technical Museum Archives) and sites visits. The results of the comparative analysis were presented in the 4th session of Workshop “History of technic: industrialization in Europe XIX-XX century” held in Czech Technical University in Prague.

The last semester in University of Padua was dedicated to design of the thesis. These last six month of the Master were as well intense and fruitful both in terms of research and personal development. Most prominent experience during the semester was the Summer School organized by University of Lodz in Poland where we participated as the students of Master TPTI Programme and the University of Padua. The main subject of the Summer School was “Social and economic heritage of industrial city”. The intense programme of seminars and lectures with participation of specialists from Poland, Italy, Brazil and Ecuador in combination with study visits in former industrial sites gave the new ideas and possibility to farther advance in the personal research.

In order to keep integrative approach of the Programme during all four semester of the TPTI Master Programme we were participating to numerous web-conferences organized by the members of Consortium.

Together with invaluable knowledge and skills, the Master Programme opened up the possibility for the personal development, such as ability to work in multicultural environment and proficiency in several languages: French, English, Italian, and Portuguese.

MASTER THESIS

*Management of industrial brownfields in the context of the post-socialist city.
The case study of Kostanay (Kazakhstan)*

ABSTRACT

The theme of reuse and rehabilitation of abandoned industrial spaces have emerged once it had grown into an increasable economic, cultural, and to an extent even political problem. In Western Europe, this has been the case since the mid-Seventies, primarily as a result of the energy and processing industry crisis leaving hundreds of industrial buildings and complexes empty. A similar process, at least at first glance, now is underway in the formerly Soviet countries. Similar, yet with a delay of several decades. Here, the industrial reconversion topic started to gain particular interest from 1990th as a result of restructuring, deliberate reduction of heavy industry and privatization in industrial sector.

The present study focuses on the case of Kostanay, the city which in terms of spatial structure gives an example of every type of architectural and industrial combination possible from outright urban structure of post-socialist city. Here, in the process of transition to the market economy and deep restructurings, many urban and industrial elements left behind their initial activities and today are in the way to be completely destroyed.

The socio-economic conditions as well as administrative and legal models inherited from the socialist past are still passing through continuous transformations and creating unfavorable conditions for possible industrial reuse projects.

The present study tends to deepen understanding of industrial heritage-site management as a networked, multidimensional task involving the aspect of local development.

The interdisciplinary approach of the research based on the case study and comparative analysis connects a diversity of rationales and discourses, including heritage management, urban planning, and heritage regulations.

Thus, the study proposes management concept of industrial brownfields of Kostanay build according three main categories of post-socialist development, including urban, institutional and legal transformations.

RÉSUMÉ

Le thème de la réutilisation et de la réhabilitation des industries abandonnées a émergé une fois que désindustrialisation avait commencé de susciter des problèmes économique, culturel, voire même politique. En Europe occidentale, le schéma était comparable depuis le milieu des années 1970, essentiellement dû aux conséquences de la crise énergétique et de l'industrie, laissant des centaines de complexes industriels vides. Le processus similaire, au moins en première lecture, est actuellement en cours dans les pays post soviétiques, avec un décalage de plusieurs dizaines d'années. Ici, la question de la reconversion industrielle a commencé de susciter un intérêt depuis les années 1990 suite à la réduction délibérée de l'industrie lourde et de la privatisation dans le secteur industriel.

La présente étude se focalise sur le cas de Qostanaï, la ville, qui en terme de structure spatiale, donne un exemple de la combinaison architecturale et industrielle inhérent au système urbain post socialiste. Ici, les années 1990 ont déclenché l'ère de la transition vers l'économie de marché et une période de restructuration urbaine active et profonde. Dans ce processus, de nombreux anciens éléments urbains et anciens sites industriels ainsi que leurs activités initiales ont été abandonnés.

Le problème est que les conditions socio-économiques ainsi que des modèles administratifs et juridiques hérités du passé socialiste, actuellement, n'offrent pas de conditions favorables pour d'éventuels projets de réutilisation industrielle.

L'objectif de cette recherche est de développer le concept de la gestion du patrimoine industriel comme un processus multidimensionnel impliquant l'aspect du développement local.

L'approche interdisciplinaire, basée sur l'étude de cas et l'analyse comparative, relie la diversité des discours comprenant la gestion du patrimoine et les règlements de planification urbaine et du patrimoine.

Ainsi, l'étude propose un modèle conceptuel pour la gestion des friches industrielles de Qostanaï basé sur les trois grandes catégories de développement post socialiste qui comprend les transformations urbaines, institutionnelles et juridiques.

ABBREVIATIONS

CEE – Central East Europe

CIS - Commonwealth of Independent States

COMECON - Council for Mutual Economic Assistance

CTU – Czech Technical University (cz: CVUT - České vysoké učení technické)

HM – Heritage Management

КОЭС - Kostanay Oblast Economic Council (rus: ГУБЭЖКОСО - Кустанайское губернское экономическое совещание)

KSK - Worsted cloths industrial complex (rus.: КСК - Комвольно Суконный Комбинат)

NAKI - National and Cultural Identity (cz: Národní a Kulturní Identity)

NDC - National Defense Committee (rus: ГКО – Государственный Комитет по Обороне)

Podhoz - farming activities (rus: Подхоз – Подхозное хозяйство)

VCPD - Research Center for Industrial Heritage

INTRODUCTION

“Industrial heritage is not only about identity and memory, traditions, and labor movements; it belongs to cities, sites, and their transformations.”¹

General context

The theme of reuse and rehabilitation of abandoned industrial spaces have emerged once it had grown into an increasable economic, cultural, and to an extent even political problem. In Western Europe, this has been the case since the mid-Seventies, primarily as a result of the energy and processing industry crisis leaving hundreds of industrial buildings and complexes deserted and empty. A similar process, at least at first glance, now is underway in the formerly Soviet countries. Similar, yet with a delay of several decades. Here, the industrial reconversion topic started to gain particular interest from 1990th as a result of restructuring and deliberate reduction of heavy industry and privatization in industrial sector. Nowadays, the overlap of socio-economic patterns inherited from the socialist past and new dynamics produce specific conditions for urban development in those cities. Although much is still due to the legacies of historical development contemporary dynamics are significantly transforming the structure and organization in post-socialist cities. Thus, the socio-economic conditions, as well as administrative and legal models inherited from socialist past are still passing through continuous transformations and today create special environment for possible revitalization projects in the city.

Case study

The present study focuses on the case of Kostanay which was chosen as the case study for several reasons: First, in terms of city spatial structure Kostanay gives example of every type of architectural and industrial combination possible from outright urban structure of post-socialist city; second, in terms of urban development and social aspect, the city represents remarkable example where the social image passed through all three process of Soviet immigration politic. Between them, it provides enough detailed and personalized data to confirm and advance hypotheses drawn from national and regional sources; and finally, I know the city fairly well, and such acquaintance aids one's appreciation of the subtleties of local politics and city developments.

¹ MIEG, Harald A. OVERMANN, Heike, *Industrial Heritage Sites in Transformation: Clash of Discourses*, Routledge, 2014, p. 3

The city is geographically located in the northern Kazakhstan (53.20°N 63.62°E), administrative center of eponymous Kostanay Oblast. Kostanay was founded by Russian peasants in the end of XIX century and from the beginning was conceived as an entire agricultural region. Today it covers the area of 240 km² (90 sq. mi) with population of 217,135 person (2014). The urban landscape of the city can be characterized as a typical post-socialist, with a hint of modern Kazakh city. That why by adopting the concept of “post-socialist” in the research question, we recognize that urban development in Kostanay is just much affected by the socialist past than by new ideas and concepts of city development. Besides, the most extensive industrialization of the city also relies on the soviet period, where the soviet industrial giants have shaped the urban landscape and economic structure of today’s Kostanay. In addition to the urban changes and more rapid economic development the city got a new social image with the large number of labors relocated together with their plants from the western part of the former Union. All of these elements makes of industrial complexes monuments where different aspects of material and immaterial heritage are bounded.

Time and geographic scopes

The research covers the time frame from the end of the 19th century up today and follows the overall process of the city development. However, the study is developed according three periods within these time borders: Proto-industrial development of Kostanay (1879- 1920); the period of socialist development of the city (1920 and 1991) with particular stress on the time of extensive industrialization and urbanization of the city (1950-19850); the transformational process during the period of transition (1991- today).

The geographic scope of the study is limited to the city of Kostanay. However, data on other post-soviet cities are presented in order to compare the trends and the patterns of urban development in transitional period. Within the comparative analysis the study focuses on the case of Prague. Regardless apparent dissimilitude between two cities, the case of Prague in this comparative analysis wasn’t random choice. It is this difference which allows to construe the overall vision on post-socialist realities, and not to limit within one country, or within one geographical region. Besides, given the fact that in Prague the idea of industrial heritage rehabilitation is much more developed than in Kostanay, it allows to outline some patterns of industrial brownfields management that might be adaptive in the case of Kostanay.

Problematic

The collapse of the Soviet Union and independence of the country in 1990s ushered in the era of transition to a market economy, which triggered a deep and active urban restructuring period. In this process most of the industrial complexes in Kostanay stopped their activities, many former urban elements have been replaced by new ones. All of that led to very fast decline of the city both in physical and moral sense. Besides, deindustrialization of 1990's drew a chain reaction with echoes over the social environment of the city. This echo was strongly felt after the privatization and the restructuring that took place when an important amount of workers lost their jobs. In most of the cases the redundant population from the industrial units couldn't reintegrate in the economic sectors that were new in Kazakhstan. Thus, the workers' residential districts, related with big industrial platforms turned very fast into ghettos where the social issues and the insecurity ones represented various risk factors.

Today the city passing through reindustrialization, where some of those urban and industrial elements came back to their initial activities, few of them were reconverted, and the rest are still awaiting for new functions. Due to the privatization process, many industrial complexes are now subjected to unresolved property relations and divided by several large and small entrepreneurs. Those activities in most of the cases are temporary where the owners don't dispose enough resources or don't want to invest in maintenance of the buildings. This leads to the gradual depreciation of industrial testimonies and to contamination of environment. One preoccupation is expressed about the future of abandoned industrial complexes, bearing in mind the new privatization process launched in 2015, which menaces to destroy the remnants of the industrial past. In this context we have to consider as well that those industries are testimonies of the soviet past which gained a dual perception within the Kazakh society. In Kazakhstan, as in other post-socialist countries, soviet symbols, street names, and monuments were readily dismantled and either destroyed or taken away to communist theme parks. In Kostanay, around 20 streets and squares, most of them named after socialist politicians, communist philosophers, and anti-fascists, were renamed. As states Mieg and Overmann, "the history of post-socialist urban space reveals a politicized struggle of competing identities in fragmented domain within which history is a weapon and a technic of colonization more than accumulated set of experiences and commodities."² Therefore, on the one hand those industrial brownfields are perceived as "weapon" of colonization, and on the other hand they represent a set of experiences and nostalgia accumulated into the social memory.

² MIEG, Harald A., OVERMANN, Heike, *Industrial Heritage Sites in Transformation: Clash of Discourses*, Routledge, 2014, 232 p.

However, industrial heritage is not only about identity and memory, traditions, and labor movements. Beyond being cultural heritage, industrial heritage is an issue in planning. Thereby it is so important to take into consideration the city as whole while dealing with its industrial heritage.

Kostanay is characterized by non-compact, extensive urban structure. Continued growth in width leads to the growth of numerous abandoned and undeveloped areas. Almost all abandoned industries surrounded by five-story housing predominantly constructed in 1950-1960 which form the old and dilapidated housing stock of the city. The new construction of residential neighborhoods and large areas of high-rise buildings combined here with the lack of development of social infrastructure. In this situation, the city center serves only as a commercially attractive area, which leads to the realization of ambitious populist and eclectic architectural projects, which continue to “washout” the urban identity of Kostanay.

One of the issues at this point is that the rehabilitation of buildings, landscapes and industrial complexes is not yet a customary practice for the city. Industrial heritage in this context is not properly understood and estimated neither by the local municipality, neither by potential stakeholders. Lack of preoccupation of society towards industrial past leads to elimination of authenticity and as a result loss of industrial history. Contrary to the West where most of the countries left their industry based economies after Second World War, in Kazakhstan heavy industry is still the main domain of budget income and even is under way of intense development. Therefore, dilapidated industrial spaces don't draw enough attention as the objects of cultural heritage. Various examples of abandoned industry reuse proved that they can be in the same time an additional resource for the local development, and the restriction as well. The question is how to manage industrial brownfields in the context of post-socialist city and make them asset instead of obstacle?

In order to answer the research question, we divided it into three sub questions:

1. How Kostanay have been tailored in the standard model of socialist city?
2. Which are patterns of the transitional period in CEE cities (example of Prague) and Kostanay and how they influence on industrial testimonies of post-socialist urban space?
3. How to manage industrial brownfields within the context of post-socialist city?

Besides being cultural heritage, those dilapidated industrial brownfields represent valuable urban sources where through efficient reconversion projects it is possible to revitalize whole former industrial districts and decrease the impacts on the social environment. Therefore, the general **hypothesis** is that by approaching the requalification of industrial remnants as a multidimensional task involving diverse social agents and discourses it is possible to contribute to the local development.

Objectives

The overall purpose of the study is to deepen the understanding of industrial heritage management as a networked, multidimensional task involving the aspect of local development. Therefore, the study aimed to create a theoretical and conceptual models for industrial brownfield revitalization in the context of post-socialist urban development, as well as to construct a theoretical basis and a practical methodology both for the study and for the intervention in these landscapes, to adapt them to innovative production systems and new cultural uses. Objectives of the study can be expressed in following way:

1. To explore socio-economic and politic context in which industrial urbanism of today's Kostanay was formed as well as to identify some patterns of transformations occurred during the transition from socialist to market based economy.
2. To compare patterns of the transitional period in CEE cities (on examples of Prague) and Kostanay in order to understand the role of industrial testimonies in their actual urban spaces and highlight best practices of industrial heritage management.
3. To elaborate a conceptual framework for management of industrial brownfields considering socio-economic, administrative and legal features of post-socialist Kostanay.

General methodology

Methodologically, the thesis takes as its empirical basis case study and comparative analysis. The interdisciplinary approach of the study connects a diversity of rationales and discourses, including heritage management, urban planning, heritage legacy, as well as socio-economic and political aspects of post-socialist urban development. But basically the study will serve as bridge connecting following fields: Management, Urbanism, Heritage, and History. (Fig.1)

Further, in order to understand the historical preconditions of urban and industrial development and identify the present tendencies of industrial rehabilitation projects in post-socialist cities the thesis implies comparative approach. It compares how the features intrinsic to post-socialist cities manifest in the context of post-socialist Kostanay and Prague. The comparative analysis was conducted during 5 weeks study visit spent in Czech Technical University in Prague within the Erasmus Mundus TPTI Master Program. In course of these week data was collected in the local museums (National technical museum, National museum), libraries (National technical library, Library of French Research Center in Humanities and Social Sciences) and sites visits. The empirical materials of the comparative analysis are based on the field observations, expert opinions

and legislative documents concerning heritage regulations. In order to provide an integrated analysis, each city was approached from the context of their urban and industrial histories, as well as from heritage management practices which includes legal, institutional and financial frameworks. In order to get a further understanding of how industrial heritage of Kostanay can be seen through the perspective of contestations over privileges we turn to survey. This goal was achieved through online questionnaires created in Google Drive and promulgated through the local social network. Three days lasted survey gained interest of 641 respondents which took part in active discussion of the proposed topic and allowed to create a generic vision over the attitude of inhabitants towards socialist industrial brownfields (Appendix B).

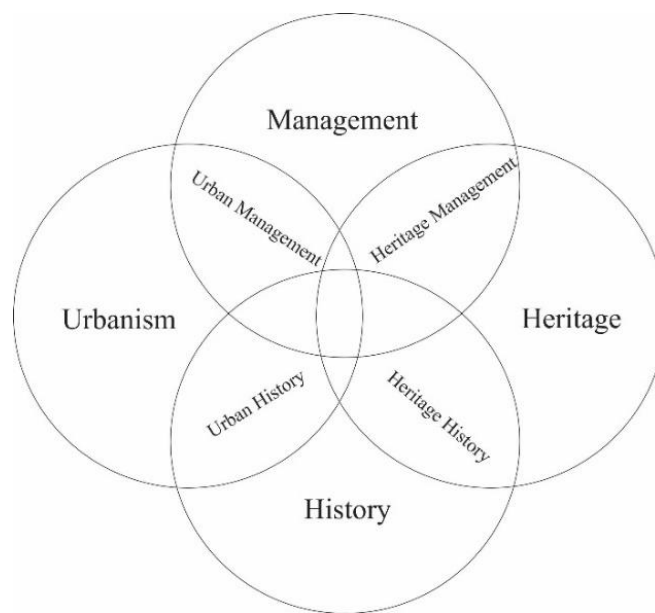


Fig. 1. Intersections of study fields

Following the correspondence with local authorities (Appendix A), it was possible to conduct one-question interview with the local experts and administration. Thus, the interview (Appendix C) was conducted in order to elicit information on the most prominent processes of post-socialist urban and administrative restructuring, as well as their causes and consequences (as well the personal views of the experts) on built heritage of the city. These experts were selected using the reputational method. They included architects, urban planners (Head of Architecture and Urban Planning), and members of the City Council (head of the department of culture, Deputy Akim of Kostanay Region), academician (historian and archivist,), member of the Union of Artists. All interviews were conducted in Russian, translated into English and transcribed. The interviews allowed to shed light on how organizational, economic, political, social, cultural, environmental, factors influence city heritage and how the various actors involved in different public activities and interact each other.

Sources and bibliography

The empirical materials of the study are based on the field observations, expert opinions, archival documents and analysis of legislations. In order to present patterns of socio-economic dynamics in the city quantitative data was collected from statistical reports. Analysis of urban and heritage policies and statistical reports were used to elicit and evaluate the current conditions for prospective reconversion projects.

During the field research some historic documents were collected from the local and national archives such as State Archives of Kostanay Oblast, electronic version of Kazakh National Archives, Archives of Regional Museum of History. This data mainly consists of enterprise archives and urban plans of the city. One of the first sources mentioning the first settlement on today's Kostanay territory dates back to XIX century and was written by prominent economist and statistician of Russian Empire Alexander Kaufman. In his works A. Kaufman (1897, 1987, 1905) presented an objective view of socio-economic situation and everyday life of Russian peasant settlers. The author presents detailed description of economic life of migrants, differences in land use forms between several types of territories, the role of local administrations in settling process, particularities and features of lease relations between Russian settlers and local Kazakh communities. Therefore these works help to understand social structure of Kostanay in the very beginning of its development.

The local newspaper of the soviet period such as “Труд и хозяйство”, “Степь”, “Известия губкома” were as well valuable sources giving information of the city economy and dynamic of industrial growth during soviet years. Apart this works the Master thesis uses periodical publications of local presses such as “Kostanay tany”, “Kostanayskie novosti”, “Alau” etc.; scientific journals of Kostanay State University Press and Kostanay State pedagogical Institute Press; publications and sites of the City Hall, Association of Kostanay ethnic groups, Association of Kostanay Entrepreneurs, etc. Further, the study uses results of the survey and interviews with the local experts and administration conducted in the course of the research.

In order to define problematic of industrial heritage revitalization in the context of post socialist urban structure, such as Kostanay, many theoretic literature and case studies were analyzed in this work. Bibliography which was consulted to apprehend research subject can be divided into four main groups:

1. Studies on socialist cities which construe the notion of such urban phenomenon (Caves, 2005; Vishnevskii, 1998; Smith, 1989; Pacione, 2005, etc.).
2. Studies carried out on different aspects of post-socialist city and its heritage to better understand the genesis of post-socialist urban system (Hamilton and French, 1979; Stanilov,

- 2007; Hirt, 2012; Nawratek, 2012; Mileryus, 2008; Tsenkova, 2006, 2008; Czepczynski, 2008; Hann, 1996, 2002, etc.)
3. Literature constructing theoretic base of heritage, and dedicated to different strategies of investigation, understanding and management of industrial heritage (Babelon, 1995; Gracia Dorel-Ferré, Luis Bergeron, 1996; Claude Cartier, 2003; J.C. Daumas, 1998, 2006, etc.)
 4. Multifaceted literature devoted to case study of Kostanay, including socio-economic urban and industrial dynamic of the city which helped to deepen into the case (Ternovoy, 2003, 2012, 2013; Elagin, 1979; Tarasenko, 2006; Diachkov, 2006; Zdarovets, 2012; Lukash, 2003)

State of the art

The subject analyzed in the thesis combines two study areas: post-socialist city and heritage management. However, in order to better apprehend research subject the studies constructing theoretical background of the thesis were divided into four main groups:

1. Notion of socialist cities
2. Post-socialist city
3. Industrial heritage management
4. Case study

1. Notion of socialist city

In order to better read the city, one needed to know what kind of urban, social and economic patterns it has. Therefore, to understand the post-socialist city we need to begin with an understanding of the main principles of socialist urbanization. However, speaking about post-socialist city, the first question that may burn in mind is whether there was really a distinctive “socialist” city or not?

The Socialism by French and Hamilton is clearly defined by “... the presence of the Marxist doctrine, and of centralized, countywide, authoritarian “command economy”, in which goals are set, plans made, and actions ordered”. Indeed, town planning was considered as an integral part of national economic planning, where the promotion of social equality was the main ideological foundation for the development of all urban planning strategies, planned investments, and state regulations. Thus, Hamilton defines five main features of the spatial structure of socialist cities: large-scale industrial belts and high-order service centers; residential neighborhoods and low-order

service centers; differentiation of neighborhoods according to dominant occupation and workplace; fewer, more geographically dispersed trips in comparison with patterns in Western cities; and finally irrational journeys, inefficient operations and acute, even chronic, scarcities. The image of one of a system whose structure is orderly and logical but often does not work very well.³ However, it remain unclear editors' perceptions of the specific characteristics of urban settlement system – the spatial structure, flows, measures of performance are altered by changes in the management variables that define and distinguish socialism. This kind of framework is not postulated at the outset and is not sensitized at the conclusion.

Roger W. Caves in *Encyclopedia of the City* states that “the concept socialist city has its root in attitude that cities are a product of socio-economic systems [...] and the formation of a universal socialist urban patterns was constrained by the historically short period of the ideological impacts.”⁴ Indeed, principles of socialist urbanization have determined the postwar patterns of regional growth in a way considerably different from the regional spatial organization in the Western countries. The absence of private property and land value resulted in the existence of empty spaces. The city was dependent on the central government for its finance and was “organizationally divided”.

Interesting statement given by Vishnevskii (1998⁵), who argues that under socialism the main process in the formation of the socialist society was forced industrialization so that urbanization was considered a side issue of industrialization. Consequently, urban infrastructure development and housing provision was unable to meet the demands placed by unprecedented migration of rural population into the cities. Inhabitants of socialist towns and cities usually consisted of the working class – the proletariat. The egalitarian principle resulted in a relatively low level of wealth differentiation. The central allocation of inhabitants in relation to the localization of dwellings was creating a social mix which together with the organization of the social life of urban dwellers around industries, diminished the chance of creating local communities. ⁶ Thus, by Pacione (2005⁷), the principal goal of socialist city planning was to locate new residential areas close to industrial areas. The equality in collective consumption was pursued through the planned development of high density residential settlements (microrayons) at the periphery of cities.

However, some academicians deny existence of particular socialist spatial system. Thus, according to Friedriechs “[...] there was no specific socialist types of land use, distribution of new

³ FRENCH R. A., HAMILTON F.E., *The socialist city: Spatial structure and urban policy*, New-York: John Wiley&Sons, 1979. 542 pp.

⁴ CAVES, Roger W., *Encyclopedia of the City*, Taylor & Francis, 2005, 422-423 pp.

⁵ VISHNEVSKII, A., *Serp i Rubl: Konservativnaia modernizatsia v SSSR*, Moscow: OGI., 1998

⁶ SMITH, D., *Urban Inequality under Socialism: Case studies from Eastern Europe and the Soviet Union*, Cambridge, Cambridge University Press, 1989.

⁷ PACIONE, M., *Urban Geography: A Global Perspective*, 2nd edition, New York: Routledge., 2005

housing, internal organization of residential blocks, or location of companies. Indeed, the concept of the neighborhood unit (microrayon) with integral service facilities is no by means exclusive to Eastern Europe and the former USSR, it might be regarded rather as an emblematic of the urban development of modernism. The only distinction of socialist and capitalist city might refer to the form and the scale of this urban units. Thus, if in the Western world the relation between workers houses and industry manifested through the form of company towns, in socialist city, the preference was given to neighborhood units (microrayon) mentioned above. Therefore, it might be reasonable to agree with statement of Smith who argues that “the difference is simply might be in the extent to which such features as a neighborhood units, land use planning and public transport predominated, rather than in fundamental alternative to the capitalist city.”⁸ Furthermore, the accelerated growth of industrialization required an exploration of the territories in the North and East characterized by a sparse settlement network. After the end of World War II, under strict governmental directives, a process of “spreading” the population across the land was instigated in order to exploit the riches of Siberia and the Far East.⁹ Kostanay can be example of this process.

2. Post-socialist city

Elaboration of management approach in the post-socialist context demands to make a clear differentiation between the patterns of socialist and post-socialist cities. Therefore the second group of the literature consist of the multifaceted studies which consider social, politic, economic and architectural aspects of post-socialist cities.

The socio-spatial characteristics of post-socialist cities since 1979 have been explored by a vast literature including a number of excellent edited compilations such as Hamilton and French (1979¹⁰), Stanilov (2007¹¹) and Hirt (2012¹²). Such works have advanced a reach variety of theoretical prospective and have used diverse empirical methods. Besides, in the last decade, quality researches concerning development and state of spatial structures in post-socialist cities were published in internationally renowned journals. It is interesting to observe the occurrence of

⁸SMITH, D., “The Socialist city”, *Cities After Socialism: Urban and Regional Change and Conflict in Post-Socialist Societies*, ed. Gregory Andrusz, Michael Harloe, Ivan Szelenyi, John Wiley & Sons, 2011, p.356

⁹ NEFEDOVA, T., and TREIVISH, A., *Dinamika i Sostoianie Gorodov v Kontse XX Veka*, in: Nefedova, T. G., Polyan, P. M., and Treivish, A. I., eds, *Gorod i derevnya v Evropeiskoi Rossii: Sto let peremen*, Moscow: OGI, 2001b pp. 196–225.

¹⁰ *The socialist city: Spatial structure and urban policy*. Edited by R. A. French and F. E. Ian Hamilton, 542 pp. New-York: John Wiley&Sons, 1979.

¹¹ STANILOV, Kiril, *The Post-Socialist City: Urban Form and Space Transformations in Central and Eastern Europe after Socialism*, Springer Science & Business Media, 2007, 496 p.

¹² HIRT, Sonia, *Iron Curtains: Gates, Suburbs and Privatization of Space in the Post-socialist City*, John Wiley & Sons, Wiley-Blackwell, 2012, 239 pages

research topics and differences between regions, countries, cities and authors. The most frequent studies include “physical spatial structure of the cities and its transformation”, followed by “functional spatial structure”. Krzysztof Nawratek (2012¹³) discusses contemporary capitalism as shaping the urban environment of Riga, a multiethnic and bilingual post-socialist, post-Soviet, and postindustrial city. The work of Nerijus Mileryus (2008¹⁴) is based on the statement that the socialist existed as a monolithic whole. He presents socialist and soviet space “as a plurality of different spaces, with different strategies, tactics and directives being applied to synchronize them”. He argues that such synchronizing factors were political structures and their technological, industrial extension.

A smaller number of articles refers to “social spatial structure and its transformation in cities” and “identity of post-socialist city”. Probably the most influential works on this discourse was written by Sasha Tsenkova (2006¹⁵), Professor of Planning & International Development in Calgary University. Tsenkova views cities in post-socialist societies as “entities where the societal processes are most visible and significant”. She argues that cities are the foci of political, economic and cultural activities in those societies¹⁶”. Tsenkova creates a framework for the analysis of urban change in the post socialist world through three aspects of the transition that are particularly important for post-socialist cities: the transitions to democracy (systemic political change), to market economies (systemic economic change), and to decentralized systems of local governance. These transitions are major drivers of change at the city level in four domains: 1) economic change; 2) social change; 3) changes in urban governance; and 4) spatial change (transformation of production and consumption spaces¹⁷).

Only a few, however, have attempted to make sense of post-socialist urban change in relation to culture and heritage. The best example is Czepczynski (2008¹⁸) who describes East-European cities as a specific “cultural landscapes”. This otherwise excellent work focus the question of how urban space represents and reinforces believe systems related to nation building, ethnic identity, re-interpretation of socialist and pre-socialist past, and cultural Europeanisation.

¹³ NAWRATEK, KRZYSZTOF, “Urban Landscape and the Postsocialist City” *CLCWeb: Comparative Literature and Culture* 14.3 (2012): <<http://dx.doi.org/10.7771/1481-4374.2044>>

¹⁴ MILERYUS, Nerijus, “Synchronization and de-synchronization of the present and past in the Soviet and post-Soviet space”, *P.S. Landscapes: the optics of urban studies. Collection of scientific papers / Editor. Ed. N. Mileryus, B. Cope - Vilnius: European Humanitarian University, 2008.*, pp. 37-63

¹⁵ TSENKOVA, S., BUDIC-NEDOVIC, Z. and Marcuse, P. (2006), *The Urban Mosaic of Post-socialist Europe*. In Tsenkova, S. and Nedovic-Budic, Z. (eds) *The Urban Mosaic of Post-socialist Europe*. Heidelberg: Springer-Verlag, pp. 3-20.

¹⁶ TSENKOVA, S, *The Comeback of Post-Socialist Cities*”, *Urban Research and Practice*, 1 (3), pp. 291-310., 2008

¹⁷ TSENKOVA, S, *Beyond Transitions: Understanding Urban Change in Post-socialist Cities*. In Tsenkova, S. and Nedovic-Budic, Z. (eds) *The Urban Mosaic of Post-socialist Europe*. Heidelberg: Springer-Verlag, pp. 21-51., 2006

¹⁸ CZEP CZYNSKI, Mariusz, “Cultural Landscapes of Post-Socialist Cities”, *Ashgate Publishing, Ltd.*, 2008 - Science - 209 p.

Alexander C. Diener and Joshua Hagen (2013¹⁹) examine patterns, processes, and practices concerning the cultural politics of architecture, urban planning, and identity in the post-socialist city. Also, the article highlights contemporary cultural and political change in post-socialist urban settings. Farther, the anthropologist Chris Hann (1996²⁰, 2002²¹) has edited two anthologies with contributions from different anthropologists writing about the transition period in the former Soviet bloc. Although he presents important critical views about civil society theory in the post-socialist context.

However, the literature on post-socialist cities has in fact mainly focused on Central East European cities such as Berlin, Prague and Budapest, followed by Tallinn and Warsaw, as well as Moscow and Vilnius, but has overlooked Central Asian cities and provincial capitals within it.

Further, very few studies have acknowledged industrial heritage rehabilitation within the post-socialist urban context. Generally speaking, industrial heritage is a neglected topic in the literature on post-socialist cities. Perhaps this is due to its secondary character, even if in the world it considered to be a problem area deserving of a special policy focus.

3. Industrial heritage management

The next group of the literature is dedicated to different strategies of investigation, understanding and management of heritage and industrial heritage. The first part of this group see the heritage from the social prospective: Jean-Pierre Babelon, André Chastel (1995²²) examine the heritage through religious, family, national, monarchic, administrative and scientific aspects; Annie Heritier (2003²³) see the heritage as “phénomène social” and describes how and when heritage became an issue of the governmental politics.

The second part is the studies which present historical, social and structural analysis of industrial heritage presented by Gracia Dorel-Ferré, Luis Bergeron (1996²⁴), Claude Cartier

¹⁹ C. DIENER, Alexander HAGEN Joshua , “From socialist to post-socialist cities: narrating the nation through urban space”, *Nationalities Papers: The Journal of Nationalism and Ethnicity*, 41:4, 487-514, DOI: 10.1080/00905992.2013.768217, 2013, pp. 487-514

²⁰ HANN, Gris M., *Introduction: Political society and civil anthology*, 1-11, London: Routledge, 1996

²¹ HANN, Gris M., *Post socialism: ideas, ideologies and practices in Eurasia*, 1-11, New-York: Routledge, 2002

²² BABELON, André Chastel, «La notion de patrimoine», *Liana Levi – Art*, 1995, - p. 178

²³ HERTIER, Annie, «Genèse de la notion juridique de patrimoine culturel: 1750-1816», *Editions Le Harmattan*, 2003 - Art – p.304

²⁴ DOREL-FERRE, Gracia, BERGERON, Luis, «Le patrimoine industriel, un nouveaux territoire» *Liris*, 1996, p.42

(2003²⁵), J.C. Daumas (1998²⁶, 2006²⁷), Smith (2006²⁸). All of them raise the question of comprehension, conservation and valorization of industrial heritage. As industrial monument needs the different approach than “usual” historic heritage, this works is essential to understand methodological approaches in work with industrial heritage.

Laurajane Smith’s critical argumentation refers to the traditional understanding of heritage which is deeply connected to the idea of monuments listed buildings and cities, and the protection of cultural heritage. She offers a critical insight into this discourse via a historical discourse analysis approach and demands a counterstaining understanding of heritage.

The third part of the consulted literature examines industrial heritage management issues. Harald A. Mieg, Heike Oevermann (2014²⁹) argues that the management of industrial heritage sites requires rethinking in the context of urban change, and the issue of how to balance protection and preservation. This is the one of the books to deepen the understanding of industrial heritage site management as a networked, multidimensional task involving diverse social agents and societal discourses. These studies are important for the research since they emphasize the role of industrial heritage in urban space.

Further, as examples of reuse of industrial heritage the Master thesis examines some successful projects of industrial heritage revitalization including German-Czech Cooperation in the International Management and Ruhr region (Germany), etc. However, a simple blueprint of best practice examples cannot be enough since the collected practice examples come from different regions and countries with different financial capability, legal systems and economic as well as social contexts. Therefore, the root concepts needs to be adjusted to our case study in order to fulfil the relevant needs and objectives. However, learning from the experiences elsewhere can be beneficial for developing new industrial heritage projects and management systems.

4. Case study

The first systematic study about city of Kostanay was written by A. Elagin (1979³⁰). The work includes different aspect from city history, but focuses mostly on political context. A few works

²⁵ L’héritage industriel, un patrimoine, Claudine Cartier, CRDP de Franche-Comté, 2003, p.13-23

²⁶ DAUMAS, J.C., «Parton de l’industrie : les formes du témoignage», Territoires contemporaines bulletin de l’Institut de l’histoire contemporaine de l’université de Bourgogne, №5, 1998, p 63-76

²⁷ DAUMAS, J.C., La memmoire de l’industrie : de l’usine au patrimoine, Presses Univ. Franche-Comté, 2006, p.405

²⁸ SMITH, Laurajane, “Uses of Heritage”, Routledge, New-York, 2006, 312 p.

²⁹ MIEG, Harald A., OEVERMANN, Heike, “Industrial Heritage Sites in Transformation: Clash of Discourses”, Routledge, 2014, p. 232

³⁰ ELAGIN, A., “Kostanay: yesterday, today, tomorrow”, Alma-Ata, - 1979, p.248.

were published over the past decade have dealt with the theme of city development and history. One of them was carried out by redaction of historian and former rector of Kostanay State Pedagogical Institute Ivan Ternovoy (2003³¹, 2012³², and 2013³³). The research represents the major and complete two-volume edition work devoted to history of Kostanay. The recent works of the author dedicated to 135 years anniversary of the city sheds light on some aspect of city's industrial and urban history. However, as these works were written from an historian point of view and cover all aspects of the city history, there is a lack of defined focus and as a result all themes in the work are presented in generic form. Another recent work is the collections of archive documents «Kostanay: pages of history³⁴» compiled by team of Kostanay Regional Archives. Two volume books presents archives documents such as official letters, resolutions and orders from local and central governments and cover only soviet period.

Several recent publications from major Kazakh publishers have begun to fill the gap, including Tarasenko (2006³⁵) on agrarian industry of the city; Diachkov (2006³⁶) on Kostanay during Second World War; Zdarovets (2012³⁷) on Kostanay during civil war; Lukash (2003³⁸) on architectural perspectives of Kostanay.

Outline of the thesis

According to the objectives of the study the thesis is divided into three chapters. The Chapter I presents the phases of Kostanay development with an emphasis on the central elements of its urbanity and industrialization during the socialism, and discuss the new post-socialist spatial phenomena as an outcomes of economic and institutional changes. The idea of the chapter is to show how Kostanay fit into the classic model of socialist city conceptualized in state of the art. The Chapter divided into three subchapters. The *first subchapter* gives the idea of urban and proto-industrial patterns of Kostanay starting from the foundation of the city in the end of XIX century, until beginning of socialism in the city. This introductory section is pivotal as the urban and regional developments and policies in individual former socialist countries differ quite

³¹ TERNOVOY, Ivan, "Kostanay: The Past and the Present", Kostanay, - 2003, 506 p.

³² TERNOVOY, Ivan, "Kostanay: A Short Histories. From ancient times until 1936", LLP "Kostanaypoligrafiya", Kostanay, - 2012, 608 p.

³³ TERNOVOY, Ivan, "Kostanay: Essays on the History: from 1936 to 2013", 2005, 390 p.

³⁴ Collections of archive documents «Kostanay: pages of history», Kostanay Regional Archives, Kostanay, 2012, p. 485

³⁵ TARASENKO, A.W., "Kostanay - gracious land", Kostanai Printing House, 2006, - 144 p.

³⁶ DIACHKOV, Ivan, "Kostanaytsy during World War II", Kostanay, 2006. - P. 24-27

³⁷ ZDAROVETS, N., "Kostanay in uniform", Nasha Gazata, Kostanay, - 2012, 22 May. - p. 30

³⁸ LUKASZ, O., "Kostanay is in construction and will continue to construct", Construction and architecture, - 2003. - N7 (132). - February 21. - p.2

considerably according to the previous urban and industrial patterns. The *second subchapter* discusses the notion and general characteristics of socialist cities and presents how Kostanay has tailored this model. Thus, five major stages in the formation of socialist Kostanay were defined: Interbellum industrialization, the World War II industrialization, urban and industrial reorganization after the war, development during the Soviet agricultural campaign “Tselina” and “Perestroika” period. The *concluding subchapter* presents how the elements of socialist spatial urban structure gradually disintegrated after 1991 as a consequence of the process of privatization and restitution of state resources: urban land, real estate and industry. Analysis of the recent period of the city development highlights some of the spatial manifestations of these changes, with particular reference to the spaces for production.

The **Chapter II** implies comparative analysis which completes the findings from the previous chapter and compares how the features intrinsic to post-socialist cities manifest in the context of post-socialist Kostanay and Prague. The comparative research was conducted during a 5-week study visit spent in Czech Technical University in Prague within the Erasmus Mundus TPTI Master Program. The empirical materials are based on field observations, expert opinions and official documents concerning heritage regulations. The results of the comparative analysis were presented in the 4th session of Workshop “History of technic: industrialization in Europe XIX-XX century” held in Czech Technical University in Prague. The comparative research takes the following structure: The *first part* describes industrial and urban development of Prague during the mid XIX and beginning of XX century and compares them with those of Kostanay, presented in Chapter I; the *second section* focuses on the comparative analysis of industrial and urban development during the Soviet era; the *third part* compares development of cities in the period of transition; and the *last section* analyses the essential components in industrial heritage management.

The **Chapter III** serves here as a synthesis where the results of the two previous chapters intertwine in order to elaborate the management concept for industrial brownfields of Kostanay. The last chapter consists of three main sections. The *first section* analyses the root concepts of industrial heritage management. The characteristics of post-socialist cities identified in the *second subchapter* serve as a prism through which we “filter” findings from the first section and adapt them to the management concept presented in the *last subchapter*.

The final remarks identify key issues that need to be dealt with while managing industrial brownfields within the framework of a post-socialist city. Thus, it shows obstacles, opportunities, and recommendations according to the following themes: spatial plan (policies), heritage policy, socio-economic conditions. Concluding comments recognize the need for more effective policy solutions to urban challenges. These reflections are likely to open up new, much intriguing research avenues.

CHAPTER I

Urban and industrial phenomenon of post-socialist Kostanay

Résumé

L'objectif du chapitre est d'analyser la façon dont Qostanaï s'est adapté au modèle de ville post socialiste. Afin de donner une analyse rationnelle, le chapitre se devise en trois sections.

La première couvre le laps de temps entre la fin du XIX et début du XXe siècle. Cette section est impérative car le développement urbain socialiste varie considérablement selon les modèles proto-industriels et pré-urbains. Pendant la première phase du développement urbain, Qostanaï suivait les modèles de villes coloniales russes, où la structure sociale et les modèles de développement industriel étaient directement liés aux activités commerciales et au processus d'immigration rural. Par conséquent, l'association de la connaissance ingénieuse de la société Nomade, des techniques agricoles et proto-industrielles apportées par les paysans russes a fondé le développement de la ville à la fin de XIXème.

Nonobstant, la phase la plus influente dans le développement de Qostanaï se réfère à l'époque soviétique. Pour cette raison, la deuxième section se focalise sur le période qui couvre 70 ans, à partir de la fondation de la République Soviétique du Kazakhstan en 1920 jusqu'à 1991. Si pendant la période entre deux guerres Qostanaï avait poursuivi son développement en tant que capitale agricole du pays, à partir de la Seconde Guerre mondiale la ville est devenue la plus grande ville industrielle du nord du Kazakhstan. Ainsi, les industries évacuées vers Qostanaï pendant la guerre ont façonné le paysage urbain de la ville contemporaine. Les réorganisations d'après-guerre, et des campagnes d'Etat tel que "Tselina" et "Perestroïka" ont stimulé l'important développement de la ville. Ainsi, au tournant du XX e siècle, la symbiose des activités agricoles et industrielles ainsi que l'exploitation minière ont créé un écosystème mosaïque dans la ville.

La troisième section du chapitre porte sur la période de transition qui suit l'effondrement de l'URSS et se reflète toujours sur le développement actuel de la ville. Cette phase a été marquée par la privatisation clandestine des usines socialistes et leur destruction successive. Au cours de la deuxième phase de la période transitoire, dès 1995, certaines de ces industries ont été réhabilitées et sont revenues à leurs fonctions d'origine (par ex. L'usine de chaussures, l'usine diesel) ; d'autres ont été destinées à de nouveaux usages (par ex. Complexe industriel de tissu peignée), et les dernières enfin sont encore en attente de nouvelles utilisations. Même si aucun de ces anciennes industries sont répertoriées comme patrimoine, elles représentent une partie importante de l'histoire économique et de l'patrimoine architectural de la ville.

Au cours de la phase de transition déclenchée en 1991 et qui se poursuit aujourd'hui, Kostanay a traversé des changements importants où les modèles socio-économiques hérités du socialisme ainsi qu'une nouvelle dynamique ont produit les conditions spécifiques au développement urbain actuel de la ville.

1. Reinterpretation of PRE-socialist development of Kostanay (1879-1920)

1.1. Settlement of colonial politic and socio-economic impact of peasant resettlement

The first Kazakh-Russian commercial and cultural relations began in the XVI century and followed by the extension of Russian territory to the east. However, development of economic and political contacts between two unities particularly strengthened in the XVIII century. Russian military and civil authorities were established in the region during the first decades of territorial unification. From the very beginning the tsarist government have been pursuing only colonization purpose. This propose was implemented through construction of the military fortifications chain, new cities and sedentarization of nomadic population. Thus, two types of settlements appeared in the Kazakh steppe: cities-fortifications and towns, emerged as a result of peasant resettlement.

New fortifications were mainly used as a tool to control revolts against the colonial politic and to regulate peasant immigration to the “new territories”. One of the example is Turgay fortification that was created in 1845 after the national revolt of Kenesary Kasymuly.¹ The fortifications in Kazakh territory were usually built according the principles of XVIII-XIX century Russian city planning.² For instance, the overall project of Verny fortification was drafted by the Russian architects A.Telyakovsky and E. Tolteben. City-fortifications in the territory of Kazakhstan had rectangular form where a large square with the church served as a compositional center of the settlement (Fig. 2).



Fig. 2. City plan of Verny (Almaty) 1916. By Popov



Fig. 3. City plan of Kustanay (Kostanay), 1902. Source: State Archives of Kostanay Oblast

¹ ГАЛКИН, М.Н. Этнографические и исторические материалы по Средней Азии и Оренбургскому краю. СПб., 1868. С. 164-189

² КОСТРОВА, Л.А., КОРОТУНОВА, В., Архитектура Верного и Алма-Аты, Междун. Сатпаевских чтений посвящ. 80-летию КазНТУ им. К.И. Сатпаева. -2014. - IV том. - С. 422-427

The second type of Russian colonial settlements were towns emerged as a result of peasant resettlement. Kostanay was one of them and has been considered as a major supporting point of colonial politic in the Turgay Oblast. In 1870 following the astronomic and geographic researches of General A. A. Tillo, the left bank of Tobol River was chosen as the terrain for the future city. Despite resistance of Kazakh community, occupation of the territory on the right bank of Tobol River was signed in 1880. The number of peasants willing to settle down in the future town was considerably high. Thus, by the beginning of 1878 1481 demands, and by 1880 4800 demands were received from the Russian peasants. The first peasant settlers start to come to the town in 1880 and built the first 26 houses.³ In 1902 the Orenburg architect Vebel' have made the first plan of the city (Fig. 3). According to the plan the terrain of 13 300 tithes was initial size of Kostanay. The urban landscape of "peasant" town kept rectangular form city-fortifications. The central composition of Kostanay as well was determined by the central square with church.

1.1.1. Agra reforms of Russian Empire and socio-economic impact of peasant resettlement

The colonization process was accompanied by exploratory researches in the "new land". Russian soldiers and officers were directly involved in numerous scientific exploratory expeditions organized by the Academy of Sciences and the Russian Geographical Society in the territory of Turkestan and the Steppe region. These works are the direct sources which allow to understand social and economic life of Kazakh steppe in the end of XIX beginning of XX century. "Settlers and tenant of Turgay Oblast" of economist, investigator of land issues in the Russian Empire Alexander Abramovich Kaufman is one of the first sources describing socio-economic life in Kostanay in the end of XIX century.⁴ Numerous land reforms, the abolition of serfdom in Russian Empire, crop failure, and lack of land brought Russian peasants to hunger and misery. In 1900 50 province of European Russia counted 23 million of "excessive" population. The new territories in the East have started to attract numerous so called "extra" population of central provinces of Russia fleeing from exploitation by landlords and lack of the land for agriculture. In June 1881 the land of the future city received more than thousand resellers came from 23 Western and Central Russian provinces, such as Samara, Voronezh, Orenburg, Saratov, Vyatsk, Simbirsk, Tula, etc. ⁵ Agrarian migration have been accompanied by violation of the rights and interests of the local society.

³ Кустанай: Вчера, сегодня, завтра. – Алма – Ата, Главная редакция общетвенно политической литературы, «Казахстан» 1979, 248 с.

⁴ КАУФМАН, А.А., «Переселенцы-арендаторы Тургайской области», 1897

⁵ ДЕДЛОВ, (В. Л. Кигн) . Переселенцы и новые места. Путевые заметки. — СПб., 1894., - 201 с.

According to A.A. Kosybaev from 1899 to 1915, 22 024 464 tithes were confiscated from Kazakh and local Russian agrarians for resettlement fund.⁶ According to the Resolution about “benefits for the steppe resettles” from 1890, the resellers were allowed to be engaged in commerce, craftsmanship, and to create new industries. The development of city construction have engendered growth of citizens engaged in construction works. According to statistics of Kaufman, by 1912 the city had 56 joiners, 16 plasterers, 75 sawyers, 75 bricklayers, 12 house painters, 30 glaziers, 170 carpenters, etc. as well some citizen were engaged in tailoring (92 person), boot making (76 person), fulling (38 person), blacksmith (50 person), joinery (10 person), etc.⁷ Kostanay have copied the structure of Russian cities where outskirts were inhabited by craftsmen. Some of the outskirt districts of the city are still named as “Blacksmith”, “Wheeled” etc.

In the 1890th the process of conversion of Kostanay into town have been already completed.⁸ After immigration of the first Bashkir and Tatar families, Kostanay got its first suburb area called Shakirovskaya (later Narimanovslaya) or Tatar slobodka.⁹ New villages Upper-Kostanay (Верхне-Кустанайский) and unauthorized settlement Zatobolovka on the Right bank of the Tobol River appeared in the same period and grew simultaneously with the town. From 1893 the settlement received the status of city. The pace of development of the new city was directly in dependence with abundance in crop fields: If in 1885 the city counted 7325 person, in 1900 the population reached 16175.¹⁰ Immigration processes brought a new social image to the city. According to the data of Orenburg officials by 1914 Kostanay was inhabited by Kazakhs, Russians, Ukrainians, Poles, Germans, Tatars, Bashkirs, Bukharians etc.¹¹ Thus, from the socio-economic prospective the population of Kostanay was quite variegated.

1.1.2. Influence of merchants activities on Kostanay architecture

In the beginning of XIX century Kostanay became an important point of commercial activities related to agricultural productions. The city became a sort of commercial hub relating northern part of Kazakh land and Ural region. New city on the bank of Tobol River very fast started to attract many merchant from South Ural, West Siberia and Central Russia. They were attracted by money and freedom of commercial activity. Merchant activities were not the main but the most

⁶ БОРОДИН, М, Зерно целены, М., 1971, с.7, «Ленинский путь», 1958, 5 января

⁷ КАУФМАН, А.А., «Переселенцы-арендаторы Тургайской области», 1897

⁸ «Сталинский путь», 1954, 20 февраля

⁹ Slobodka – From ancient Russian “outskirts of town”

¹⁰ «Комсомольская правда», 1956, 26 февраля

¹¹ БАЗАРБАЕВ, К, «Кустанайская область» (экономик-географическая характеристика), Алма-Ата, 1959, с.172

influential sector in giving velocity to the economic and as a result urban development of the city. If in 1881 Kostanay counted 8 merchants, by 1905 109 merchant was living in the city. Therefore, by 1906 traders sector made up 74 % of local economy.¹² Houses built by merchant in Kostanay prove this statistic. Indeed, merchants of Kostanay left after them a large quantity of urban infrastructure: shops, houses, schools, theater, bridges and roads, fairs, warehouses, mills and factories. Today the infrastructure built by merchants constitutes the basis of architectural monuments of Kostanay. The buildings of merchants' era were built in the "Siberian brick stile" widely spread in the end of XIX and the beginning of XX century. The local constructors have elaborated their own type of "Siberian brick stile": even warehouse did not have repetitious walls; windows, little towers and walls were fancifully decorated by shaped bricklaying (Fig.4, 5).



Fig. 4. House of merchant Yaushev. Today the library
Source: State archives of Kostanay Oblast



Fig. 5. Element from "Kostanay Siberian brick stile"
Source: State archives of Kostsnay Oblast

One of the first industrial complexes of the city, brewery also was built in the Siberian brick stile. The industry was in ownership of Swiss citizen Lorenz who from 1897 started production of the beer with the mark "Vienna" and "East Bavaria". Thus, by 1910 the city center was as a unified ensemble. The merchants were continuously building new warehouses and granaries. The central part of the city also was mainly made up of one-two level merchant houses. If in 1899 the city had 73 stone and 1673 wooden houses, in 1911 this number reached 4300 wooden and 900 stone houses.¹³ Initially, the city streets were named after home-towns of settlers as Orenbugskaya St., Pensenskaya St., Samarskaya St., etc.

The merchants were also the first who introduced Maecenas activity in the city. Thus, Tatar merchants were usually sponsoring the construction of religious edifices in the region. In the beginning of XX century they founded a Muslim schools and the central mosques. One of the

¹² КАУФМФН, А.А., «Переселенцы-арендаторы Тургайской области», 1897

¹³ БАЗАРБАЕВ, К, «Кустанайская область» (экономик-географическая характеристика), Алма-Ата, 1959, с.159

largest edifices of the time Nicholas Cathedral in 1898 and the first city garden on Michael's Square were as well built by means of Maecenas.

Nevertheless, in the turn of XIX century the town didn't had the most important patterns of urban infrastructure such as water supply, canalization, lightening system, neither public transportation. The first water storage tank for fires and drainage of public. ¹⁴

1.2. PROTO-industrial characteristics of the PRE-socialist town

Relatively rapid industrial development of the town during the first years of its foundation was induced by the complex of factors. The most crucial of these factors are the influx of Russian peasantry, constantly increasing demands in industrial goods, rich natural resources of the region and ruthless exploitation of the local population. While involving into Russian economic life, Kostanay, have been transforming into a nexus of regional economic development, boosting its industrial power and capitalist relations, as well as creating the skills of a new industrial culture. The positive natural conditions for crops agriculture and ancient cattle husbandry traditions of nomadic society have created positives preconditions for development of agriculture in the area. Thus, in the end of XIX and the beginning of XX century small industry of Kostanay was mainly based on production, processing and trade of agricultural products ¹⁵ (Fig. 6, Table 1).

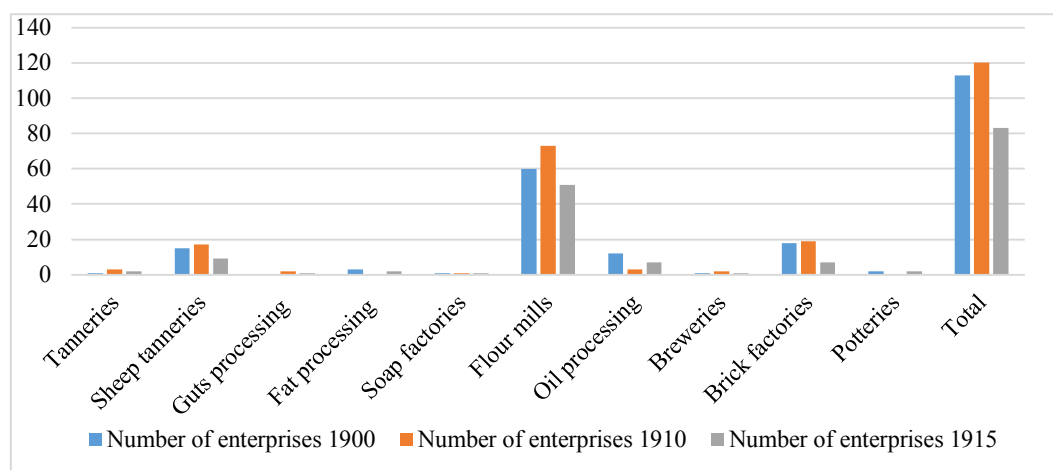


Fig. 6. Industry of Kostanay, 1900, 1910 and 1915. Sources: "Chronicles of Turgay Oblast" of 1900, 1910 and 1915

Industry	Number of enterprises		
	1900	1910	1915
Tanneries	1	3	2
Sheep tanneries	15	17	9

¹⁴ ТУКНОВОЙ, Костанайская область: прошлое и настоящее, часть 2., 2012, Костанай

¹⁵ Обзор Тургайской области за 1900, 1910 и 1915 года

Guts processing (кишечные)	—	2	1
Fat processing (салотопенные)	3	-	2
Soap factories	1	1	1
Flour mills	60	73	51
Oil processing	12	3	7
Breweries	1	2	1
Brick factories	18	19	7
Potteries	2	-	2
Total	113	120	83

Table 1. Industry of Kostanay, 1900, 1910 and 1915. Sources: “Chronicles of Turgay Oblast” of 1900, 1910 and 1915

All of the city industries were small with 2-8 working places. Local historians explain the weak industrial base of the period by the lack of developed communication routes, extra capitals and capacious sale markets.¹⁶

1.2.1. The town of 100 mills

The table №1 shows that among this varieties of processing plants, flour production was in the first position. The description of V. Dedlov confirm this evidence: “When you approach to the Tobol River you see the bare steppe...and a countless multitude of windmills”.¹⁷

The local archives and literature dispose few information concerning technical and architectural characteristics of mills in Kostanay dating back to the end of XIX beginning of XX century. All of this sources dedicated to steam mills, and none of them contain information about wind or water mills. Considering the fact that the region have been in dependence with Russia during this period, we can state that the architectural and technological patterns of mills in Kostanay was similar to those in Russia. However, the typology of mills was in the direct dependency with environment, landscape and topography of the area. In the turn of XIX century the quantity of wind mills in Kostanay reached 100¹⁸. The plain tomography of the city accompanied by strong wind have created perfect conditions for development of grain processing industry and wide construction of wind mills (Fig. 7). The wind mills were chaotically spread mainly in the south-west outskirt of

¹⁶ ТЕРНОВОЙ, Костанайская область: прошлое и настоящее, часть 1., 2012, Костанай

¹⁷ “Выйдешь к Тоболу – там голая степь...и несметное полчаще ветряных мельниц”. Дедлов (В. Л. Кигн), Переселенцы и новые места. Путевые заметки. — СПб., 1894., - 201 с.

¹⁸ Кустанай: Вчера, сегодня, завтра. – Алма – Ата, Главная редакция общетвенно политической литературы, «Казахстан» 1979, 248 с.

the city.¹⁹ According to the engineering characteristics the wind mills of Kostanay have been called *shatrovka*. This name was given according to the octagonal shape of the main carcass of the mill.

Regardless of the type of technology, we cannot consider the mill structure as an independent industrial building. It was rather a complex where different elements such as house of the miller, stabling, and storehouse were interconnected.



Fig. 7. Kostanay, Central Square, XIX century. In the background several wind mills making part of the city landscape. Source: State archives of Kostanay Oblast

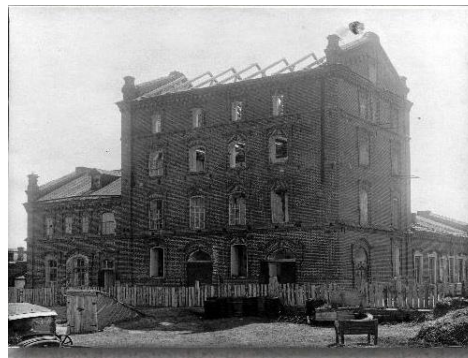


Fig. 8. Steam mill of Urasaev guild, 1906. Source: State archives of Kostanay Oblast

Unlike the water mills, windmills have been landscape landmarks. Together with churches and merchant houses the mills have been completing the wooden style of the town. In comparison with water mills, wind mills could not resist the concurrence with steam mills and soon some of them were reconverted to the steam mills or completely disappeared from the city map. Therefore, only those photos and written sources are evidences of their impact on Kostanay development in the turn of XIX century.

The first steam mill in the city was built by local entrepreneur Vedrov in 1892. According to information given in Regional Museum of History, the mill was equipped with internal combustion engine, grain-cleaning separator, millstones from local granite which present considerably advanced equipment for this time and for this region. The mill is still preserved in the territory of one of the abandoned Electric Elevator. Thus, in the early XX century the city had only five major steam mills. All of them were too small with maximum two work places. However, the technology of grain processing was developing very fast. If in the turn of XIX century the mills of the Urasaev (Fig. 8) guild were functioning by animal traction, in the beginning of XX century the mill complex represented a multistory construction with internal combustion engine, dynamo lights, as well as equipment for grain processing and grain expertise.²⁰

¹⁹ Кустанай: Вчера, сегодня, завтра. – Алма – Ата, Главная редакция общетвенно политической литературы, «Казахстан» 1979, 248 с.

²⁰ ГАКО. Ф. 237. Оп. 1. Док. 41. Л. 9

1.2.2. The first railway line and its impact on industry of the town

As it usually occurs in urban history, the construction of railway brought have considerably boosted development to the city. Thus, the first railway line between Kostanay and Chelyabinsk brought more rapid development to the city linking up Kostanay with Trans-Siberian railway (Fig. 9). Started in 1913 construction works were leaded by Russian engineer Leder. After inauguration of railway, the city got the first aqueduct and water tower.

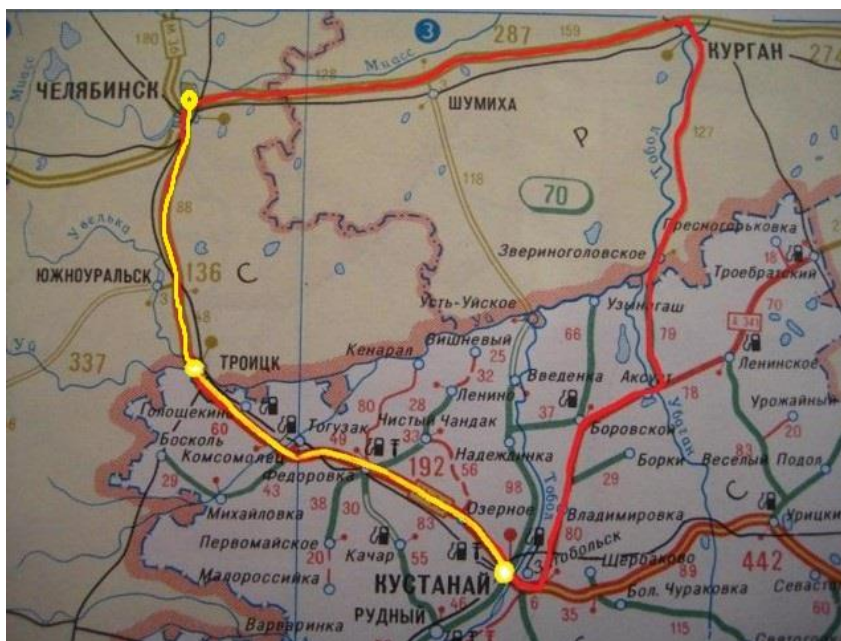


Fig. 9. The railway line Chelyabinsk – Troitsk – Kostanay. Source: «Карты Азиатской России»

Construction of railway system linking Kostanay to major Russian cities and Ural played a crucial role in economic development of the city in the pre-revolution period. The railway construction have been beneficial project for representatives of major Russian firms seeking for intensive exploitation of natural resources in the area. V.I. Lenin: “Russian bourgeoisie is putting enormous effort to construct the railway system to their colonies; that’s s way they are creating a new market, bringing to young country benefits of bourgeois rules, and creating new industries for unemployed population”.²¹ Besides, the railway connection has promoted farther inflow of agrarian settlers, abolition of patriarchal and enhancement of commodity-money relations, development of new sectors of industry.

²¹ В. И. Ленин писал : « ...русская буржуазия... предпринимает гигантские постройки железных дорог в свои колонии, создавая себе там рынок, неся в молодую страну прелести буржуазных порядков, выращивая с особенной быстротой и там промышленную и земледельческую буржуазию и бросая массу производителей в ряды вечно голодного безработного люда». «Степная зоря». №12 (329). 1 Февраля 1910 года. С. 3.

2. Socialist industrialization and urbanization of Kostanay (1920-1985)

2.1. Industrial development of Kostanay in Interbellum (1920-1939)

The late twenties and early thirties were perhaps the most transformative period in Soviet history. Industrialization was the main component of Stalin's revolution. Seven years long imperialist and civil wars brought an economic disruption to the city which was almost entirely dependent from agricultural sector. If before the Revolution the industry of the city had been based only on small firms, crops failure in 1921, lack of transport system and fuel shortage brought even those little industries into destruction. This, in the end of 1921 the Kostanay counted 44 enterprises with 245 workers. Due to the lack of raw materials 27 of them (155 workers) have stopped functioning. In 1920 after Communist party came to the power and Kazakhstan became a Soviet Republic its territorial and administrative structure passed through significant changes. These changes, undoubtedly, had an impact on industrial development of the city. According the new administrative division the country was divided into Oblasts (Province) and Rayons (Region) instead of gubernyas and okrugs²². The new administrative unity, Kostanay Oblast, covered less territory than in the case of former Turgay gubernya. The new administrative regime followed by establishment of new administrative and organizational unites. Thus, in order to regulate the economic and industrial sectors of the city, in 1921 Economic Council of Kostanay Oblast (ECKO) was created. Between 1922 and 1923, 195 new industrial firms were opened in the city. This sharp growth of the industry was predicted by two factors. First, in order to provide economic growth of underdeveloped areas, the Soviet State during the interwar period have relocated several industries from the center to the edges of the country. The local features such as tradition of production and capacity of labor market have predicted the choice of those industries. One of the first relocated industries the textile fabric "Красный ткач" ("Krasny tkach") was created on the base of equipment from textile industry of Kolomna (Moscow Oblast).²³ The second factor of sharp industrial development refers to the intensive exploitation of natural resources in the Oblast. Thus, during these years, salt, gold, sulfate production were launched. Generally speaking this period was characterized by development of socialist and decay of private sectors. Thus, majority of the industries of the city were industrial Artels. This form of the unities where based on private partnership still fully subordinated by the government. The following years the role of state organizations became more and more dominant. The periods of the first and second five years

²² Rayon - administrative unit smaller than Oblast and including several towns and villages.

²³ ЯРЕМИН Ю., «Красный ткач» угас вместе с «красным» временем, Костанайские новости, №83 (5 июня 2001), С.4.

plans had the most significant impact on the city economic growth. The industrial base of the whole Oblast was located in the city.

In the inter War period Transport infrastructure have been passing as well through significant changes. Thus, by 1930 the county (округ) have had 600 km of regional, 1051 km county, and 12500 km local and rural roads. Construction of the new 806 km long railway line Magnitogorsk - Karaganda which 370 km passed through Kostanay as well has opened the new markets for the city.²⁴

2.2. Industrialization in the course of WWII (1941-1945)

During the fascist aggression against the Soviet Union, more than 400 fabrics and plants were evacuated from European part of the former USSR to Kazakhstan. Thus, the country became an industrial periphery of the former USSR. New cities, company-towns, plants and mines, roads and bridges were built in this short period of time. In the beginning of WW II Kostanay received the equipment of 6 industrial plants indicated in the Table 2. These plants consequentially have created the industrial base of the city and have shaped its urban landscape.

№	Name of enterprise	From	The date of evacuation	Governmental deadlines for launch the production
1	Sewing fabric "Bolshevichka"	Herson	07.09.1941	10.10.1941
2	Grain elevator	New Senzhars	30.09.1941	-
3	The plant №507/gun powder/	Klin, Mogilev, Kalinin	03.12.1941 On the way	-
4	Shoe factory	Sempheropol'	On the way	-
5	Leather factory №1	-	On the way	01.03.1942
6	Brick factory	-	On the way	01.05.1942

Table 2. State of industrial evacuation to Kostanay, for 1 January 1942

In October 1941 Evacuation Council made the secret resolution № 507 to create gun powder plant in Kostanay. The plant №507 was created on the base of chemical plants of Mogilev, Klin and Kalinin. It was the only one plant in Kostanay which was directly subordinated by the Soviet government. In December 1941 the first 130 echelons with equipment of plants, 55 workers and 70 soldiers of militarized security from Mogilev, Klin and Kalin arrived to Kostanay. The equipment of the plant was placed in the central part of the city. Thus, the equipment and workers were placed in the buildings of today' Tarana and Al' Farabi Streets (NKVD, maternity hospital

²⁴ КУНАЕВ, Д.А., Пятьдесят лет Великой Октябрьской социалистической революции, Алма-Ата, 1967, с. 20.

№2, hospital for Infectious Diseases, pedagogical institute, secondary school №5 and №6, student residence, first floor of medicine school, mechanical workshop), and Tolstoy Street (house №3 on, ground floor of central hotel and 6 residential houses). Even those spaces were extremely insufficient for the plant. Thus, the construction of new work-shops started in the same year. Besides the main industrial space, the plant was included mechanical workshops, and workshop for drying, sorting and packing the final product. Construction works held under the top secret sign. Thus, in all official documentations of military period the plant mentioned as textile fabric and not as a chemical or gunpowder plant. The lack of construction materials have been paralyzing any other construction works in the city and was the reason for demolition of great quantity of wooden architecture (particularly old mills) in the city. However, together with demolition of architectural monuments, the new plant resulted on development of urban elements. Thus, the plant have engendered construction of the first city dam, the first storage reservoir, thermal power station, establishment of the first industrial college and Factory Theater, etc. In 1946 on the base of the plant №507 started the construction of new plant of artificial fiber (chemical plant). The industry located in the Northern industrial zone which was the first industrial periphery of the city consequentially included to Kostanay agglomeration.

It is important to mention here that one of the distinctive feature industrial spaces built during the Soviet era was that almost all industrial plants have been possessing a terrain for farming activities and greenhouses. This sort of terrain cold “podhoz” (Rus. “подхоз” – farming activities). Usually they had a special staff occupied in the farming or gardening activities. Presence of podhoz within the industry have been used to remunerate the workers.

The industrial evacuation also have increased the professional community of Kostanay. Komsomol director A. E. Kuhta pointed out: “If in the beginning we were passing through strong lack of professionals, now, when most of the evacuated workers went to their home-towns, we already have 19 Komsomol brigade of new professional resources”.²⁵

Besides, during the WWII city have received some cultural and scientific establishments as well. For instance, in the end of 1941 the Research Institute of mechanization and electrification, Research Institute of acclimatization and hybridization, Azov - Chernomorsky Institute, Chernyshevsky Museum from Chvalynsk, etc. were evacuated to the city.

Summing up the industrialization of Kostanay during the WWII, we can state that on the one hand this period brought industrial diversification and faster urban development to the city. On the other hand the industrialization characterized by too rapid nature which have had a negative impact on environmental condition of the city and on decline of agricultural sector.

²⁵ Collections of archive documents «Kostanay: pages of history», Kostanay Regional Archives, Kostanay, 2012, p. 485

2.3. After the War industrial reorganization (1945-1950)

After the WWII and reduction of arms production, the soviet industry required a serious structural reorganizations. Thus, in May 1945 in order to redirect the national industry towards peacetime production (мирная продукция) the National Defense Committee (ГКО) issued a special resolution on “Campaign of industrial reorganization”. Due to the fact that the major share of national industry required a structural reorientation, the process of restructuring took several months. The after war reorganization was hold according to the forth Five-year Plan and was implemented through several elements. The most influential between them were changes of denomination, designation, and type of production as well as some changes in administrative system of industry. For instance, the main type of production of the textile fabric “Bolshevichka” during the war was military uniforms for Red Army, after the war the “Bolshevichka” moved to the production of civil closing. To do so the factory was imposed to make thorough changes: to change the equipment, to requalify the employees, and to open new workshops.

The other industry that passed through reorganizational process is chemical plant. In the beginning of 1946 the plant №507 of gun powder production was renamed as plant №514 by production of artificial powder. The main product of the plant was copper ammonia fiber for silk industry. According to its new technology of production the plant was conceived as a unique industry in USSR. Since the reorientation process from military production towards textile industry, the plant went under subordination of the Ministry of Textile Industry instead of previous Ministry of Defense. The new reorganized plant as well wasn't any more in the list of top secret industrial objects. The project of the plant was drafted in Moscow. According to the project the corpuses of the chemical plant were located in the northern part of Kostanay. After the construction of the plant this area became the first industrial periphery of the city and consequently was agglomerated. The forth five-year Plan have imposed the local administration to the fast and sometimes inadequate development. Thus, the administration of the Chemical plant №514 was imposed to complete all construction works including industrial buildings, worker houses, cultural and service facilities by in one year. The large scale of the construction works requires enormous quantity of construction materials. The country in after war period have been experiencing a great shortage of construction materials which evidently caused retard in construction plan. However, the high demand of construction materials have boosted the development of the new sector of local industry. Thus the new brick factory have emerged in vicinity of the chemical plant just to supply the construction field with necessary materials.

The construction field as well experienced the lack of workers. Thus, the employees of the plant were as well involved to the construction. Another factor of delayed the construction was that the

project didn't have defined general cost estimation, neither good project City plan. The project directors from Moscow visited the construction field very rarely. The fact that the construction works were in delay was kept in secret. Initially, the plant have been functioning with industrial equipment from demolition of chemical plant in Germany. However, the equipment came to the city incomplete: Mechanical work-shops and power equipment were transferred to the other industries of former USSR. As a general rule, the grandiose project of chemical plant have boosted development of several city infrastructure. Construction of the thermal power center for the chemical factory have allowed the other city industries and services of Kostanay such as "Bolshevichka" textile fabric, typography, Drama Theater and cinema to have stable power source and accelerate the production capacity.

The first aerial high-voltage line passing above Lenina Street and connecting the thermal power center to the city power station as well as transformer of 320 kilowatt were constructed immediately after the new power station have started to function. The second high-voltage line was connecting the Thermal power station and "Zagatzerno" grain elevator. In view of the fact that there wasn't public budget for electrification of other plants of the city, those industries were obliged to connect to the new power station by their own means. Construction of the other high-voltage lines had three direction: The main direction of the line passed by Tarana Street and connected the Central Power station with Leather factory. The other two lines were just branches of the main line with directions to "Selhozmuka" mill by Oktyaborskaya Street and to Brewery by Tashkentskaya Street. Construction of the new lines was imposed to the leather factory and the brewery. From the 1947 electricity started to be supplied only in the presence of counters in plants.

Food industry in the afterward years have been characterized by especially rapid development. By 1946 the plant consisted of 7 workshops, and had territorial division with distance of 3 kilometers between them. The sausage and patty workshops as well as the main office of the plant were located within the city borders on Tolstoy Street. The other 5 workshops such as slaughterhouse, leather, guts, fat processing workshops were placed in the district outside of the city but were later included to Kostanay. The distance between the factory and the railway station was 6 kilometers.

Another important character of after war industrial reorganization was the lack of administrative unit for management of industrial sector. There wasn't any unified administrative organization neither on the city neither on the regional level, except department of local industry within the city Council which was only in charge of gorpromcombinat and gorpishecombinat. All industrial enterprises and gorpromcombint were under governance of Chairman of the Executive Committee by trade and industry.

All industrial enterprises of Kostanay were divided into 3 main groups according administrative units they were subordinated by. In the first group was just chemical plant №514 subordinated by Soviet Union. The second group consisted of industrial Artels which were in charge of Regional administration, and the third major group consisted of the rest types of industries under the Republican jurisdiction. Thus, according the statistical data by the 1 March of 1948 the city of Kostanay had 9 industrial plants and 11 industrial Artels.

The analysis of these data shows the tendency of growth of the female workers and in some cases even their prevalence. On the one hand this tendency associated with types of production, on the other hand this predicted by lack of male workers in the industries. For instance, if by 1940 1317 female workers were engaged in industrial sector of the city, by 1945 the number of female employees grew up to 5943. Despite the growth of male population after the war the situation didn't change. By 1946 the number of female employees in different industrial sectors of Kostanay grew 6425. As for the Human Resource management system, the measures for labor discipline infringement have been severe. Thus, the directors and administrative sector of industrial enterprises were required to submit all materials to the court in case workers escape the work which followed by prosecution.

2.4. After the war urban development (1945-1950)

Even if the WW II have considerably boosted the industrial sector, its urban image remained unchanged. The city that became an Oblast center just before the war, by 1950th didn't complete yet its urbanization. Kostanay was mainly constructed by one level houses, except those of two-storey merchant houses on the main streets. The necessity to place evacuated industries and people have resulted the relocation of city offices and organizations. The so called "compaction" of the city emerged as well in the residential areas. By the end of WW II the city didn't have neither public transportation system neither good roads. The only types of urban mobility were cartages and just the central streets of the city were covered by pavement. Thus, during the rain the inner city have been inaccessible.

The first bridge over the Tobol River was constructed in 1947 by officers and soldiers of the military unit №63431. However, the spring flooding in the Tabol River caused several problems. Without seasonable dismantlement of the bridge there was a danger that drifting of ice or flooding could destroy the construction. Thus, the city administration have elaborated a special action plan by maintenance of the bridge. By this plan the bridge was dismantled just before spring flooding, then its components were sorted and stored until the end of flooding season. During the high water

season the bridge function have been performed by ferries. Nevertheless, dismantlement of the bridge have been putting the agricultural sector into trouble.

After the war urban reorganization as well can be considered as a starting point for the first urban regulation system. It was concerned, first of all, the traffic regulation. Thus, from 1948 the circulation of trucks and animal drawn transport in the main streets was forbidden. The streets Tarana, Pushkina, Tashkentskaya, Kuibishiva and Komsomolskaya were defined as transit routes.

2.4.1. Cultural Revolution of Khrushchev and its impact on the soviet architecture

A policy initiated by Khrushchev in 1957 have marked a turning point in housing development in the former Soviet Union. State funding for housing construction was increased and housing construction became more centralized. It can be applied as well to full-scale implementation of industrialized building methods such as the use of prefabricated elements. The goal was to combat the housing shortage and to provide each nuclear family with a flat of its own²⁶. Housing construction increased in socialist cities by 1960s, reaching its peak in the 1970s, and decreasing again in the 1980s following the economic recession.

Within two years of Stalin's death, the Union of Architects released the November 1955 directive against "ornamentalism". The campaign against ornamentalism in 1955 prefigured the start of a new cultural revolution begun in the awake of Khrushchev's secret speech to the Twentieth Party congress in February 1956. On the most immediate consequences of the Congress was the announcement towards the end of 1956 given by the Soviet of Ministers and the Central Committee of a massive building campaign. In the previous year a new administrative entity had been created, Gosstroy²⁷ to averse and co-ordinate this gargantuan effort. Housing and byt (house realm) became paramount concern of government and Party policy, essentially displacing in rhetorical importance earlier emphases on industrialization and the war effort.²⁸

It was supposed that a series of 'micro' changes in the use of domestic space as well as radical changes in architectural planning facilitated the destalinization of Soviet society and the reinvigoration of Modernist Leninist principles structuring design and socialist morality. Consequently, an uneasy accommodation with Stalin era materialist aspirations was facilitated by this revived rationalizing regime of normative principles of taste inspired both by Modernist

²⁶ RUOPPILA, Sampo, Processes of Residential Differentiation in Socialist Cities, European Journal of Spatial Development [<http://www.nordregio.se/EJSD>] ISSN 1650-9544, Refereed Articles Feb 2004, №9, p. 12

²⁷ Rus. – "Госстрой", State construction

²⁸ BUCHLI, Victor, Khrushchev, modernism and the fight against 'petit-bourgeois' consciousness in the Soviet home, Journal of Design History, 10(2), 1997, p. 161-76

principles of the Cultural Revolution and the contemporary West. Needless to say, in strict terms of design, minimalism was operative word in the arbitration of taste. This minimalism was very reminiscent of the Nordic Modernism of the West in the 1950th and 1960th—a point many Western scholars maintain, insisting that soviet design was derivative. That copying occurred without question but for majority of Soviet citizens outside of Moscow these trends were certainly perceived as indigenous and thoroughly Soviet. However, if Soviet designers—looked at Modernist Western trends, they were simultaneously looking at those same Modernist elements that emerged from the cultural revolution of the 1920th. In any case, superficial appropriation of certain Western principles by Soviet designers does not diminish the unique and socially significant manner in which the appropriation were deployed within the Soviet context. Between 1956 and 1962, a number of institutions responsible for the socialist rationalization of the domestic realm was steadily built up. The physical infrastructure within which to realize byt reform was established by the foundation of Gosstroy in 1955 and subsequent directives of the Twentieth (1956) and Twenty-First (1959) Congresses on byt and the housing drive.

In 1962 a Soviet Ministers of the USSR directive entitled “Concerning quality improvement of the production of machines and consumer goods through the inculcation of methods of artistic construction” called for the rationalization and industrial concerns in order to create a rationalizing and centralized process of design over the material goods produces by the soviet economy.²⁹ The culmination of rationalization of the infrastructure of byt reform was achieved with the foundation in 1962 of All Union Scientific Research Institute for Technical aesthetics (VNIITE). Its mandate was to provide the rationalizing expertise of architects, industrial designers, planners, sociologists and historians for institutions such as Gosstroy and other sectors of the productive economy responsible for the production of consumer goods.

2.4.2. Development of the city according the first City Plan (1950-1960)

In January 1949 the Council of Ministers of Kazakh SSR approved the first “Scheme of the city Plan” for reconstruction and development of the city of Kostanay. This is one of the most important document in city history which considerably changed the urban image of Kostanay. The City Plan have defined several elements: population and territory of the city; location of the main industrial plants and transport infrastructure; construction of warehousing and residential areas; definition of central and district squares; city landscaping; regulation of the intercity transportation roads; main

²⁹ КОШЕВА, И., Работница, №3, 1996

engineering constructions; and definition of suburban area. The implementation of the city plan have been projected until 1970 in respect of population growth up to 80 thousands.

As the new industrialization zone was defined the area from Krestyanskaya and 1 Maya Streets in the direction to the North-West ravine of Tleuly Say (Тлеули сай). This area was conceived for construction of the new Repair and Engineering Works plant, meat processing and wood processing plants. The brick factory Artel “Krasny stroitel”, agricultural “basas” “Zagatskot” and “Zagatzhivsyrio”, sawmill installation installations were moved to the reserve area in the west. The warehouses according the plan were conceived in to be placed in the area adjacent to the railroad tracks between the railway and freight stations. The locations of the chemical plant №514, leather factory, “Bolshevichka”, Repair and Engineering Works plant, Mill №6 and slaughterhouse supposed to be remind in the same position.

The City plan assumed the gradual growth of the residential area towards South-West zone. The project have a description of the most elite house of the time: “The main facade of the beautiful three-storey building will face the main street of the city. Two upper floors will consist of 11 three-rooms, and 22 two-room apartments which total space will reaches 1 126 square meters. Each apartment will be equipped by bath, water and canalization pipes, electricity and even hot water. The house will be provided by central heating system. The ground floor will be occupied by big grocery store with trade area around 136 square meters. Besides the building will have a basement floor for household necessities. The courtyard will have playgrounds and little garden.” This sort of description allowed us to complete collect an almost complete image of the housing estate constructed during Tselina period. Acute shortage of housing brought to chaotic development of the city. The first city Plan of the city as well included information concerning improvement of urban infrastructure such as development of water and colonization systems in the center of the city, renovation of the power station, pavement of the city streets, and introduction of the first public transportation system and other. Therefore, by 1952 the water pump system was still in construction, thus, a large system of mechanical water wells were substitution of water pumps for a while. The first bus line “railway Station-Central Market-Zatobolsk suburb” was inaugurated in 1949. By the beginning of 1950 the city have had already two cargo taxi and two 7 km length bus lines. As for intercity transport connection, Kostanay was linked to Akmolinsk-Kartaly highway. The aerodrome enlargement and construction of the airport have been launched as well as a result of the first City Plan. Development of the green areas in the city grew up to 164 hectares, where parks and public gardens occupied 94 hectares. The green belt areas consequently appeared as well in the gardens of public organizations, schools and hospitals.

The city had been developing according the first City Plan until 1955. The launch of agricultural complain “Tselina” brought considerable changes to the first City Plan. From 1955 the city had

been developing chaotically according the necessities of “Tselina” until approval of the new version of the City plan in 1960.

2.5. Soviet agricultural campaign “Tselina”: its material and immaterial heritage (1955-1960)

The beginning of 1950th in Kazakhstan as well as in other former Soviet Republics was characterized by deficit of consumer products. Even if the after war urban and industrial reorganizations have had a positive results, the Soviet State still have been in deep economic crisis.

The new Soviet administration headed by N. Khrushchev decided to reduce the food shortage by the sharp acceleration of the grain production. Thus, the massive development of “Virgin lands” took the direction toward the east of the former USSR. The Soviet agricultural campaign “Tselina” took place between 1955 and 1965. “Tselina” has become another soviet campaign which was conceived to solve suddenly all economic problems in the country.

However, the soviet agricultural campaign had a significant impact on the development of Kazakhstan as a whole and particularly of its north-east regions: 750 schools, about 19 million sq. meters of housing was built from 1954 to 1960. Besides, the new agrarian migration flux from Ukraine, Belorussia and Russia have made significant changes in social structure of the country. The new State complain also brought changes in administrative organization of Kazakhstan. The most significant of these changes was creation of the new administrative unit “Tselina region” (Целинный край). The new region included several North-Est areas of Kazakhstan and South-West Siberia. Tselinograd (today capital of Kazakhstan Astana) have become the center of the new administrative-territorial unit. The State administration were sure that this novation in administrative division will fasten development of the new region. Creation of “Tselina region” followed by establishment of the new state organizations Obkom (oblast committee). The administrative hierarchy as well changed in a favor to Oblasts. Thus, Kostanay became depended from the economy of the new “Tselina region”.

In the Soviet newsletters this period was named as “Khrushchev thaw”. The local and state newspapers were obsessed by Seven-Year Plan results and statistic numbers. That’s why the periodical sources of the time give only the information of industrial and economic results of the Seven-Year Plan. However, bearing in mind the political regime of the period, it is difficult to give an adequate evaluation of the economic growth. Even so, the fact that the city built space was mainly constructed during the “Tselina” period enable us to approve the great impact of “Khrushchev thaw”.

As it was mentioned in the previous section, initially the construction of the city was not according to the City plan: “Construction was carried out selectively. The new buildings were just “thrust” in the free spaces or constructed instead of ruins”.³⁰

Due to the acute shortage of housing and sudden demographic growth the state construction wasn't insufficient to cover housing demands. Thus, the city have been simultaneously under state and individual construction. Especially in the first half of 1950th individual construction took the massive scale. Only in the period between 1951-1953 the individual construction reached 1230 houses. Nevertheless, the volume of individual construction start to reduce after the growth of multi-storey buildings. In 1954 the volume of investments in construction grew up till 56 million rubles, and till 174 million in 1958. Thus, in the second half of 1950th the first multi-story houses start to replace wastelands and create new streets. The area between the city and railway station became a workers quarter of the new chemical industrial complex. The worker' quarter had its own infrastructure as cultural center, school, public sauna, etc.

Construction of multi-storey housing became an event for the city. First of all mass construction started in the area between Lenin Street (Al'Farabi Street) and railway station until the Chekhov Street. The other area that passed the mass construction during “Tselina” period is the district №281 positioned between Rabochaya, 19 August (today Borodin Street) and Vostochnaya (today Valihanov Street) Streets. In the beginning of mass construction works the district considered as an edge of the city. Today this area divided into two independent districts called “Taxoprak” and “club Stroitel”. The area mainly was constructed by two-three levels housing where the ground floors were conceived for commercial activities. The project of the district as well included a kindergarten and a public canteen.

The large scales of construction works followed after the sharp demographic growth. The growing city had a great shortage of potable water. By the beginning of “Tselina” the city's water and canalization systems were just more than 2 kilometers in total. Only in 1957 the construction of the new water supply and canalization systems launched by the project of Moscow institute “Гипрокомунводоканал”. The extension of canalization system was projected by the gravity method of wastewater, in consideration city relief. The system laid through the watershed locate between Taran Street and Lenin Street (today Al'Farabi Street) towards Abil-Say and Kostan-Say lowlands. The extension of the first part of the city canalization was 27 thousands of running meters with more than 50 drain shafts. The main collector of wastewater was located on the Moscovskaya Street (today Syanova Street). The water for water supply system have been taken from the part of the Tabol River in 8 kilometers distance away from the city (in the area of

³⁰ “Застройка... велась выборочно, где пуставало место или были явные развалины, - туда и “тыкали” новый дом”. Memories of local citizen P.M. Chernysh

Amangeldiskaya MTS) where all necessary water cleaning devices were installed. Later, in 1959, the second part of water supply system was constructed by Kostanay Construction Department “Santehstroy”.

Economic growth engendered by agricultural sector allowed the city industry to develop more rapidly. By the end of 1953 27 industrial enterprises were in operation in Kostanay. The major of them were chemical industrial complex, leather factory, mining equipment plant, food industry (meat processing plant, dairy plant, bread factory, and brewery). Thus 70% of working population of the city was involved in industrial sector.

Tselina period as well associated with exploration of natural resources in the region. The region of Kostanay (former Turgay region) that was long time considered unpromising in terms of natural resources suddenly became the point of attraction. The geological works of the region were initiated by academic K.I. Satpaev 1945. Thus in 1946 the Ayat iron ore deposit was estimated as the largest area of ferrous metallurgy in the former Soviet Union; in 1947 the geologists discovered Arkalyk bauxite deposit; in 1948 followed Kurzhyngol and Kozyrev deposits. In the base of the discovered deposits the new mining industry and several company-towns have been established.

However, the most influential role within the mining industries in the development of Kostanay have played the Sokolov-Sarybai mining. The iron ore was discovered in 1949 47 km away from the city of Kostanay. The following years starts the intensive development of the mining. Thus, in 1950th the first in Kazakhstan ore mining company was established and later on the base of this company the new town have emerged in the vicinity of Kostanay.

In 1957 in order to maximize the economic potential of Kostanay Oblast the Academy of Sciences of USSR and Academy of Sciences of Kazakh proposed the first “Economic development plan of the Kostanay Oblast”. As a result of scientific discussion Kostanay got the branch of Academy of science of USSR, and plan for rational use of natural resources of the region. The new sector of industry related with extraction of natural resources and sharp development of agricultural sector, together have considerably boosted economy of the region. Thus, during the “Tselina” period, Kostanay on the rights of regional center have been experiencing great changes not only in economic context but in urban image.

The years 1957-1958 as well were characterized by two major projects allowing to connect the city with neighbor regions and industrial plants that have been under construction within the city. The first project was a radio relay communication line linking Kostanay with Mining and Processing complex Sokolov-Saribay and Russian Chelyabinsk. The second project concerned construction of the first television station. The projects supported by Ministry of Metallurgy, Ministry of Nutrition, Ministry of Agriculture and Ministry of Communication.

2.6. Development of the city according to the second version of the City Plan (1960-1985)

The considerable financial and logistic investments related with Tselina and development of natural resources of the region had a positive impact on urban development of Kostanay. The expansion of the city has created the necessity in a new City Plan. The first draft of a new City plan was made in 1959 by the project institute “Lengiprogor”. The new project passed through examination of Council of Workers deputies and State Committee for Construction. According to the periodical sources of the time, the local community and organizations as well took part in the discussion of the city plan. Thus, in 1960 the final version of the plan was submitted by the Council of Ministers of Kazakh SSR. In comparison with the first version, almost all aspects and correction of the City Plan were realized.

Construction of the city according the new plan was projected for 25 years, taking into account the expected population growth from 86 to 250 thousands person. The new version of the City Plan was 20 years long project, and in comparison with the first version, almost all aspects and correction of the City Plan were realized. During the first 10 years of the construction plan the special attention was paid to the development of the wasteland in North-Est of the city. As well the first part of the plan included the reconstruction of the city center between Naberezhnaya St. and the railway Station, Tarana St. and Gogol St. as well as whole surrounding neighborhood.

By the end 1950th Kostanay already had an established system of rectangular streets. Some main streets of the city have been visibly transformed by 1958-1959. The major attention was paid to the main axis of the city composition - Lenin St. Taran, Gogol, Kalinin, Baimaganbetov, Chkalov, Komsomol, Chekov Streets by the beginning of the implementation of the new City plan already had asphalt paving. However, by the beginning of the new City Plan implementation, the city wasn't enough urbanized and had a considerably poor infrastructure. The territory of Kostanay was divided into small blocks of built-up single-houses and farmstead like houses without any infrastructure as water/canalization systems, electricity or central heating system. The public buildings such as Akimat (local administrative entity), banks and post office, theater, university, technical colleges were in dilapidated condition. Schools wasn't equipped by appropriate infrastructure. More or less more or less decent houses with urban infrastructure one could find only in the workers quarter of the Chemical plant. Therefore, the new City Plan was a fairly expensive project. The City Plan have followed rectangular grid conceived by the first architect Vebe. The 3, 5 km long Lenin St. intersecting the city from the railway station till Tobol River kept the positions of the main axis of the city composition. According the plan, Taran St. which have an access to the bridge through the River, became the main traffic artery of the city. The

shortest central Soviet St. served as a central alley of Kostanay. Thus, this street became the concentration of all significant public buildings such as Akimat and Economic Council.

The other change brought by the new City plan was the transformations in management system of single quarters. Thus, some streets were blocked in order to allow the enlargement of small quarters. These measures were necessary to facilitate the rational use of the territory and provide the quarter with urban infrastructure. Dilapidated housing stock in the city center was replaced by three-five levels houses. As a result, these measure have allowed increasing of living space 7-8 times. The City Plan envisaged the construction of 450 thousands square meters of living space or 15 thousands of apartments with capacity of 50 thousands person. The major project of the City plan is construction of seven standardized three-level building-blocks. The facades of the blocks were supposed to face the main streets. Thus, the ground levels were designed to accommodate groceries (12 workplace each) and public canteens; the first floors projected to be occupied by consumer goods shops, and the last floor by ateliers, consumer service workshop and hairdressing salons. The new plan as well included construction of 5 standardized schools for 920 children each, as well as 15 standardized buildings (типовое здание) to accommodate there kindergartens.

New public facilities and entertainment spaces as well were opened thanks to the plan. Thus, in few years the city got a new building of Drama Theater with capacity of 800 people. The previous building of the theater was reconstructed and passed to the new Philharmonic Hall. Several cinemas halls in different districts, the railway Workers club, pioneers Palace, Conference Hall of the City Council are as well constructed by the new City Plan.

The new plan of the city as well included the landscape gardening works as well as creation of the new park between Nabereznaya St. and Tobol River. This project wasn't realized during given time, and appeared in the area just in 2012. The mass construction of the city have been accompanied by the shortage of construction materials. The industrial sector of construction materials had particularly rapid development in Kostanay during 1960th. In 1961 the industrial complex КЗБИ (КЖБИ-комбинат железобетонных изделия) by production of concrete blocks starts to operate. The new industrial complex consisted of four plants which were specialized on production of reinforced concrete blocks, silicate bricks, ceramsite gravel, and reinforced concrete slabs. On the base of the new industrial complex consequentially have emerged the new residential area which today became one of the largest districts in Kostanay. Today, even if the industrial complex no longer in operation, the residential district of former industrial complex kept the name КЗБИ. The ambitious plans also required an intensive work of architects and urban planners. Thus, the main responsible group of the project was Institute "Kustanayproject" ("Кустанайпроект"). The director of the Institute Lev Kuperman in one of the issue of "Leninsky put" ("Ленинский путь") from 5 March 1960 explained the activities of the Institute in the implementation of the

City Plan: “Kostanay is developing. New quarters and company towns are very rapidly replacing wastelands... In 10-12 years period we need to eliminate the lack of housing. The Institute have already completed a set of construction projects for some districts and quarters. Very soon the Institute will complete the project of residential housing for workers and employees of the future textile fabric which construction going to launch this year”.

It is important as well to point out some actors who have played an important role in the implementation of the project: the main engineer of the project A.N. Sokolova, geologist I. Zharina, geodesists G. Piskunova, V. Agapova, N. Prihvich, urban planners L. Shavonina, L. Pozhelenkova, V. Muracheva, R. Burkatskaya, architects N. Vinogradov, engineer-architect of regional department of Construction V. Gorchinsky. All sectors of city life such as economy, culture, education, trade, medicine, municipal services as well have passed through fundamental changes. Thus, educational institutions changed the profile towards training of specialist in construction works. Consecutively new Construction College was opened in 1960th.

2.7. Perestroika: Urban development of the city during the mass reorganizations (1985-1990)

In the middle of 1980th the former Soviet Union found itself in a deep economic, political and social crisis. Deformation of economic structure, inefficient system of public production, lack of investments, and slow development of management methods of domestic economy caused the complexity of the economic situation in the former USSR and in Kazakhstan as part of this Union. The new State administration represented by Gorbachev led the Soviet country to the next political and economic reforms called “Perestroika”. The literal meaning of “Perestroika” is “restructuring”, referring to the restructuring of in all aspects of Soviet society life. In this paper we cannot cover all of them and that’s why this section will raise changes in urban, economic and industrial life of the city.

This new economic reform was mainly based on following elements: intensification of industry, democratization, autonomy of enterprises. Thus, during the Perestroika period the Kazak SSR as the other former Soviet Republics starts to receive more independence in the administrative and economic plans. However, in Kostanay the reorganizations have concerned not only economic and political aspect of the city life, but as well the urban planning. Therefore, the City Plan previously proposed by the project institute of “Lengiprogor” passed several corrections of Alma-Ata institute “Kazgostroyproekt”. According “Kazgostroyproekt” the city was projected for 300 thousands people considered as “an optimal number of population allowing to create the most

favorable conditions for highly productive work and recreation with wide use of all benefits of civilization.” The third version of the city plan have defined the ways to eliminate the shortcomings that have been present in the previous City Plan. The corrections included the volume of residential housing and public construction, city infrastructure and public transportation, as well as engineering constructions of the territory.

The architectural composition according the City Plan of Perestroika was based on several fundamental ideas. The emphasis in the plan was made on the use of the most advanced methods of urban planning with expectation to provide the maximum comfort for citizens.

According to the new version, the city was supposed to have three main quartier – Central, South-West, and North-Est. The main housing stock was kept but projected the gradual replacement of one-storey buildings with a multi-storey housing. The centers of the quartiers (район/квартал) was faced on the main Swerdlov St., Baimagambetov St. and Herzen St. The highways of district significance (районного значения) grouped the small quartiers on large inter thoroughfare area of 120-200 hectares, with capacity 20-30 thousand people. According to the Plan, each inter thoroughfare area regrouped four independent quarters with their own cultural and commercial centers. The residential areas of South-West and North-East were divided into micro-quarters with own Service Centres and publics parks.

The most detailed planning was made for the City Center. According to the Plan, the City Center was enlarged. Thus the City Center was defined by Doschanov St. on the South-West, the railway station “Kustanay I” on the North, Gagarin St. on the North-Est and by the floodplain of the Tobol River on the South. The Central territory area between Gogol St., Baimagambetov St., Taran St. and the floodplain of the Tobol River became the main city park. The city core area included administrative (between Sovetskaya St., Lenin St., Tarana St.), shopping (Kalinin St.), cultural and educational, sport and recreational zones.

According to the Plan, Tarana St. remained to function as a highway and Lenina St. was still closed for public transportation. The correction of the plan also lay in the fact that the City Center was designed only for buildings of public use. Since then the construction of new residential housings was forbidden. Among the most significant constructions conceived and consequently implemented by the Plan were Palace of Culture, Political Education House, Plant of concrete panels, agricultural machinery motor workshop, fodder plant, electric Mill of bakery plant, a polyclinic in the Narimanov quartier, Palace of Youth, new maternity hospital, several kindergartens, and Industrial Technical School.

However, the major industrial project of Peristroyka period was Worsted Textile complex. The new industrial complex was projected by of Alma-Ata, Tselinograd, Moscow, Rudny, Karaganda and Orel construction organizations. The new industry was accompanied by the construction of

new workers micro-quartier with basic infrastructure. Perestroika period in Kostanay as well characterized by the farther development of the city infrastructure. Thus, 45 square meter of residential housing was connected to the Central heating system and the previous heating plants located in the city center were closed. Thus, the central part of the city starts gradually deindustrialization. The water quality has improved after the construction of water treatment plant with capacity of 50 thousand cubic meters per day. The city canalization system was extended to 19 km and equipped with two pumping stations.

One of the main objectives of these years was to provide every family in the country by housing by the end of XX century. According the program “Zhilyo-91” (Жилье-91) by the end of 1989 has commissioned 146 thousand square meters of housing (2668 apartments). Thus, during the first 9 months of “Zhilyo-91” program, 9 residential buildings have commissioned, and 34 buildings were under construction. Besides the governmental program, 16 enterprises were involved in construction of other 19 residential housing. These numbers shows that the significant share of Kostanay build up area refers to the Perestroika period.

In order to regulate the growth construction fields, the Regional Council have established the city Planning Board. The Board was aimed to the analysis of the projects concerning the city construction, including projects of new residential housings, public and industrial spaces and city infrastructure. The years of Perestroika were aimed as well to the industrial intensification. The intensification concerned 17 industries of Kostanay. The program “Intensification-90” was in charge of this initiation.

3. Making of post-socialist city: Urban and industrial development of Kostanay in the period of transition

3.1. Urban development of Kostanay in transitional period

During the period of transformation each Central Asian country have adopted its proper model of political and economic reforms which have influenced on the dynamics, forms and processes of industrial and urban development. Therefore, different vectors of urbanization in the young states in many ways reflects the socio-economic and territorial transformations they have experienced. Foundation and development of most of Kazakh cities took place during the Soviet era and was dictates by the interests of the soviet economy. The demands of soviet economy have engendered the extensive development of company-towns and predominant development of mining and agricultural industries.

Over the last 25 years, urban development of Kazakhs cities passed through two phases of the transition.³¹ The first covers the years between 1992 and 1999. This phase was characterized by the struggle with deep socio-economic crisis. During these years Kazakhstan faced the consequences of a hypertrophied economy. The differentiation of regions in terms of socio-economic development (village-town) became more conspicuous, the problems of small and medium-sized cities grew up. The second phase starts from 1999 and continues up today. It is recovering period, the phase of reconstruction and modernization of the economy. Helps to the high price rates on natural resources in the world market, during the first decade of this phase Kazakhstan have been experiencing significant economic growth. Thus, the first decade of this phase gave a multiplicative effect in all aspects of socio-economic life of the State. Up today the country is able to provide centralized financial assistance to the cities and towns.

As the other regional centers of Kazakhstan, Kostanay, by the beginning of 1990th already had a well-developed urban infrastructure. However the urban infrastructure was characterized by the number of weaknesses. First of all, starting from the 70s, the capacity of city infrastructure became inadequate in respect of the urban population growth rate and economic development of the city. Secondly, the financing of infrastructure system was centralized and have been funding only by the state subsidy. Development of industrial sector as well as urban infrastructure were in direct dependence with the volume of capital investments and not with regime of economy and development of high technologies. Therefore, the urban infrastructure of Kostanay wasn't technologically updated and its maintenance was pretty expensive. Thus, development of Kostanay was in dependence with the major industrial complexes of the city and their collapse had a direct impact on the state of the urban infrastructure.

Within the context of transitional period, the system mentioned above wasn't sustainable and did not meet the new requirements of the market economy, neither the rate of urban population growth nor the agglomeration. In the first half of the 1990s, these conditions resulted in the gradual decay of the city infrastructure. Furthermore, the social, politic and economic situation during the 1990th significantly reduced the pace of construction works projected by the City plan of 1986. However, the implementation of the plan continued gradually until 2009.

In Kostanay as in other Central Asian and Russian post-socialist cities the urbanization characterized by the high rates of population growth and rural migration to the cities. By the 1 January of 1991 Kostanay population counted 230 thousands person. The social groups had following characteristics: 47 thousands of scholars, 27 thousands of preschool age children, 2480 large families, 3 thousands of single-parent families, 1,5 thousands of handicapped person of I and

³¹ КАЗАКОВА, Александра. Urban Challenges in North and Central Asia. Paper presented at the 5th Asia-Pacific Urban Forum organized by ESCAP. Bangkok, Thailand. 22-24 June 2011

II groups, 35 thousands of pensioners. Capacity of urban housing and infrastructure didn't meet the volume of constant influx of new residents. Therefore, more active construction works in the city started just in the turn of XX century. According to the local urban planner and director of "Promstroiproekt" Alexander Kogan, "during the construction works of 1990th Kostanay was developing chaotically".³² The chaotic development of the city was predicted first of all by the privatization³³ process launched in 1991.

3.1.1. Development of the city according the latest city Plan

The first and the latest version of the City plan as city of Kazakhstan Republic was adopted in November 2009. The concept of Kazakhstan development for the first 12 years was developed by "Gradkompleks" company. The traffic intersections were designed Kiev engineers. If according the previous versions of City Plans the city was developing alongside the floodplain of Tobol River and from the North-East to the South-West, then in the new City Plan of 2009 the preference was given to the development of the city in the opposite direction – from the West to the East. This area first of all cover the alongside of Chelyabinsk highway and residential area of Kostanay-II quartier (Fig. 10). The City Plan as well includes the revitalization of the workers quartier of the former Worsted cloths industrial complex. In the contrast with the workers quartier of Chemical industrial complex, after the collapse of the industry this area have been the less attractive area in the city. Over the last few years the city administration was artificially developing the attractiveness of the area, by developing there public infrastructure and residential housing. Thus, the area became more attractive for the small and medium businesses.



Fig. 10. Future residential quartier according City Plan 2009. Today is under construction. Source: Site of Architectural Department <http://uag.kostanay.gov.kz>

³² "Костанай через года", Наш Костанай № 63 от 14-08-2014

³³ The first phase of privatization in Kazakhstan passed during the 1990th in order to create the favorable conditions for transition to the market economy. Nevertheless, a certain number of enterprises remained in state ownership. Therefore, the new phase of privatization started just recently, in 2014, and have a purpose to give an impetus to further development of private business in the country.

The City Plan of 2009 includes as well several projects objected towards elimination of housing deficiency. Thus in 2012 the government in partnership with “Zhilstroysber bank” (“Жилстройсбербанк”) have launched the programmer of “Accommodation for everybody” (“Доступное жилье”). The city got two micro-quarries constructed by this program. The first “Zhana kala” (“Жана кала”) is located in the area of former industrial complex by production of reinforced concrete (Fig.11.), and the second one “Aeroport” is located in the zone of the local Airport (Fig. 12). The main difference between the tendencies of housing construction of the Soviet era and nowadays, is that today the construction of Kostanay directed to the construction of both social and luxury housings.



Fig. 11. “Zhana kala” residential area
Source: Site of Architectural Department
<http://uag.kostanay.gov.kz>



Fig. 12. “Aeroport” residential area
Source: Site of Architectural Department
<http://uag.kostanay.gov.kz>

The project of quay of Tobol River that was already planned in the 1986 was realized in 2012. Today this area considers as a prestigious quartier. The new City plan as well includes the agglomeration of villages in vicinity with the city such as Druzhba, Udarnik, Kunay (Fig.13) and South-West area. However, the main emphasis of the plan maid on the city growth towards the right part bank of Tobol River. This means that Zotobolsk and Zarechny villages will be included in agglomeration by 2030 (Fig.14). Therefore, another 6 bridges through Tobol River are projecting.



Fig.13. Future agglomerations: Druzhba, Udarnik, Kunay
 Source: Site of Architectural Department
<http://uag.kostanay.gov.kz>

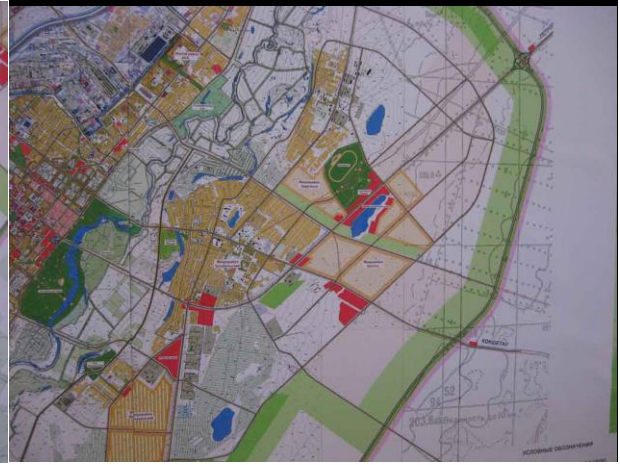


Fig.14. Future agglomerations: Zotobolsk and Zarechny
 Source: Site of Architectural Department
<http://uag.kostanay.gov.kz>

3.2. Urban Management Issues

After the Soviet collapse, each of the Central-Asian countries have adopted their proper classification determining the status of cities. Taking into account socio-economic significance of urban settlements, the Law “On administrative-territorial system of the Republic of Kazakhstan” from 8 December 1993, classifies all Kazakh cities according the following categories:

1. Cities of republican importance (over 1 million people)
2. Cities of oblast importance (over 50 thousands people)
3. Cities of district importance with industrial enterprises (over 10 thousands people)

Today Kazakhstan counts 87 cities, where 2 cities of republican (Astana, Almaty), 40 cities of oblast (14 of them are regional centers including Kostanay), and 45 cities of district importance. 56% of all citizens are concentrated in 14 regional centers and in 2 cities of republican significance. Thus, we can see that the distinctive feature of the urban development of Kazakhstan characterizes by predominance of small towns (with a population of 50 thousand people) which make 67, 8% (56 cities of total 87) of all urban settlements in Kazakhstan. However only 16% of urban population (1, 42 million) live in those small towns, whereas the main part of citizens (72.7%) live in 17 cities and major urban areas.³⁴ In the context of sharp industrial decline in the early 1990s, the State administration was aimed to the urban rehabilitation and socio-economic stability in these cities. Thus, from the second half of 1990s, the state government start to pay more attention on improvement of the system, forms and methods of urban management.

³⁴ Агентство Республики Казахстан по статистике

Depending on the selected models, each Central Asian countries have developed two approaches to urban management – centralization and decentralization. According the first model the heads of local administration are assigned and have limited budgetary and administrative powers. The second model provide urban municipalities with much more autonomy. This model suppose the budget decentralization and electiveness of city administration heads.

The model of local government in Kostanay characterizes as mixed, which includes elements of decentralization and centralization. Thus, Akims³⁵ are not elected, but assigned by higher governmental authorities with the approval of local representative government. At the same time, there is a division of powers in the local level, where the head of the local administration is not as well the head of the representative authority. The Akim has a wide budgetary authority, whilst the central State budget continue to provide the city by the subsidies primarily directed to the maintenance of urban infrastructure. Recently, the administrative system of Kostanay was redirected to the development of vertical executive power, formation of institutions of representative authorities and self-government. It is supposed that this model of urban management will strengthen the city economy, give a new impulse to the urban development and will help to formation of the new civil society.³⁶ However, the main weakness of this type of urban management system is that the duties, powers and competences of central, regional and local administrations are not clearly defined. Thus, the local authorities such as department of energetics, gas and water supply are in double subordination. Duplication of duties and powers, confluence of competencies lead to dilution of responsibilities and inhibit development of the local administrative sector. The other weakness of the urban management system is that there are no effective mechanisms to ensure the transparence of local government accountability to the public. City executive bodies are accountable only to the higher government authorities. According the research of Center of economic studies, regardless the new administrative reforms in the country, there is still domination of centralized principle of administration which has a negative impact on the development of local self-governance. In the meantime, the central government has no incentive to engage in the problems of municipal level.³⁷

³⁵ “Akim” - head of local administrations (Mayor). From that Municipality – “Akimat”.

³⁶ Официальный сайт акима Костанайской области <http://kostanay.gov.kz>

³⁷ Урбанизация в Центральной Азии: вызовы, проблемы и перспективы, Аналитический доклад, Центр экономических исследований, Ташкент, Март 2013, 76 стр.

3.3. Industrial reorganizations

During the soviet era, Kazakhstan was performing as one of the main supplier of raw materials of the soviet industry. The majority of processing industries were concentrated in the western territory of the former Soviet Union (the Baltic States, Ukraine, the RSFSR, and Belorussia). Thus, sudden disruption of established economic relations between the industrial nexuses of soviet industrial chain had a negative impact on industrial sector of Kazakhstan. In fact, after the collapse of the USSR, Kazakhstan was obliged to build completely new economic model and rebase the state system on the new principles of market economy.

By 1992 almost all industrial enterprises reduced the volume of production. The decrease of production was mainly caused by low quality of production, high cost and overproduction. For instance, the meat processing complex of Kostanay by the middle of 1990th was in physical dilapidation. The industry didn't had enough economic resources even to reconstruct the main workshops. In order to reduce the complete collapse, the majority of local industries passed through corporatization process. Thus, in 1995 the meat processing complex was the first to be corporatized in the city. The shareholders were mainly agrarians who could supply the industry with the row materials. The corporatization have allowed the industry not only to reconstruct the industrial spaces, but as well as to construct new workshops, get new equipment and maintain the stable operation of the complex for several years. Thus, the new organizational form of public and private joint partnership saved many local industries from the total collapse.

The other antirecessionary tool used by the local companies was industrial conversion³⁸. Thus, during the mid-1990th the reinforced concrete plant (ЗЖБИ-4) was producing consumer goods such as clothing, toys, kitchen utensils, etc. The same antirecessionary tool have been in practice in "Melkombinat", "Dormash", "Kustanay-Nan", Kazakh Society of disabled people, "Ayaz" and other Kostanay industries. On the one hand the industrial conversion towards consumer goods has increased the development of light industry. On the other hand the production of heavy industry have diminished and brought to the decrease of diversification in industrial sector.

In the 90th the country have been actively promoting and of creating an attractive investment climate. As a result of the first years of this policy and new economic reforms in Kazakhstan, foreign investments inflow counted billions of dollars. The industry got the latest technologies and new management experience.

³⁸ Industrial conversion (перепрофилирование) - production of other type of product different from original one

3.3.1. Industrial rehabilitation experiences in Kostanay

In the course of the first phase of privatization many abandoned industries moved to the private ownership. Thus, the reconversion and rehabilitation of abandoned industrial spaces in Kostanay started from the mid-1990th.

Large-scale industrial redevelopment can be observed mainly in those areas where companies that operated relatively well during the socialist period are located. To this group, one can also add the sites of former socialist firms that were not heavy environmental polluters. Due to privatization, many of them have fallen partly or completely into foreign hands. In these industrial areas, modernization and renewal of the old industrial enterprises has taken place much faster than in those owned by Kazakh proprietors. The renewal of these areas is mostly carried out “within the factory gates,” therefore such projects are not very notable as transformations in the urban landscape. At the same time, the modernization of these areas and the renewal of their buildings have favorably affected the development of their surrounding communities. Generally, these renewed enterprises continue the same industrial activity as before their reconstruction, but with a more modern, efficient, and less polluting technology. In some cases, production on the premises has been replaced with management, marketing, research and development activities while the actual production or its main components have been relocated to the interior of the country. In each industrial district, there are several examples of this industrial redevelopment type (KZhBI, Northern Industrial zone, KSK). Some of them are single-site enterprises wedged into residential districts while others form continuous clusters in the old industrial zones.

One of the first large scale redevelopment projects in Kostanay is Diesel plant. The foundation of today’s largest local industrial complex Diesel plant of Kostanay have been lasting from 1887 until 1991. During these years 23 automatic production lines were purchased from Germany and automatic foundry complexes were purchased from Japan and Italy. Thus the technological equipment of the main production counted 2315 units and 7 specialized automated lines. For that time the plant was the most advanced industry in the region. Between 1991 and 1995 in total 405 diesel motors were produced in the process of commissioning and testing of equipment. However the Diesel plant of Kosatany also wasn’t able to survive in the severe economic conditions of 1990th and during 1996 and 2003 passed through the process of bankruptcy. Thus, during 7 years the plant was abandoned.

In 2003 JSC “Agromash” purchased at auction the bankrupt estate of the former Diesel plant. The estate was purchased by two lots: lot № 1 consisted of whole technological complex for the production of the diesel motors and lot №2 regrouped real estate, motor vehicles, railway line, and all material assets of the former plant. In September 2003 after the official visit of President to the

Region the rehabilitation project of the plant was launched under the state control. Investment project called “Rehabilitation of diesel production” was funded by the Development Bank of Kazakhstan. The Bank granted the project with credit of \$ 20 million for 15 years. Thus, from 2003 the process of restoration of industrial complex and its infrastructure was launched.

The project of industrial rehabilitation marked the beginning of mechanical engineering development in Kazakhstan. The plant provide the domestic market of the country with inexpensive and high-quality diesel engines, spare parts. The company created an extensive network of service centers for agricultural machines on the territory of Kazakhstan and give 285 working places (Fig 15, 16, 17).

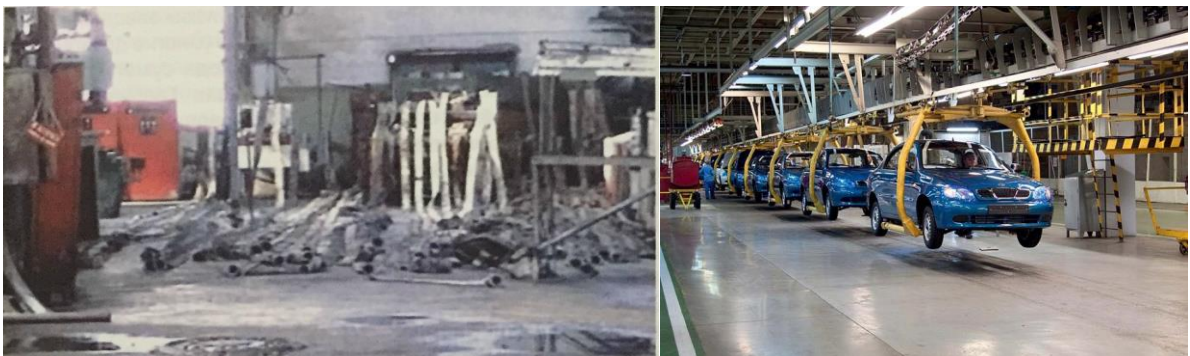


Fig. 15. Diesel plant. Dilapidated state of the workshop in 1992 and one of the car workshop today



Fig. 16. Administration building of Diesel plant



Fig. 17. Location of the plant. North industrial zone

In a case of Kostanay chemical plant the situation was completely different. The chemical industrial complex of Kostanay in the times of its prosperity was one of two chemical plants in the world (the other was “DuPont” of Canada) producing Kevlar, carbon, lavsan (polyester) fibers for the production of artificial silk and astronautical equipment (Fig. 18, 19). The plant is located in the Northern industrial zone. (Fig. 20)

The unique industry was closed in 2003 and many workers leaved unpaid. The reason of the closure was the lack of raw materials 100% importing from Russia, as well as company depth for

energy. Thus, until 2004 the plant had been abandoned. In 2004 “Kazneftehim” corporation bought several workshops of industrial complex and established ltd “Kazhimvolokno”. The restoration of remained equipment lasted 2 years. 7 million of dollars was the investment volume for rehabilitation project. In 2008 the plant starts preparation for the new production of meta-aramid thread ARNIX used for the production of high strength, fireproof sheathing. This high radiation resistant sheathing used in rockets and aircrafts construction. However, under the impact of the economic crisis of 2009 and due to unprofitability the production wasn’t launch. 90 workers and heads of workshops were dismissed (Fig.21).

During the last few years the industrial complex passed through several judicial examination. In 2008 the ex-director of “Kazneftehim” was condemned for the large-scale fraud. Today all workshops of the industrial complex are in dilapidated conditions except those that were half restored by “Kazneftehim”. Despite the fact that plant is guarded, the industrial spaces are the magnet for local scouters and those who come from neighbor Russian regions. The industrial spaces of chemical plant are as well part of the urban game called “Poisk” (“Search”). “Poisk” is the Night City game that combines the puzzle-solving and dynamic orientation in the locality. As the plant is strictly guarded, photo and video documents published by independent scouters and members of the game “Poisk” served as visual sources in this research.

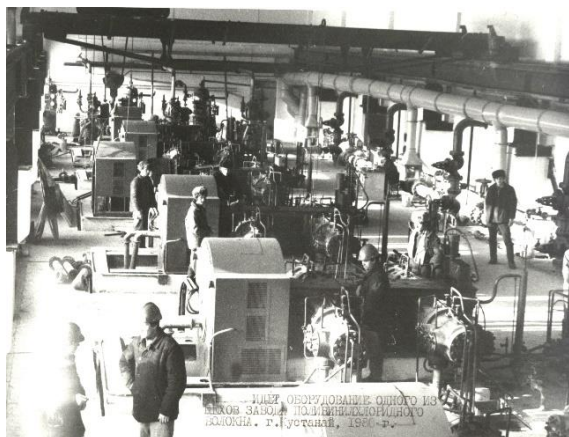


Fig. 18. One of the workshops of Chemical complex (1980) Source: State archives of Kostanay Oblast

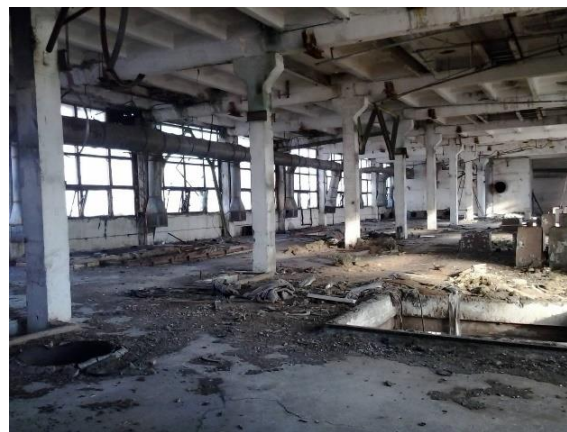


Fig. 19. Workshop of Chemical complex in dilapidated condition today. Source: Author

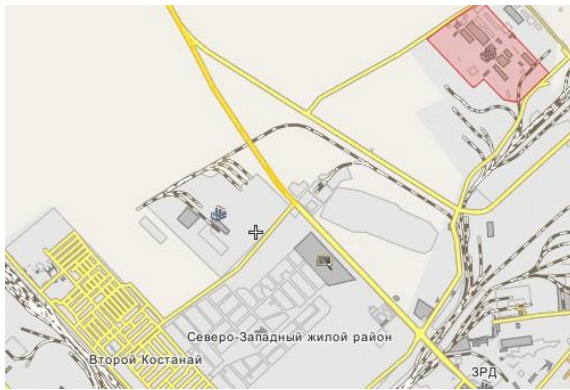


Fig. 20. The location of the complex within north industrial Zone. Source: Wikimapia



Fig.21. Half restored by “Kazneftehim” corpus of the former Chemical industrial complex. Source: Author

If the cases of Diesel and Chemical plants refer to industrial rehabilitation projects, the case of former Worsteds cloths industrial complex can be considered as one of the first industrial reconversion projects in the city.

The Worsteds cloths industrial complex was projected by of Alma-Ata, Tselinograd, Moscow, Rudny, Karaganda and Orel construction organizations. The industry production was launched in 1980th. The new industry was accompanied by the construction of new workers micro-quartier with basic infrastructure. The industrial complex consisted of 3 levels production space and several administrative buildings. After the collapse of USSR the industry was closed. During the period of privatization in the mid-1990th several spaces of industrial complex were moved to the private ownership. Today, only administrative buildings of former industry are reconverted. The main production space is still dilapidated condition. The first reconverted space of industrial complex was the administrative building of workers quartier. In 2004 construction of 9 levels became a socio-technical private University (Fig.22.). Establishment of the new university followed by reconversion of the former workers cultural center into the students’ cultural center with the concert hall. The latest reconversion was 2014, when the other administrative building of the former industrial complex was reconverted into restaurant. The building was completely renovated, and the graphics on the façade were destroyed (Fig.23). The alley connecting the University and the cultural center was as well reconstructed recently (Fig. 24). In 2006 3 level former administrative building of the industrial complex was reconverted to the socio-technical college. The former workers’ quartier is still named after the former industrial complex KSK³⁹ (Fig.25).

³⁹ KSK (Rus.: КСК - Комвольно Суконный Комбинат) is abbreviation of “Worsteds cloths industrial complex”



Fig.22. Worsteds cloths industrial complex in 1988 and administrative building reconverted to the university today (the industrial complex is behind). Source: State archives of Kostanay Oblast



Fig.23. One of former the administrative buildings in 2009 and its reconversion to the Restaurant “Premium Palace” (the former industrial complex is behind).



Fig.24. View from the University on the former workers' quarter and the alley connecting the University and the students' cultural center, 2016

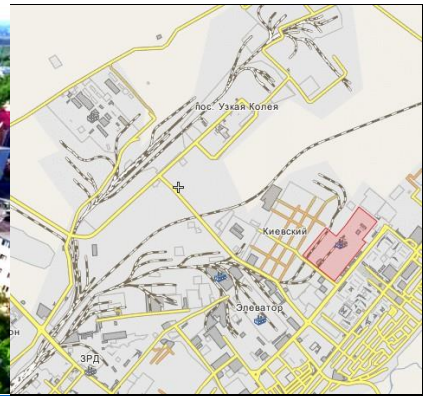


Fig.25. Location of the former industry Source: Wikimapia

4. Concluding remarks of the chapter

The objective of the chapter was to analyze how Kostanay has tailored in the model of post-socialist city, taking into account its process of urban and industrial evolution. In order to give a rational analysis, the chapter was divided into three sections. The first section covers the time frame between the end of XIX and beginning of XX centuries. This introductory section is important as the socialist urban development in individual former socialist countries differed according the initial urban and proto-industrial patterns. It was identified that during the first phase of urban development Kostanay was following the patterns of Russian colonial cities. Besides, the social structure and patterns of industrial development of the city were directly related with merchant activities and migration process of agrarians. Therefore, the Russian peasants and Tatar/Bashkir merchants have played an important role in the foundation and early development of the city. In combinations with ingenious knowledge of Nomadic society, agricultural and proto-industrial technics transferred by Russian settlers created the base for development of the early industrial and urban development of Kostanay. Thus, the proto-industry of the city in the end of XIX and beginning of XX centuries was mainly based on the processing of agricultural products.

Notwithstanding, the most influential phase of Kostanay development refers to the Soviet era. Thus, the second section of the chapter discovers the 70 years long phase in the city development with started from the foundation of Kazakh Soviet Republic in 1920 and lasted till 1991. It is important to mention that while urbanization in Western Europe reflected a long process of organic growth, under socialist rules the growth of the urban settlements depended on decisions of the state authorities. Therefore, in a case of Kostanay urban development was strictly dependent from investments in a planned industrial centers. If during the Interwar period Kostanay continues its development as agricultural capital of the country, then after World War II the city became a major industrial city in Northern Kazakhstan: Thus, the plants evacuated to Kostanay during the war have shaped the urban landscape of today's city. After the war reorganizations, "Tselina" and "Perestroyka" state campaigns have boosted farther industrial and urban development of the city. Thus, in the turn of XX century, the symbiosis of agricultural and industrial activities together with exploration of mining in the region created specific mosaic ecosystem.

The third section of the chapter was dedicated to transitional period after the collapse of USSR still reflecting on the current development of the city. This phase was characterized by murky privatizations of state-owned socialist factories and their subsequent destruction. Consequently it mirrored on severe deprivation of industrial workers constituted the base of post-socialist society. During the second phase of the transitional period after 1995, some of the industrial spaces were rehabilitated and returned to their original functions (ex. Shoe factory, Diesel Plant), others were

redesigned for new uses (ex. Worsted cloth industrial complex), and the rest are still awaiting for new uses. Even if none of them are listed as heritage by designation, still they represent an important part of city's economic history and an architectural legacy of the past times. In the course of transitional phase which starts from 1991 and continues up today, Kostanay has passed and still passing through significant changes where the overlap of socioeconomic patterns inherited from socialism and the new dynamics produces the specific conditions for urban development of Kostanay today.

CHAPTER II

Comparative analysis of post-socialist Kostanay and Prague: Common past, common future?

Résumé

Le chapitre présente une analyse comparative. Son objectif est de compléter les résultats du chapitre précédent et, s'il existe des caractéristiques intrinsèques aux villes post socialistes, de comparer la façon dont elles se manifestent dans le contexte post socialiste de Qostanaï et Prague. La recherche comparative a été réalisée pendant la mobilité d'étude de 5 semaines passées à l'Université technique tchèque (CVUT) à Prague, dans le cadre de Master Erasmus Mundus TPTI. L'analyse se base sur des observations de terrain, des avis d'experts et des réglementations relatives au patrimoine. Afin de fournir une analyse intégrée, chaque ville a été abordée dans le cadre de ses histoires urbaines et industrielles, ainsi que dans celui des pratiques de gestion de patrimoine intégrant leurs propres cadres juridiques, institutionnels et financiers.

La recherche comparative prend la structure suivante :

- La première partie décrit le développement industriel et urbain de Prague entre la moitié du XIX et le début du XX siècle puis le compare avec ceux de Qostanaï analysés dans chapitre précédent;
- la deuxième section porte sur l'analyse comparative du développement industriel et urbain à l'époque soviétique;
- la troisième partie compare le développement des villes dans la période de transition,
- et, la quatrième section analyse les systèmes de gestion de patrimoine des 2 villes.

Les résultats de l'analyse montrent que les modèles socio-économiques, législatifs et institutionnels hérités du passé socialiste et associés aux nouvelles dynamiques, produisent des conditions spécifiques pour un développement urbain dans les deux villes.

L'analyse des systèmes de gestion du patrimoine montre la faiblesse du cadre juridique en matière de protection du patrimoine de Qostanaï qui transparait dans les aspects administratifs, institutionnels et financiers. Tous ces facteurs peuvent faire obstacle à la mise en œuvre de systèmes durables de gestion des friches industrielles.

Les résultats de l'analyse comparative ont été présentés à la 4e session de workshop "Histoire de la technique: l'industrialisation en Europe XIX-XX siècle» au sein de l'Université technique tchèque à Prague.

1. Objectives and Methodology of the comparative analysis

In Western Europe the theme of reuse and rehabilitation of abandoned industrial spaces have emerged once it had grown into an increasable economic, cultural, and to an extent even political problem. A similar process, with a delay of several decades, now is underway in the formerly soviet countries. Here, the industrial reconversion topic started to gain particular interest from 1990th as a result of restructuring and deliberate reduction of heavy industry. Today, the overlap of socio-economic patterns inherited from the socialist past and the new dynamics produce here specific conditions for urban development. However, the course of historical and specificity of local contexts differ according each country.

In order to understand the historical preconditions of socialist urban and industrial development and to identify the present tendencies of industrial rehabilitation in post-socialist cities the analysis implies comparative approach. Thus, the overall purpose is to complete the findings from the previous chapter through the present analysis, and to compare how the features (if there are any) intrinsic to post-socialist cities manifest in the context of post-socialist Kostanay and Prague.

Regardless apparent differences between two cities, the case of Prague in the comparative analysis wasn't a random choice. It is this dissimilitude which allows to construe the overall vision on post-socialist realities, which would not be reached if we would limit within one country, or one region. In our case bounded focus on Kazakh, Central Asian, or CIS cities would not allow to identify the gaps and obstacles inhibiting industrial and urban regeneration. That is because the question of industrial rehabilitation is more or less in the same level for the whole region. Therefore, given the fact that in Prague industrial heritage reconversion is much more practiced, the analysis of industrial heritage management in Czech Republic permits to identify gaps and obstacles inhibiting development of the idea in Kostanay. The study as well tends to outline some patterns of industrial brownfields management that might be adaptive in the case of Kostanay.

The present comparative research was conducted during 5 weeks study visit spent in Czech Technical University (CVUT) in Prague within the Erasmus Mundus TPTI Master Programme. In course of these weeks data was collected in the local museums (National technical museum, National museum), libraries (National technical library, Library of French Research Center in Humanities and Social Sciences) and sites visits. Therefore, the empirical materials are based on the field observations, expert opinions and official documents concerning heritage regulations.

In order to provide an integrated analysis, each city was approached from the context of their urban and industrial histories, as well as from heritage management practices which includes legal, institutional and financial frameworks.

The analysis is guided by the following *research questions*:

1. Which urban and industrial patterns the cities have had before the socialist regime?
2. How the cities have been tailored on the standard model of a Soviet city?
3. Which are patterns of transitional period?
4. Which are preconditions and realities for industrial heritage management in the cities today?

According to these questions, the comparative research takes following structure: The first part describes industrial and urban development of Prague during the mid XIX and beginning of XX century and compare it with those of Kostanay analyzed in Chapter I; the second section focuses on the comparative analysis of industrial and urban development during the soviet era; the third part compares development of cities in the period of transition; and the last section analyses the essential components of industrial heritage management. The results of the comparative analysis were presented in the 4th session of Workshop “History of technic: industrialization in Europe XIX-XX century” held in Czech Technical University in Prague.

2. Comparison of industrial and urban patterns before the Soviet era

2.1. Industrial and urban patterns of Prague before the Soviet era

Prague. Geographical position of Czech Republic shaped its history through contradiction of different powers. The country have been always in between: Romans and “barbers”, Slavs and Germans, between influence of Byzantines and romans, Catholicism and Protestantism, Catholicism and orthodox in its oriental part, as well between the West and Soviet world. Here, everything entangles through erratic historic development.¹ The architecture of the region is glint of this “in between” history. However, the architecture of dominating part of the country is mainly shaped through western influences: roman, gothic, Renaissance, baroque were successively spread, establishing absolutely remarkable edifices that give strong originality to the country.

The second half of the XIX century in Prague was characterized by the rapid economic development, industrialization and urbanization which brought significant changes of social structure in Prague as in the whole country. In virtue of rich lands, natural resources and high development level, the country became industrial flagman for Austria. At the turn of “XIX-XX century new industrial phase started in Czech lands... New branches of industry start very fast

¹ MARES, A., Histoire des Pays Tcheques et Slovaque, Hatier, 1995, p.12

development - mechanical engineering, chemistry, electrical engineering ... Czechoslovakia inherited from the Austro-Hungarian monarchy, most of its industrial potential (60-75%)”.²

In the period from 1880 and 1913 the population of the Czech lands made up approximately 36 % of the population of all Cisleithania. The occupational structure of the Czech Lands reflects a higher degree of industrialization than that found in Austria as a whole. The other indicator that affirms industrial importance of Czech Lands is that 40% of railroad network of the western half of the monarchy was located in the Czech Lands.³ Thus, in 1832, České Budějovice and Linz in Austria were connected by the first horse-drawn railway on the European Continent. This unique piece of engineering pioneered a great boom in railway transportation in the Czech provinces. The oldest railway track built for steam locomotives was launched in 1847, connecting Vienna with the iron works and coal mines in North Moravia, and later on with the salt mines in Halič. In 1839, the first train arrived in Brno, and in Prague six years later.⁴ Thus, in 1845 the first train on the Northern State railroad arrived at the new Prague railway Station, today Masaryk Station. Whereby Prague became linked to the center of the Austro-Hungarian monarchy.

According to catalogue of industrial heritage made up by VCPD, before the mid of XIX century when industries core was in the old town, the main industrial branches were mills and breweries. However, after demolition of city walls in 1874 the city opened up to further expansion and linked it to neighboring communities. Thus industry began moving further away from the town center and into the surrounding neighborhoods of Karlin, Liben and Smichov, leaving behind mainly those sectors of industry that were still running on the guild system, primarily breweries.

In **Liben** industry expanded along the banks of the Vltava River, mainly on the land between the port and the railway. Two machine factories specialized on making steam engines and equipment for sugar refineries were opened here in 1832 and 1871. However, one industry that had long history of being associated with Liben was the leather-working industry.

Karlin became an independent district in 1817 and joined to Prague in 1922. The district from the beginning was conceived as a modern industrial suburb. The second half of the 19th century pronounced the growth of in the mechanical engineering industry. Thus, Karlin is strongly associated with the name of Frantisek Krizik, who opened the first electrical engineering factory in the former Danek building. The first Prague gasworks was set up as well in Karlin and the district had its own electrical power plant. In the 19th century **Zizkov** was a residential

² KUBU E. České (československé) transformační kontinuity 20 století. Problémy struktury ekonomiky, technicko-technologické vyspělosti a podnikatelsko-manažerských elit // Acta Oeconomica Pragensia. 2005. Vol. 13. № 3. S. 232-233.

³ RICHARD L. Rudolph, Banking and Industrialization in Austria-Hungary: The Role of Banks in the Industrialization of the Czech Crownlands, 1873-1914, Cambridge University Press, Oct 30, 2008, p. 42

⁴ EFMERTOVA M., l'Industrialisation (patrimoine) dans les Pays tchèques dans les 19e et 20e siècles et l'art tchèque, CVUT, Prague, 7 Sept., séminaire.

neighborhood that primarily inhabited by people working in factories based in Karlin and Visocany (mainly cartridge production, print shops and foundries) (Fig.26, 27).

Industrialization began to develop in **Smichov** in the middle of 19th century as well. The first industrial companies were leather-working and textile factories that consecutively were replaced by cotton mills and cotton dyeing factories. However the main industries Karlin was associated with is Ringhoffer railroad car factory that became largest plant in the field in Austro-Hungarian Empire. The economic boom necessitated the construction of several railway lines, and from 1862 different railway companies were running a service into Smichov station. Smichov was linked to Prague first by the Franc I chain suspension bridge, and then by Placky bridge where horse-drawn tramway starts to function from 1876. Until it officially became part of the City of Prague in 1922 Smichov was the second largest industrial town in Bohemia.

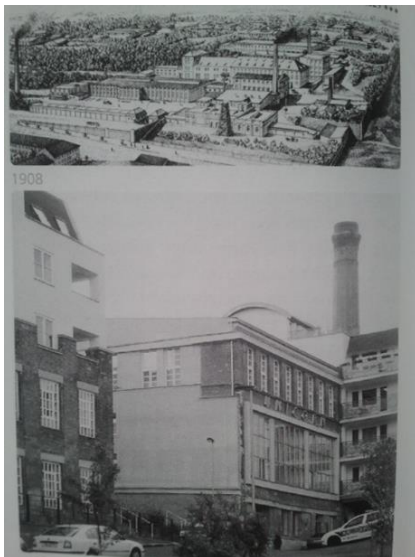


Fig. 26. Sellier&Bellot Percussion caps and cartridge factory



Fig.27. Prague Joint-Stock Mechanical Engineering Works

2.2. Comparative remarks

The period between mid of XIX and beginning of XX century both in Prague and Kostanay characterized by the fast economic growth associated with industrial and urban development. However, as we could notice, the levels of industrialization and urbanization of both cities are relatively different. If in Kostanay this process starts from the turn of XIX century, in Prague the process of industrialization and consecutively urbanization was launched several decades earlier, in the middle of XIX century (Fig. 28). Therefore, in Kostanay this process took “from scratch” character, whereas Prague for the beginning of its extensive industrialization have had already

some sprouts of industrial development. However, in both cases, initial industrial base focused mainly on mills and breweries.

The other aspect is the socio-spatial patterns which characterized by higher status residential districts in city centers and some inner cities in the case of Prague. The status tended to decrease from the center towards the periphery, and to be lowest in the workers' districts and manufacturing districts. However, the crucial aspect here is the context through which the cities start this process. Thus, Kostanay started its development first of all by being Russian colonial city, whereas Prague, however being within Austro-Hungarian Empire, continued its industrialization and urbanization in the context of European city. From that arise the question concerning differences of architectural style and urban planning of the cities.

Not only political situation affected on the urban landscape of the cities. It is important as well the geographic conditions of the urban settlements. Besides climate differences, which affected on the structure of buildings, there is landform features: If Prague situated in between several hills, Kostanay was founded on the plain relief.

Nevertheless, these so different cities has something in common – the soviet past.

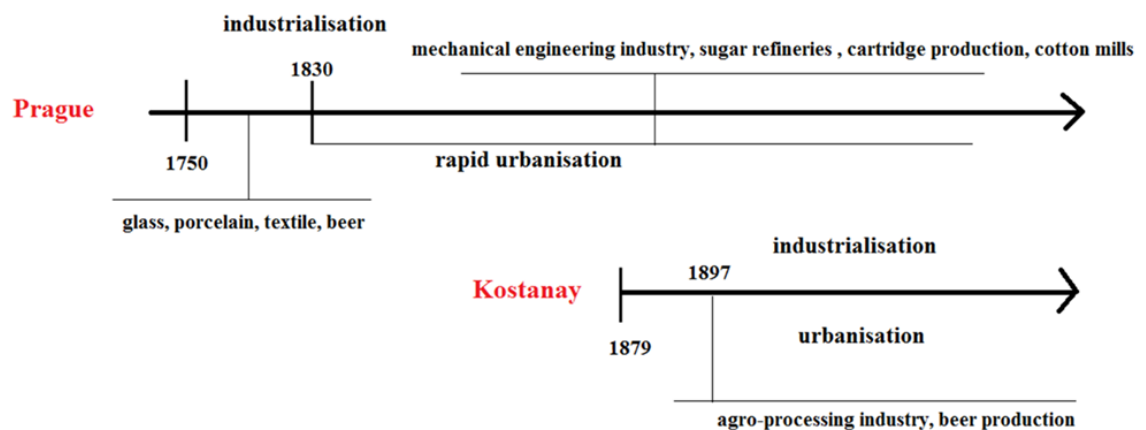


Fig. 28. Industrialization of Prague and Kostanay. Source: Author

3. Comparison of industrial and urban patterns under socialism

3.1. Industrial and urban patterns of Prague under socialism

Prague. In the course of the first Five-Year Plan (1949-1953) which took place during the cumulating cold war, the government undertook a major restructuring of the economy and placed a special emphasis on heavy industry. This “new industrialization of already industrialized

country”⁵ followed by mass construction works that, in fact, have been pseudo-modernization of the country. However, the low level of housing production, housing shortages and increasing residential densities were characteristic of the period. The construction and distribution of dwellings in multi-family housing was the responsibility of the public sector. The public rental housing stock also included pre-socialist multi-family housing expropriated into state ownership. The self-construction of single-family houses was the only allowed form of private housing development.⁶ According to Musil, the 1950s housing estate in Prague was mainly settled by manual workers and by employees in the basic public services (education, health care, public transport etc.)⁷ After World War II, all Czech architectural offices and building firms merged into a unified state apparatus, extending earlier experiments by Europe’s most advanced architectural functionalists. Development of *industrial design* was closely connected with industrial production and art work. There were favorable conditions for this development especially in Prague and in Zlin. In 1947 Zdenek Kovar, a disciple of Vencenc Makovsky from the Art school, initiated teaching design of machines and instruments at the State school of arts and crafts in Zlin. In the first post-war years many producers cooperated with artists including students of some schools, for example, ateliers of architecture led by Prof. Jan Sokol, Pavel Smetana of Dr. Edvard Bens in Brno Vincence Makovsky. Another pioneer of Czech soviet design, Petr Toucny, was concentrated mainly on design of ergonomic tools, the complexities in production of a working environment, conceptual projection of large machine units and transport machinery. In 1953-1960 he led the laboratory of experimental and applied aesthetics in Prague and also worked as an external designer and consultant for various production firms. In the sixties art shops and art councils were installed directly in firms and companies. The Council of Art and Culture of Production was established as an advisory body for the government. The complexity and team character of the work of the designers increased in the sixties when some giant concerns were built. The designers co-operated not only with constructors but also with physicians, psychologists and other experts. The extensive changes after the year 1989 caused by breakdown of some monopolistic firms and brought the end for the design shops.⁸

Between 1971 and 1975 a period of steady economic growth prevailed and was accompanied by improvements of social conditions, including a rapid increase in the birth rate and boom in flat

⁵ KUBU E. České (československé) transformační kontinuity 20 století. Problémy struktury ekonomiky, technicko-technologické vyspělosti a podnikatelsko-manažerských elit // Acta Oeconomica Pragensia. 2005. Vol. 13. № 3. S. 234

⁶ RUOPPILA, Sampo, Processes of Residential Differentiation in Socialist Cities, European Journal of Spatial Development [<http://www.nordregio.se/EJSD>] ISSN 1650-9544, Refereed Articles Feb 2004, №9, p. 6

⁷ MUSIL, J. ‘Housing policy and the sociospatial structure of cities in a socialist country: the example of Prague.’ *International Journal of Urban and Regional Research*, 11, 1987, 27-36.

⁸ Studie o technice v českých zemích 1945 - 1992, Volume 3, Collection of National Technical Museum of Prague, Encyklopedický Dům, 2003, p.p. 2528-2529

construction. In that period typical residential complexes of constructivist architecture were constructed. The Czech capital grew mostly due to spatial stretching and the development of new residential areas on the urban edge. Two zones which created the pre-war Greater Prague (centre and inner city) today have a similar face to comparable cities in Germany or Austria. The central and inner city neighborhoods could easily return to their pre-war development trajectories since there are now no major differences in their physical structure compared to other western European cities. On the other hand the urban zones built under socialism, especially housing estate areas, have no parallel in Western European cities and represent the main common feature of all post-socialist cities. Under socialism, the central and inner parts of cities in Prague declined in economic, physical, and social terms.⁹ The physical and social structure of the outer city and the rest of the Prague metropolitan region are today mixed areas of the survivals of socialism and new suburban development. The outer city is the zone with the most visible impacts of the socialist past in the majority of European post-socialist cities.¹⁰ Prague's outer city is almost a synonym for residential quarters of housing estates. Thus, today more than 40% of the capital's inhabitants live in one of Prague's 54 housing estates built under the Communist Party's 'Complex Housing Construction Programmes'¹¹.

3.2. Comparative remarks

Industrialization under soviet regime both of Prague and Kostanay can be characterized by three main phases: economic restructuring and construction of hypertrophied heavy industrial sector; duplication of soviet planning methods; and mass nationalization of enterprises and banks. Therefore, industrial development after World War II in both cities has similar features as both countries were under soviet dictatorship of production.

By the late 1950s development priorities were being re-assessed. This resulted in an increase in public funding for housing production. An increase occurred in the number of modern housing estates constructed in the outskirts of both cities following the international fashion in architecture and city planning as well as the demands of the new industrial construction schemes. Extensive

⁹ MUSIL, J., City development in Central and Eastern Europe before 1990: historical context and socialist legacies. In F.E.I. Hamilton et al. (eds.): Transformation of Cities in Central and Eastern Europe: Towards Globalization. Tokyo, New York and Paris: United Nations University Press, 2005b, pp. 22-43.

¹⁰ PARYSEK, J., The Socio-economic and Spatial Transformation of Polish Cities after 1989. In Cities in Transition, DELA 21, University of Ljubljana, 2004, pp. 109-119.

¹¹ DIMITROVSKA, K., Mastering the post-socialist city: Impacts on planning the built environment. In I. Hamilton et al. (eds.): Transformation of cities in central and Eastern Europe: Towards globalization, Tokyo, New York, Paris: United Nations University Press, 2005, pp. 153-186.

urban development characterized the development of socialist cities during the following three decades. In the 1980s, the volume of housing production decreased in both cities, following the economic recession. However, the broad residential differentiation between the housing estates is related to the time of construction and local factors. There were some distinctions in regards to already existing industrial, economic and urban patterns. During the post-war era mainly suburban areas have been developed Prague, whereas, in Kostanay the residential blocks from socialism one can find even in the historical core of the city (Fig. 29, 30 and 31). Besides, in Kostanay the period after WW II and until 1991 characterized by extensive industrialization and urbanization, whereas in Prague this period did not took extensive character: new industrialization mainly was developing on the base of already existing industrial spaces.



Fig. 29. Soviet buildings in historical core of Kostanay



Fig. 30. Soviet residential buildings. Prospek, Prague

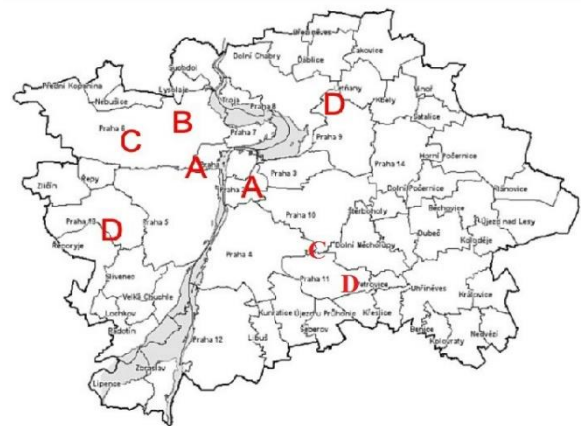
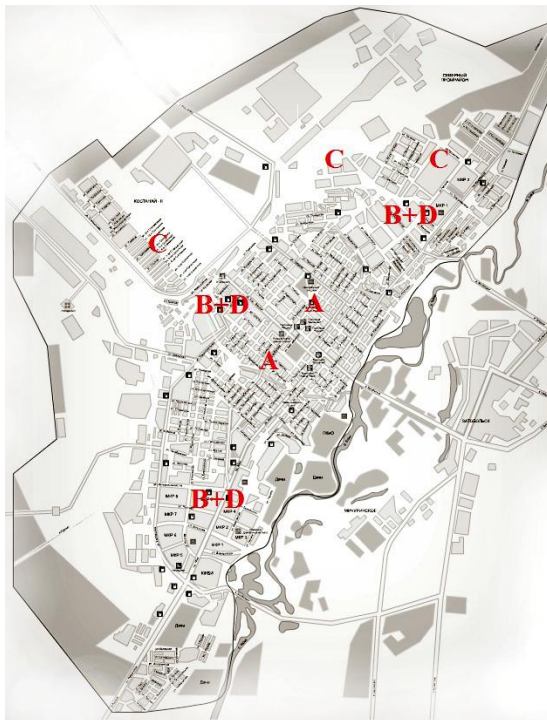


Fig. 31. Urban patterns of Prague (left) and Kostanay (right) under socialism, where A - historical core; B - inner city; C - garden towns and villa neighborhoods; D - communist housing estates. Source: Author

4. Comparison of the cities' development in the period of transition

4.1. Urban revitalization in Prague

Prague. New political and economic conditions after Velvet Revolution created opportunities for the revitalization of neglected urban zones and neighborhoods, particularly in proximity to the city center, which offered good potential for commercial or residential development. Urban revitalization displays varied patterns for neighborhoods located in different parts of the inner city of Prague. Although some elements of revitalization have been apparent in almost every inner city area since 1989. The process has been most intense in several locations which offered promising development potential. Also, the high property prices, spatial stress, and dense traffic in the commercially overloaded city center prompted the revitalization of some inner city neighborhoods.

New office, shopping, and residential projects developed on brown field sites in former industrial neighborhoods, led to the formation of new secondary centers in Prague (e.g. Smíchov, Karlín). Urban regeneration projects (such as Golden Angel) brought a re-evaluation of many areas and produced new patterns of land use. Thus, former industrial districts of Czech capital regained a new economic value. In the dynamically developing new centres, the combination of changes in land uses, physical structure, and urban morphology created new urban landscapes marked by modern architecture and progressive economic activities¹². However, today the local revitalization is mainly a private-sector driven process, where foreign companies hold the pivotal role. That is because there is a lack fiscal capacity and development strategy for new development projects require capital-intensive investments. Residential revitalization in Prague is also a gradual process. The “slash and build” renewal known from American and also some West European cities, resulting in dramatic physical modifications and forced relocation of the population, is not the case in post-socialist Prague.¹³

4.2. Comparative remarks

Both, Kostanay and Prague have similar patterns of transitional period. A transformation process, tending towards a restoration of capitalism, displayed itself in the Czechoslovak and Kazakh economies in the following ways: an extensive privatization and economic restructuring;

¹² TEMELOVA, J. (2007). Flagship developments and the physical upgrading of post-socialist inner city: the Golden Angel project in Prague. *Geografiska Annaler*, 89B (2): 169-181

¹³ OUREDNICKEK, M, TEMELOVA J, Twenty years after socialism: the transformation of Pragues inner structure, *Studia Universitatis Babes-Bolyai, Sociologia* 54 (1), 9-30

an inflow of foreign investments; the liberation of prices as well as of foreign economic relations; a re-orientation of foreign trade, an effort to make the national currency (CZK-Koruna and TKZ-Tenge) freely convertible; and establishment of new commercial banks. This process was accompanied by a deep decline of macroeconomic parameters and by reduction of industrial capacity as well as by unemployment and inflation. In Czechoslovak State, growing controversies between representatives of both republics gave rise to a division of State in 1993. In a case of Kazakhstan establishment of new sovereign republic followed by mass emigration of population from the country as a result abandonment of industrial districts.

The second half of 1990th in both cities was characterized by urban revitalization process. However, the dynamics and results of these process differ according the socio-economical, institutional, legal, historical and many other contexts of cities' development. Alongside functional changes and physical upgrading, rising socio-economic status is apparent in many neighborhoods experiencing revitalization. Symbolic changes, such as the removal of communist signs and the changing of names of streets, squares, bridges and metro stations - the character of the social environment is also common pattern of the transitional period for both of the cities.

5. Comparison of heritage management systems

Both Kostanay and Prague are cities in transition. Undoubtedly, both cities are in the different levels of this transition. However, both of them have inherited similar socio-economic, urban and heritage legacy patterns that requires particular approach in the question of heritage management (HM). There are three essential elements that are interdependent in any primary HM system: legal, institutional and financial frameworks. The analysis of HM system presented here is based on these three elements.

1. Legal framework (Heritage policy). The mandate that empowers people and organizations to act. It defines what constitutes heritage and criteria for its conservation and management, usually by means of legislation.

2. Institutional framework (Local actors). The organizational set-up that sets out the operational structure and working methods that allow actions to be taken.

3. Financial resources. The human, financial and intellectual inputs that create operational capacity and facilitate processes.

5.1. Legal framework

Prague. The effort to conserve tangible body of industrial heritage did not appear in the Czech lands before the beginning of 20th century. But there was the issuance of the law n. 22/1958 concerning cultural monuments illustrating the development of technique and its level at various historical points. In the sixties a compact inventory of industrial monuments was drawn up for the state list of cultural monuments, but what it included was mostly immovable industrial heritage. Adequate protection of movable monuments was guaranteed by the low n. 54/1959 concerning museums and galleries. Museums were obliged to collect tangible evidence concerning the development of the society. Orders in Council n.25/1973 led the State institution for Care of Technical Monuments to draft a plan for the protection of technical monuments in their proper terrain. The most significant parts of the cultural treasure of the nation began to be designed as national cultural monuments. Better protection of cultural monuments and emphasis on their unique historical and cultural values was effected by declaring them historical monument reservations or historical monuments zones. According to law n. 20/1987 concerning sate care of historical monuments, only those objects on the list of cultural monuments can be designated cultural monuments. One of them was the chain bridge that had been transported to Sdadlec in Tabor district that was built across the river Vltava near Podolsko in the period of 1847-1848. Also industrial architecture not yet in the list of cultural monuments gradually became a subject of interest to be protected in the world and in the Czech Republic. These, very often unique objects, giving evidence concerning the development of cities and industry. Objects whose operating functions had become obsolete were relegated to the periphery of societal and proprietary interest.

Kostanay. Key documents that define the state policy in the sphere of heritage have been developed and adopted at the turn of XX-XXI centuries. Two major of them, the Law “On Culture” of December 1996 and the Law “On protection and use of historical and cultural heritage” of June 2, 1992 № 1488-XII which was subjected to certain changes and currently is in use.

The highest State institution in implementation of the Low is the Ministry of Culture and Sport. Then by the hierarchy, the regulation of historic and cultural heritage is in charge of local government. In Kostanay, the direct regulations in situ is in charge of the Department of culture and languages development within the Akimat. One of the principal duties of the department is regularly raids on technical condition of monuments of national and local significance. The listing of historic and cultural heritage is directly in the charge of Inspection for the Heritage preservation. There is specific procedure for heritage listing: the inspection defines the most significant monuments and sends the list to Almaty, where LLP “Kazrestavratsiya” make examination of the list. After some correction the list goes to the final examination by inspection and then for approval

by the Ministry of Culture and Sport. Once the Minister signed and Maslikhat approved it, the list comes into force.

According to the Law of the Republic of Kazakhstan “On protection and use of historical and cultural heritage” the historic and cultural heritage are classified following way: monuments of urban planning and architecture; archaeological sites; ensembles. Even if there is no particular definition for industrial heritage, the detailed examination of the Low showed two definitions that could relate industrial site to historic and cultural heritage.

The first definition refers to the objects of historical and cultural heritage. “**The objects of historical and cultural heritage** determined as a real estate objects with related works of painting, sculpture, arts and crafts, *science and technology* and other artefacts resulting from historical events, which are valuable from the point of view of history, archeology, architecture, urban planning, art, science and technology, aesthetic, ethnological or anthropological, social culture”. The industrial heritage could be related with real estate objects of science and technology.

The second definition refers industrial heritage to the monuments of urban planning and architecture. “**The monuments of urban planning and architecture** defined as architectural ensembles and complexes, historical centers, blocks, squares, streets, remnants of an ancient planning and development of cities and other settlements; construction of civil, residential, *industrial*, military, religious architecture, folk architecture, as well as related works of monumental, decorative and landscape art, landscapes”. In this definition the industrial heritage can be referred to “construction of industrial architecture”. Indeed, the examination of Kostanay registry of historic and cultural heritage showed that industrial sites are classified mainly as a “monuments of urban planning and architecture”. However, in more detailed descriptions of each monument given in the official site of the local Department of culture recognizes monuments of urban planning and architecture as an industrial heritage (Table 3).

Prague	Kostanay
Legal framework	
Law n. 22/1958 concerning cultural monuments Orders in Council n.25/1973 plan for protection of technical monument Low n. 20/1987 concerning State care of historical monuments	Law “On Culture” of December 1996 Law “On protection and use of historical and cultural heritage” of June 2, 1992 № 1488-XII
Classification	
National cultural monuments Historical monument reservations or historical monuments zones	Historical and cultural monuments Monuments of urban planning and architecture

Table 3. Comparison of legal frameworks and classification of industrial heritage (Prague, Kostanay). Source: Author

5.1.1. Survey founding: Legacy of cultural and architectural heritage, - a real protection or just its imitation?

According to the last version of cultural and historic heritage registry approved in 2010, Kostanay has 3 monument of national significance, 49 monuments of local importance, 20 sites of historical and cultural memorials and 76 memorial plaques. Among the list mentioned above there are industrial heritages: Water tower (1913), Brewery of Lorenz (XIX-XX beginning of century), Mill of Orasaev (1906), Mill of Arhipov (1892), Mill of Stol' (XIX century), Train station (1970), Former chemical fiber plant (the first building) (1941).

Historic buildings of Kostanay belong to different epochs, but they have something in common: they undergo changes that are incompatible with their status. The building of former chemical plant mentioned in the list was the first location before the plant moved to the northern Industrial zone, and become chemical complex. Today, the first building is occupied by one of the office of one of the local banks. The ex-industry have been completely renovated a few years ago. There is no trace from the authentic image of red brick building. Base is laid from granite; windows, doors, roof ridges made of alucobond. Inside the bank office as well subjected to serious reconstructions. Perhaps the building had once a cultural and historical value, but it changed radically over the last years and nowadays have the value no more than plastic pavilions in the City center.

According to the Law "On protection and use of historical and cultural heritage" of June 2, 1992 № 1488-XII, each owner of monument has one principle obligation: he must not change the appearance of the monument. Each monument has a protection zone within a radius of 20 square meters. There is specific regulations for surrounding built-up area. According this regulation the height of the constructing buildings should not exceed the height of the monument. There is as well regulation for natural landscapes surrounding monument, where any excavations and modifications are forbidden. In order to understand how these regulations and registry work in practice and do they work, one open-ended question interview was hold during the January of 2015. Five local actors participated in this interview, after email and phone negotiations. The main question posed to the interviews was: Register of cultural and architectural heritage – it's a way to protect our heritage or just a formal imitation of the protection?

The answer to the question varies according to position of the interviewees. Thus, state employees are undoubted about efficiency of the register and proper implementation of all the rules. However, according to the Head of Architecture and Urban Planning of Akimat of Kostanay, Abay Yunusov, many monuments in the city lost their architectural value. Today the registry includes sites that do not represent any cultural value. In Soviet times they were necessary only to increase the number of monuments up to hundred and get the money for the development of culture

in the city. Most of the monuments presented in the list just moved from old version of the registry to new one. The external appearance of the buildings was changed, but they are still listed.

Natalia Zdorovets, archivist and historian remained some historic facts. She argues that monuments are protected only on paper. At the end of the 80s of the last century architectural and cultural heritage of the city have been registered and specific organizations were assigned to be their guardians and protect them. That way, they were really under protection. Afterwards, monuments began to disappear somewhere, even according to official documents they are continued to be registered. Only the public protest managed to defend some monuments. However, in the 90th the buildings of TSUM (Central Department Store) and “Kostanay” cinema were clandestinely removed from the registry. Member of the Union of Artists of Kazakhstan, George Sokov, as well gave example of “Kostanay” cinema which provoked a public outcry. However, the public struggle did not stopped distraction of the post card building and construction of the city mall. The interviews argues that the law itself guarantees the protection of monuments. But the executors of the law neglect it and make imitation of the protection. As far as no one need the land on which the heritage are placing, they are under protection of the law and executors of this law. But, once somebody interested in this land, for construction or no matter what proposals, then the officials will do everything possible to remove the heritage from the registry and then destroy. Thus, usually, authorities do not take into account public opinion. The case with the cinema “Kostanay” clearly showed us how our monuments are protected. From the soviet era, the building which represent historic or cultural value never had adequate preservation. During the chaos of 90th they were exploited haphazardly, and given anyone who could save them from destruction. Now the owners have to follow the agreement on protection of monuments. Thus, the owner is responsible for everything: for restructuring of the Soviet era, the destruction of a later period, for all repair attempts that do not match the status. However, those norms and rules has different applications according to cases. In certain cases, alteration and removal of the status, and even the destruction is possible. For instance, during 90th some buildings were clandestinely removed from the registry, despite the fact, that in the time there wasn't any regulation rules concerning the removal of monuments from the registry. The local authorities at the time removed from the registry several buildings in Central area: “Kostanay” cinema, Central Department Store, the building of the former cinema “40 years of Kazakhstan”, library of Tolstoy, the city Palace of Pioneers. Each of the buildings had protected zone, where construction was prohibited. The destruction of “Kostanay” cinema at that time gander popular discontent. Today, some buildings are absolutely dilapidated. For instance, the architectural monument that once was female gymnasium, is actually in neglected state. Its reconstruction is even not in the plan of local department of culture, because the building is in private ownership. The interview analysis shows

that understanding of authenticity and restoration is limited to the State budget. Apparently, covering the building by ceramic and granite tiles costs the state much less than the reconstruction of the old facade. However, now, the young generation of Kostanay will never see how actually those buildings are looked like.

5.2. Institutional framework

Prague. Successful revitalization depends on a favorable constellation of various factors. On the local level, the key factors include the development potential of the location, the attitude of the local authorities, and the commitment of all involved actors. Following the demise of state socialism, a free market economy was re-established in the Czech Republic, opening up the country to global influences and foreign direct investment. Consequently, the Czech cities, as well as those existing in other reformed post-socialist economies, find themselves subject to the simultaneous impact of local transformation and global process, which in turn creates a specifically ‘post-socialist’ context for urban restructuring. Like the other capital cities in Central Europe, Prague also became the focus of a growing interest in real estate investments. Commercial nonresidential construction was initially prioritized.¹⁴ Foreign architects, investors, developers and contractors arrived together with foreign capital and became important actors on the contemporary construction scene. Building activities ceased to concentrate in the outer zones (as was typical under socialism), and instead sparked development in the central and inner parts of the city. The diversity in locational “quality” resulted in a varying intensity, structure and quality of construction across Prague, thus strengthening the spatially selective development of the city. The lack of investment capital, misunderstanding of values and public apathy often resulted in the liquidation of most of industrial objects. The need to protect them led to the founding of Department for Protection of Industrial Heritage at the National Museum in Prague in December 1986 and Research Center for Industrial Heritage Faculty CTU in Prague.

The other actor is Research Centre for Industrial Heritage was established in 2002 as an autonomous research centre affiliated with the CTU in Prague. In 2010 it became an institutional part of the Faculty of Architecture of the CTU. The VCPD systematically documents the industrial heritage and technical and industrial monuments located on the territory of the Czech Republic and it studies them in reference to the history and theory of architecture, urban studies, and heritage

¹⁴ TEMELOVA, J. and HRYCHOVÁ, H (2004) Globalization, eyes and urban space: visual perception of globalizing Prague. In: Eckardt, F. and Hassenpflug, D. (eds.), *Urbanism and Globalization (The European City in Transition, Vol. 2)*. New York & Frankfurt/M: Peter Lang, p. 203–221.

conservation. In cooperation with the MA and PhD programmes at the Faculty of Architecture of the CTU, it promotes the development of alternative projects for the adaptive re-use of industrial heritage. Since 2011 VCPD has been working on a research project titled “Industrial Topography of the Czech Republic”, which is supported under the NAKI programme of the Ministry of Culture of the Czech Republic. This research is a direct reaction to the growing interest in the industrial age and related themes and in technical objects and industrial structures of historical and artistic note, which are monuments to their time of origin and the area they stand in. The VCPD is a member of the International Committee for the Conservation of the Industrial Heritage.¹⁵ Local revitalization is mainly a private-sector driven process, where foreign companies play the pivotal role. Public authorities lack fiscal capacity and strategy for development, while the new development projects require capital-intensive investments.

Kostanay. In the contrast with Prague, there are no public or private organization involved in question of industrial heritage reconversion and protection. However as a potential actor in industrial heritage management we can consider some State structures. The highest State institution in implementation of the Law is the Ministry of Culture and Sport. Then by the hierarchy, the regulation of historic and cultural heritage is in of Akimat (local administration). In the case of Kostanay, the direct regulations in situ is in charge of the Department of culture and languages development within the Akimat. One of the principal duties of the department is regularly raids on technical condition of monuments of national and local significance. The listing of historic and cultural heritage is directly in the charge of Inspection for the Heritage preservation (Table 4).

Prague	Kostanay
Actual	Potential
Research Centre of Industrial Heritage CTU Prague National Technical Museum National Heritage Institute Offices of state Administration (ex. Prague Chamber of Commerce and Industry) Non gouvernemental organisations	Office of sate Administration (Department of culture and languages, Department of entrepreneurship within the Municipality) Kostanay State University (Department of architecture and engineering, Department of tourism and heritage) Architects association of Kostanay Kostanay historical museum Kostanay entrepreneurs foundation Non governmental organizations

Table 4. Comparison of institutional frameworks. Source: Author

¹⁵Research Centre for Industrial Heritage (VCPD), <http://vcpd.cvut.cz>

5.3. Financial framework

Prague. Financing industrial heritage reconversion projects requires financial capacity of the main actors. Analysis of reports and publication of various industrial brownfields reconversion and urban revitalization projects (such as Golden Angel project) showed the main sources in financing such projects Czech Republic. Thus, the public budget is remain to be the major sources. However, public-private partnerships are progressively developing in the course of last decades.¹⁶ In that point it is important as well to mention EU funds. The main of them is European Route of Industrial Heritage.

Kostanay. In Kostanay there is no established system of financing in such projects. All works concerning maintenance of industrial heritage financing by the owner of the monument, if it's in private property, or by general city budget devoted to cultural heritage maintenance and restauration. The most prominent state funding in cultural heritage was organized through the programme "Madeni mura".¹⁷ The program have lasted 3 years (2004-2011) during which conservation and restitution of many architectural and historic monument were realized. Nowadays the state funding to cultural heritage through this program is halted (Table 5).

Prague	Kostanay
Financial framework	
Municipal budget	Municipal budget
State budget	State budget
Private investment (national/international)	National fund (Madeni mura)
National/ EU funds (ex. "European route of Industrial heritage")	

Table 5. Comparison of financial frameworks of industrial heritage management. Source: Author

¹⁶ TEMELOVA, J., Flagship development and the physical upgrading of postsocialist inner city: The Golden Angel project in Prague, Conference proceedings - Public Spaces and Quality of Life in Cities, Brno: Technical University of Brno, Faculty of Architecture, 2005, pp. 1-4

¹⁷ kaz. "Мәдени мұра" - "Cultural heritage"

6. Concluding remarks of the chapter

The shift from a communist to a democratic political regime and from a centrally planned to a market economy represents pivotal change in the political and economic transition in post socialist cities. These development is distinct processes encountered in Western cities. The goal of the chapter was to understand the historical preconditions of socialist urban and industrial development and to compare how these preconditions are mirroring on the present tendencies of industrial reconversion in post-socialist Prague and Kostanay. Thus, it was identified that today the overlaps of socio-economic patterns inherited from the socialist past and new dynamics produce in both cities the specific conditions for urban development. The present chapter helped to understand that the features of socio-economic processes in post-socialist cities vary as a consequence of different transformation policies, historical legacies and levels of social and economic development in each formerly soviet country. As well, this was to a large extent due to the inherited and differing urban and regional structures of the countries, due to differing duration of the communist rule, but also due to differing ideological approaches to cities. Especially the difference between USSR and the “new” socialist countries must be stressed in this respect. For instance, Prague, being CEE city started the transformational process much earlier in regards to Kostanay and already have competed this process, while Kostanay, being foremost a central Asian city, is just in the midst of the economic and urban restructurings and evidently do not have the same patterns of these transformations.

Globalization, new technologies and new forms of mobility have similar impacts on urban development on both sides of the former Iron Curtain. However we argue that other aspects, such as the inherited physical and social structure of the socialist city as well as the institutional context of post-socialism have resulted in a specific form of urban processes during the transformation era in both cities.

The analysis of HM systems showed the overlaps in legal framework that Kostanay might deal with. Thus, the weak legal framework in heritage protection mirrors on administrative, institutional and financial aspects of HM. Like in other post-socialist countries, there is still some patterns of centralized system which engender overlaps in institutional system, lack of strong heritage legislature, and weak system of public-private cooperation. All of these factors inhibit implementation of sustainable systems of industrial brownfield management. In the following Chapter we will return to the present discourse in order to integrate it into the management concept.

CHAPTER III

Management concept for industrial brownfields of post-socialist Kostanay

Résumé

Le chapitre est une synthèse des deux chapitres précédents et propose un concept de gestion des friches industrielles de Qostanaï. Le chapitre se compose de trois sections.

- La première section souligne les principaux aspects de la gestion du patrimoine en analysant les résolutions européennes et internationales.
- La deuxième section résume les principales caractéristiques du développement post socialiste et les regroupe selon trois grandes catégories de transformation observée dans ces villes durant la période de la transition. Ce sont les transformations urbaines, institutionnelles et juridiques.
- La dernière section du chapitre propose un concept de gestion des friches industrielles en fonction des caractéristiques socio-économique, juridique, politique et administrative de Qostanaï. Le concept de gestion se façonne par des variables indépendantes caractérisant les villes post socialistes et représenté par: un manque de partenariat public-privé ; des relations de propriété non résolues ; une absence d'arrière-plan institutionnel pour le patrimoine industriel ; un manque de transparence de politique urbaine et patrimoniale; un manque de participation publique dans la planification urbaine ; une double perception des friches industrielles socialistes par la société. Ces caractéristiques sont utilisées comme un prisme au travers duquel nous "filtrons" les concepts généraux de la gestion du patrimoine. Nous les adaptons ensuite à notre concept de gestion.

Le concept de gestion des friches industrielles de Qostanaï combine les étapes suivantes: identification des acteurs potentiels; création d'interaction et de communication entre les acteurs; élaboration des règlements du patrimoine industriel; développement de la transparence dans la politique urbaine et patrimoniale; examen de l'attitude sociale; développement du partenariat public-privé dans les projets de réutilisation industrielle; application du concept «patchwork» dans les projets de réutilisation industrielle; et la communication de projet réalisé afin d'avoir la reconnaissance publique.

1. Theoretical framework of industrial brownfield management

In order to construe a systematic approach for industrial heritage management adapted to the case study, it is essential to understand the root concepts of industrial heritage management. As it was discussed in the Chapter II, the general concept of heritage management encompasses the three main frameworks: institutional, legal and financial. However, this root concept needs to be more detailed in accordance with the variables embodied in specificity of industrial heritage we are dealing with. The present section suggests a theoretical framework for understanding of the main steps of industrial heritage management. The section built on following Europe-wide and worldwide resolutions concerning heritage in general and the industrial heritage in particular:

1. Charta of Venice (1964)
2. Nizhny Tagil Charter for the Industrial Heritage (TICCIH 2003)
3. Dublin principles (TICCIH and ICOMOS 2011)
4. UNESCO Recommendation on the Historic Urban Landscape (2011)

All of these resolutions meet in the point that industrial brownfield management starts with **identification and research** of the site. However, this step was described in different manners in each mentioned resolutions: If according to Dublin principles the identification can be achieved through “*documenting* and *understanding* of industrial heritage structures, sites, areas and landscapes”, Nizhny Tagil Charter states that industrial heritage management have to start first of all from *survey* and follow by *recording* of the found data. Regardless the different expression used, the meaning of the first step is similar. However, both of the documents disregarded the process of capacity-building emphasized in UNESCO Recommendation. Thus, according to UNESCO Recommendations on the Historic Urban Landscape, the capacity-building should involve the main stakeholders such as local communities, decision-makers, professionals and managers, in order to foster understanding of the historic urban landscape approach and its implementation. These elements is the primarily element which should follow by other steps mentioned above. Therefore, it was decided to build this step encompassing capacity-building, documenting, understanding, surveying and recording by one collective designation as “identification and research”. Moreover, the identification and research of industrial heritage require an interdisciplinary approach supported by interdisciplinary research and educational programmes which help to identify the significance of industrial heritage sites or structures.

The second step in dealing with industrial brownfields is **protection**. According to Nizhny Tagil Charter, after identification and research must follow the legal protection of identified area. UNESCO Recommendation on the Historic Urban Landscape also recognizes that the urban heritage such as industrial brownfields should be integrated into urban planning documents.

However, Dublin principles doesn't limit just by legal regulations, and proposes to ensure both legal and administrative background in order to achieve an appropriate reuse of the site. Therefore the second step in industrial heritage management is protection encompassing the legal and administrative elements.

The next crucial step in all of the presented documents lies on conservation and maintenance of heritage. According to Charta of Venice the conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building. However, we cannot forget that we are talking here about industrial brownfields, where revitalization of the space and urban fabric is the most important than the rigid restrictions of conservation. Therefore, the "conservation" cannot fully express the meaning of this phase. Beyond the conservation there are other mode of brownfield revitalization including reuse, industrial rehabilitation. Therefore the third step in industrial brownfields management is **revitalization**.

One of the principle objectives in industrial heritage management is its transmission to the new generations. However, the future generation can contemplate the heritage only through the present acceptance and understanding of the heritage by public. Public interest and affection for the industrial heritage and appreciation of its values are the surest ways to keep it. All of the documents analyzed in this section interprets this last step in the industrial heritage management in various manners. Thus, in the Charta of Venice emphasize was made on the importance of publication and reasoned by the need of precise documentation in the form of analytical and critical reports. In Dublin principles the presentation and communication of industrial heritage accelerated by its value as a source of learning, where the role of trainings, meeting and exhibitions are crucial. Therefore, the last phase in the industrial heritage management is **communication**.

The present theoretical framework for industrial brownfields management focuses on the extent that each resolution integrates four key sustainability dimensions. The schema presented bellow summarizes and illustrates the theoretical framework of industrial heritage management elaborated in this section (Fig.32).

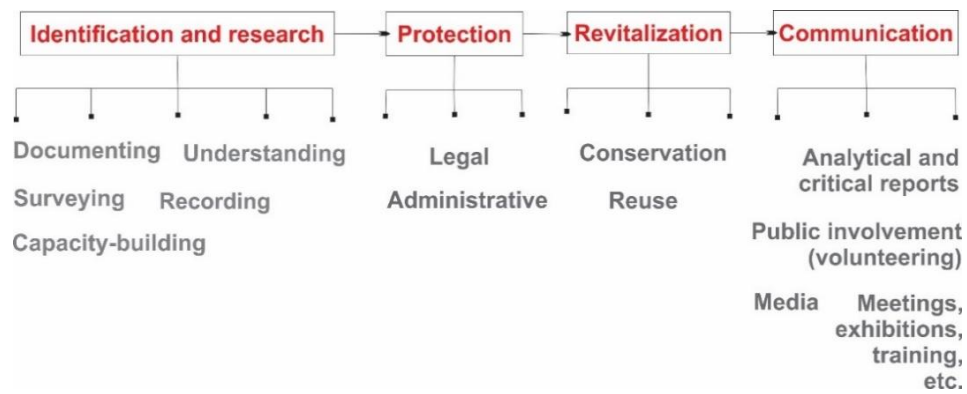


Fig. 32. Theoretical framework of industrial heritage management. Source: Author

2. Characteristics of post-socialist city and their impact on industrial brownfield revitalization

The analysis of the vast literature on transformation process in post-socialist cities and comparative analysis presented in the Chapter II have allowed to construe the main characteristics which made up “post-socialist cities”. These characteristics create the independent variables featuring post-socialist cities that have or potentially could have an impact on industrial reconversion projects. Such variables in this thesis will serve as a base in elaboration of the management concept for industrial brownfield in Kostanay.

The collapse of Soviet monopoly over the production and distribution of goods and services in the former Soviet countries has shattered the ailing body of the socialist economic system into numerous pieces, which have been scattered throughout the urban landscape. The developments that took place after 1989 in former socialist cities of CEE and after 1991 in the other side of Iron curtain were mostly connected with eradicating the previous political and economic systems and quickly replacing them with a new ones. Thus, the characteristics of post-socialist cities described in this section derive mainly from the process of socio-economic and political changes in the former Soviet countries. Essentially, these changes in their nature represents the issues and deficiencies for the potential redevelopment projects. Therefore, the word “characteristic” in the thesis is associated with the terms of “transformation”, “change”, “deficiency” and “issue”.

All of the socio-economic transformations that former Soviet cities passed over the last 27 years can be regrouped into 3 main categories: **urban**, **institutional** and **legal**. These transformations are tidily related with each other. The conceptual framework presented below is our tool which help to clarify the complexity of relations analyzed in these section. (Fig.33). Further subsections will go into the details of each of the three transformation groups mentioned above.

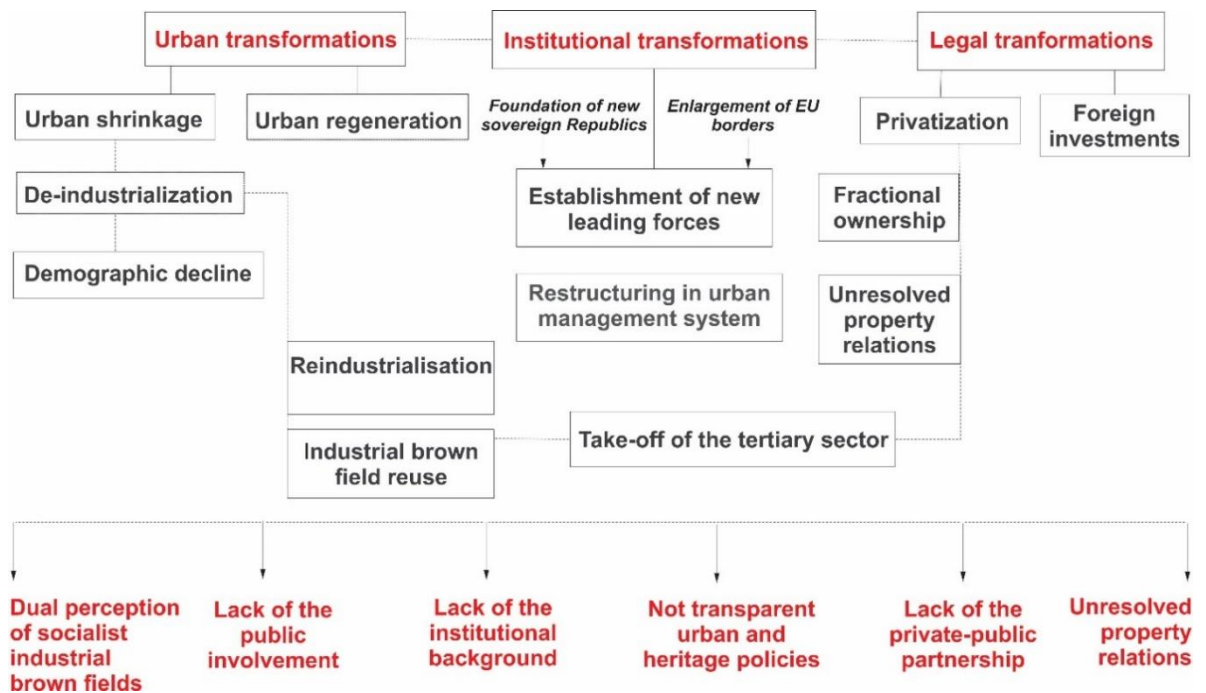


Fig. 33. Conceptual framework for analysis of post-socialist cities in the context of industrial brownfield redevelopment projects. Source: Author

2.1. Characteristics deriving from urban transformations

The urban transformations in the post-socialist cities can be characterized by the urban shrinkage and subsequent urban regeneration. Urban shrinkage have manifested here through de-industrialization and demographic decline related with economic and institutional transformations. For instance, the de-industrialization of the cities was caused by the brake down of the long years established relations between industrial unites all over the former Soviet space. In these industrial chain each plant have represented a single nexus. Therefore, the collapse of the links between extractive and processing industries has resulted in the collapse of the overall industrial system. Urban brownfields and general degradation of built environment were caused by abandonment of industrial complexes. Thus, de-industrialization has created a higher proportion of wasteland and led to deterioration of worker's quarters in the cities and company towns. As a general rule, this led to the high unemployment rate. The sharp decrease of living standards fallowed after fall of iron curtain has resulted by high emigration rate and demographic decrease in the cities.¹

¹ In the course of 20 years after the collapse of USSR, 9 million 457 person have emigrated from Kazakhstan which make up almost 58% of population the country by the beginning of 1991. (Миграция и занятость населения. Экономика и статистика №2, 2012.)

After a period of stagnation, the current second decade of the transition in most of former soviet cities is characterizing by urban regeneration projects. These projects are first of all focused on rehabilitation and reconversion of industrial brownfields. However, the tendency of industrial brownfield reuse is gaining more interest in the CEE countries in regards to the former Soviet Republics. The existing industrial zones are being more intensively developed to accommodate many new private firms, warehouses and offices. The continued growth of service sector industries has made areas with good exposure and transportation accessibility, more attractive to private sector investors. The industrial brownfields revitalization project tendencies, however, differ in accordance with regions. Thus, in CEE cities, where de-industrialization of the urban economy followed by the take-off of the tertiary (service) sector, the first years after the economic stagnation was characterized by industrial reconversion toward retail market needs.² Besides, shifts in technology and communications have established office functions, particularly in banking and finance, as a significant component in the economic base of capital cities. These trends have resulted in dynamic reconversion of industrial and urban brownfields into offices (e.g. Budapest, Prague, and Warsaw).³

By the turn of XX century the industrial reconversion projects started to take more conscious character. The rethinking of industrial brownfields reuse strategies with respect to its cultural and historic value have started with development of new institutional background for industrial heritage. For instance, in Prague these changed have derived from the foundation and more active participation in reconversion projects such institution as Department for Protection of Industrial Heritage at the National Museum in Prague in December, the Research Center for Industrial Heritage (VCPD).

In the case of Kostanay as in many other Kazakh cities, the reconversion projects are still the matter of economic profit of investors, and not a process of industrial heritage preservation. In view of the fact that Kostanay continues to be industrial and agrarian city where in comparison with Prague de-industrialization didn't took a decisive character. Thus, as it was shown in the Chapter I, in Kostanay re-industrialization prevails in regards to the cultural reuse of industrial brownfields.

The other issue concerning urban transformation in post-socialist cities lies on the urban planning. A big disadvantage was the fact that in the beginning of the 1990s Kostanay did not have a city-wide long-term development plan. Thus, urban development was taking place spontaneously

² STANILOV, K., The restructuring of nonresidential use sin the post-socialist metropolis, in: Stanilov, K. (ed.): The Post-Socialist City, Springer, Dordrecht, 2007c, pp. 73-100.

³ SLAVUJ, Lana, CVITANOVIC, Marin, PRELOGOVIC, Vedran, Emergence of problem areas in the urban structure of post-socialist Zagreb, Spatum International Review UDK 711.432(497.5) No. 21, December 2009, p. 76-83 Review paper

as a result of many individual investment decisions with little overall coordination. The quick privatization of industry, which turned these areas in private ownership at the very beginning of the transition period, further limited the influence of urban planners. As Stanilov (2007e) noticed, “the biggest limitation of the planning process in the post-socialist countries is the failure (or the incapacity) of the planners to involve the public into the planning process, including the establishment of vision and goals, the identification of alternatives, plan development and its implementation”.⁴ Indeed, to some extent the presence of this issue refers to **the lack of the public involvement** into urban planning process.

2.2. Characteristics deriving from institutional transformations

Apart from the general trends of urban transformations (e.g. de-industrialization, demographic decline) the transitional process has been strongly influenced by great institutional changes mirrored through the transition from a command to a market-oriented and establishment of new leading forces.

The shift from a centrally planned to a market economy have triggered the transformation of urban management systems. The urban management systems adopted by the new independent states have a direct impact on the dynamics and results of urban transformation process in each city. In the case of Kostanay, the new mixed urban management system which includes elements of decentralization and centralization, characterized by duplication of duties and powers. The main weakness of this type of urban management system is that the duties, powers and competences of central, regional and local administrations are not clearly defined. Consequently, the confluence of competencies lead to dilution of responsibilities and inhibit development of the local administrative sector. Therefore, the projects such as revitalization of industrial brownfields depend from several governmental entities.

Furthermore, according the research of Center of economic studies, regardless the new administrative reforms in the country, there is still domination of centralized principle of administration which has a negative impact on the development of local self-governance. In the meantime, the central government has no incentive to engage in the problems of municipal level.⁵ Besides, there are no effective mechanisms to ensure the transparency of local government

⁴ STANILOV, K., Urban planning and the challenges of post-socialist transformation, in: Stanilov, K. (ed.): The Post-Socialist City, Springer, Dordrecht, 2007e, pp. 413-426.

⁵ Урбанизация в Центральной Азии: вызовы, проблемы и перспективы, Аналитический доклад, Центр экономических исследований, Ташкент, Март 2013, 76 стр.

accountability to the public. City executive bodies are accountable only to the higher government authorities.

These changes in urban management system are first of all conducted by the region-wide and country-wide transformations. In the case of the Central Asian cities this tendency was predicted by establishment of new sovereign Republics. The foundation of the new independent states have resulted by the significant changes in governmental legacy concerning all aspects of city life (e.g. urban regulations, law on heritage). Therefore, the features of socio-economic processes in post-socialist cities vary as a consequence of different transformation policies, historical legacies and levels of social and economic development in each of the countries.

In the case of CEE cities, the enlargement of EU borders to the East, also brought some transformations in legislation. The active flow of foreign investments brought the pivotal changes in the process of urban transformation. One of the prominent example of this tendency is the integration of CEE cities into Europe-wide projects such as European Route of Industrial Heritage (ERIH). After foundation of specialized research centers and institutions for industrial heritage (e.g. Research Center for Industrial Heritage VCPD in Prague) the process of industrial reuse and any kind of interventions in the former industrial landscapes became scientifically based. However, these positive tendency do not concern every post-socialist city nor even those of CEE.

Meanwhile, in Kostanay the institutional scope of the industrial heritage protection is limited by the Department of culture and languages development. The department can serve as a prominent example demonstrating the confluence of competencies mentioned above. Thus, the heritage protection in the city lies on the duties of Department that combine the culture and language development at the same time.

At national level, as well, the question of cultural heritage does not find enough attention. The governmental structure during the years of independence changed several times. Until the recent years the question of heritage and culture have been under subordination of Ministry of culture and communication. Today this field moved under jurisdiction of the Ministry of culture and sport. Thus the governmental body responsible for the question of heritage consists of three Committees: Committee of sport, Committee of religions and Committee of language development and public-policy works. The only nexus involved to the question of heritage is Department of culture and art. Therefore, **lack of the institutional background for heritage management** results by spontaneous interventions into urban fabric which are derive first of all from the commercial interest.

2.3. Characteristics deriving from transformations in legislations

In post-socialist cities, changes in legislations have fostered the privatization process, which followed by relaxation of controls over the spatial development. Thus, the ossifying presence of the state in all economic affairs has been changed by neo-liberal policies generating the entrepreneurial spirit of the populace, which has become much more engaged in the appropriation of urban space.

Besides the limitation of public access into previous public spaces, privatization process have mirrored by unsolved property relations. Thus, part of the problem in reconversion of industrial brownfields lies often on complexity of unsolved property relations. Here, the former chemical industrial complex of Kostanay which ownership status still the subject of judicial examination could be prominent example.

The complexity of industrial reuse projects as well derives from the fact that the vast industrial spaces of socialist industrial giants nowadays are divided between several entrepreneurs. Thus, the unwillingness of the entrepreneurs to follow the conservationists' provisions and complexity of physical reunification of the former industrial complexes enable any kind of reconversion initiatives. Here, the chemical industrial complex of Kostanay again can serve as a representative case of fractional ownership issues. Besides those parts of the complex with undefined ownership, the rest and the major part of the complex is shared by several entrepreneurs. Thus, few workshops of the former industrial complex are transformed according the new types of production, and the other workshops awaiting for new use. Therefore, the meter of undergone privatization in this context is that the new property relations prevent all kind of large scale rehabilitation projects.

The other side of transformations in legislation system is internationalization of the market and flow of foreign investment in urban regeneration and industrial heritage reconversion projects. However, if in the CEE cities these changes have quickly triggered the international investments, in Kazakhstan and in majority of other Central Asian countries, the large foreign investments still concern only capital cities and large economic centers.

The foreign investments into industrial brownfields have dual character. On the one hand through elimination of financial issues they speed up the urban regeneration projects. On the other hand, the foreign investment usually enable the control of local authorities and the participation of local communities in the decision making process.

Despite a general similarity of the major revitalization processes in post-socialist and western cities, their causes, dynamics, and consequences differ. Thus, beyond the transformational characteristics of post-socialist cities there are also some other issues inhibiting the industrial revitalization projects. One of them is the **lack of private-public partnership**.

In Western Europe urban revitalization often relies on strong involvement of the public sector, entrepreneurial urban governance, targeted urban policies and public private partnerships. In post-socialist cities, the real power and scope of public authorities (particularly local self-governments) in guiding revitalization remains much weaker, often together with tight local budgets, restrictions imposed by private land ownership, protracted bargaining processes, and the lack of experience and expertise.

The second issue which is beyond the transitional effects is **the dual perception of post-socialist industrial brownfields values** by populace. For instance, if conservation in SoHo or Chelsea were motivated by highly pragmatic reasons based on property values and need for space, then attempts to re-appropriate the industrial landscape in post-socialist cities were inscribed in the politicized discourse of social memory and heritage. “The history of post-socialist urban space reveals a politicized struggle of competing identities in fragmented domain within which history is a weapon and a technic of colonization more than accumulated set of experiences and commodities.”⁶

One of the evidence is the fact that after the Soviet collapse, all symbols, street names, and monuments were readily dismantled and either destroyed or taken away to communist theme parks. In Kostanay, more than 30 streets and squares, most of them named after socialist politicians, communist philosophers, and anti-fascists, were renamed. The industrial brownfields inherited from the Soviet past is in the same category with these symbols and monuments. Thus, on the one hand industrial brownfields perceived as symbol of colonial past, on the other hand it represents a set of experiences and nostalgia accumulated into social memory.

Globalization, new technology and new forms of work and mobility have similar impacts on development on both parts of the former Iron Curtain. However we argue that other aspects, such as urban, institutional, legal structure inherited from the soviet past have resulted in a specific form of urban processes, at least during the transformation era, in majority of post-socialist countries. Therefore, such distinctive characteristics demands a specific management concept for industrial brownfields.

3. Management concept for industrial brownfields in the context of post-socialist Kostanay

Underused industrial sites and buildings that undergo or await transformation represent promising city development resources. Therefore, industrial brownfields of Kostanay are opportunities to develop the city and to deter urban sprawl. However, most industrial buildings

⁶ MIEG, Harald A. OVERMANN, Heike, *Industrial Heritage Sites in Transformation: Clash of Discourses*, Routledge, 2014, 232 p.

and related facilities have already fully damaged and there have recovered all recyclable resources. Many of these equipment could have been used as urban or historical landmarks, or even better touristic ones. Thus, transformation of the rest part of industrial brownfields can bolster development of urban landscape.

Optimal development of the city must contemplate all aspects of sustainability: environment, socio-cultural, technical, and economic measures. However, there isn't THE ONE perfect answer to the question on how to manage industrial brownfields. It is clear, that there are different approaches, corresponding to the requirements of the sites, the local environment and also to the socio-economic aspect. That's why the management concept proposed in this study do not cover post-socialist cities from general prospective, but focus just on the example of Kostanay. Further, these principles should be adapted to the specific conditions of each industrial brownfield within the city. The characteristics of post-socialist cities identified in the second section of the chapter serve here as a prism through which we "filter" root concepts of industrial heritage management from the first section of the chapter and adapt them to our management concept (Fig. 34). Thus, the management concept shaped through the following independent variables-deficiencies characterizing post-socialist cities: lack of the private-public partnership, unresolved property relations, lack of the institutional background for industrial heritage, not transparent urban and heritage policies, lack of the public involvement in urban planning, and dual perception of socialist industrial brownfields.

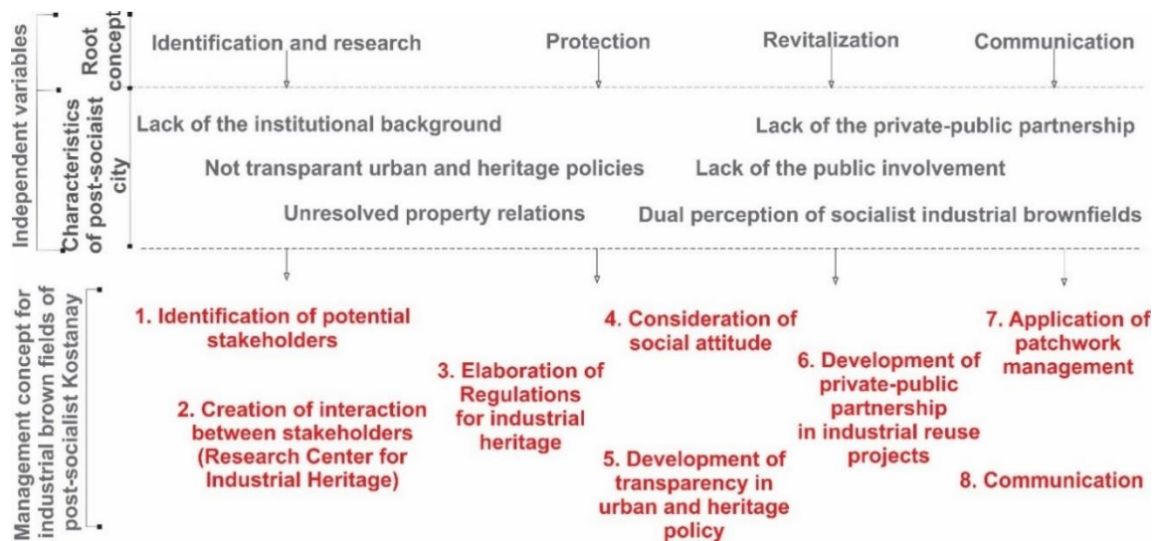


Fig. 34. Management concept for industrial brownfields in the context of post-socialist Kostanay. Source: Author

3.1. Identification of potential stakeholders

Good managed industrial heritage projects need the involvement and close cooperation of all relevant protagonists. Therefore, the management of industrial brownfields requires identification and bundling of all prospective stakeholders in the question of industrial heritage. Management concepts that involve the close cooperation between emancipated partners have to have high quality standards in project preparation. Therefore, there is need to have a clear vision, plans and also financial and manpower resources in order to build up strong and long-lasting partnerships in industrial heritage management.

At the national level, several institutions could be involved in the industrial reconversion: the Ministry of culture and sport, the Ministry of investments and development, Committee for Construction and Land Management within Ministry of economy, and other state bodies such as the National Environmental Protection Agency, the Environmental Fund Administration, the Office of State Ownership and Privatization of Industry.

At the local level, authorities that could be involved are the Akimat (City Hall), the City Council, the Environment Guard, the Environmental Protection Agency, the Department of entrepreneurship, Department of Architecture and Department of Culture and languages. However, the previously mentioned uncertain legal context inhibit a clear image of each authority's role in the future process of reconversion.

Besides, the private sectors may be considered as one of the main actors of reconversion. However, they should be coordinated, influenced and encouraged by the public sector. We must not forget the non-governmental organizations that may either present a public opinion regarding a certain activity included in the reconversion process or they can persuade the citizens about certain actions promoted through successful lobbying campaigns. A change in public attitudes about industrial heritage and the recognition of its values first started with the protests and initiatives of people outside the public institutions (in the 1960s in the UK, and the Czech Republic in the 1980s). Various NGO organizations in the Czech Republic have made a significant contribution to the protection and re-use of industrial heritage. For instance, organizations Kladno Konev and Mamapapa have organized site-specific projects, concerts and theatre performances at industrial sites. Kladno Konev's project was the production of the first trail of alternative industrial tourism in the Czech Republic in 2009, comprised of five information panels in the industrial area of Kladno.⁷ Indeed, the NGO are one of the potential stakeholders which could bring great contributions for the start-up projects. In Kazakhstan there are several NGO that can be considered

⁷ CIZLER, Jasna , The role of creative and civil initiatives in transforming post-industrial landscape: A case study of industrial heritage reuse in the Czech Republic, *Architecture and Civil Engineering* Vol. 12, No 3, 2014, pp. 207 - 219

as potential stakeholders in such projects. For example, the Republican movement “Bolashak” which the main idea is development of the volunteer movement in Kazakhstan could bring the manpower for budgetary start-up projects. The “Assistance Center” annually organizes the National Fair of social ideas and projects. Therefore the NGO could give the great opportunity for communication of potential or implemented projects on industrial brownfields. Generally speaking, there are great number of NGOs that could be potentially involved in the out-coming projects: “Kazakhstan Union of Designers” (Organization and carrying out of the republican exhibition of professional skill “City and Design”), “Social Partnership Center” (Organization of activities within expert community in the development and implementation of strategic programs for the enhancement of cultural heritage), etc.

The other potential stakeholders are the research institutes and universities operating in this area. Their involvement could limit the decisions regarding industrial sites to political options or to strict economic advantages. The examples of potential educational institutions will be given in the next sub-section.

The citizens are also should be involved in this process mainly through public meetings, exhibitions, events, surveys, social media and social networks. In time of financial shortness, the involvement of the local community and volunteers is of great importance. Community participation helps to gain acceptance for industrial heritage projects. When the acceptance rises, there also might be the willingness to financially support the project by local companies or free working offers by volunteers. These are the first steps to strengthen the possibility of grassroots or bottom up developments in the city.

3.2. Creation of interdependencies and interaction of stakeholders

In the Chapter II it was identified that the primary obstacle inhibiting comprehensive revitalization of industrial brownfields in Kostanay is the lack of appropriate institutional background for cultural heritage in general and apparently for industrial heritage. A lack of institutional background results in to extremes often applied in Kostanay – complete demolition and overall reconstruction of industrial brownfields most frequently for commercial or industrial purposes. The various actions conducted in the city landscape have irreversible characteristics. That mean any solution, no matter positive or negative, is long-lasting. Therefore every intervention in the urban tissue should be a result of a scientifically based act of spatial planning.

The lack of institutional background for industrial heritage first of all derives from the fact that this field is not enough known and developed in the country. In the course of the study only few

researches working on the question of industrial heritage of Kazakhstan were found. All of them are focused on the large cities as Almaty and Astana, while in the scope of Kostanay there is absolute gap in this field. Disinterest to industrial heritage and reuse of the industrial brownfields in the city first of all can refer to the absence of architectural or engineering faculties within the higher educational level. The only architectural faculty in Kostanay is affiliated to the professional technical school of Civil engineering.

On example of the VCPD in Prague we saw how the specialized Research Centre for Industrial Heritage can boost the interest of various stakeholders including the governmental organizations, scientific world and private investors. The new research center would be solution for the issues mentioned above: first, it can serve as a unifying nexus of all prospective stakeholders; second, the farther interventions into industrial landscape will gain planned and scientifically based character; and last, but not least the research center will be the starting point for development of industrial archeology not only in the Oblast, but in the country. However, the establishment of the new scientific entity also requires conceptualized approach. Successful change at the urban level hinges on strengthening public sector institutions, as well as on securing popular support for costly restructuring. The local authority in urban area is seen as crisis manager charged with myriad responsibilities, but without adequate resources to manage them.

Emulating the example of Prague, in Kostanay the new research center could embody several entities. The research center for industrial heritage can be established mainly on the base of cooperation between Professional technical school of civil engineering and Kostanay state pedagogical institute. The other stakeholders could be involved in different ways of management structure. Thus, it is essential to integrated to the new research center the local museums and archives (Museum of History, Museum of Archeology, Museum of Railroad and transportation, Regional state archives). They represent an important repositories of sources for the future researches and can perform as a communicators. It is advisable as well to involve into the project the Union of Architects of Kazakhstan, Kazakh Academy of Architecture and architectural faculties from neighboring cities. The local executive power may also play the crucial role in this cooperation. Thus, the involvement of the Department of Architecture and Department of Culture and languages of Kostanay Akimat (city administration) in essential.

It is useful to have a leading partner to coordinate the stakeholders. Therefore Kostanay State Pedagogical Institute can be a perfect for this role. The Institute is the first high educational institution in the region with leading position not only in the region, but in the country. Therefore, the academic staff of the Institute are pioneers in the field of history, anthropology, sociology, archology of the region. Besides, the Institute proved itself as a cradle of numerous research centers established on the base of its Faculties.

3.3. Elaboration of regulations for Industrial Heritage

The next nexus in the chain of industrial brownfields management is protection. By protection we mean first of all the legal regulations which afterwards ensure the physical protection too. The legislations shapes economic behavior and economic performance, and provide an incentive structure for the development of political and social organizations. Unclear urban and heritage policy after the 1990th have resulted by demolition of important architectural monuments in the city. Also the actions of occupying abandoned industries enclaves for real estate uses and reuses that led to notable disappearances of elements from the industrial buildings. A big disadvantage (partially due to this same reason) was the fact that in the beginning of the 1990s Kostanay did not have a city-wide long-term development plan. Thus, urban development was taking place spontaneously as a result of many individual investment decisions with little (if any) overall coordination. The quick privatization of industry, which turned these areas in private ownership at the very beginning of the transition period, further limited the influence of urban planners.

Analysis of the current regulations on Historical and Cultural Heritage and the interview with the local actors involved in the process have revealed a series of difficulties associated with the functioning and inefficiency of the control instruments, as well as other difficulties derived from the adapted legal regulation. In Kostanay, the legal protection was only given to relevant elements associated with the history of science and technique and, of the assets classified as industrial, the oldest ones were primarily valued – mills, brewery, water tower etc., that is, those that are actually pre- or proto-industrial, on occasion with more ethnographic than industrial value. They've been determined as the heritage in a virtue of their architectural value and not from the broader definition as relationship between man and nature, an interaction where the cultural and the natural reality form a continuous whole.

The ambiguities in today's concept made it expedient to elaborate first of all an accurate definition for Industrial Heritage. To this end we argue that industrial heritage in a new regulations should acquire a more global, anthropological vision, more a historical than a purely architectural process. It is true that revitalization projects of industrial brownfields are not the first priorities in urban development projects in Kostanay. The international practice shows that the issue of industrial heritage gain wider character when industrial revitalization projects are included in the local development planning. Thus, in Czech Republic identification of areas for regeneration was included in legislation (changed in 2006) and became a part of analytical materials, information groundwork for urban planning. Elaboration of new regulations for industrial heritage of Kostanay could become one of the essential steps in industrial heritage revitalization strategy.

The new regulations might be elaborated and adapted first in the city level as trial project. The commission for new regulations may embody the same actors mentioned for the establishment of Research Center for Industrial Heritage. However, the responsible position should be given to the governmental body in virtue of its highest authority. This hierarchy of duties and position derives from the fact that in order to implement big-sized and long-lasting projects and events connected to the industrial heritage (such as the Chemical industrial complex), it is very important to have a strong and long-term political support. Therefore, the authority of city administration in the decision-making process will facilitate the implementation of the new regulations.

3.4. Development of transparency in urban and heritage policies

The survey with a local actors discussed in the Chapter II showed that there is still ignorance of city plan in favor of big investors. Therefore, a general critique is that the urban redesign process is not transparent. Decision makers appear to be neglecting the public voice while citizens are reluctant to raise their opinion. It is expedient that the management of industrial brownfields includes development of transparency of urban and heritage regulations. Involvement of nonprofit, public organization into the process of urban and heritage regulation could be one of the solutions. In the case of Kostanay there are few organizations that could be involved in this role. Therefore, we can consider here not only local public organizations, but as well as the national framework. One of the example is “Civil society alliance”. The main activities of the alliance is organization of communicative platforms and round tables on the issues concerning improvement of the legislation in the sphere of local self-government. The other potential public foundation is Charitable Trust “El-shezhire” which aimed to support the culture and art. The “Center for Education and Culture named after Kayum Mukhamedkhanova” may be also involved in this process as it organizes activities for preservation of cultural heritage. The potential inspectors of governmental regulations are international NGOs. For instance “Institute of European Law and Human Rights” may be involved in inspection of regulations as its representation in Kazakhstan aims to improve the legal culture of Kazakhstani people and strengthening of institute of human rights. Eventually, the new regulations of industrial heritage should arbitrate more operative bodies to control the consistency of the interventions according to a common methodology agreed by the different stakeholders and city administration.

3.5. Consideration of social attitude

The choice of future use of abandoned industry becomes a part of the urban development strategy: On the one hand concerning values and qualities of the site, on the other hand concerning demands and needs of the community. Public participation can provide general acceptance of the regeneration projects.⁸ Besides the public participation through NGOs and NPOs, there is the way to get the direct public opinion about industrial reconversion projects.

In order to obtain a representative sample of citizen attitudes, opinions about industrial brownfields of Kostanay, the survey was conducted through the local social media. In our case the survey published in the public group “Tipichny Kostanay” (“Типичный Костанай”) within VKontakte⁹ social network. “Tipichny Kostanay” serves as communication platform of the local community, where the citizens can discuss the questions concerning all aspects of the city life.

The survey was published on 31 May and kept the citizens interest during 3 days. As a result 641 person have participated in the survey and took part in the active discussion of the proposed topic. Thus, the respondents were invited to express their preferences of one of 6 proposed functions for the industrial brownfields of Kostanay, namely: Educational, retail, social housing, and entertainment, cultural, sportive and recreational. In the commentaries, the respondents could propose their own ideas about possible function for industrial brownfields reuse.

As a result of the survey the major preference in terms of brownfield reuse was shared by the social housing (28, 1%), sportive and recreational (26, 8 %) and educational (17, 2%) functions. Thus, the other proposed functions cultural (11, 9%), entertainment (10, 9%) and retail (5,1 %) didn't gain enough interest between Kostanay citizens (Fig. 35, Table 3).

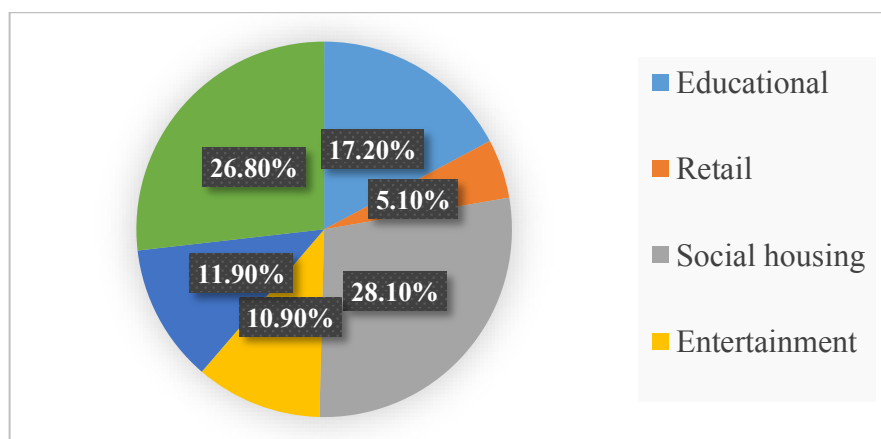


Fig. 35. Percentage of respondents according type of new function (average for all brownfields)

⁸ MIEG, Harald A., OEVERMANN, Heike Oevermann, “Industrial Heritage Sites in Transformation: Clash of Discourses”, Routledge, 2014, 232 p.

⁹ VKontakte – a social network popular within CIS countries. Prototype of Facebook

Type of reuse	Number of respondents	In %
Educational	110	17,20%
Retail	33	5,10%
Social housing	180	28,10%
Entertainment	70	10,90%
Cultural	76	11,90%
Sportive and recreational	172	26,80%

Table 6. Percentage of respondents according type of new function (average for all brownfields)

Beside these survey results, some respondents took part in the discussion of the proposed topics. Thus, most of the respondents expressed their discontent concerning the high price of the housing and its incompatibility with the average salary of the citizen. Therefore, the proposal of this part of the respondents was the reconversion of the brownfields into the social housings and lofts. The second part of the discussion concerned the weak tourist infrastructure of the city. That's why the respondents strongly agreed with cultural reuse of the industrial brownfields and opening of budgetary tourist accommodations.

We cannot state that the survey through the social media is the only one and the most reliable way to collect the public attitude. However, we argue that this method is most effective in terms of time and budget investments.

3.6. Development of the private-public partnership in industrial reuse projects

The reinvigoration of a particular industrial site is influenced by several key factors, depending on the type of the existing industry and on the features of local environment. However, the choice of future use for abandoned industry directly depends from financial aspect of the project. Therefore, the management concept for industrial brownfields of Kostanay focuses, first of all, on the possible ways of funding for the future revitalization projects. We argue that it is imperative to reconcile the revitalization of the industrial site with its economic dimension. Farther, it is important to take into account its ability to generate wealth and to oblige the public authorities make the heritage accessible, as this leads to a better quality of life for the urban inhabitants.

In terms of the utilization of available financial resources, the large sized soviet industrial sites (with their multitude of constituent parts) demands a high degree of strategic planning. Thus, the financial management of major industrial heritage sites depends largely upon the level of funding

and must be flexible in its response to the often dynamically changing political framework, within which it operates.¹⁰

Investment by the public sector is easy but not a perfect option. In Kostanay there is no established system of public financing of such projects. All works concerning maintenance of industrial or cultural heritage financed by owner of monument, which usually does not appreciate the specific status of its property. If the heritage is in the public property it can be financed by general municipality budget devoted to cultural heritage maintenance and restoration. However, in reality even the maintenance of the listed landmarks is a complex process.

As a general rule, in the case of the projects fully invested by public sector the limits of public budget inhibits expansion of the idea to the other abandoned sites. Thus, the projects entirely sponsored by the government tends to stay the only regeneration projects for long time. This issue is particularly relevant in the context of developing economies such as Kazakh.

Public private partnership seems here an optimal model, even it requires organization and financial input of public administration and municipality. The involvement of private companies is an evidence for the rising awareness of the potentiality of the region. Private investments, as an extra financial resource, allows small bottom-up projects to create public interest for industrial heritage, and in this way attract more and more investments.

In spite of a general similarity of the major revitalization processes in post-socialist and western cities, their causes, dynamics, and consequences are not the same. In Western Europe urban revitalization often relies on strong involvement of the public sector, entrepreneurial urban governance, targeted urban policies and public private partnerships. In post-socialist cities, the real power and scope of public authorities in guiding revitalization remains much weaker, often together with tight local budgets, restrictions imposed by private land ownership, protracted bargaining processes, and the lack of experience and expertise.

Therefore, the private sector should be coordinated, influenced and encouraged by the public sector. In the case of Kostanay, creation of favorable conditions for private-public partnership may be in charge of Department of entrepreneurship within city administration. First of all the state body shall elaborate the specific regulations of the private-public partnership in urban and industrial revitalization projects, with indication of rights, obligations and benefits of the both part.

Besides the financial benefits, the private-public partnership may resolve another issue intrinsic to post-socialist cities, - unresolved property relations. As it was mentioned in the previous section the issue of unresolved property relations derives from the privatization process launched in the 1990th and still mirroring on unclear property relation of many large-scale industrial sites. Thus,

¹⁰ DAUBE, Jens, Maintenance Programmes – a management tool for the long-term conservation of major industrial heritage sites, TICCIH, 2009.

great quantity of the industrial brownfields in Kostanay are split by several entrepreneurs or their property status is the subject of court proceedings (like in the case of Chemical industrial complex). The problems of these industrial areas is that partitive ownership of the huge soviet complexes accompanied by the frequent change of activities in there. In addition, small owners or tenants, by default, do not have enough capital for physical improvements, which in turn impacts unfavorably on development of surrounding. Thus, disjointed ownership pattern coupled with a mosaic of various (industrial and non-industrial) activities taking place within the former industrial boundaries inhibit the plans for large-scale improvements on these sites.

Unclear property relations as well prevent access to certain areas of the city to its inhabitants, thus changing their well-established routines. Many sites in Kostanay, awaiting investments to regeneration represent a barrier for urban development. These barriers could be broken with opening them to a public life through removing the fences and regeneration of the plots to public spaces and parks, while buildings only maintained.

Emulating the international practice, we argue that this issue could be resolved also through the private-public collaboration. However, the first action in this case should be made by the public funding in terms of trade policies of state aid and tax incentives. The industrial brownfields for potential revitalization projects can be classified into three state aid schemes: deprived industrial buildings involving the use of fiscal instruments; industrial sites providing tax breaks to entrepreneurs in form of exemption from pay taxes and deductions from income tax; and industrial reconversion areas with an economic potential growth which provide VAT reductions for the owners.

3.7. Adaptive reuse of the massive former Soviet industries through patchwork-management

The physical intervention in the abandoned industrial landscape is the crucial step in industrial heritage management process. City-like industrial brownfields inherited from soviet past requires considerable financial investments for their regeneration. Beside the private-public cooperation discussed above, the choice of the adaptive reuse can be also support financially restricted revitalization projects. The research of possible proposals for industrial reuse in Kostanay was based on the consideration of two main characteristics of post-socialist industrial brownfields, which are financial limited and spatially unlimited. Therefore, we argue that one of the possible solution in industrial rehabilitation projects of Kostanay, regardless the type of new function, is application of strategic patchwork-management.

Strategic patchwork-management of urban land use means the interlocking of different ways in using abandoned areas: on the one hand for social, cultural and functional strategic interlinking of former industrial areas with its surrounding areas and on the other hand the integration of these sites in the long-term urban usage and development strategy via networking. One of the prominent examples of patchwork-management is revitalization project in Ruhr region. Here the transformation process through patchwork management took place during the last 20 years. The big mining industries and concerns but also the railway company Deutsche Bahn reduced their real estates and handed unused areas over to the state or publically ruled companies within the RAG company.¹¹ The following examples of industrial reuse were implemented through the patchwork management concept: Commercial re-use (e.g. the CentrO Oberhausen as multifunctional shopping mall), Housing projects, Art (land marks such as heaps, industrial cultural monuments), Culture and handicraft (Zeche Zollverein in Essen), Leisure and nature (e.g. park Landschaftspark Duisburg-Nord, Landesgartenschau (State Garden Show), industrial forest coking plant Hansa in Dortmund, community forests).

Therefore, we can state that with smaller but interlinked projects, even big sized former soviet industrial areas can be transformed. The strategic patchwork-management as well helps to keep up the coherence of the city in a spatial as well as social sense and use their industrial past in order to develop a future. Patchwork management enables the cities to have diverse forms of re-use depending on their financial capabilities. During this process, private owned land is often converted into public-owned land. For an overall urban developing strategy, the plans for former industrial areas have to be embedded into a political-strategic concept. The interlinking of re-used industrial cultural public areas with private portfolio-management of big-sized landowners and the local economy is important in order to avoid a mosaic town-scape. The interlinking of culture, urbanism and site development can lead to an additional benefit for Kostanay.

The development of former industrial sites into places for living, economic activities, leisure or nature via patchwork site management leads to a connection within urban and industrial spaces. Former industrial areas have potentials for systematic development and industrial cultural heritage is one component of this value. Traditionally, former industrial areas dispose broad cultural backgrounds and offers since this was meant as an adjustment for the confinement of the inhabitants to the industry. Thus, industrial heritage conservation should be considered as an alternative option when it comes to planning the reconversion of the industrial areas. They could become not only museums of the past, but demonstration places of the territorial problems generated by industry in

¹¹ WALTHER, Daniela, PETZAK, Julia, Overview on good practice examples of industrial heritage management outside the SHIFT-X partnership, SHIFT-X CENTRAL EUROPE Project No. 4CE521P4, Institute for industrial archaeology, history of science and technology, Freiberg, pp. 17-18

different stages. During the temporary and mostly uncommercial but cultural uses, the attractiveness of the areas for investors can be improved.

Patchwork management could be the answer to the challenges of shrinking areas with changing approaches, financial possibilities and aims in the urban development. For post-socialist urban landscape of Kostanay patchwork site management can help to avoid mosaic-like urban sprawl. The interlinking of all involved areas and stakeholders leads to more control over development processes and allows the implementation of small as well as big-sized light-house projects.

3.8. Communication

Industrial heritage represents a prominent element of local, national and international history and interactions over times and cultures. In order to find reasons for new industrial heritage projects, it is important to raise the awareness for the value, the meaning and the significance of such areas and objects. Knowing the meaning and the values of the sites helps to collect the financial resources needed and leads to a rising number of visitors, media appearances. It can generate a broader support of industrial heritage in the public opinion. Public awareness and affection for the industrial heritage are surest way of successful revitalization projects. That is why the process of communication and interpretation here is imperative.

In the case of Kostanay we have to consider the specificity of industries we dealing with. Those industries are testimonies of the soviet past, which gained dual perception within the Kazakh society. Here, as in other post-socialist countries, soviet symbols, street names, and monuments were readily dismantled and either destroyed or taken away to communist theme parks. In Kostanay, around 20 streets and squares, most of them named after socialist politicians, communist philosophers, and anti-fascists, were renamed. Here, “the history of post-socialist urban space reveals a politicized struggle of competing identities in fragmented domain within which history is a weapon and a technic of colonization more than accumulated set of experiences and commodities.”¹²

Thus, on the one hand industrial brownfields perceived here as technic of colonization, and on the other hand it represents a set of experiences and nostalgia accumulated into social memory. Therefore, it is important to consider the competing perceptions of socialist industrial heritage while communicating the revitalization projects. It is necessary to transmit to the citizen the idea of the value that represent those dilapidated industries and monuments through their importance

¹² MIEG, Harald A., OVERMANN, Heike, *Industrial Heritage Sites in Transformation: Clash of Discourses*, Routledge, 2014, 232 p.

as potential resources for urban regeneration. The accentuated cultural re-use stimulates identity with and the appreciation for new aesthetics of industrial sites. Festivals and events lasting from one day to one week may be one of the best tools for creation the communicative platform. This sort of regular recurring activities could promote industrial heritage in the city and around the region.

The particular effort should address into press and public relations, embracing the potentials of social media and online presence. Often, non-profit associations are the initiators of these events, relying almost entirely on volunteers and donations for funding. The local tourist associations and independent touristic firms of the city shall be involved as responsible of such events.

4. Concluding remarks and expected outcomes of the concept

The present Chapter was aimed to propose a management concept for the management of industrial brownfields considering the socio-economic, legal, politic, urban etc. features of post-socialist Kazakh city Kostanay. To do so the first section of the chapter present the theoretical basis which conceptualized in the European and International resolutions for heritage. Basically these resolutions included Charta of Venice (1964), Nizhny Tagil Charter for the Industrial Heritage (TICCIH 2003), Dublin principles (TICCIH and ICOMOS 2011), and UNESCO Recommendation on the Historic Urban Landscape (2011). Their analysis allowed to underline four main steps to follow while managing heritage (including industrial heritage). This guideline composes of identification and research, protection, revitalization, and communication.

The characteristics of post-socialist cities identified in the second section of the chapter serve here as a prism through which we “filter” these theoretical framework and adapt it to our management concept. Therefore, the second section identified the following independent variables-deficiencies characterizing post-socialist cities: lack of the private-public partnership; unresolved property relations; lack of the institutional background for industrial heritage; not transparent urban and heritage policy; lack of the public involvement in urban planning; and, dual perception of socialist industrial brownfields. Those characteristics were identified through the synthesis of the previous two chapters. The concluding section proposes management concept which based on fallowing action plan: identification of potential stakeholders; creation of interaction and communication between stakeholders; elaboration of regulations for industrial heritage; development of transparency in urban and heritage policy; consideration of social attitude; development of private-public partnership in industrial reuse projects; application of patchwork concept; communication

The present management concept and theoretical basis of the thesis can be used both for the study and for the intervention in the industrial landscapes, to adapt them to innovative production systems and new cultural uses. Therefore, the following results are expected after implementation the management concept:

1. Revitalization of dilapidated urban areas
2. Reconversion of industrial brownfields of Kostanay with the respect to historic and cultural value
3. Establishment of scientific community of industrial heritage
4. Development of the subject in the local Universities
5. Improvement of the legislature on cultural heritage

CONCLUSION

The present study was focused on the case of Kostanay, which industrial and urban development was strongly related to socialist regime. Thus, we have identified that its urban and industrial development have followed the route of socialist development through the following periods: Interbellum industrialization; the World War II industrialization; urban and industrial reorganization after the war; development during the soviet agricultural complain “Tselina” and “Perestroyka” period. The 1990s ushered in the era of transition to a market economy, which triggered a period of active and deep transformations. In this process, many former urban elements and activities were swept away and substituted by new ones while most of the industrial sites left behind their initial activities and today are in the way to be completely destroyed.

The comparative analysis and case study allowed us to identify the main characteristics of post-socialist cities and regroup them into 3 main categories: urban, institutional and legal transformations. Thus, the urban, institutional and legal patterns inherited from the socialist past and contemporary dynamics are transforming the structure and organization of post-socialist cities. All of that create specific conditions for urban development and possible projects of industrial reconversion. These obstacles include: lack of institutional background for industrial heritage protection and management; not transparent heritage and urban policies; lack of private public partnership; unresolved property relations; lack of the public involvement in industrial and urban revitalization projects; dual perception of socialist industrial brownfields by the society. The concluding chapter presents study proposes management concept based on following action plan:

Identification of potential stakeholders. The potential stakeholders *at the national level* were determined as: the Ministry of culture and sport, the Ministry of investments and development, Committee for Construction and Land Management within Ministry of economy, and other state bodies such as the National Environmental Protection Agency, the Environmental Fund Administration, the Office of State Ownership and Privatization of Industry; *at the local level*: Akimat (City Hall), the City Council, Environment Guard, Environmental Protection Agency, Department of entrepreneurship, Department of Architecture and Department of Culture and languages; as well as *non-governmental organizations; research institutes and universities; social media and local community.*

Creation of interaction and communication between stakeholders might be achieved through establishment of Research Center for Industrial Heritage. The center can be created on a base of cooperation between Professional technical school of civil engineering and Kostanay State Pedagogical Institute with integration of the local museums and archives, Union of Architects of Kazakhstan, Kazakh Academy of Architecture, architectural faculties from neighboring cities, and

the local executive power. Thus, the new research center could boost the interest of various stakeholders including the governmental organizations, scientific world and private investors.

Elaboration of regulations for industrial heritage might acquire more global, anthropological vision, more a historical than a purely architectural process. The new regulations might be elaborated and adapted first in the city level as trial project. The commission for new regulations may embody the same actors mentioned for the establishment of Research Center for Industrial Heritage. However, the responsible position should be given to the governmental body. This hierarchy of duties and position derives from the fact that in order to implement big-sized and long-lasting projects and events connected to the industrial heritage (such as the Chemical industrial complex), it is important to have a strong and long-term political support. Therefore, the authority of city administration in the decision-making process will facilitate the implementation of the new regulations.

Development of transparency in urban and heritage policies. Involvement of nonprofit, public organization into the process of urban and heritage regulation could be one of the way to regulate transparency in urban and heritage policy. In the case of Kostanay we can consider not only local public organizations, but as well organizations on the national framework. The new regulations of industrial heritage should arbitrate more operative bodies to control the consistency of the interventions according to a common methodology agreed by the different stakeholders and administration.

Consideration of social attitude. Public participation can provide general acceptance of the regeneration projects. Therefore, it is important to involve the local community into revitalization projects and construct a sample of social opinion about these projects. Besides the public participation through NGOs and NPOs, there is the way to get a direct public opinion about industrial reconversion projects. We tried to construct a model of general public opinion through the survey conducted in the local social media. We cannot state that the survey through the social media is the only one and the most reliable way to collect the public attitude. However, we argue that this method is most effective in terms of time and budget investments.

Development of private-public partnership in industrial reuse projects. In Kostanay, where is no established system of public financing in revitalization projects, public-private partnership seems an optimal model, even if it requires organization and financial input of public administration and municipality. Therefore, the first action in this question should be made by the public funding in terms of trade policies of state aid and tax incentives.

Emulating the international practice, we can classify the industrial brownfields for potential revitalization into three state aid schemes: deprived industrial buildings involving the use of fiscal instruments; industrial sites providing tax breaks to entrepreneurs in form of exemption from pay

taxes and deductions from income tax; and industrial reconversion areas with an economic potential growth which provide VAT reductions for the owners.

Application of patchwork concept. Patchwork management can be the answer to the challenges of shrinking areas with changing approaches, financial possibilities and aims in the urban development. Therefore, for post-socialist urban landscape of Kostanay patchwork site management can help to avoid mosaic-like urban sprawl. We argue that with smaller but interlinked projects, even big sized former soviet industrial areas can be transformed. The interlinking of all involved areas and stakeholders leads to more control over development processes and allows the implementation of small as well as big-sized light-house projects.

Communication. Public awareness and affection for the industrial heritage are surest way of successful revitalization projects. That is why the process of communication and interpretation here is imperative. It is necessary to consider the competing perceptions of socialist industrial heritage while communicating the revitalization projects. Thus, it is advisable to transmit to the citizen the idea of the value that represent those dilapidated industries and monuments through their importance as potential resources for urban regeneration. Festivals and events lasting from one day to one week may be one of the best tools for creation the communicative platform. This sort of regular recurring activities could promote industrial heritage in the city and around the region. The particular effort should address into press and public relations, embracing the potentials of social media and online presence. Often, non-profit associations are the initiators of these events, relying almost entirely on volunteers and donations for funding. The local tourist associations and independent touristic firms of the city shall be involved as responsible of such events.

The topic of industrial heritage in the context of post socialist city is a vast thematic which requires farther research. The future studies can be focused on another post-socialist cities and encompass the variety of countries and regions. The present thesis can be serve as a base for the next comparative studies. We propose several recommendations for the future development of the topic:

1. The study focused on architectural intervention in socialist industrial complexes
2. From the methodological aspect, the future research can be approached from anthropologic prospective and deepen more in the social aspect of such cities with regards to their industrial heritage
3. The study on valorization of post socialist industrial landscapes by means of IT technologies and application of the Smart city concept
4. The detailed project focused on creation of Research Center for Industrial Heritage
5. The study which deepen into the legal aspect of industrial heritage protection

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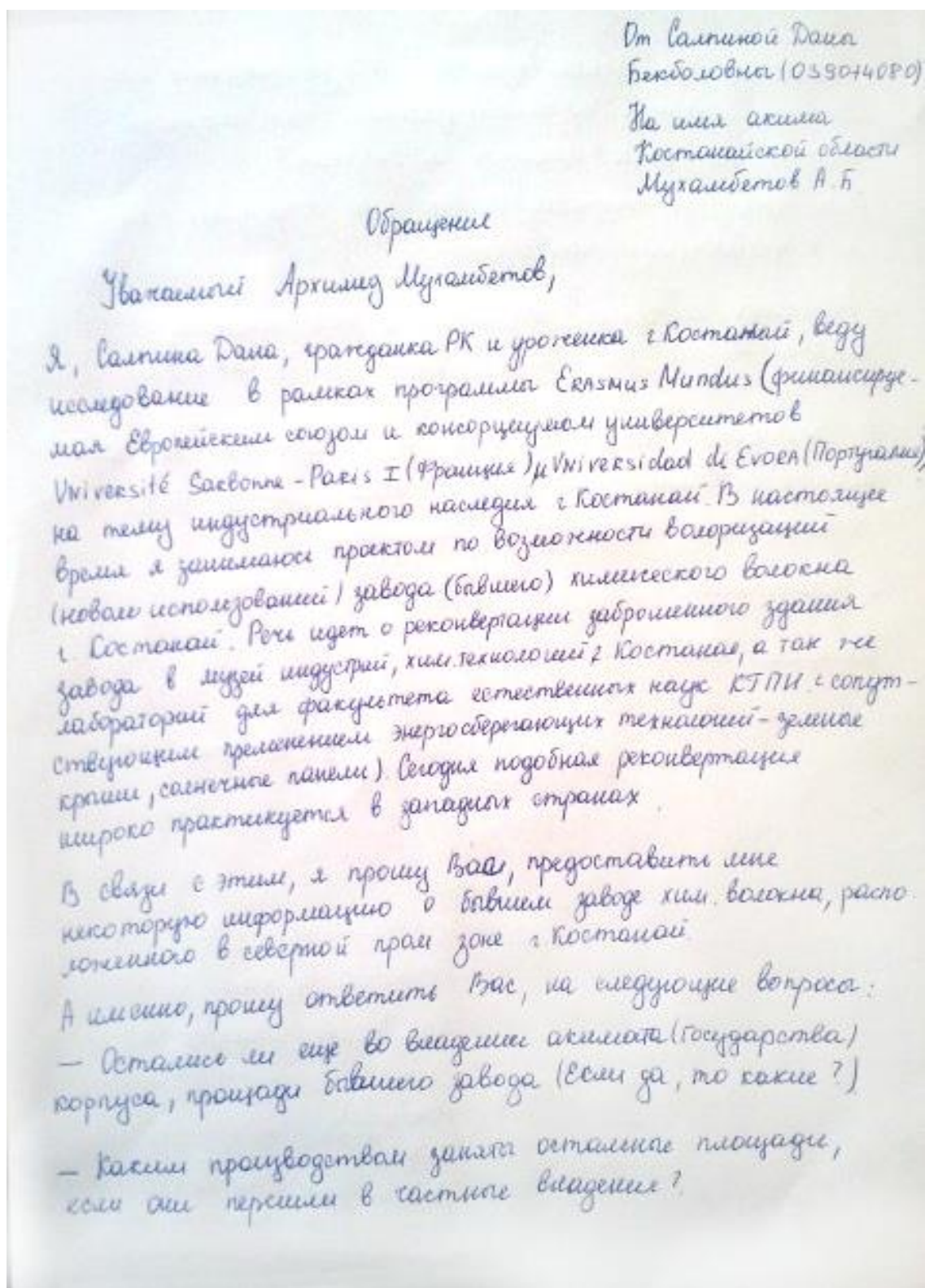
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A. Correspondence with the local authorities:

A.1. Letter requesting information from Kostanay Municipality (in Russian)

1/2



- Планируются ли планы-проекты государственного или местного значения по использованию этих площадей? Если да, то какие? имеется ли бюджет?
- Если нет, то открыты ли вы для сотрудничества, и в привлечении инвестиций?
- Решен ли вопрос связи с накопителем завода в зоне реки Тобаи? (Если, да, то как?)

В ожидании Вашего ответа, и с надеждой на Вашу заинтересованности в развитии нашего города и в его освоении новых технологий/тенденции,

С уважением,

Салпина Дана.



25.10.2015

Почтовый адрес:

Rua Mestre Lourenço n.º 2,

ÉVORA

Portugal

7000

Ответ прислать по
Поповича, 18 (Костанай 110000
или SALPINA-DANA@MAIL.RU.

A.2. Official reply from the Department of entrepreneurship (In Russian)

ҚОСТАНАЙ ОБЛЫСЫ
ҚОСТАНАЙ ҚАЛАСЫ
ӘКІМІНІҢ ОРЫНБАСАРЫ



ЗАМЕСТИТЕЛЬ АКИМА
ГОРОДА КОСТАНАЯ
КОСТАНАЙСКОЙ ОБЛАСТИ

110000, Қостанай қаласы, Пушкин көшесі, 98
e-mail: gorakimat@kostanay.kz
www.kostanay-city.kz

110000, город Костанай, улица Пушкина, 98
e-mail: gorakimat@kostanay.kz
www.kostanay-city.kz

18. 11. 2015 № 921-С-6156


на № _____ от _____

Костанайская область
город Костанай
ул. Поповича, 18
Салпиной Д.Б.

Рассмотрев обращение о предоставлении информации по бывшему заводу ТОО «Казхимволокно», сообщаю следующее.

Акимат города Костаная заинтересовала Ваша работа по проведению исследования в рамках Erasmus Mundus на тему индустриального наследия города Костаная. Для более детального изучения Вашей работы предлагаем организовать встречу с презентацией данного исследования, в ходе которой можно будет получить ответы на вопросы касательно ТОО «Казхимволокно».

Согласно п. 6 ст. 14 Закона Республики Казахстан «О порядке рассмотрения обращений физических и юридических лиц» Вы имеете право обжаловать действия (без действия) должностных лиц либо решение, принятое по обращению.

Исполняющий обязанности  Е.Теменов
заместителя акима


B. Result of the survey “Public opinion on reconversion of brownfields” (in Russian) with translation

[SCREENSHOT]

[ТК] ТИПИЧНЫЙ КОСТАНАЙ
30 мая 2016 в 13:20

Повторное использование заброшенных индустриальных пространств приобретает все большую популярность в странах Европы. Так некогда индустриальные зоны приобретают новые общественно необходимые функции преобразя и оживляя тем самым близлежащие районы. Самые известные примеры это парк-аттракцион в некогда индустриальном регионе Германии Ruhr, бывшая электростанция и ныне галерея современного искусства Tate modern в Лондоне и т.д.

В Костаное существует множество заброшенных индустриальных площадей (например, бывший хим. завод, камвольно-суконный комбинат, мясокомбинат и т.д.), которые занимаю немалую часть городского пространства. Этот вопрос напрямую касается пространственного развития Нашего с Вани города и поэтому здесь важно именно Ваше мнение.



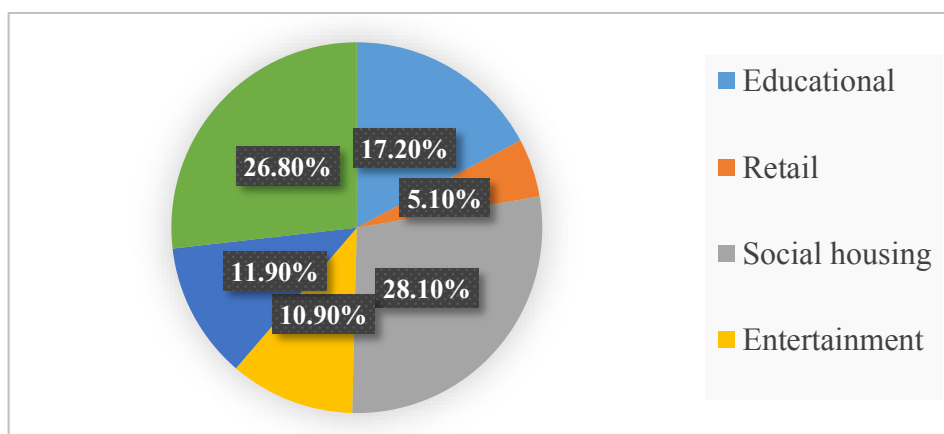
Какие функции должны приобрести заброшенные индустриальные объекты Нашего города? (Если нет подходящего ответа, оставляйте свои идеи в комментариях) Открытое голосование

Образовательные (университеты, лаборатории, школы, детские сады)	110	17.2%
Коммерческие (офисы, торговые площади)	33	5.1%
Социальное жилье	180	28.1%
Развлекательные заведения (клубы, кафе, рестораны, кинотеатры)	70	10.9%
Культурно-познавательные (арт мастерские, выставочные залы, музеи)	76	11.9%
Спортивно-оздоровительные (спорт площадки, спорт клубы)	172	26.8%

Проголосовал **641** человек. [Получить код](#)

[Dana Salpina](#)

[TRANSLATION OF THE RESULTS (RELATIVE AND ABSOLUTE VALUE)]



Type of reuse	Number of respondents	In %
Educational	110	17,20%
Retail	33	5,10%
Social housing	180	28,10%
Entertainment	70	10,90%
Cultural	76	11,90%
Sportive and recreational	172	26,80%

ТРАНСКРИПТ ИНТЕРВЬЮ

С одним открытым вопросом

Внесение памятников культуры и архитектуры в реестр - это защита или ее имитация?

Абай ЮНУСОВ, начальник отдела архитектуры и градостроительства акимата Костаная:

- С одной стороны, чтобы сохранить памятник, это нужно сделать. Я, к примеру, сижу в памятнике. Если в здании протекает крыша, то, чтобы его сохранить, я должен ее отремонтировать, при этом не изменяя общего вида. Если же перестройка кардинально меняет облик здания, то это уже плохо. Таким образом многие памятники в городе потеряли свою архитектурную ценность. Например, здание Арт-кафе обесценилось после того, как его надстроили. А художественная школа до сих пор имеет статус памятника, хотя внутри она сильно изменилась и модернизировалась. Сегодня в списке есть памятники, которые не представляют и не представляли культурной ценности. В список еще в советское время они попали только по необходимости довести их число до сотни и получить деньги на развитие культуры в городе. Сегодня должна создаваться комиссия по выводу памятников из реестра, что будет решаться уже на республиканском уровне.

Сауле БУРБАЕВА, начальник управления культуры Костанайской области:

- Конечно, это защита. Мы должны оставить культурное наследие нашего края своим потомкам, сохранить его. По возможности мы реставрируем памятники. За время моего пребывания в этой должности ни один из памятников не был исключен из реестра. Сохранность памятников возможна только при грамотной работе управления культуры с общественностью и исполнительной властью.

Серик БЕКТУРГАНОВ, заместитель акима Костанайской области:

- Несомненно, внесение памятников в реестр - это их защита. Если памятники внесены в реестр, то на их реставрацию из бюджета на законных основаниях могут выделяться средства. Например, здание действующего выставочного зала было в ужасном состоянии. На его ремонт из бюджета были выделены деньги. В итоге здание сохранено, восстановлено и его архитектурный вид не претерпел никаких изменений.

Георгий СОКОВ, член Союза художников Казахстана:

- Сам закон гарантирует защиту памятников. Ее имитируют те люди, кто его исполняет. Инцидент с кинотеатром «Костанай» наглядно показал нам, насколько защищены памятники. Пока земля, на которой они стоят, никому не нужна, закон и его исполнители их защищают. Но если участок, на котором находится памятник, кому-то понадобился под застройку или другие нужды, то чиновники сделают все

возможное, чтобы вывести его из реестра, а затем уничтожить. При этом мнение общественности, как правило, власть не учитывает.

Наталья ЗДОРОВЕЦ, архивист-историк

- В конце 80-х годов прошлого века памятники, внесенные в реестр, закреплялись за конкретными организациями, которые должны были следить за их сохранностью. Например, площадь Первоцелинников числилась за КГУ. Тогда они были реально защищены. Но затем они стали куда-то исчезать, хотя по документам продолжали числиться. Так со зданий по улице Толстого, 50 и проспекта Аль-Фараби, 111 исчезли мемориальные доски. Только благодаря протесту общественности удалось отстоять памятники Владимиру Ленину и паровоз первоцелинников, которые волшебным образом куда-то тоже исчезали на какое-то время. Тайно из реестра были выведены здания ЦУМа и кинотеатра «Костанай». В итоге власти растоптали все реестры ногами. Памятники защищены только на бумаге, в реальной жизни - нет.

[TRANSLATION]

INTERVIEW TRANSCRIPT

One open-question interview

Register of cultural and architectural heritage – it's a way to protect our heritage or just a formal imitation of the protection?

YUNUSOV Abay, Head of Architecture and Urban Planning of Akimat of Kostanay:

- On the one hand, in order to preserve a monument, we have to have this list. For instance, my office is in the monument. If the building roof leaks, then, to preserve it, I have to get it repaired, without changing the overall appearance of the building. If the restructuring radically changes the face of the building, then it is bad. That's way many monuments in the city lost their architectural value. For example, the building of Art Cafe have been devalued after to be restructured. A school of art still has the status of an architectural heritage, but inside it has modernized and changed a lot. Today the list includes sites that do not represent any cultural value. In Soviet times they were necessary only to increase the number of monuments up to hundred and get the money for the development of culture in the city. Today we need to create a Commission to remove those monuments from the registry, and afterwards, the decision should be taken at the national level.

BURBAEVA Saule, head of the department of culture of Kostanay region:

- Of course, this is protection. We must to leave land's cultural heritage to our descendants, to save it. Wherever it possible, we are restoring monuments. While I am at this post, none of the sites has not been excluded from the registry. Preservation of monuments is possible only in conditions of competent work of the department of culture with the public and the executive.

BEKTURGANOV Serik, Deputy Akim of Kostanay Region:

- Undoubtedly, the registry - it is the way to protect them. If the sites are in the registry, then for the restoration works they legally receive funds from the budget. For example, the building of the exhibition hall was in a terrible state. For its restoration works the budget allocated fund. As a result, the building is preserved, restored and its architectural appearance has not been changed.

SOKOV George, a member of the Union of Artists of Kazakhstan:

- The law itself guarantees the protection of monuments. The executors of the law, those are people who make this imitation. The case with the cinema “Kostanay” clearly showed us how our monuments are protected. As far as no one need the land on which the heritage are placed, they are under protection of the law. But, once somebody interested in this land, for construction or no matter what proposals, then the officials will do everything possible to remove the heritage from the registry and then destroy. Thus, usually, authorities do not take into account public opinion.

ZDOROVETS Natalia, archivist and historian:

- At the end of the 80s of the last century architectural and cultural heritage of the city have been registered and specific organizations were assigned to be their guardians and protect them. For instance, Kostanay State University was assigned to protect the Pervotselinniky square. That’s way, they were really under protection. But then the monuments began to disappear somewhere, even according to officially documents they continued to be registered. Thus, memorial plaques of the buildings on the street Tolstoy, 50, on Al-Farabi Avenue, 111 have been disappeared. Only the public protest managed to defend the monument of Vladimir Lenin and locomotive of pervotselinniky which are as well, for a while, magically were disappeared somewhere. Then the buildings of TSUM (Central Department Store) and “Kostanay” cinema were clandestinely removed from the registry. Monuments are protected only on paper, in real life - not.

COLLECTIVE PROJECT

“World tramway”

ABBREVIATIONS

ATM - Azienda Trasporti Milanesi (Milan Transport Company)

BVG - Berliner Verkehr Gesellschaft (Berlin Transport Company)

CARRIS - Companhia Carris de Ferro de Lisboa (Lisbon Tramways Company)

CGO - Compagnie Générale des Omnibus (Paris Omnibus Company)

CNUM - Conservatoire numérique des Arts et Métiers (Digital Library on the history of science and technology)

LAURE - Loi sur l'Air et l'Utilisation Rationnelle de l'Énergie (French law on "Air Quality and the Rational Use of Energy")

MTC - Montreal Transport Company

PDU - Plan de déplacements urbains (urban transport plan)

RATP - Régie Autonome des Transports Parisiens (Autonomous Operator of Parisian Transports)

RER - Réseau Express Régional d'Île-de-France (Regional Express Network)

SAO - Società Anonima degli Omnibus (Formed limited company of the Omnibus for the city of Milan)

S-Bahn – Stadtbahnen (German suburban railways)

SCOT - Schéma de cohérence territoriale (territorial coherence scheme)

SRU - Loi relative à la solidarité et au renouvellement urbains (law on solidarity and urban renewal)

STEL - Società Trazione Elettrica Lombarda (Electric Traction Company of Lombardy)

U-Bahn – U-Bahnen (German underground railway)

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INTRODUCTION

“An industrial cathedral that connects art with humanity...It’s real, it speaks of the city’s history, it speaks of Glasgow”

Peter Brook

General context

These words could refer not only to Glasgow but to any other city captured by Industrial Revolution and which streets were run by the grate invention of humanity, - by tramway.

As the first form of public transportation Tramway has played significant role in the development of human society. Tramway invention can be easily considered as a symbol of Industrial Revolution. Before public transportation starts to be widely in use, only wealthy people could use carriages in XIII century’s urban landscapes. If in the very beginning the invention was just a curiosity and attract many interest of common people, very soon it became an integral part of urban landscape. Tramway have been always the source of artist inspiration, who captured its fast evolution, from horse-drawn to today’s light railways.

Tram, streetcar or trolley systems were common throughout the industrialized world in the late 19th and early 20th centuries, but they disappeared from many cities in the mid-20th century. In recent years, they have made a comeback.

This paper is a report of “World Tramway” project that took place in the framework of Erasmus Mundus TPTI Master program between 2014 and 2016. The members of the project are Nevena Ilic, Indira Cosa Fallarero, Suzanne Pulcherie Nomo Ela, and Dana Salpina. The research group was coordinated by Mattia Gusella.

Time and geographic scopes

The time frame of the research covers whole period of tramway system evolution. Thus, the research is focused on the time frame from the second half of XVIII century up today. Within the general time frame the group project is constructed according to the four main periods of tramway evolution. The first period covers 1750 and 1850 and focuses on the preliminary evolution of tramway from omnibus to the horse drawn tram. The second period covers the period 1850-1920 and analysis the tram development during electrification of the system. The third period is the time frame between 1920 and 1970, where the main focus was made on the decline of the tramway

system which started to be replaced by motor cars. And the last time frame counts from 1970 up today which discusses the triumphal comeback of the tramway and some aspects of its valorization. The time frames mentioned above cannot be exact for each city analyzed in the project. However, it gives idea about general evolution of tramway system as a whole.

The geographic scope of the project focuses on three main case study cities. These cities were chosen according to the location of Erasmus Mundus TPTI Consortium: France, Italy and Portugal. We have chosen three cities according significance of the tramway evolution. These cities are Paris, Milan and Lisbon. However, the project is not limited just within European context. The research team tried to cover cities from four corners of the World, in order to secure comparativeness of the research and to demonstrate how dynamics of tramway development differs according the local context.

Research questions

1. How tramway inserts into an urban centrality model and how they are adapted and taken into account in the structuring urban city?
2. What are the patterns of tramway effect on urban landscape?
3. How tramway changes urban landscape in the aesthetic, physical and social sense?

Objectives

The main objective of the project is to promote and valorize tramway through creating inventory. Within the group project we tend to enhance the value of tramway by means of the web site. We defined following specific objectives: To demonstrate the cultural value; to enhance the economic value; to stimulate the space of cooperation; to motivate the appropriation

Novelty of the study

It's not the first project focused on tramway valorization through web site. What is different, is that the research group is composed by international specialist from various fields of study such as architecture, cultural studies, tourism management, and art history. Therefore, it allowed to look at the subject from multidisciplinary angles.

“World Tramway” as it says its name is the international project which does not limit in geographical scopes of one city or one region. Such approach was chosen in order to demonstrate comparativeness of the study. Indeed, the limitation on narrow geographic area does not give the global view on the subject. Besides, the team used relatively new methods of project divulgation. On the one hand the project took much more archival form than usual website manifestation. But on the other side it contains several interactive elements: such as interactive map, exhibits. As well it gives to visitors the possibility to participate in development of the site content.

The thesis has four parts. The first part presents the general context of the projects. This chapter also indicates sources, bibliography and methods used in the project with explanation of collective organization of the team work. Second part contains explanation of individual part within the team project and tends to find answer for the following questions: Why this topic has been chosen? Which obstacles the author faced and which methods were used? The third part explore the selected subject and expose the results. This chapter divided into three subchapters according the four main periods of tramway evolution and try to go deeper into the subject. The conclusion part resume all these phases and make overall analysis of personal part of the project. Further, the conclusion points contain some proposition and suggestions for future improvement of “Projet tutoré”.

CHAPTER I

General context of the group project

Résumé

Les concepts du projet et ses objectifs sont basés sur un travail collectif qui a comme le but d'étudier le sujet à travers de la créativité et des compétences de chaque membre du groupe. Ainsi, ce projet collectif est à la fois la plate-forme éducative et pratique où les professionnels de divers domaines connectent leurs compétences pour renforcer la valeur du sujet. Afin d'atteindre ce but, les quatre objectifs de site web ont été déterminés: de démontrer la valeur culturelle de tramway; d'améliorer la valeur économique du sujet; de stimuler l'espace de coopération; et, de motiver l'appropriation.

Ce chapitre se concentre principalement sur cinq aspects du projet collectif: la bibliographie et les sources qui servent la base théorique de l'étude; la méthodologie générale appliquée dans le travail collectif; l'organisation collective du projet; et, l'organisation structurelle du site web.

1. Bibliography and sources

The sources and bibliography used in the study have mainly historic, cultural, urban, technical and socio-economic character. The primary sources used in this study are mainly based on the historic materials published by digital libraries such as BNF “Gallica”, CNUM, and Baedeker. These materials can be classified as publications of transport companies, historic urban transportation maps and tramway photography. If the publications of transport companies such as “Compagnie générale des omnibus de Paris” permits to follow the dynamic of tramway growth in the end of XIX century, then the historic maps in comparison with more recent public transportation network gives the possibility to follow same dynamics throughout the tram history. Besides, historic photography is used in order to make image analysis and identify patterns of tramway network in the current urban landscape.

Moreover, in order to get statistic data, the study uses publications and reports of local transport companies. For instance, the research uses information published by RATP in the case of Paris (ratp.fr), CARRIS in the case Lisbon (carris.transporteslisboa.pt), ATM in the case of Milan (atm.it). Further, the publications and reports from research centers such as Certu (certu.fr), were widely used in order to identify changes in tramway networks nowadays.

As a theoretical basis, the study uses various secondary sources referred to each city mentioned in the paper. For instance, in order to identify the patterns of tramway network in Victorian cities the PhD thesis of (Ohojna, 1974), in Milan the PhD thesis of (Tucci, 2011) served as basis.

The following group of bibliography served to construct the general view about organization of public transportation in the cities: (Moraglio, 2014), (Vuchic, 2007), (Ogliari, 2010), and others. However, these works are mainly limited by urban context.

The other group refers to the bibliography used in the practical part of the project. This group consists of the works devoted to web design (Gary Shelly, 2011), property low, patterns of organization of group projects.

Besides, in order to identify current patterns of tramway network and city congruence, the study uses various articles mainly published in persée, biblioshc, paper platform for urban transformations (ISOCARP) and revues: (Stambulli, 2005), (Vigarie, 2003), (Offner 1993), (Frenay, 2004), etc.

2. General methodology

The mythological base of the research is focused on the case studies connects a diversity of rationalities and discourses, including culture, heritage management, urbanism, and history of technique. The time management of the collective work was implemented through Gantt diagram, which was created during the first semester of the Master course. Thus, the overall plan of the collective project was set according short, middle term and final goals. The research was based on independent and collective work. Through the group meeting organized every two weeks (according necessity sometimes each week), where the research team have possibility to discuss the results of independent work and set the goals for the next meetings.

The inventory of the research subject, the web site realized by means of the platform called Omeka. The research grouped worked with version installed by Université Sorbonne-Panthéon Paris 1. Omeka is a flexible, and open source web-publishing platform for the display of library, museum, archives, and scholarly collections and exhibitions. Its setup makes launching an online exhibition as easy as launching a blog. This platform gives possibility to create internet sites without necessity of specific knowledge in the site programming. Omeka falls at a crossroads of Web Content Management, Collections Management, and Archival Digital Collections Systems. The use of the Omeka platform provides a fix structure of Metadata. The Dublin Core structures the item tree. It was possible to add a new configurations not previewed in the default configuration. Therefore the group have installed additional plugins in order to secure interactivity and attractiveness of the project. The plugins widely used within the project are: Neatline, Exhibit builder, Item relations, Shortcode Carousel, and Collection tree. Here it is important to notice the importance of Neatline plugin which allowed the group to create several interactive projects.

2.1. Property law or patterns of data collection for the web site

The content of the site have various multimedia and textual sources taken from other web sites and archives. That's why it was necessary to address to the patterns of data collection and to respect property legacy. These competences were acquired by the research team thanks to the course of Property law organized within University Paris 1 all long the first semester. These knowledges help to the research team to identify main features of website management considering legacy based restrictions.

The first elements within this framework concerns general aspects of the website appearance: domain and logo. In the case of website "World Tramway", the domain [pireh-dev.univ-

paris1.fr/TPTI/groupe2_tpti] directly refers to the publisher of the web page, - to the University Paris 1. The main issue in this case is that the platform belongs to the University. Thus, the domain name in this platform contains the name of the university, the name of Erasmus program TPTI, but do not refers to the main subject of the research. Therefore, on the one hand, there is a risk to loose potential visitors of the website. On the other hand this domain name have positive impact on the project as it contains name of prestigious educational establishment.

All the index elements (items) use the patterns of Dublin Core system, where the project authors have to declare the authority as well as sources. A scheme of access by an authenticating tool allows to the editor recognize the author of each item. The organizational structure of the website is constituted by the University of Pantheon Sorbonne Paris 1. Therefore, the editor is the administrator of the site affiliated to the University. The authors of the project are the students. However, here the authors considered as a host, they can just provide the content and it's the administrator who take final decision about publishing of the content.

The second aspect is the content of the website. The site has many elements such as design, texts, images, graphics, sound registers, visual archives, database etc. Most of this data can be classified as: Technical and historic articles based on the material bibliography from the published and public material in database in BNF; diagram based on data from a published and public source in BNF database; photography; database of bibliography and sources related with the tramway; database of institutions and other form of organization relative with the study and production of tramway; database of multimedia elements; functional design of the website; historical photography, public sources in the database of BNF and Wikimedia; audiovisual belong to Wikimedia; graphic design of the website provided for the OMEKA software.

The multimedia elements in a website have responsible position related to the content. The use of information can inflict the moral or physical person right. According the French property law, the responsibility related to it will depend on the organizational structure for the referee system of the site. The Law No. 2004-575 of June 21th, 2004 for the Confidence in the Informatics Economic, draws up the possibility to identify two common situations. The first case is referred to the website that has a referee system leaded by an editor. In this case the editor is person who takes the decision about publication of elements. In this situation is his responsibility to answer any process related to some information that could affect the moral and physical person rights.

The use of elements can be subject of the author right when they were created in an original way and they are perceptible by the sense. In the frame of the French law, the protection over those oeuvres is in vigor for a period equal to 70 years after the death of the author, in the case of individual author. Also it was necessary to identify those oeuvres which represents the objects of supplementary protections. According those condition it is possible to identify in the website a

large quantity of elements that constitute objects of the author right. Those oeuvres are been made by external sources but also by the author of the collective project.

Therefore, in order to secure legitimacy of our data collection, in some cases we were obliged to write the letter for some web site administrators asking permission to use their content with educational purpose. In order to thanks and mention all individuals and organizations whose web sites and works were useful in our own analyses, the site has particular page called “Credits”.

The “World Tramway” collective project is based on data base system. Dublin core here is used for management of the data. The main body of the website is a relation of collection of historical person description linked to the Tramway. All the personal data used in the site follow the indication of law No. 78-17 of January 6th, 1978 and changed by the law of Liberty and Informatics. The web site is allowed to require the visitor’s personal data, and geographic position. The website also allow visitors to leave their comments and write to the administrator through the “Simple Contact Form” plugin. The procedure of publication of the visitor comment is controlled by the editor. In this case the site asks for the name and the email of the visitor. The objective of this action is enclosed to security reasons and qualitative development of the site content. The visitor are informed about the legal frame concerning treatment of the personal data. Thus, the recording of personal data in the website, is made in three space of the website, the Historical person collection, the Neatline Map and the Visitor Comments.

2.2. Dynamic of the web site and its feeding in the time

The nature of the project supported by the collective work is limited to the time of the Master Programme. Thus, it addresses to the necessity to design a strategy that enables the site to continue its feeding through the time. The Contribution plug-in permits the opportunity to involve the people interested in development of the website content. The main objectives are to maintain the website updated as well as to facilitate the appropriation and recognition of individuals, institution and companies interested in valorization of the tramway and its promotion.

3. Collective organization of the project

Groups that work well together can achieve much more than individuals working on their own. The project team create interdependence by sharing goals that can only be met through their collaboration. That’s why the structure of the project is defined according to the competences and

interests of each member of the research team. The “World Tramway” team composes from four Erasmus Master student, which came to the program from various continents (Europe, Asia, Africa and Caribs) and various field of studies: art history, architecture, cultural studies and tourism management. According to this competences and with respect to the personal interests of each member, the project team focus on four main topics, namely: congruence between tramway and city, technique evolution of the machine, cultural impact of tramway, and heritage polices related to tramway. However, while each member carries out their individual tasks, it was important to preserve the group's focus and sense of purpose. Even if each topic realized individually, the web site was the main platform where the team had to work collectively. This common work hold and organized during the meetings and web conferences throughout four semesters.

4. Structure of the web site

The architecture of the web site “World Tramway” is mainly based on four sub thematic described above: congruence between tramway and city, technique evolution of the machine, cultural impact of tramway, heritage polices related to tramway. According to these subareas the website provides the functionalities associated with three activity sections: museum, archives, actor directory. Thus, the central structure of the web site is elaboration of exhibitions, collections, dynamic maps and images that support the narrative of the site (Fig.1). Furthermore, the electronic resource contains several databases related multimedia elements, institutions and bibliography.

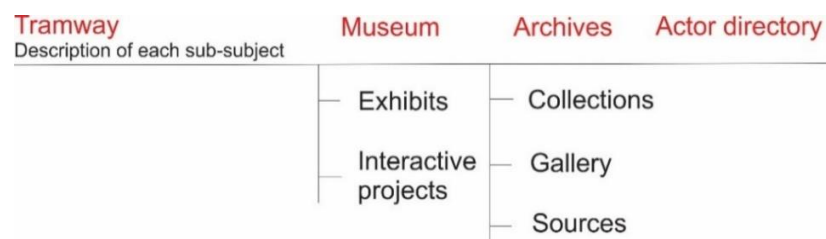


Fig. 1. General structure of the web site “World Tramway”

All of the four sub subjects are regrouped in the first simple page “Tramway” (Appendix A). This part serves to introduce potential visitors to the general context of each sub subject. The second part called “Museum” contains “Exhibition” and “Interactive projects”. This part serves as the interactive core of the site. The Exhibition is composed by three case study, Paris, Milan and Lisbon (Appendix B). Here, each of the case studies are as well approached through the main four sub subject divided by the team. The items have the type and format that the items index in the

archives. They are present in simplified way following the communication rules for museum in digital frame. The description text have a body of 500 characters for maintain the attention and motivation of the user. The use of relation item could provide the user to go deeper in the topic according there interest.

The “Interactive projects” might be the most attractive part of the website which connects the past and the future. Thus, the interactive projects “Face the tram” (Appendix C), “Twit the tram” are repository of images and posts published in Facebook and the Twitter. The peculiarity of the projects is that the visitors contemplate the collection of the posts collected from all over the World. The other interactive project called “A passage in tram” is a collection of memories and histories collected related to the tram and nostalgia that it creates (Appendix D). And the last interactive project “Means tram” is made in form of World map, where the visitors can read and listen the variety of pronunciation and spelling of the word “Tramway” (Appendix E).

The second core element of the Web site are Archives. The archives regroup three elements: Collection, Gallery, and Sources. The “Gallery” represents a tool where the visitors can have fast access to all images presented in the site, while the “Sources” serves as a kind of library and repository of the whole web site. Here the main element is the Collection which presents a container of all the items (Appendix F). The items here regrouped according the three main sub subjects of the project. The content created in the site comes from two types of origin: from specialized published sources and from the common people. These registers are associated by collections for a better narrative of the item deposit. The utilization of technical and historical sources is compatible with the level of requirement of the system for the indexation of the item. The format covers diverse modalities: text, graphic, photography, video and audio and interactive elements. An analytical description helps in the comprehension of the source. The use of Tags and search tool contribute to the accessibility of the content.

The last core element of the website is Actor Directory. This is the way to index the directory of Museums, Institutions, Companies, Worker organizations. The main objective of this section is to create a list of the stakeholder related to tramway. This way the project team was intended to help the researches and visitors to find these organization in an easy mode.

The homepage follow a simple design for the better orientation of the user in the page. The main sections structure the page follows the potential order according target groups and the objective of the project. From home it is possible to receive a short description of the website, the project and the actors related. The featuring of collections and recent items contribute to attract the visitors. The images in the home pages are presented in black and white for address attention over the sections and information as well as maintain equilibrium among the elements.

5. Target group of the web site

In order to identify the expectations and interest of potential visitors of the web site the team have created profile of the target audience. The profile consists of following elements: Demographic characteristics; skills and digital experience; geographical location; psychological characteristics; and lifestyle choices.

Demographic characteristics. The gender has an equal proportion of female and male visitors 50/50. The age groups corresponds a range between 15 and 70 years old. For visitors, the educational level required is basic education but for the user the necessary level is secondary education. However the user have to be familiar with the process of cataloging for archives to use the Dublin Core.

Skills and digital experience. One of the objectives of the site is to establish the bilateral communication. It demands from the users an adequate knowledge in the basic informatics technology. Besides, in order to participate in enhancement of the content, potential visitors need to have some specific Computer competences. They should be able to add new items helps to the “Contribution” plugin. They have to be familiar with the process of fill form as well as add multimedia files. Also

Geographical location. As the site content is represented in English, the geographical location of the target group became unlimited. Nevertheless, the fact that there is a strict restriction due to the cases studies (countries), there is probability of more frequent visits from: France (Paris), UK (Glasgow), USA (Philadelphia), Italy (Milano), Germany (Berlin), Austria (Vienna), Portugal (Lisbon), PRC (Hong-Kong), Australia (Melbourne), Turkey (Istanbul), Egypt (Alexandria),

Psychological characteristics: Social group affiliation. Students, professionals (fields: engineering, urban transportation, cultural studies, art and history), as well as tramway enthusiasts. Helps to the diversified way of communication the site tends to raise attention not only of professionals but also common of visitors. For instance, one of the site sections will represent a big photo-video database, where information will be transferred to the common tramway amateurs through the illustrative content, while professional audience will be attracted via deep historical analysis made from the cultural, technical, engineer and architectural points of view.

Lifestyle choices. The type of people that used to be tramway lovers, amateurs of urban transportation or worked as transport engineering, history of art, culture, In the he second level of the target audience are urban transport and tramway associations, museums, as well as institutions and local communities of defined case studies. By institutions it is considered the high educational organizations, schools, governmental and nongovernmental organizations that could use the

platform as a means of learning. Tourists of the cities of study cases are also included in the potential target group.

Target audience wants, needs and expectations. In order to create a good content, it is important not only to define the target audience, but also to be clear what type of content and style they will value: Attractive, professional looking site; the credible information and valuable analysis; possibility to express their point of view and participate in discussions; past research system; easy-to-use site navigation; possibility share information by the Omeka platform; articles about tramway in order to return to the site.

CHAPTER II

General context of the individual part of collective project

Résumé

Un des facteurs le plus influent dans le développement de la forme physique de ville contemporaine fut le système des transports. Ainsi, le tramway a joué un rôle important dans le développement urbain. Ce chapitre a comme le but d'introduire le sujet de la partie individuel qui se focalise sur l'impact mutuel de tramway et du système urbain. Donc la partie individuelle du projet couvre la variété des sujets sur l'intersection entre le tramway et la ville.

Le travail individuel du projet se basé sur deux parties: la recherche sur le sujet et le travail sur le développement du site web. Les deux principales sections du site web sont «Collections» et «Expositions». La partie individuelle des «Collections» se focalise sur les trois thèmes principaux: les pionniers de tramway ; les transformations urbaines ; et, des réseaux de tramways. Cependant, les «Expositions» mettent l'accent sur trois études de cas: Paris, Milan et Lisbonne. Chacun de ces trois cas, était abordés selon les quatre phases d'évolution de tramway. Le première période qui couvre le laps de temps entre 1750 et 1850 porte sur les villes avant réseaux tramway et touche la période d'introduction de tramway au cheval. La seconde période explore les images urbaines pendant l'électrification du tramway entre 1850 et 1920. La troisième période entre 1920 et 1970 couvre la phase du développement de transport en moteur et de la disparition du tramway des rues urbaines. La dernière partie de 1970 jusqu'à aujourd'hui décrit le retour triomphal de tramway dans les villes.

1. Introduction to individual part of the project

Transportation technology and organization have had a major effect on the urban landscape and city population. This was the case in many cities when construction of new tramline resulted in the development of new areas with commercial, industrial and residential activities leading to the economic growth and population increase in the entire urban areas. In the same time the tramway acted as a constraint of urban growth: When initial passenger circulation was slow, it was not possible to develop a city that would operate coherently over a large area. All major activities involving contacts among people had to be located within the walkable distances.

Public transportation is a structural elements which attract around itself new quarters and ensembles. ¹ Transport systems shapes the urban environment by the accessibility they bring to urban sites; by the influence on distribution of activities that augment urban dynamic; by the influence on travel behavior and life styles; by the impact on the local economy, on institutions and on the quality of environment. But at the same time urban environment also influences or rather constrains the choice of transportation options. ²

The tramcar has played a significant role in the development of many cities. Perhaps the single most influential factor in shaping the physical form of the contemporary city was transportation technology. The evolution of transport modes from foot and horse to mechanized vehicles facilitated tremendous urban territorial expansion. Workers were able to live far from their jobs, and goods could move quickly from the point of production to market. Increasingly, transportation networks became the focus of planning activities. To accommodate increased traffic, municipalities invested heavily in widening and extending roads.

Besides, tramway has been given inadequate attention in street network designs. In cities with fascinated plantings, central medians were provided for separate streetcar right of way, which had increasing importance when street congestion get intensified. In most cities, however, tramways were considered as one of the user categories on regular streets; no special facilities were provided for them. In some cases, tramway station were used as focal points for street networks and for feeder transit convergence. Various commercial and office complexes and other intensive land uses have often been built around tramway stations.

Comprehension of intricate relationship between the city and its transport system suppose the application of suitable expression. Indeed, one of the main issues of the personal work within the collective project was definition of appropriate expression that can fully express the subject. In the

¹ VIGARIE, André, Le tramway de Nantes : un exemple d'utilisation des transports en commun pour contrôler et orienter l'urbanisation, Revue de géographie de Lyon, Volume 58, Numéro 1, 1983, pp. 41-50

² MOISE M., WEGENER M., the Report of the 17th Round Table on Transport Economics. European Conference of Ministers of Transport, Paris 1972, 18 p.

beginning of research it was decided to explore “urban impact” of tramway, the term, nowadays widely publishing and well anchored in political circles. Nevertheless, during the research process it was identified that the urban transportation, including tramway, don't have direct impact on urban tissue of city. Albeit both, transport and urban structure, are mutually effect each other. For example, how new tramway line can cause demolition of old buildings and enlargement of streets, just in the same way urban growth of city can encourage construction of new tram lines and network enlargement. Most frequently, amplification of tramway networks is predicted by political desire to establish balance in urban tissue by reducing territorial inequalities, or contrary to accelerate accessibility of the most dynamic areas. Hence, for the variety of transport systems environment such as tramway, routes of public transportation, in our case tram ways, are necessary but not sufficient condition to produce direct effects on urban environment.

The individual part of the project covers all possible subjects on intersection between tramway and city. Individual work of the project have two part: research and work on development of the website. The main two sections of the website which required more time investment are Collection and Exhibition. Within the framework of the group project the Collection of “Congruence of tramway and city” includes three main topics: Tramway pioneers, urban transformations and tramway networks.

Tramway pioneers. Each historical event has its own hero. Tramway as an urban transport system is part of our everyday life and it helps us to remember the people whose names and personalities we usually do forget. The planning aspects of transportation have been always related with the urban planning, involving technical decisions and political factors. Urban transportation actors introduced the tramway in order to provide the safe, efficient, rapid, comfortable, convenient, economical, and environmentally compatible movement of people and goods. This objective primarily implies planning, design, construction, maintenance, and operation of transportation facilities. The collection “Tramway Pioneers” tends to transmit to the tramway amateurs the history of tramway inventions by exploring the life story of concerned civil engineers, architects and entrepreneurs.

Urban transformations. The collection aims to raise attention to the reciprocal influence of the tramway and the urban landscape. Over the centuries, development and improvement in life standards of urban population has been strictly related to the improvement of urban transportation systems. This comparative analysis highlights the importance of development of urban transport systems which shaped modern cities in the XIX and XX Centuries. Tramway allowed city expansion and offered to the population urban mobility and the possibility to get easily to the work place. The tramway, which appeared between 1850 and 1860 in the largest cities of Europe and the United States, definitively brings efficiency and modernity to public transportation. So called

“manager of public space in the heart of the cities” were one of the driving forces in the transformation of urban landscape.

Tramway networks. The tramway networks have always been changing in relation to several factors: urban policies, socio-demographic issues, economic changes, technic development. For example, in the XIX century, the rapid growth of towns and cities led to numerous changes. One of these issues was the provision of an adequate transport network to carry workers to and from their work place in an efficient and economical manner. Overcrowded streets and traffic jams caused by horse-drawn vehicles were relevant problems since the half of the century. From the very beginning of the railway development, the idea of expanding a railway into and through an urban area had been suggested. Therefore, the collection tends to describe the factors of tramway networks’ sprawl and decline.

The second time consuming section of the web site is Exhibition. This part of individual and collective work focus on three main case studies: Paris, Milan and Lisbon. Each of these three cases divided into four phases according the tramway evolution. First period covers the time frame between 1750 and 1850 and gives the pre-tramway image of the city and the period of first horse-drawn tramway introduction. The second period explore urban image during electrification of tramway between 1850 and 1920. The third period between 1920 and 1970 covers the phase of motor car development and disappearance of tramway from the streets. The last part from 1970 up today describe triumphal comeback of the tramway to the cities.

2. Congruence or urban impact?

It was discovered that the scientific literature also puts in doubt the belief in “automatic impacts” or “structural effects” of transport system on urban space. The determinism of the role of transport networks is highly criticized by many researchers. Some studies argue that urban transportation can only make amplification of preexisting urban trends (Berion, Joignaux, Langumier³, 2007).

According to Offner⁴ (1993), there is no linear causality between a new offer of transportation and economic, spatial and social transformations in the urban space. Beyond, instead of commonly used “urban impact”, Offner popularize the concept of “congruence” by referring specifically to

³ BERION P., JOIGNAUX G., LANGUMIER JF, L'évaluation socio-économique des infrastructures de transport : enrichir les approches du développement territorial, Revue d'Économie Régionale et Urbaine n°4-2007, pp.651-676.

⁴ OFFNER JM, Les «effets structurants» du transport : mythe politique, mystification scientifique, L'Espace géographique, n° 3, 1993, 25-32 p.

the idea of mutual adaptation of transports and city planning taking into account previous structural trends.

Indeed, the influence of new tramlines have been more evident in the XIX century. It followed by rapid industrial development of the cities were tramway allowed localization of factories far from city center and subsequent development of suburbs. But during the more late periods of tramway history, the other more rapid types of urban transportation as car and subway appeared. That's why we cannot be confident that the tramway always made direct impact on the change of urban tissue. Later it was the urban politic changing urban structure, and afterword constructing new transportation systems for new residential or industrial zones of growing cities.

The results of research showed the relevance of this position. Thereby this paper uses the terms such as "effect", "influence", and "congruence" instead of "impact" which means the direct and not reciprocal relation with urban planning.

The characteristics of congruence between tramway and city has changed through the history according to tramway system development. Evidently, horse drown tramway and today's light railway have had different process of integration in urban landscape. That's why by analyzing congruence between tramway and city it was important to identify four main periods of tramway system development: 1750-1850 period corresponds to Omnibus and horse drown tramway routes development in majority of European and American cities; 1850-1920 the period of transition from mechanic to electric power use and the beginning of mass urban transportation; 1920-1970 is the time frame the pic of tramway network spread and sudden decline because of invention of motor. From 1970 up today is a new era in tramway life, era of comeback in urban streets.

The individual part of the group project is concerned with three aspects of historical research, namely, urban changes, tramway network growth dynamics and their reasons, personalities who were the main initiators of tramway introduction to the cities and its technical development. We analyze the relationship between the tram systems and their environment through selected case studies.

At the city level, the geographic scope of the study is limited to 14 cities including 3 case study cities. The choice of cities is driven by the premise that the city had remarkable experience in tramway integration in urban tissue.

The cases have been selected through a list of criteria to allow a relative homogeneity of the situations in contrasted territorial contexts. The construction of an original method aims at targeting the expected or observed opportunities of tramway projects without producing too rigid quantitative measures and involving causality relations unsuitable for scientific approach.

Main questions:

1. How tramway inserts into an urban centrality model and how they are adapted and taken into account in the structuring urban city?
2. What are the patterns of tramway effect on urban landscape?
3. How tramway changes urban landscape in the aesthetic, physical and social sense?

The subject of the individual part of collective work was chosen for three reasons. Firstly, found that analyzing tramway as an integral part of the city is essential. As a graduate in tourism management, it was important for me to see tramway not only as peace of heritage, but analyze its presence in the relation with urban space. Therefore, it is important to see the practical meaning of tramway that manifest trough integration with the city. Secondly, refers to personal reasons. Everything that was related with the topic of urban planning and architecture always awoke my interest. By choosing this topic to discover, I was intended to enrich my knowledge in the field. Third, in my personal project I also analyze the urban context of post-socialist city, and that seemed me a good option to deepen in the field and integrate this knowledge in both works.

3. Methodology

The individual part of the project uses both qualitative and quantitative data. The quantitative data came from socio-economic annuals and publications from transport companies.

The qualitative data contains information collected from seminars dedicated to tramway, correspondence with professional of urban transportation, tramway web site administrators and analysis of primary and secondary sources.

Methods of data collection. The individual part of the project used search engines such as Baeder, Discusmedia, CNUM, Jaconde, etc. in order to find collections of historical maps, schemas, and images. Details of currant road network were derived through the analysis of the satellites road maps. The tramlines and urban transportation maps from different periods were obtained from Baeder, Discusmedia and CNUM digital image collections and electronic archives.

Methods of data analysis. The research uses comparative historic analysis in order to identify differences and similarities of tramway network tendencies throughout the tram history.

The study as well uses maps analysis. This method is used to follow changes in tramway lines layout on urban tissue. In order to implement this methodology the research uses both historic and current maps of urban transportation.

CHAPTER III

Congruence of tramway and city

Résumé

L'évolution du tramway dans le contexte urbain peut être regroupée en phases. Ainsi, la partie individuelle du projet est organisée en fonction de ces phases. Première période couvre le laps de temps entre le XVIII et XIX siècle. Cette partie se focalise principalement sur l'organisation du transport urbain avant le tramway et considère la première forme de transport public et ses cohésions avec les villes. Ici, nous avons tendance à souligner qu'il est indispensable tout d'abord commencer par les origines du tramway avant d'aborder le sujet principale.

La deuxième phase couvre le temps entre XIX et XX siècle. Cette partie lie le développement de tramway en relation avec les principaux processus de restructuration urbaine de ce temps. Le développement du réseau de tramway au cours de ce période a été généré par les reconstructions urbaines, la croissance des banlieues et les conditions sociodémographiques qu'avait l'impact sur l'expansion du réseau.

La troisième partie décrit le déclin du tramway comme un mode de transport de masse à partir de la première moitié du XX siècle. Le déclin du tramway a été causé par deux facteurs principaux: la destruction des villes après deux guerres et le développement des véhicules à moteur.

La dernière partie commence de la seconde moitié du XX siècle jusqu'à nos jours. Cette partie se focalise sur le processus de la revitalisation de tramway dans le paysage urbain pendant les dernières décennies. La période de la renaissance de tramway l'a défini comme un outil de contrôle urbain et attribué une nouvelle signification selon les tendances actuelles.

1. Predecessors of tramway in urban streets

Before beginning of 19th century most of the people in European cities had never taken a coach between towns. Only wealthy citizens could use coaches. First form of public transportation and predecessors of tramway was “omnibus” named from Latin word which means for "for all". Omnibuses were a French invention and have a curious history, less well documented than the history of the buildings in Paris. The story begins, not in Paris, but in Nantes, where Stanislas Baudry launched the first urban transit service. His request to operate in Paris took long time to get approval. The authorities were cautious about adding large vehicles to the already congested streets. However, Baudry and two partners were given permission to operate up to 100 vehicles. After that the authorities would set the routes.⁵ In 1928 Baudry already established Company of Omnibus in Paris.

When Omnibus enter to Paris there were no fixed stops along the route and passengers simply signaled when they wanted to get on or off. The most heavily used route went between the Place de la Madeleine and the Place de la Bastille by way of the grands boulevards. In fact, the majority of passengers were middle class, since aristocrats had their own carriages, and the very poor found even 25 centimes too get in.⁶

Until the unification of Italy Milan also had no urban public transport service, except for a few horse-drawn carriages, definitely insufficient for the growing needs of the citizens. The situation was much better, however, in terms of the connections between Milan and Lombardy municipalities, thanks to an extra-urban road system that, in the nineteenth century, was the envy of the rest of Europe. The road network was in fact the best in Italy, and had a good 21,600 kilometers of connections. In June 28, 1861 a notary Bolger formed limited company of the Omnibus for the city of Milan (SAO).⁷ On January of the following year, in the Piazza del Duomo something different from the usual carriages appeared with in the mist of this cold morning. The newest and most modern green omnibus were proudly displayed. The interior of each vehicle was lighted by a large oil lamp and the number of the seats were eight. The service met immediate success among Milan population. Terminus of the 3 first omnibuses in Milan, operated by SAO was in piazza Duomo, passing by Porta Ticinese, Porta Venezia, Porta Garibaldi. In that time Milan had 239.000 inhabitants.

⁵ CAMPSIE, Philippa, The invention of the omnibus, Parisian fields [Online], accessed on 08 January 2016, URL: <https://parisianfields.wordpress.com/2014/05/11/the-invention-of-the-omnibus/>

⁶ PAPAYANIS, Nicholas, Horse-Drawn Cabs and Omnibuses in Paris: The Idea of Circulation and the Business of Public Transit, Louisiana State University Press, 1996, 46-52 p.

⁷ COLOMBO, Mauro, I trasporti pubblici milanesi: dal cavallo alla metropolitana, Storia di Milano [Online], accessed on 21 December 2015, URL: http://www.storiadimilano.it/citta/trasporti_publici.htm

While designers theorized on transport, the SAO continued to enhance the service of omnibus with new cars of 14 and 16 seats, retaining 8 seats cars only for the short and middle distances. In 1864 the Central Station (now Republic Square) began to work, and all of the omnibus were modified depending on such railway hub able, to reverse the concept of transport and trade. The cars number of S.A.O. circulating at that date achieved 35 and 11 lines, all with terminus in Piazza Duomo.⁸ Indeed, Omnibus Companies played significant role in development of Networks. In 1855 Paris saw the shift of power from Baudry's Company to Compagnie Générale des Omnibus (CGO). In order to prevent traffic expected from Universal Exhibition CGO had to develop the network as fast as possible. New omnibus network already went to exploitation in 1 January of 1856. The removal of many competing lines led CGO retaining 25 lines that are identified by the 25 letters of the alphabet; they are placed on the city map circular way from the A serving Passy to Z leading to Grenelle. In addition, some lines serving the inner suburbs are also taken up by the CGO. The new rational organization of the network rapidly got success in terms of traffic and growing economic conditions of the company revenues.

The first transport services to ply for indiscriminate hire along a 'fixed route which inaugurated in the 1820's, although it was not until 1829 that George Shillibeer's operations assured for the omnibus an encouraging future.' His buses ran from Paddington Green to the Bank at fares of one and sixpence inside and one shilling outside. Such fare levels, and his provision of newspapers and magazines for passengers, serve to underline the fact that his service was public in theory rather than in practice. Regardless of the objections of "the aristocratic and wealthy residents of Paddington Greats their area was soon a centre of the omnibus business for upwards of 195 omnibuses daily ply from that suburb to various parts of London. To be fair to the omnibus, it worked under many disadvantages. In London the narrowness of City streets forced the vehicle to b. equally narrow and limited its carrying capacity to around twenty passengers. The constant stopping and, starting to pick up and set down passengers at will, either the passengers' are in some cases the drivers placed heavy strain ,on the horses so that each vehicle had its own stud of eleven or twelve animals to be interchanged throughout the' working day.

2. Tramway network development

The history of urban transport tells the story of how the citizen repeatedly escaped from the city and how the city in turn recaptured its recalcitrant inhabitants. The town of the nineteenth century

⁸ OGLIARI, Francesco, Milano in tram - Storia del trasporto pubblico milanese (Opuscolo). Milano: Hoepli. p. 6-7.

was dirty, unhealthy and noisy; it was the home of struggle, indifference, loss of purpose, loss of meaning, it affected the rich only incidentally. People could move between their town and country houses as business dictated, and those only slightly less fortunate stayed in their clubs on occasion or travelled in daily by private carriage or short-stage coach.

In the second half of XIX century due to an increase in street use by a growing population employing horse carriages and other forms of transportation, as horse-drawn tramway, a more efficient network design became a major concern for city planners: new urbanization projects, layered on top of the medieval city, were proposed to include new orthogonal streets based on wider and longer street segments. The transport provision in XIX century cities is strictly linked as well with mass urban growth and housebuilding programs.

2.1. Mass urban reconstructions

The transport provision in XIX century cities is strictly linked as well with mass urban growth and housebuilding programs. Thus the period of introduction of first tramway in Paris corresponds to the Second Empire period and Haussmann's renovation.⁹

In city, where the war of 1870 completely disorganized transport operations in the city, the siege of Paris had completely removed omnibus service from suburban area. The Paris authorities were getting desperate, however, as congestion increased and more and more tourists flocked to the city, attracted by the great exhibitions of 1855 and 1867. The omnibus service therefore appears less adapted to the increasing demand for transportation. In this way the 1870s saw the introduction of the tram in Paris.

The growth of Paris during the Second Empire made some form of mass transit almost inevitable.¹⁰ Annexing the outer districts in 1860, moving the population toward the periphery, and restructuring central Paris into a nonresidential central business district-these changes made commuting a fact of life. Moreover, experiments in American cities suggested that tramways were the best available urban mass transit. Eventually, as a more significant effect of Haussmann's renovation on tramway network development we can mention following facts: first, thanks to the construction of large avenues condition of traffic circulation in the city was improved; second, during the time frame between demolition and construction of new buildings the dramatic increase in rents have been observed.

⁹ MICHEL C., CAMILLIER P., Haussmann: His Life and Times and the Making of Modern Paris, Chicago: I. R. Dee, 2002 2002, 50 p.

¹⁰ PINKNEY, David H., Napoleon III and the Rebuilding of Paris, Princeton University Press, 1958, 245 p.

In Milan, the mass urban renovations brought almost to the same results of urban transit development. Until the late 19th century, the bulk of the street network of Milan was also still concentrated inside the medieval wall ring, and it is only at this time, with the first town-planning scheme as the “Beruto plan”, that a new urbanism takes place throughout the city.

The Beruto plan of 1884 is the first in Milan explicitly drafted with the objective of rationally and sustainably designing the city and its street network. The main plan was based on a decentralized urban growth model, which had started in the 1870s with the placement of factories outside the city core in an area called Corpi Santi, connected to the city by a network of wide avenues.¹¹ The street network grew denser, with a minimum street width of 14 meters and a total road surface, built by both the city government and private individuals, of 3.8 million square meters at the end of the century. In the 20th century, Milan expanded dramatically, the central core area did not change substantially from a morphological point of view. Almost all the built environment outside the Bastioni is the result of the fast and massive urban expansion that started in the Industrialization era after the 1870s, the downtown area displays most clearly the spatially and temporally layered nature of the city. Notwithstanding the fact that in the second half of the XIX century Milan starts to adapt the new urban planning, we cannot certainly talk about the direct impact of the tramway. In that case the increase in street have been effected by a growing population employing tramway and many other forms of transportation as horse carriages for example.

In London, the housing boom of 1860’s threw great strains on the system of omnibus. Growing suburbs demand increased service frequencies as high as one bus every three minutes. The nature of the business was changing. Omnibus operators were facing a raising demand and an inability to meet this demand because horses were too expensive or simply not available. Here was excellent opportunity to utilize the economies of the tramcar. The 1860’s railway boom provided the nascent tramway industry with its tree primary requirements. However such technical advances were overwhelmed by the social and physical characteristics of London. The Metropolis had neither the poor street surfaces of American cities nor the broad avenues of Paris, and the London General met the opposition of a carriage owning Parliament. Tramway promoters to defend the tramway used the argument of urban benefits of the invention. For instance, Nobel widened his argument to the level of urbanization in general: “the tramway provides locomotion without disturbing a single dwelling, thus obviating the overcrowding which is inevitable result of railway demolition”.

If in all above mentioned cases the mass urban reconstructions were drown from esthetic and political reasons, in the case of San-Francisco the reconstruction came from natural disaster. Effect

¹¹ TUCCI, Michele, For an urban history of Milan, Italy: The role of Giscience, Dissertation PhD, Texas State University-San Marcos, San Marcos, Texas, May 2011, 244 p.

of the huge earthquake and a fire of April 1906 destroyed 28,188 buildings and really changed the city. For one thing, the old South of Market, a working-class area of single-family homes and flats, went up in flames. For another, the big fire opened up property in the rest of the city. Transit impacts in the city came back in a huge way, mostly along the lines of the brand-new Municipal Railway, which started in 1912 with electric streetcar line out Geary Street to the Richmond District. Three years later, the city hosted the Panama-Pacific International Exposition and built two Muni streetcar lines and the Stockton Street tunnel to serve it. When the fair ended, the site was turned into the Marina district.¹²

2.2. Suburban growth

Starting in the post Napoleonic War years, the desire for suburban living permeated down through urban society. Suburbia, however, requires several attributes of its inhabitants - in the first instance sufficient income and time to spend on daily commuting. This fact alone explains the rise of the well-to-do omnibus suburbs of the 1840's and 1850's, but at least one other factor must be taken account of in later transport advances. Tramcars ran on tracks laid into the streets and the upkeep of these streets was one of the major responsibilities of local authorities.

Throughout the nineteenth century urban areas sprawled at their edge and imploded at their centers. It became more and more difficult for inhabitants to reconcile the two functions of their towns as place, to live in and place to work in. An expanding commercial nexus was spreading over city centers and amplified existing congestion which in turn increased the concomitant sanitary and social problems for both rich and poor. The industrial sector of the capital's suburban belt, the most important initial cause of suburbanization, began to grow before the middle of the nineteenth century. Although it established itself as a suburban industrial economy part yet distinct from urban areas.

Electrification of trams led to significant lowering of population density and the expansion of the suburbs.¹³ Growth in mobility led to more outward expansion. For example, in Boston if in 1890 the average trip length were 7 miles radius, mixed land uses, in 1900 it counts 10.5 mile radius, industrial and commercial core surrounded by residential districts.¹⁴

¹² NOLTE, Carl, Growth of city neighborhoods [Online], SF Gate, 2009, Accessed on 12 December 2015, URL: <http://www.sfgate.com/travel/article/Growth-of-city-neighborhoods-3217001.php#photo-1903066>

¹³ McKAY, John P., Tramways and trolleys, the Rise of Urban Mass Transport in Europe, Princeton University Press; 1St Edition edition, October 21, 1976, p. 208

¹⁴ HANDY, S., A little history of urban transportation, handbook, University of California, Davis, 2014, p.11

In Paris it was almost the same image of tramway network expansion. After the city expanded to its present boundaries by annexing the inner suburbs in 1860, development had already begun in the 1840s.¹⁵ This period created a crucial element of industrial suburbia, a modern commercial transportation network. Nonetheless, industrial transport, especially by rail, supplied growing industrial suburbs just as, around the turn of the century, mass transit swelled the population. In the north, the opening of the Saint-Denis canal in 1821 and the canal de l'Ourcq the following year linked the northern suburbs with the river transportation network of the Seine as a whole. The southern suburbs of Paris industrialized later and to a lesser extent than those to the north, where heavy industry had established itself by the late 1870s. Except for Ivry and Charenton, the southern suburbs began to develop a heavy industrial sector only in the 1890s.

However, not until the twentieth century did the Paris area develop a major residential suburban sector in Bobigny and other exterior communities of the Department of the Seine. The transformation of Bobigny was part of the general development of a suburban belt around Paris after 1860. Certainly, Paris had suburbs well before this date, for instance, the Latin Quarter. However in the late nineteenth century suburban area of Paris increased to cover most of the Department of the Seine. The Parisian housing crisis and the development and restructuring of the metropolitan economy contributed to the phenomenon of mass transit. It was exactly this mass transit system which by allowing extension of suburb area, was solving the Parisian housing crisis. As a result low income families were obliged to move from the center to the outer neighborhoods of the city, where rents were lower. The population of the first and sixth arrondissements, where some of the most densely populated neighborhoods were located, dropped, while the population of the new 17th and 20th arrondissements, on the edges of the city, grew rapidly.¹⁶

In the case of Britain and Wales, the decade of concentrated urban change altered dramatically economic and social cost structures so that eventually the need for some form of higher capacity public transport mode was recognized. It was while such trends were in their infancy that the tramcar was introduced into Britain, and as consequence the affair ended in glorious disaster. As the central area ceased to be so residential, pressure was placed on the outer shells of towns to absorb more population. The central parts of Britain cities thus through the 50' and 60' became gradually more tidy, business-like and consciously impressive. The quantity of people living in them gradually diminished, also the overcrowding of those living in them usually got worse. So, by the 1860' the Victorian city had reached limits of its growth under existing transport restraints.

¹⁵ STOVALL, Tyler, *The Rise of the Paris Red Belt* [Online]. Berkeley: University of California Press, 1990. P.249 <http://ark.cdlib.org/ark:/13030/ft5r29n9vt/>

¹⁶ McKAY, John P., *Tramways and trolleys, the Rise of Urban Mass Transport in Europe*, Princeton University Press; 1St Edition edition, October 21, 1976, p. 208

In Glasgow the Industrial Revolution during the nineteenth century also allowed city to grow rapidly. Large areas of tenement housing such as Partick, Govan and the Gorbals were built to house hundreds of thousands of workers. In this way in the XIX century Inner city was constructed. On the one hand, this fact allowed development of tramway network, and on the other hand, this development of urban transportation in turn permitted city's further growth.¹⁷

2.3. Socio-demographic preconditions of network sprawl

When we speak about urban structure of the city, one of the essential point to mention is demographic situation in the city. The role of demographic factors such as migration, structure and location are so important not only in the sense of some changes that can occur with the scale of urbanization, but also is essential in its qualitative features. Necessities of population were always the main generator of all kind of discoveries and innovations. In our case, people needs in mobility gave birth to the great discovery of the century, to Tramway.

Before the nineteenth century, rural population was dominant, amounting typically of some 70% to 90% of the total population; following the period of intensive urbanization, which in most countries is still continuing, this share has now fallen to approximately 30%.

However, in the end of the nineteenth century, the population of some cities began to grow in very different rhythms, slower in the center, faster in the periphery, which needed new tramway connections. It was the case of Lisbon where location of commercial points were one of the main tools predicting direction of tramway lines. The highest concentration of shops remained in the city center, but gradually they began to move to other areas in larger numbers. In this growing and industrializing city, working class housing was built away from the center, which was also the main political and cultural milieu of the city. Both features had a very clear geographical link with the rising rental value of the dwelling, visible as one moves away from the central streets and the recently built boulevards. But the change in the geographical distribution of the shops was also caused by the demographic change in the city. Shops selling everyday consumer goods or low value products, those accessible to the working class, were now moving away from the city center. The center reinforced its almost exclusive identity as an area of services, and of shops dealing with clothes, accessories and luxury goods. Despite these changes, areas where the working class and the petty bourgeoisie were concentrating were not far from the economic and political center and

¹⁷ OHAJNA A.D., Lines of class distinction, PhD thesis, Edinburgh University, 1974, 232 p.

in moments of crisis (i.e. contention against the monarchy or strikes during the republican regime), these social groups quickly move to the old bourgeois city to make their voices heard.¹⁸

Paris from the middle of the XIX and the beginning of the XX century saw great demographical growth. This growth was the result of the annexation of the inner suburbs, which became the 11th–20th districts. The new urban form was predicted by industrial development and by its resulting consequences as a need for workers and migration process. New citizens created a need for a mass transportation to get to their job. This kind of transportation should meet the requirements relatively cheap price and roominess in the same time. The Omnibus did not correspond to any of those requirements. These conditions were crucial to adopt a new form of transportation, as a tramway.¹⁹

In the case of Britain and Wales where almost half the population lived in large town in 1871, a lot of people did not seem to like doing so. The situation was further aggravated by the physical constraints set on the size of towns by the maximum commuting distance, which for the majority of people until the 1870's was a manageable walk of say two miles to and from the center. Indeed, if no such restraints existed, then by definition, there could not have been urban congestion. No provincial town apart from Newcastle had a municipal area, overlooking the fact that municipal areas and build-up areas are not closely related, and assuming the shape of the town to be circular the radius of the circle of 6000 acres is roughly 1,7 miles. This fact gives an indication of the commuting constraint and should be considered along with the le Corbusier observation that few urban trips are affected in straight lines.

The tramcar was being out forward as the means by which the middle-class could escape the city with the clear conscience. In the very beginning tramway saw as a being used in the first instance by small clerks, by small traders, warehouses-porters, artisans, and the better class of mechanics. The increased overcrowding both in living and travelling accommodation magnified the demand for middle-class commuting; its financial collapse released the technical and legal resources; and the changing nature of railway meant that capital was available, in many cases made so by people eager to leave for distant suburb.

Thus in the tramway era of 1860 to 1930 any social group's ability to realize out-of-town leaving depended not only on the range of its disposable income and time budgets but also on the degree to which it could influence and manipulate the local political process to approve new tramway routes and extensions. These preconditions for suburban living made the tramcar an essentially

¹⁸ ALVES, Danie, ALCANTARA Ana, Urban growth, retail trade and working-class residence: changes in Lisbon's social space in the late nineteenth century, Presented at the European Social Science History Conference in Vienna, April 26, 2014, 27 p.

¹⁹ STOVALL, Tyler, *The Rise of the Paris Red Belt*. Berkeley: University of California Press, 1990, 18-20 pp.

middle class form of transport which would only decay when the middle classes withdrew their patronage for it in the streets and their allegiance to it in the council chamber.

3. Decline of tramway network

The Golden age of tramway continued from the beginning of XX century up to the interwar period. By the end of the 20s it became clear that the period of tram domination coming to the end. Counting from these years tramway network start to decrease in most of the cities with various temps. This tendency was predicted by two main factors in the World history. First, the rise in car ownership in the 1930's witnessed just this phenomenon and the tramcar began its disappearance from the urban scene, not because it had become an inefficient mass mover but because its fixed line of motion made it incompatible with the flexible traffic flow of the private motor car. Second, the consequences of the First and the Second World Wars were too destructive that it couldn't don't leave the mark on tramway development in some cities. Moreover, the interwar period characterized by preponderance of suburban building which means that housing and transport functions are closely linked. It commuting comprised the main demand for transit, with obvious factors like economic conditions and leisure use introducing secondary influences. Therefore, the private housing estate killed the tramcar, because the people who bought cars were the same people as those who bought new houses. It not only took away its custom but relied for communication on an incompatible competitor. The crux of the matter was that public transport vehicles were becoming a considerable nuisance to the more powerful sections of national and local communities.

3.1. Tramway network in intersection of two wars

The final effect of the First World Wart on the urban transport industry, and probably the most important was the highlighting of urban housing shortage and slum conditions. The 'Homes for Heroes' ideal resulted in the growth of municipal housing estates and places great strains on the transport network. These satellite suburbs were built some miles from city centers and exhibited very marked rush-hour demand patterns - most trips in the morning went one way, most trips in the evening, went the other way. The question of demand density was being distorted and tramway extensions to these areas were difficult to justify since track would appear to be underutilized for most of the day and average revenue earnings might not cover total charges. Thus, in the interwar

period the preponderance of suburban building means that housing and transport functions are closely linked. I commuting comprised the main demand for transit, with obvious factors like economic conditions and leisure use introducing secondary influences.

In London, in 1926 municipals introduces Omnibus Bill into Parliament as a means to cheapen and facilitate their procedures for gaining powers to run buses now that new housing scheme transit demands were becoming acute. As a result of the new council house estates new buses were competing directly with old, worn-out tramcars, and in the economic climate of the interwar years a policy of gradual substitution of buses for trams appeared quite desirable. The industry also needed a high capacity, low capital cost vehicle so that the capital investment wastage of the slack times was at a minimum through achieving the lowest capital commitment per passenger.

Thus, from 1929 public transport in general and tramways in particular declined in the urban political order of things. The main concentration of tramway closures over the years 1929 to 1932 cannot be criticized. These smaller systems had dubious grounds for operating tramways in the first instance, and in addition, during the interwar years smaller towns did not experience suburban housebuilding to the extent that a centrifugal commuting problem became critical.

Therefore, the final effect of the First World War on the urban transport industry, and probably the most important was the highlighting of urban housing shortage and slum conditions. The 'Homes for Heroes' ideal resulted in the growth of municipal housing estates and places great strains on the transport network. These satellite suburbs were built some miles from city centers and exhibited very marked rush-hour demand patterns - most trips in the morning went one way, most trips in the evening, went the other way. The question of demand density was being distorted and tramway extensions to these areas were difficult to justify since track would appear to be underutilized for most of the day and average revenue earnings might not cover total charges.

The consequences of the Second World Wars had as well a major impact in tramway network development. However it was mostly caused by physical destruction of lines and in some cases by management changes in tramway companies. It was exactly the case of Berlin.

During blockade of the city its tramway network was devised in two part like the city itself. Following split of Berliner Verkehr Gesellschaft (BVG) into BVG-Ost and BVG-West operating parts, the network and the operation of the lines were also divided between these two entities. Network of BVG-West continue to develop, and contacted 432 km of line in 1952. Meanwhile, reconstruction of East Berlin led to the tramway line removing from the city center just in front of the municipality. In March 1949 11 inter-sector lines were raised from the passage of Russian-Western line. In January 1967 there will be no more trams on Alexanderplatz. However, complete elimination of the city's tram network was neither planned nor even discussed and the tramway was still high capacity transportation for suburb area that started to grow rapidly after 1961. In the

late 1970s, some new tramway sections were built in order to connect the new housing estates Marzahn, Hohenschönhausen, and finally Hellersdorf to the city's tram network. After reunification of the city, Berlin became unique city that get part of the Tramway Network in expansion.²⁰ There was fairly the same dynamic of tramway decline in another cities of Germany. For instance, in Munich after World War II only twenty tram lines remained of 444 trams. Only in 1956 the first new tram line after the war was opened. In Milan World War II caused also serious damage to the network, but the damage was soon repaired. As well after the war, trams came to be seen as an outdated and inflexible form of transportation for Milan.

However the tendency of tramway network decline is more refers to West European and South American cities. For instance, there was not significant decline of tram after World War II, except cities where tramways were replaced by trolleybus. However, the era of significant decline of tram network in these cities came in the end of the XX century. At that time Europe and North America have experienced streetcar renaissance, gradually developed into the second tram boom.²¹ In frontline cities tramway had a role of arms and amenity transportation.

In cities located farther from epicenter of the Second World War such as Montreal, the World War II breathed new life into the tramways. The Transit Controller appointed by the federal government in 1941 required the MTC to limit its use of gasoline and tires. The company was thus forced to return its old tramways to service and purchase a few more second-hand. In 1944, it also put into service tramways. So it was an aging fleet of tramways that served Montreal through the Second World War and made it possible to achieve a peak ridership in 1947 of 398,349,773 passengers transported during the year.²²

3.2. Urban and suburban rivals of tram

The beginning of XX century characterized by rapid development of motor cars. Buses were representation of progress, while tramway start to be regarded as a mode of transportation overtaken by technical progress. This progress increases reliability of buses and trolleybuses as they did not require expensive infrastructure. Moreover, buses and trolleybuses were providing more comfortable travel and a smoother motion than the old street cars. Therefore, in some places,

²⁰ SCHWANDL, Robert, *Schwandl's Tram Atlas Deutschland* (3rd ed.). Berlin: Robert Schwandl Verlag. pp.10-12. ISBN 9783936573336.

²¹ ANTONOV, Oleg, *Ukrainian Soviet Encyclopedia*, Ed. Oleg Antonov, 1984, part 2, 225p.

²² Tramway history, Société de transport de Montréal [Online], accessed on 15 January 2016, URL: www.stm.info/en/about/discover_the_stm_its_history/history/tramways-history

the tram was replaced and many of the smaller undertakings abandoned their track in favor of trolley buses or buses as their tramway capital wore out.

Since private transport was relatively insignificant in urban population terms until the 1920's, we can safely say that nineteenth century towns depended entirely on their public transit networks for expansion. In the provincial cities road transport was much more influential than rail, for two reasons: first, travel distances from the suburbs were quite short, and the shorter the journey the more must public transport provide a door-to-door service if it is to compete successfully with walking, its no-cost competitor; secondly, within a dynamic situation, the high capital requirements of railway construction, especially in termini, prevented railway companies from pursuing a policy of gradual short line extensions into the ever receding housing frontier. Road transport, on the other hand, offered a more comprehensive and accessible network which extended into newly developed areas as soon as required.

Thus, tramway almost have disappeared from North America, France (except Lille, Marseille and Saint-Etienne), Great Britain, India, Turkey, Spain, South Africa and Australia (except Melbourne and Adelaide).

The first trolleybus routes in Milan commenced operations in 1933. However, in contrast with many Italian cities, Milan did not replace its trams with this new form of public transport. Trolleybuses were used instead to complement the trams on peripheral routes, and in particular, on Milan's outer ring road. The tramway network, which had been further extended, was still efficient (thanks to Milan's wide streets and many private homes), and was all double track, with spacious and modern tramcars. In the same year, many of the city's bus routes were extended, particularly to outside locations that had been annexed to the commune of Milan in 1923. In 1939, the extensive long-distance tramway network, electrified in the previous decade by the Electric Traction Company of Lombardy, came under the management of ATM. The urban tramway network reached its peak in the same year.

The General Municipal Plan of 1953 called for the complete elimination of trams from the city centre, and their replacement with an underground Metro network.²³ Implementation of this plan began rapidly. In 1957, work started on the excavation of the first Metro line, leading to the removal of tramway lines from some critical transport axes (Corso Buenos Aires, Corso Vittorio Emanuele, Via Dante, etc.). But on the other hand, two tramway extensions were opened, to serve the new suburbs of Taliedo (1964) and Gratosoglio (1969). The 1950s and 1960s also saw the closure of almost all of Milan's interurban tramways, and their replacement by bus routes.

²³ CORNOLO' G., SEVERI G., *Tram e Tramvie a Milano 1840 - 1987*, Milano: Azienda Trasporti Municipali, 1988, pp. 160

Throughout the interwar period, and in the 1930's especially, more and more people were able to commute by motor car. The inflexibility of tramway locomotion was intolerable to this fast growing section of motorists, and from the 1920's pressure was applied to have the tramcar removed from the streets.

The British tramway network declined in the 1930's as total route mileage fell from 2163 in 1930 to 1183 in 1937. In London the total number of tramway undertakings fell from 214 in 1918 to 204 in 1930.

In Montreal, after dominating the city's landscape for years, tramways now also faced competition from buses, which were introduced in Montreal in 1919 and had their own division as of 1925. The early rickety buses were quickly replaced by quality vehicles which, although they could not carry as many passengers as the tramways, could be deployed rapidly and less expensively as the city evolved.

In Paris, after several smaller-scale tests, the first major replacement of a tramway by a bus occurred in 1936 in the city's east end, on Notre-Dame Street. The bus was no longer a simple complement to the tramway but its direct competitor. From 1921, the prefecture of the Seine starts to investigate ways how to deliberate the central districts and envisages the removal of trams from narrow Parisian arteries in order to give more space to the car. The line number 78 connecting Saint-Denis and Villeneuve-la-Garenne was the first to disappear from Parisian streets in 1925. This execution of tram followed by line 111 connecting Saint-Maur et Créteil, in 1927 by the line number 59 between Marly-le-Roi and Port-Marly, in 1928 by number 60 connecting Saint-Germain and Chatou, and in 1929 the line number 74 between Pantin and Quatre Chemins had disappeared as well.²⁴ However, the first wave of mass tramline removal affects sixteenth arrondissement and Neuilly, one of the wealthiest neighborhood which inhabitants used to have personal cars. In 1932 Parisian Transport Society continue to destroy intramural lines start to attack interurban lines. The removal of interurban lines wasn't so easy decision: in one hand, people from Parisian banlieue continued widely use them, in another hand, they caused traffic issues in center of Paris.

Much of the bus patronage was not poached from the tram car but was based on the trips generated by the housing schemes the corporation itself was erecting on the city's outskirts. For instance, the boundaries of Glasgow were changed twice during the late 20th century. There are two distinction of Glasgow: the Glasgow City Council Area (which lost the districts of Rutherglen and Cambuslang to South Lanarkshire in 1996) and the Greater Glasgow Urban Area (which includes the conurbation around the city). The council housing program of 1931-1935 drew out its

²⁴ La disparition des tramways parisiens, Musée des Transport [Online], accessed on 09. January 2016, URL: http://amtuir.org/05_htu_tw_paris/05_htu_tw_paris_1930_1938/05_htu_tw_paris_07.htm

bus route mileage from 88 to 177 while tramway mileage actually declined 'slightly to 133 route miles.²⁵ In the second half of XX century Glasgow Corporation Tramways were formerly one of the largest urban tramway systems in Europe. One of the reason to such public transportation sprawl was the answer to growing population demand.

However, this tendency wasn't relevant for whole World. In some countries such as Switzerland, Germany, Austria, Belgium, the USSR the tramway preserved and even modernized throughout this period. Here the tram as a form of transport later moved to the "counterattack" and started a new expansion. In some countries the situation was various regarding to city. For example, in Finland the tramway network was closed in Turku, but survived and even grew and continue to develop in Helsinki. In Sweden, Norrköping and Gothenburg preserved its trams, but the transition from left-hand to right-hand traffic was completely delete the tram network in central Stockholm.

Somehow different evolution was observing in the countries of the socialist camp. Motorization proclaimed as one of the important goals of socialist development, but in fact the temps were very slow. In regard to bus, the trolleybus was the main alternative to tramway.²⁶

4. Renaissance of tramway

The negative effects of mass motorization such as smog, traffic congestion, noise and lack of parking spaces became an issues for large cities. Due to dimensions of motor public transportation even the separate road line didn't resolved this problem. Moreover, buses failed to provide a high volume of passenger traffic and stuck in traffic with other cars that did not contribute to their effectiveness. The scope of the underground is limited only by major cities and major metropolitan areas. In many cities construction of the underground subway is not possible or unacceptably expensive for geological reasons and the presence of archaeological sites. In this conditions, the tram advantages became more and more prominent and it has led to gradual changes in transport policy during the second half of XX century.

The revival of the tram began in the late seventies. One of the first new tram systems have opened in Canada – in Edmonton (1978) and Calgary (1981). In Europe, the revival of streetcars began in the Netherlands with Utrecht light rail inauguration in 1983 opened, then the initiative passed to France.

²⁵ OHOJNA, A.D., Lines of class distinction, PhD thesis, Edinburgh University, 1974, pp. 207-340.

²⁶ BEYKUL S, Abramsky K., Kiev Trams 1892-1992, The centenary of the commissioning, Budivelnik, Vol. 10 000, p. 71, ISBN 5-7705-0495-1

With the oil crises, traffic jams and pollution tram made a tentative to return in France in the mid-seventies. From the mid of seventieth some provincial cities in France launched programs of tramway revitalization. The first step of tramway renaissance in France starts with Cavaille program. The program launched in 1975 by Marcel Cavaillé, Secretary of State for Transport, to promote the return of the tram and foundation light rail in France. In 1986, RATP decided to reintroduce this mode of transport in Ile-de-France. By 1992 Tramway returned to suburbs. The first line called T1 passed between the train station Saint Denis and Bobigny. The launch of the program marks an awareness in challenges of urban mobility, accentuated by the first oil shock and opening of some European countries to ecological issues.

In Milan, in 1976, the series 4900 trams were ordered, in anticipation of the never realized transformation of the trolleybus circular route 90/91 into a light rail service. In 1981, the Via Larga tramway was opened, to reduce transit times in the city center. In the early 1990s, despite the opening of the Gratosqlio - Rozzano extension, the tramway network suffered further cuts, triggered by the activation of the third Metro line. Only in 1994 did a process of revival of the tramways begin, with the establishment of new lines, the restoration of abandoned sections, and the drafting of new guidelines to be implemented to modern standards. New tramway lines therefore constructed to Bicocca, Niguarda, Porta Lodovica-Piazza Abbiategrasso, Precotto and Cinisello.

4.1. Tramway as a tool of urban control

Today, tramway seen as a direct and indirect tool of urbanization control. This mode of public transportation allow urban growth only in determined directions and shows its direct impact on urban sprawl. Tramway' side effect in urbanization process permit to rethink the current traffic patterns, to reorient these flows and rhythms of internal life in the city and to develop new infrastructure.

In the policies of urban mobility almost all major French cities has been devoted the double decade 1990 - 2000 to the glory of the tram. A simple means of transport origin, tramway has become a star of urban projects and has appeared as a miraculous tool in requalification of all the agglomerated urban fabrics. If the 1990s saw the rise of environmental concerns, the 2000s by binding urban and transport planning was making promotion to tramway. In 1996, the law on air and rational use of energy, LAURE, attributed to urban transport plan (PDU) the new objective, - to reduce traffic congestion. PDU become mandatory for agglomerations over 100,000 inhabitants and impose a global vision to organization of urban mobility. Through its policy and subsidies,

French government encourages local authorities to build new transport modes, afterwards followed by construction of the first tram lines in Strasbourg and Rouen in 1994. In 2000, the law on solidarity and urban renewal (SRU) made territorial coherence scheme (SCOT) which was the true urban planning tool, working on larger temporal and spatial scales. This law strongly encouraged to link urban planning and transportation system.²⁷ Urban development is organized around public transport axes, like in Montpellier. The tramway network of Montpellier during last two decades was structuring urban development projects. The first line defines the central axis of the expansion of the town towards the sea; the second line acts as a support for urban development low density suburban territories and the third line serves to support the development operations, employment and housing. For instance, all academic institutions have been established around the tram lines. As a part of redevelopment project of the road called From Montpellier to the sea, the city has chosen to create a direct line tram (7-8 km) allowing reorganization of businesses, creation of development center for housing, jobs and establishment of the ecocity. Thus, in Montpellier, the tramway is a political choice and a strong element of the city restructuring.

Since 2000 the tram continue to be priority mode of public transportation. The French tramway continues to grow: in 2003 Bordeaux opens three tram lines, based on a more accessible new generation car (low-floor), with elegant design (the Alstom Citadis) and responding high requirements of urban renewal; in 2006, this tendency followed by Mulhouse and Valenciennes Clermont-Ferrand and Paris which completed their network. . In 2006 tramline returned to the south of Paris from Pont de Garigliano to Porte d'Ivry. In 2012 tramway line returned to Défense passing through Bezons. The new lines, T5 and T7 opened in 2013, followed by T8 in 2014.²⁸

Therefore, we can define three main characteristic of tramway as an urban manager. First, tramway redesign urban landscape. The tram helps to rebuild a city by recovering an urban landscape often distorted by cars: no separation effects, redistribution of traffic, better consideration of pedestrians and cyclists, etc. For instance, in Grenoble, the tram line 3 erased the expressway of ancient boulevards with large viaducts with traffic of 70,000 vehicles per day; it was a real urban disconnection to one who doesn't had car prohibiting the passage from north to south part of Grenoble. Second, the tram comes with the development of the city. Tramway introduction in a city generates impact on businesses during and after its implementation. This also induces changes on the structure of the city as the tram lines generate urban transformation, especially in terms of attractiveness of neighborhoods. Third, impact of tram on businesses: example of France shows that during the period of rehabilitation and re-appropriation of tramway,

²⁷ Le renouveau du tramway en France, Ministère de l'Écologie, du Développement durable et de l'Énergie, Mai 2012, pp.12-13

²⁸ Centre d'études sur les réseaux, les transports, l'urbanisme et les constructions publiques (Certu), URL : www.certu.fr

businesses generally improve their sales, especially those commerce points located in city centers. However, it is difficult to isolate tramway' effect and regional and national context which directly concern the local businesses.

4.2. Tram in hybrid systems: tram-train, U-Bahn

In order to improve interurban accessibility, tramway system in many cities has integrated with other mode of transportation. The representative example of such hybrid systems is tram-train. A tram-train is basically trams using heavy railway infrastructure where trams run through from an urban tramway network to main-line railway lines which are shared with conventional trains. This combines the tram's flexibility and accessibility with a train's greater speed, and bridges the distance between a main railway stations and a city center. This mode of transportation needs a "master planning" to imagine the final system layout and to identify consequences for urban schemes.

In Germany, tram-train, or the "Karlsruhe model" seen as the miraculous solution for rail bound regional public transport. In the case of Karlsruhe it took a serious acting with the compromises as it was necessary to integrate an existing urban tramway in the new system. However, in 1992 this idea has been implemented and later adapted by other European cities.

In France, one of the first cities in introducing tram-train system is Mulhouse. Here, the tram-train line runs from Gare Central to Thann. The line follows the existing tracks of lines 2 from Gare Central to Porte Jeune, and line 1 from there to Daguerre.

Even if outside of Europe this system calls differently, it doesn't change the concept of tram-train system. For instance, in New Jersey such combination called the River Line and connects the cities of Camden and Trenton, New Jersey's capital.²⁹ In Ottawa O-Train Trillium Line do not qualify it as a tram-train, but share the same characteristics.

In Munich, U-Bahn, S-Bahn and tramway networks create another form of hybrid system. The 1972 Munich Olympic Games presaged a major expansion of public transport in the city. In 1972 a new S-Bahn network opened that, like the U-Bahn, was carried in new tunnels under the city centre. As these networks grew, they seemed to threaten the tram network, with extensive line closures in favour of the new modes. Such closures continued into the 1990s, but in 1991 the city council passed a plan to upgrade and modernize the tramway, as the trams were seen to be a better fit to expected passenger flows on many routes. Three years later, Class R2 low-floor trams were

²⁹ MICHAELS , David A., Deal is Reached in Rail Lawsuit, New Jersey Record, March 11, 2007. 29 p.

introduced, along with a night network. In 2009 the brand new route 23 was opened. This route acts as a feeder route for U-Bahn lines U3 and U6, to which it connects in an elaborate terminus above Münchner Freiheit U-Bahn station. The line has no interchanges with other tram routes, but is linked to the rest of the tram network by a connecting track that carries no public service.³⁰

In many metropolitan cities tramway is a part of third form of hybrid system. For instance, in Paris many tramlines integrated with RER, metro, velib and bus lines.

4.3. New uses, new meaning: Tramway as a touristic attraction

Today, tramways became an attraction in many touristic cities. Usually, itinerary of such touristic trams link major city attraction zones and commercial spots.

In Melbourne the City Circle Tram service provides a convenient way to get around central Melbourne. An audio commentary provides details of city landmarks and major attractions such as the City Museum, Parliament House, Docklands, Federation Square, Melbourne Aquarium and the Princess Theatre. The City Circle route is serviced by heritage W class trams decorated in special maroon and green with yellow and gold trimmings. The City Circle Tram can be even used as a 'hop on - hop off' service. In Rio de Janeiro operates historic tram line called The Santa Teresa Tram. It connects the city center with the primarily residential, inner-city neighborhood of Santa Teresa, in the hills immediately southwest of downtown. It is mainly maintained as a tourist attraction and is nowadays considered a heritage tramway system, having been designated a national historic monument in 1988. In Lisbon, the five remaining lines only operate in the southern center and west of the city. Despite the relevant tourist attraction, those lines are still very important because of sections of the city's topography that can only be crossed by small trams. Tram 15 also connects the entire western river front of the city to the center and allows a better flow of passengers with the bus system towards an area that still is not served by the metro. In Amsterdam the role of touristic attraction given to line number 2. The line has been doing its permanent circuit in Amsterdam for more than 110 years. National Geographic has designated this tram ride as one of the best tram rides in the world. Helsinki goes farther than just to open one touristic tramway. Here several tram routes operates as touristic itineraries. All of them have particular thematic such as architectural tour or design and culinary tour. In Lvov the tram propose the night tour in local historic cemetery. In some cities tramway combine city tour with some touristic services. In Saint-Petersburg since 1980 operating tramway-museum. Museum of urban

³⁰ PULLING, Neil, System Fact file 38: Munich, Germany, Tramways & Urban Transit, Ian Allan Ltd / Light Rail Transit Association, November 2010, pp. 419–421.

electric transport of St. Petersburg began with a collection of historic trams. Today it has more than twenty vintage trams.

If in some cities touristic tendency predicted by reach history of tramway network, in others it's just a regular type of business. Thus, in Milan, Almaty, Christchurch and many other cities all over the World the tramways moved to catering business.

CONCLUSION

The patterns of congruence between tramway and city vary according to geographic characteristics of city, socio-economic and politic situation of country, etc. However, the research identified the general patterns of this congruence according to four periods. Between XVIII and XIX, omnibus symbolized city status. The tramway network development between XIX and the first half of XX century was generated by mass urban reconstructions, suburban growth and its socio-demographic preconditions of network sprawl. From the second half of XX came the decline of tramway network caused by two main factors: cities destruction after two wars and motor cars development. The last period of tramway renaissance defined streetcar as a tool of urban control which include it to the urban hybrid systems and attribute a new meaning according to the present tendencies.

As a conclusion to this report we can mention some points that the group project gave us: First off all the collective work allowed to increase productivity and performance of the project. The broad range of skills were applied to practical activities and the process of sharing and discussing ideas were played a pivotal role in deepening understanding of the research problem.

Second, the project have been creating good conditions for skills development. Being part of the team helped to develop interpersonal skills. This includes: expressing ideas clearly, listening carefully to others, participating effectively in group deliberations, and clearly articulating to group members the results of the research. Group work also helped develop collaborative skills, such as, team-based leadership and effectively motivating others. I believe these skills will be useful throughout my academic career.

Third, collaborating with other members of group on common project during two years give me possibility knowing more about myself. Thus, it helped to identify my own strengths and weaknesses. For example, I realized that I'm good at coming up with the "big idea" but not so good at developing a specific plan of action. The project enhanced self-awareness about the challenges I may have in working with others that enhance learning experiences.

This project took as a focal points only four wide topics such as correlation of tramway with urban space, technical evolution of the cars and rails, tramway expression in culture and arts, and heritage polices related to tramway. However, there are range of various topics that deserve to be discovered and developed in farther researches.

Therefore, the future researches may focus on:

1. Social and economic aspects of tramway in city life
2. The role of tramway in people life
3. The history of transport companies

4. Transport legislations applied to tramway, etc.

Furthermore, the present project took as a main case studies only three cities: Paris, Mila, and Lisbon. That's why, farther development of the research can deepen in other cities and focalize on the other continents.

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APPENDICES

APPENDICES

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A. Home page of the Web site



[TRAMWAY](#) [MUSEUM](#) [ARCHIVES](#) [ACTOR DIRECTORY](#) [CONTACT US](#) [CREDITS](#)



PROJECT DEVELOPED IN THE FRAME OF THE MASTER ERASMUS MUNDUS
TECHNIQUE, PATRIMOINE ET TERRITOIRE DE L'INDUSTRIE. IT IS DISPLAYED IN
A ACADEMIC SCOPE.

THE MAIN OBJECTIVE ARE THE RECOGNITION OF THE TRAMWAY SYSTEM
SIGNIFICATION IN THE TECHNICAL, SOCIAL, TERRITORIAL FRAME AND THE
IDENTIFICATION OF GOOD PRACTICES IN THE TRAMWAY ENHANCING. IN THIS
CONTEXT, SUPPORTING OBJECTIVES ARE DRAFTED: DEMONSTRATING THE
CULTURAL, TECHNICAL, SOCIAL AND URBAN CONTRIBUTION, ENHANCING THE
ECONOMICAL VALUE, STIMULATING THE SPACE OF COOPERATION AND
MOTIVATING THE SOCIETY RE-APPROPRIATION.

SEARCH

TYPE HERE AND PRESS ENTER



ADVANCED SEARCH

B. Sample page of Exhibition “Paris”



[TRAMWAY](#) [MUSEUM](#) [ARCHIVES](#) [ACTOR DIRECTORY](#) [CONTACT US](#) [CREDITS](#)

PARIS

1750-1850

1850-1920

1920-1970

1970-Nowadays

1750-1850



change xxxxxxxx La Gamba de Legn, Steam tramway in Milan in 1880

Note that the size of a label relative to others in a display is important for ease of use. There should be very clear size difference between the various levels (hierarchy) of information. Ideally sub-headings should be twice the size of the accompanying text; the main heading should be twice the size of the subheadings. Object labels can be the same size or smaller than general text. honor or copyright information should be so small that it does not compete for visitor attention. note: this is 500 characters

RAILWAY AND OMNIBUS CULTURE

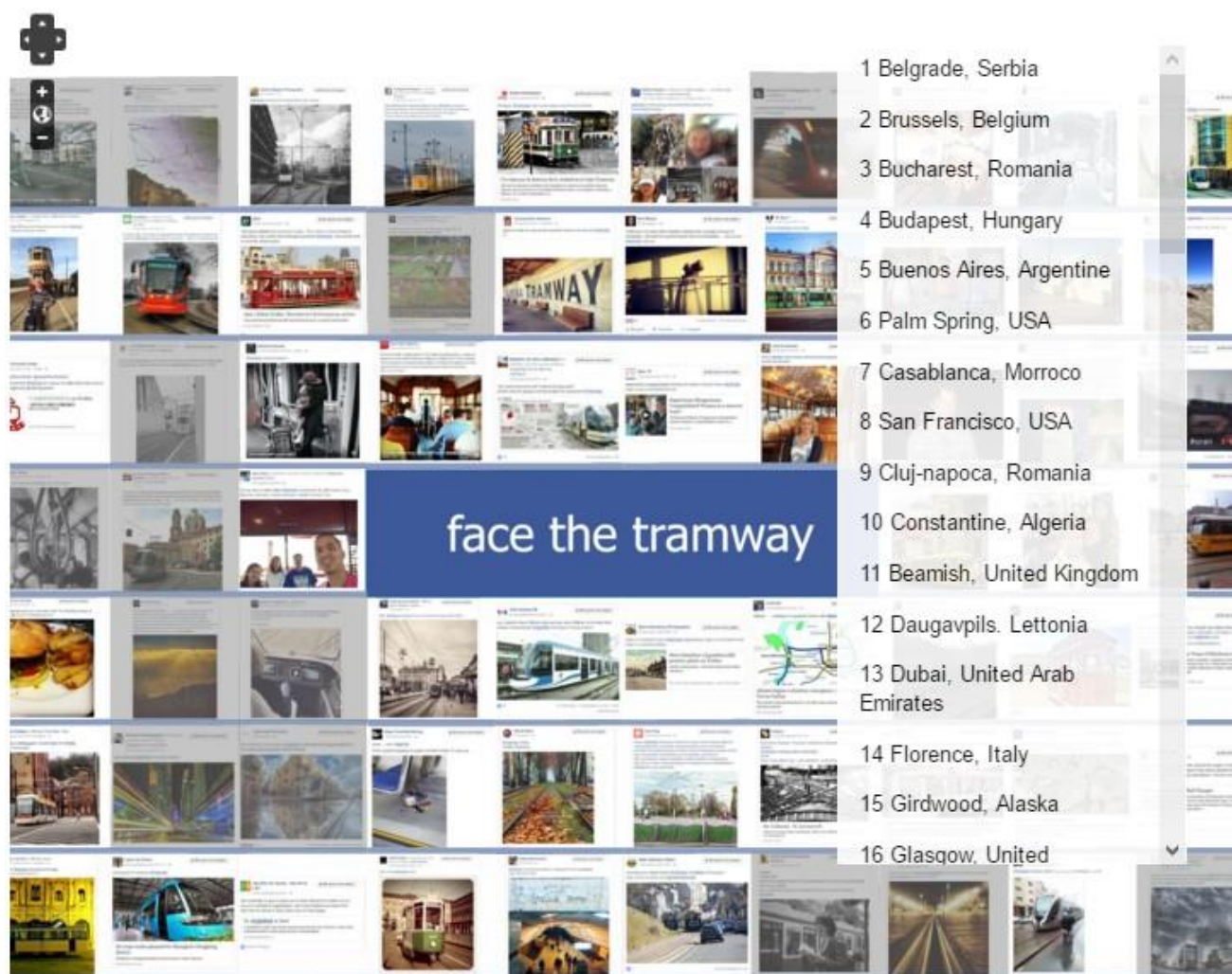
TRANSPORTATION "FOR ALL"

ART SUBJECT

1750-1850

1850-1920 →

C. Sample page of the interactive project “Face the Tram”



1 Belgrade, Serbia

2 Brussels, Belgium

3 Bucharest, Romania

4 Budapest, Hungary

5 Buenos Aires, Argentine

6 Palm Spring, USA

7 Casablanca, Morroco

8 San Francisco, USA

9 Cluj-napoca, Romania

10 Constantine, Algeria

11 Beamish, United Kingdom

12 Daugavpils, Lettonia

13 Dubai, United Arab Emirates

14 Florence, Italy

15 Girdwood, Alaska

16 Glasqow, United

face the tramway

D. Sample page of the interactive project “Passage by tram”



L'ultimo tramway.

Le Tramway

Touched by Fatality: A Novel

The Dream of the City.

The Training Patient

Heart of Darkness

The Director

Code Name: Katarina

The Inventory

While Love Stirs

Hollywood Exits

The Pursuit of Lucy Banning

Dollface

Autumn in Yalta

Echoes of a Distant Summer

E. Sample page of the interactive project “Means tram”

MEANS TRAM

[View Fullscreen](#)



F. Sample page of one of the Collection “Tramway networks”

Coverage

Global approach, from the beginning of XIX Century until the present

ITEMS IN THE TRAMWAY NETWORKS COLLECTION

Vienna. N° of lines



This diagram shows variation in quantity of lines in Vienna, according different periods (XIX, XX, XXI centuries).
If municipalization of urban services by Vienna's Bürgermeister Karl Lueger in The end of XIX century allowed rapid expansion of...

Paris. N° of lines. XIX-XXI century



Some Paris Areas were declining by 1830.
But 4e, 7e, 9e surroundings reached their population peak in 1838.
The Inner Area Reached its Peak in 1861.
The Left Bank has been Declining since the Early 20th Century.
Near Northern Arrondissements...

Berlin. N° of lines



By 1930, the network had a route length of over 630 km (391 mi) with more than 90 lines. In 1929, all operating companies were unified into the BVG. After World War II, BVG was divided into an eastern and a western company but was once again reunited...

Lisbon. N° of lines. XIX - XXI century



Up to 1959, the network of lines was further developed, and in that year it reached its greatest extent. At that time, there was a total of 27 tram lines in Lisbon, of which six operated as circle lines. As the circle lines operated in both clockwise...

Île-de-France. Connected points. XIX century



The scheme indicates the network spots of all the six Île-de-France tramway lines, and the year of activation.