

# Contemporary Industrial Cities of Kazakhstan: Experience of Assimilation Soviet Urban Heritage

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**Abstract:** In environmental history, the key role of human settlements and their network is quite obvious. The methodological approaches applied to studying the evolution of settlement networks are currently substantially expanding. This paper demonstrates the most indicative processes of the urban settlement network development from the standpoint of environmental history and evolutionary urbanism using the casestudy of a long-term research regarding model testing areas in Kazakhstan. The example of contemporary Kazakhstan illustrates the complex relationship among environmental, historical, demographic, geopolitical, socioeconomic and migration processes, taking place in the territory of that country.

**Keywords:** step, Kazakhstan, urban heritage.

## Introduction

In order to comprehend and anticipate further steps in shaping the living space in current conditions, it is becoming increasingly clear that the subject matter of contemporary urbanism cannot be confined solely to cities and towns as such, but should encompass all human settlements in historical space at all levels of their organization and complexity: from ancient settlements to urban environment. At any organizational level of an urban system, it is necessary to perceive the synthetic interactions among its environmental, technogenic and social components. Traditional consideration of urbanism only in relation to the existence of towns, cities and agglomerations requires a more expanded interpretation, taking into account the place of towns and cities in the general system of human society persistence. The revealed wide variety of settlement types in different historical eras, the nonlinear dynamics of their networks, the most complex crisis-related phenomena and other features predetermined the emergence of evolutionary urbanism in the context of environmental history.

In recent years, the authors have been actively working on a wide range of urban issues – from the analysis of dangerous geological processes in urban areas and the environmental history of settlements to aspects of global urban studies and urban network evolution [1]. A collective research project to study the evolutionary dynamics of the settlement networks in Kazakhstan should be particularly highlighted [2]. In our opinion, the Soviet and post-Soviet periods are of actual interest, since that epoch is characterized by particularly active dynamics

of settlements and striking manifestation of the changing signs in urban systems. The former involves high rates and scale of changes in both qualitative and quantitative parameters of the settlement network evolution. The latter relates to appearance, dilapidation and ultimate disappearance of individual settlements and elements of their networks. The scientific and social relevance of the stated topic is confirmed by the recent emergence of case studies on Kazakhstani environmental history, including research related to urbanization processes [3–9].

## Materials and Methods

Over 2011–2015, the authors organized several scientific expeditions to Kazakhstan, during which participating scientists studied the state of the urban environment, the role of geoecological processes in the well-being of urban population, and dynamics of modern post-crisis development processes in Kazakhstan – specifically, in Uralsk, Aktau, Atyrau, Aralsk, Almaty, Fort-Shevchenko, Taraz, and other urban settlements.

In the course of our routine work on the territory of the town of Janatas, we studied the state of residential and abandoned urban infrastructure, landscaping, green architecture, lots with garbage collection containers, pedestrian zones, private garage complexes, irrigation systems (irrigation ditches), etc. Our routes also covered the areas adjacent to mining facilities (existing and abandoned quarries, factories).

The collected data has demonstrated the presence of many examples of destructive development of urban environment and the living standards of Janatas population. Subsequent desk processing of expeditionary materials, involving use of the methods of aerial image applied decryption, remote sensing, and geographic information system mapping, has facilitated building a series of thematic maps for the Janatas area as of 2015. The latter allowed presenting visual information on the urban landscape condition, and the geography of residential and destroyed buildings within contemporary city boundaries and distribution of infrastructural elements (both ‘dead’ and still existing) across the town territory were shown.

In addition, in 2016–2019, we studied extensive 1989–2016 newspaper material in the newspaper collection of the Russian State Library (Moscow, Russia) and in the collections of the West

Kazakhstan Regional Scientific Universal Library (Uralsk, Kazakhstan). The republican newspapers *Kazakhstanskaya Pravda*, *Komsomolskaya Pravda* and a number of regional newspapers of the Soviet and post-Soviet times – specifically, *Znamya Truda*, *Arkalykskaya Nov’* and others – became the most valuable key documents containing rich journalistic material on the geoecological transformation of urban settlements in Kazakhstan.

The emphasis in our study was placed on employing the tools of history and geography. Such approach, in our opinion, would allow us formulating an objective pattern of the geoecological and historical transformation of urban settlements in Kazakhstan. The project was based on the geoecological dominant. The latter is among the most important global management challenges faced by the urban settlements of Kazakhstan.

## Results and Discussion

An emergence of the first towns in the Kazakh Soviet Socialist Republic was usually associated with the development of large mineral deposits (coal, phosphorite, uranium, oil, etc.) or the military industrial complex development, accompanied by the formation of a settlement network related to the Soviet Gulag. In the 20<sup>th</sup> century, many new towns appeared on the map of the USSR – specifically, Shu (1928), Alga (1939), Abay (1949), Arkalyk (1956), Derzhavinsk (1956), Karatau (1963), Janatas (1964) and many other settlements, which did not exist at all until the founding date, or else were tiny villages, whose population was conventionally engaged in underdeveloped agriculture.

At the end of the 20<sup>th</sup> century, as a result of socioeconomic processes related to the period of Perestroika, and then to the collapse of the USSR, most of the towns and cities in Kazakhstan were subjected to strong transformations. The political, economic and social shocks in Kazakhstan, as well as irrational environmental management, have seriously changed the evolution of a typical town. It took a long time for the flourishing socialist towns to become centers of socioeconomic and environmental disaster in Kazakhstan. The general situation in some towns, developed by the end of the 1990s, could be described as catastrophe. These transformations stimulated large-scale population migration both within Kazakhstan and beyond, which predetermined the course of demographic, socioeconomic

**TABLE.**  
**Population Dynamics in Town of Janatas (Based on 1970–2016 Census Data)**

1970	1979	1989	1999	2009	2016
11,480	30,097	53,401	25,927	20,731	21,444

and political processes in the young republic for many years to come.

The industrial towns of Kazakhstan, held hostage by a complex of external (political, economic, social, cultural, environmental, etc.) and internal (epidemiological, comfort of living, health care, etc.) development factors, have become very indicative testing areas of the urban environment transformation, along with changes in the Soviet urban authenticity. The authors studied the town of Janatas over the last several years as a model example of the ‘dead’ infrastructure taking a large part of the urban space.

In the context of the above reasoning, Janatas is a very revealing urban system that has experienced the influence of multiple external and internal development factors. It is very indicative in the study of the role of numerous crisis-related phenomena of the 1990s in the evolution of towns and urban nature management, which influenced the population comfort within the urban environment.

Janatas was founded in 1964 at the onset of the development of the largest phosphorite deposit in Karatau Mountains, which were discovered back in 1939. In a fairly short time, the settlement grew substantially, transforming from a small settlement of 20–25 houses (Kazakh yurts) into a district town (1969), and then into a city of regional subordination (1971). According to the 1989 census, the population of Janatas was 53,401.

The town was developing as a large industrial center specializing in the extraction and transportation of raw phosphate materials and products of their processing. The reserves of phosphorite ore in just a single Janatas deposit were estimated at over 200 billion tons, which provided an opportunity for economic growth and development of the town. The XXV Congress of the Communist Party of the Soviet Union claimed the need to raise the production of phosphate rock in the Karatau basin up to 50 million

tons per year by 2000, which meant the second most important center in the USSR for the production and chemical treatment of phosphate rock after the Apatite plant on the Kola Peninsula [10]. In 1969–1989, all necessary life-support systems were built and functioned in the town, specifically: engineering networks, recreation areas, landscaped public spaces, social and cultural services, educational and health care institutions, along with recreational and cultural establishments. The population of the town was growing rapidly until 1989 (Table).

In the early 1990s, the political, economic and social shocks in Kazakhstan caused by the collapse of the USSR, as well as irrational urban environmental management, seriously changed the evolution of Janatas. It took quite a bit of time for the town to become a center of socioeconomic and environmental disaster in Kazakhstan. The general situation that developed by the end of the 1990s in Janatas can be described as catastrophic: the population decreased to 25,927 inhabitants (1999), and numerous crisis-related phenomena developed within the city in aggravated form:

- political events (strikes and protests);
- economic phenomena (decline and halt of industrial production, unemployment, unpaid wages);
- social phenomena (large-scale population migration; closure of educational institutions; hunger; crime growth; almost complete shutdown of water, gas, and electricity supply in residential areas);
- health care issues (outbreaks and epidemics of dangerous infectious diseases, increased mortality, including starvation-caused, declined fertility).

The loss of Soviet authentic architecture was one of the most severe forms of urban space destruction: numerous residential districts of abandoned five-story buildings appeared, destroyed urban green architecture, huge landfills in place of garage

areas, etc. In the everyday life of many residents, it became common to use ownerless building material for personal needs – collecting scrap metal, breaking wooden structures for heating, etc. Thus, many urban functional areas and building elements found their second life as a result of recycling by the city residents.

At present, Janatas is among 27 single-industry towns of Kazakhstan, among which are Khromtau in the Aktobe region (a center for the extraction and processing of chromium ore), Arkalyk in the Kostanay region (a center for the extraction of bauxite ore), and Kurchatov in the East Kazakhstan region (the former center of the Semipalatinsk Nuclear Testing Site), etc.

The unsatisfactory state of the engineering and social infrastructure is typical for almost all of the single-industry towns in Kazakhstan. The most critical indicators for Janatas are the high wear and tear of its water, sewer, heat and electricity engineering networks. For example, the wear and tear of the water supply system in the town is 95%; the total area of houses in disrepair condition to the total area of residential buildings is 7.1%. Particularly acute is the problem of transportation remoteness and poor condition of roads. The potential for economic development is characterized as low.

Throughout the whole post-Soviet period (the last decade of the 20<sup>th</sup> century) in Janatas, the most pronounced problems in changing the appearance of the urban landscape included a significant territory of abandoned residential buildings and even entire abandoned residential districts; the neglected state of backyard areas, cutting down trees and shrubs for heating and cooking purposes; general pollution of the urban environment with solid residential waste and the destruction products of industrial and residential buildings; the emergence of areas in unsanitary conditions in places of unauthorized placement of household waste; keeping livestock in the yards of residential districts, etc.

A modern review of the current regulatory documents at the republican, regional and local levels, which legally regulate the procedures for reconfiguring the territory of single-industry Kazakhstan towns, allows us stating some positive changes in post-crisis processes in the towns against the background of accelerated industrialization.

The most serious attention is deserved by the study of building mining and chemical complexes in the area of Janatas, with which Russian companies are most closely associated, investing into the production of phosphate rock and the production of mineral and chemical products.

In order to expand the resource base, since 2013, the Russian agrochemical company *EuroChem*s, specializing in production of nitrogen and phosphorus fertilizers, has been developing phosphate ore deposits in the immediate vicinity of Janatas in the Zhambyl region, particularly in Kokdzhon (where the phosphate ore reserves exceed 505 million tons in categories A + B + C1) and Himmelfarb (the reserves of phosphorite ore are 328 million tons in categories A + B + C1).

Urban planning and environmental protection measures in the town presume consolidation of existing residential development remaining a legacy from the Soviet residential district urban planning model and the development of new territories of the town. Development of a new large residential area is expected in its southeastern part, where the seventh, eighth and ninth residential districts of the town were previously located, completely demolished from the urban landscape in recent years. Construction is planned in the first, fourth, fifth and sixth residential districts. Between urban residential districts, we envisaged the formation of convenient pedestrian walkways, the placement of well-maintained public spaces. Yard spaces are planned to be equipped with playgrounds.

The master plan for the development of the town indicates the allocation of a number of key town objects, the modernization of which would make it more comfortable for the population, and would improve the environment quality. For example, both reconstruction and construction of urban infrastructure are planned: improvement of the central Zhibek-zholy street with updated boulevards, sidewalks and galleries of shops, the construction of a building for a public and business center with a hotel, social and cultural services, educational institutions, health care and cultural establishments. In order to revive the traditional forms of trade, a new eastern bazaar is planned in the town. Redesigning the facades of residential buildings will be most attractive in terms of organization of the architectural space.

## Conclusion

Therefore, the territory of Janatas is one of the most indicative model testing areas for studying the processes of enhancing local segregation at the end of the 20<sup>th</sup> – beginning of the 21<sup>st</sup> centuries, which is expressed in the almost complete loss of the social and spatial mechanisms of safe living by the town population. It was that particular period of time that most characteristically demonstrated the serious problems of the authorities searching for the tools of effective management of urban environment.

Currently, in the territory of modern Kazakhstan, long-term programs aimed at attracting investments (including those from Russia) are in the process of implementation. These programs are proposed to solve the complex set of socioeconomic and urban planning issues, along with environmental problems faced by dozens of smaller towns and cities of a single industry. Many of these settlements are

enough attractive to develop promising strategic development models with the inclusion of decisions on new industrial projects. For *EuroChems*, one of the world largest producers of mineral fertilizers, the development of the mining infrastructure in Janatas, considering nearby phosphorite resources, is a promising project, which could significantly expand the resource base with the possibility of selling products both in Kazakhstan and in other countries worldwide.

The joint campaign by *EuroChems* and the Russian group of companies, *Design Bureau of High-Rise and Underground Structures*, for attracting investment meets extremely urgent requirement to create a positive current image of Janatas. It can be assuredly noted that the projects of the former USSR State Planning Commission designed to create a positive image of the Komsomol construction venture (once involving Janatas) are the same phenomenon, characteristic of any time, known in urban studies as boosterism.

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