

ASERS

Journal of Environmental Management and Tourism

Quarterly

Volume XI

Issue 1(41)

Spring 2020

ISSN 2068 – 7729

Journal DOI

<https://doi.org/10.14505/jemt>

 **ASERS**
Publishing



Editor in Chief

Ramona PÎRVU

University of Craiova, Romania

Editorial Advisory Board

Omran Abdelnaser

University Sains Malaysia, Malaysia

Huong Ha

University of Newcastle, Singapore,
Australia

Harjeet Kaur

HELP University College, Malaysia

Janusz Grabara

Czestochowa University of Technology,
Poland

Vicky Katsoni

Techonological Educational Institute of
Athens, Greece

Sebastian Kot

Czestochowa University of Technology,
The Institute of Logistics and International
Management, Poland

Nodar Lekishvili

Tbilisi State University, Georgia

Andreea Marin-Pantelescu

Academy of Economic Studies Bucharest,
Romania

Piotr Misztal

The Jan Kochanowski University in
Kielce, Faculty of Management and
Administration, Poland

Agnieszka Mrozik

Faculty of Biology and Environmental
protection, University of Silesia, Katowice,
Poland

Chuen-Chee Pek

Nottingham University Business School,
Malaysia

Roberta De Santis

LUISS University, Italy

Fabio Gaetano Santeramo

University of Foggia, Italy

Dan Selişteanu

University of Craiova, Romania

Laura Ungureanu

Spiru Haret University, Romania

ASERS Publishing

<http://www.asers.eu/asers-publishing>

ISSN 2068 – 7729

Journal DOI: <https://doi.org/10.14505/jemt>

Table of Contents:

1	The Effects of Multinational Companies on Deforestation: The Building Block or Stumbling Block Kumba DIGDOWISEISO, Eko SUGIYANTO	5
2	Institutional Designing of Food Security by Instruments of Matrix Modelling and Value Flows Synchronization Galina ASTRATOVA, Vladimir KLIMUK, Olga RUSHITSKAYA, Igor IVLIEV, Aleksey RUCHKIN, Nadegda YURCHENKO	12
3	A Review of the Impact of Consumerism, Recycling and Pollution: Evidence from Southeast Asia: 1999 to 2019 Tinashe CHUCHU, Eugene Tafadzwa MAZIRIRI	23
4	The Business Efficiency of Agroprocessing of Food Crops Commodities and Horticulture in Increasing Product Competitiveness in Central Sulawesi Indonesia M. Fardhal PRATAMA, Made ANTARA, Rustam Abdul RAUF, EFFENDY	29
5	The Theory of Planned Behavior and Pro-Environmental Behavior among Students Mohamad Irhas EFFENDI, Dyah SUGANDINI, Agus SUKARNO, Muhamad KUNDARTO, Rahajeng ARUNDATI	35
6	Improving the Energy Efficiency of Kazakhstan's Economy Zhanar M. ORYNKANOVA, Raissa A. BAIZHOLOVA, Aigul Zh. ZEINULLINA	44
7	Diversity of Birds for Ecotourism Attractions in the Mangrove Ecosystem of Nature Conservation Forum Putri Menjangan I Ketut GINANTRA, I Ketut MUKSIN, Martin JONI	54
8	Development of Industrial and Urban Areas in the Context of Ecological and Economic Security Aigul SHAIMERDENOVA, Kanat TIREUOV, Ukilyay KERIMOVA, Elmira MURSALIMOVA	65
9	Ecological Strategy of Development in Agricultural Enterprises of Ukraine Tetiana PIZNIAK, Olha KOVALOVA, Olha NOVIKOVA	73
10	The Process of Innovation Diffusion and Adoption of Innovations in the Implementation of Community-Based Total Sanitation Policy in South Sumatera Katriza IMANIA, Sri SUWITRI, Yoppie WARELLA, Nurmah SENIH	81
11	Animal Rights and Protection against Cruelty in Ukraine Ivan V. YATSENKO, Svitlana I. ZAPARA, Gregory A. ZON, Lydmyla B. IVANOVSKAYA, Alyona M. KLOCHKO	91
12	The Development of Agro-Tourism Based on Arabica Coffee Plantation in Bali I Dewa Ayu Sri YUDHARI, Dwidjono Hadi DARWANTO, Lestari Rahayu WALUYATI, Jangkung Handoyo MULYO	104
13	Tourism Impact on the Environment in Nusa Penida Tourism Area Nyoman SUDIPA, Made Sudiana MAHENDRA, Wayan Sandi ADNYANA, Ida Bagus PUJAASTAWA	113
14	A Study on the Improvement Plan of Facility in National Park Using Importance-Performance Analysis Joonho BAE, Seungmin NAM	125
15	Environmentally Oriented Anti-Crisis Management of Enterprises: Problems, Directions, and Prospects Ainur BALTABAYEVA, Aruna BEKMETOVA, Bibigul KYLYSHPAYEVA, Zhanna ASSANOVA, Gulshat ZHUNUSSOVA	131

Editor in Chief

Ramona PÎRVU

University of Craiova, Romania

Editorial Advisory Board

Omran Abdelnaser

University Sains Malaysia, Malaysia

Huong Ha

University of Newcastle, Singapore,
Australia

Harjeet Kaur

HELP University College, Malaysia

Janusz Grabara

Czestochowa University of Technology,
Poland

Vicky Katsoni

Techonological Educational Institute of
Athens, Greece

Sebastian Kot

Czestochowa University of Technology,
The Institute of Logistics and International
Management, Poland

Nodar Lekishvili

Tbilisi State University, Georgia

Andreea Marin-Pantelescu

Academy of Economic Studies Bucharest,
Romania

Piotr Misztal

The Jan Kochanowski University in
Kielce, Faculty of Management and
Administration, Poland

Agnieszka Mrozik

Faculty of Biology and Environmental
protection, University of Silesia, Katowice,
Poland

Chuen-Chee Pek

Nottingham University Business School,
Malaysia

Roberta De Santis

LUISS University, Italy

Fabio Gaetano Santeramo

University of Foggia, Italy

Dan Selişteanu

University of Craiova, Romania

Laura Ungureanu

Spiru Haret University, Romania

ASERS Publishing

<http://www.asers.eu/asers-publishing>

ISSN 2068 – 7729

Journal DOI: <https://doi.org/10.14505/jemt>

16	The Role of Human Capital in Ensuring Food Security of the Region Gorbunova Olesya SERGEEVNA, Voronin Boris ALEKSANDROVICH, Bukhtiyarova Tatyana IVANOVNA, Zyryanova Tatyana VLADIMIROVNA, Mitin Alexander NIKOLAEVICH, Mokronosov Alexander GERMANOVICH	139
17	Geotourism Concept Development in the Basis of Environment Sustainability, Socioculture, and Natural Science Wealth: A Case Study in Indonesia Endy MARLINA, Tutut HERAWAN	145
18	State Regulation of Environmental Taxes and Fees: National and International Experience Larisa Petrovna GRUNDEL, Natalia Alexandrovna NAZAROVA, Alexey Alexandrovich KOSTIN, Anastasia Viktorovna KNIAZEVA, Elena Samratovna GORBATKO	159
19	Adopting New Heritage Model for Ecotourism Plan in National Key Economic Areas to Improve Tourism Sector Performance in Malaysia Intan Maizura ABD RASHID, Irza Hanie ABU SAMAH, Wan Ahmad Fauzi WAN HUSAIN, Mohd Fitri MANSOR, Sallahuddin HASSAN	167
20	Efficiency of Optimized Technology of Switchgrass Biomass Production for Biofuel Processing Maksym KULYK, Vasyi KURILO, Natalia PRYSHLIAK, Viktor PRYSHLIAK	173
21	Environmental and Legal Framework for Regulating Consumer and Industrial Waste Management Dauren BEKEZHANOV, Alima OMIRALI, Bolat AITIMOV, Daniya NURMUKHANKYZY, Timur ZHUMAGULOV	186
22	Potential and Opportunities for Development of Tourism in Ukraine Yurii KOVALCHUK, Irina FURMAN, Halyna HUMENYUK, Anatolii KUCHER	194
23	The Burden and Effects of Cooking Fuels Usage on Women in Rural Areas: A Case Study of Afao-Ekiti, Nigeria Kehinde John AKOMOLAFE, Elizabeth YUSUF	202
24	Consumption Aspects that Create Life Satisfaction Orose LEELAKULTHANIT	215

Call for Papers Summer Issues 2020 Journal of Environmental Management and Tourism

Journal of Environmental Management and Tourism is an interdisciplinary research journal, aimed to publish articles and original research papers that should contribute to the development of both experimental and theoretical nature in the field of Environmental Management and Tourism Sciences.

Journal will publish original research and seeks to cover a wide range of topics regarding environmental management and engineering, environmental management and health, environmental chemistry, environmental protection technologies (water, air, soil), pollution reduction at source and waste minimization, energy and environment, modeling, simulation and optimization for environmental protection; environmental biotechnology, environmental education and sustainable development, environmental strategies and policies, etc. This topic may include the fields indicated above, but are not limited to these.

Authors are encouraged to submit high quality, original works that discuss the latest developments in environmental management research and application with the certain scope to share experiences and research findings and to stimulate more ideas and useful insights regarding current best-practices and future directions in environmental management.

Journal of Environmental Management and Tourism is indexed in SCOPUS, RePEC, CEEOL, ProQuest, EBSCO and Cabell Directory databases.

All the papers will be first considered by the Editors for general relevance, originality and significance. If accepted for review, papers will then be subject to double blind peer review.

Deadline for submission:	29 th May 2020
Expected publication date:	June 2020
Website:	https://journals.aserspublishing.eu/jemt
E-mail:	jemt@aserspublishing.eu

To prepare your paper for submission, please see full author guidelines in the following file: [JEMT_Full_Paper_Template.docx](#), then send it via email at jemt@aserspublishing.eu.



DOI : [https://doi.org/10.14505/jemt.v11.1\(41\).08](https://doi.org/10.14505/jemt.v11.1(41).08)

Development of Industrial and Urban Areas in the Context of Ecological and Economic Security

Aigul SHAIMERDENOVA

Kazakh National Agrarian University, Kazakhstan

aiya77@mail.ru

Kanat TIREUOV

Kazakh National Agrarian University, Kazakhstan

tireuov_k@mail.ru

Ukilyay KERIMOVA

Kazakh National Agrarian University, Kazakhstan

ykerimova@mail.ru

Elmira MURSALIMOVA

Kazakh National Agrarian University, Kazakhstan

e.mursalimova@mail.ru

Suggested Citation:

Shaimerdenova, A., Tireuov, K., Kerimova, U., Mursalimova, E. (2020). Development of Industrial and Urban Areas in the Context of Ecological and Economic Security. *Journal of Environmental Management and Tourism*, (Volume XI, Spring), 1(41): 65 - 72. DOI:[10.14505/jemt.v11.1\(41\).08](https://doi.org/10.14505/jemt.v11.1(41).08)

Article's History:

Received December 2019; Revised January 2020; Accepted February 2020.
2020. ASERS Publishing©. All rights reserved.

Abstract:

The national security of Kazakhstan, considering the current state of the environment, will increasingly depend on the economic condition and ecosystem, as well as effective government management measures. The main causes of the world's environmental problems are associated with the intense development of industrial production, which predetermines the increase in man-made impact on the environment. Most large cities are characterized by the unorganized location of industrial enterprises.

The aim of the present study is to identify the prerequisites, to study the characteristics, and develop techniques for restructuring industrial areas of the contemporary city.

The article defines at the theoretical level the essence of economic and environmental security, as well as of the restructuring of industrial and urbanized territories. Based on the expert survey, the main factors of restructuring of industrial areas are determined including directions, goals, and objectives of integrated restructuring of industrial areas. Recommendations are given for restructuring of industrial areas with respect to their planning structure, functional organization, and provision of an ecological condition.

Keywords: economic and environmental security; urbanization; industrial territory; urbanized territory; restructuring of industrial area.

JEL Classification: O18; Q5; Q58; L59.

Introduction

In the contemporary world, urbanization is one of the most socially significant processes. While in 1960, there were just 52 megacities in the developing countries, by 2000 their number has increased to 279, and by 2025, as expected, this figure will approach 500 (Bakinova *et al.* 2019). In developed countries, the transition to total urbanization, in general, has already been completed (Bancerova *et al.* 2018). The level of urbanization in

countries with territories comparable to Kazakhstan and a fairly small population, such as Canada and Australia, reaches 80% (Kazakov *et al.* 2018).

The urbanization process is gaining momentum in Kazakhstan as well, where the most promising urbanization centers are Almaty, Atyrau, Shymkent, Aktobe, Oskemen, Zhanatas, Kyzylorda, and Kostanay. According to UN experts, by 2050 the proportion of urban residents in developed countries will be 86%, while in developing countries – 67% (in Kazakhstan – 70%) (Goffe 2016).

Today, Kazakhstan has turned from a rural and agricultural country into an urban and industrial state, where the proportion of the urban population is 57.3%. Urbanization in Kazakhstan develops due to the growth of industrial centers and small towns based on city-forming industries and industry sectors. Forecast indicators of Almaty agglomeration allow stating about the growth of its population to 3.5 mln people by 2030, while the level of urbanization – to 75%. The population of Shymkent has already exceeded the millionth level (Nurgaliyeva *et al.* 2019).

Strategic Development Plan of the Republic of Kazakhstan until 2025 approved in 2018 set the task of increasing the competitiveness of regions through managed urbanization and improving the population's quality of life, paying special attention to the development of functional urban areas (The Strategic Development Plan of the Republic of Kazakhstan until 2025, 2018). In this regard, the issues concerning the development of industrial and urbanized areas in the context of economic and environmental security become of particular relevance.

1. Literature Review

The issues of determining the essence of economic and environmental safety, their place in the structure of national security and importance in the development of industrial and urban areas have been studied in the scientific works of many authors.

According to I.S. Belik, the interaction of social and natural factors has become decisive in the adverse impact on the country's environment. Therefore, ensuring economic and environmental security remains today one of the main ways to solve problems in the field of national security, which will ensure sustainable development of society, open up new opportunities for various forms of activity to ensure national security – social, economic, environmental, political, etc. (Belik *et al.* 2015).

Some experts consider the economic and environmental safety in the framework of a unified and indivisible whole. Thus, M.A. Utkova and P.Yu. Utkov (2014) suggest considering economic and environmental security as a state of global sustainability and the dynamic equilibrium of the socio-ecological and economic system, which ensures reliable existence, reproduction, and development. They argue that this approach to the understanding of ecological and economic security allows considering it as a function of the system which aims at achieving its maximum efficiency, minimal disruption of its equilibrium due to external influences, increasing resistance to impacts, and preserving the ability to self-regeneration and self-organization.

Kesyan Z.A. (2010) believes that economic and environmental security should ensure such an internal interaction of elements of the socio-ecological and economic system, in which high rates of expanded production, economic growth, and improvement of the well-being are accompanied by preservation and improvement of the environment.

According to I.S. Maslennikova and V.V. Gorbunova (2011), economic and environmental security as a component of national security should be considered as a set of ecological and economic relations which arise among the management entities, enterprises, society, and the environment to maintain the quality characteristics of the natural environment, and ensure the preservation of the rights of society to exist in a favorable environment and economic interests of nature management in the context of internationalization of public relations and balancing of ecological and economic goods between countries, which occurs under the influence of scientific and technological progress.

Ochirova E.L. (2009, p. 27) defines economic and environmental security based on the paradigm of sustainable development as "a state in which the environment can ensure the existence of society and meet its needs in a fairly long term".

Buletova N.E. (2012) notes that economic and environmental security can be defined as a state in which the environment can ensure the existence of society and meet its needs in a fairly long term. This is a kind of mankind survival strategy, the development vector, the overall main goal of socio-economic development.

According to E.G. Trubina (2013), the city as an urbanized territory, is a complicated system where elements of the natural environment interact with artificial components (residential, public, and industrial buildings, transport networks, utilities, etc.). In order for the city to be environmentally comfortable for its residents, it is necessary not only building new cities or large urban development sites in compliance with

environmental requirements but also restructuring the environment of existing cities in general, or at least individual urban areas. At that, the focus of much attention should be primarily directed to industrial areas.

Restructuring of industrial areas is an integrated system of measures. According to the researchers, many countries in Western Europe and Asia already have a number of best practices in their implementation. In some of them, the problem of abandoned industrial areas is solved by means of large-scale government programs supported by national or regional investments. In other countries, the solution is aimed at only the introduction of official restrictions and regulatory systems that promote the initiative of individual private owners and require their responsibility and urgent action (Hassink and Shin 2005).

According to the researchers, the examples of the solution and the implementation process itself differ not only in terms of the measures taken but also in the capacities of national institutions, their main development directions and the share of responsibility that is assigned to the state itself. Choosing the right model is a difficult and answerable task, given the scale with which one has to face when restructuring former industrial areas (Moulaert and Sekia 2003).

Wren K. and J. Taylor (1999, p. 492) proposed a definition of the concept of restructuring of industrial and urban areas at different hierarchical levels of production organization (local, regional, and national). In their opinion, at the level of territorial-industrial formations of the city, restructuring is understood as: "progressive changes in the structure of the subsystems forming them, which are carried out by means of a number of organizational, economic, legal and technical measures aimed at increasing production, improving the production efficiency and competitiveness, ensuring rational use of resources, and preserving the city environment. At that, such restructuring often ends with the creation of new forms of productive forces based on degraded territorial-industrial formations, namely, innovative territorial-industrial formations, which are designed to improve the population's standard of living based on ensuring dynamic innovation development of production".

According to A. Andreoni, the main issues of ecological restructuring of the city (urban) industrial areas are the establishment of the relationship and influence in the system of "building objects–environment"; maintenance of architectural and urban development by means of ecological equilibrium between construction sites and the environment; ecological optimization of construction, design, and technological solutions, taking into account their negative impact on the environment and the renewal of disturbed environment (fragments of the environment); ecological materials and construction methods, ecological equipment and technologies; reduction in consumption of material and natural resources at reconstruction of objects; prevention of ecological violations and pollution of internal environment of housing buildings, and ensuring favorable sanitary and hygienic conditions; as well as video ecology (ecology of perception of the environment) (Andreoni and Gregory 2013).

Research hypothesis is formulated as follows: the main development course of industrial and urbanized territories in the context of economic and environmental security should be directed to their ecological restructuring, whose application should ensure the formation of an integral structure of the urbanized territory and meet the following requirements: reducing the negative impact on the environment; increasing the percentage and efficiency when using landscape territories; increasing artistic and architectural expressiveness; as well as socio-economic conditionality of architectural and urban planning solutions.

2. Proposed Methodology

a. General Description

The present study was carried out at two levels: theoretical and empirical:

- theoretical methods included content analysis (analysis of environmental and economic concepts); compositional and functional analysis (identification of features of industrial and urbanized territories); comparative analysis method (comparison of the restructuring process of industrial areas); and system analysis (systematization of the research results).
- empirical methods were based on the expert online survey of urban planning industry specialists and environmentalists (15 experts).

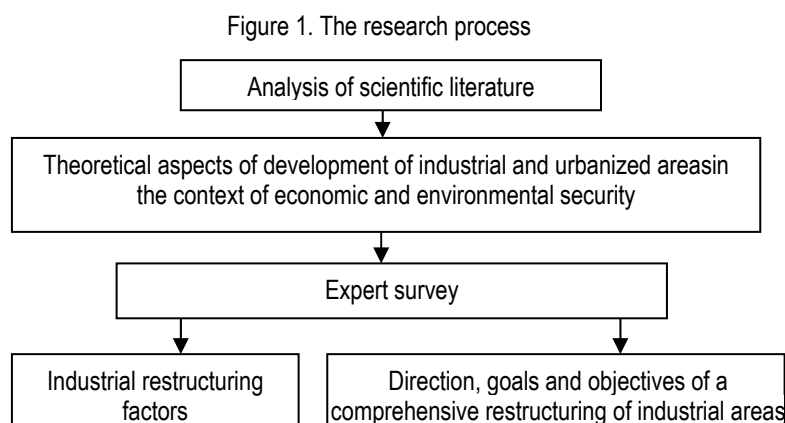
b. Algorithm

At the first stage of the study, the analysis of scientific literature on the development of industrial and urbanized areas was carried out in the context of economic and environmental security.

The second stage of the study involved determination and generalization of the main factors of restructuring industrial areas (accounting and monitoring of land use for industrial sites), as well as the characteristic of directions, goals, and objectives of the restructuring of industrial areas of the city and its

environs, given implemented examples of the restructuring of degraded industrial areas, and the proposed recommendations for restructuring of industrial areas through biological reclamation.

c. Flow Chart



3. Result Analysis

Experts have identified and generalized the key factors for industrial restructuring (Table 1).

Table 1. Key factors for industrial restructuring

No.	Factor	Characteristics	%*
1	Environmental	Ecological condition of industrial facilities; pollution rate with harmful substances	94
2	Economic	The development strategy of the city; economic feasibility to change or preserve industrial function; development of competitive production	94
3	City-planning	Location in the city structure; improvement of the city infrastructure; distance from the central part of the city and transport hubs; transport accessibility of the territory by various means of transport; functional use of the environment; formed functional planning structure of the territory	91
4	Availability of natural and economic resources	Landscapes and objects (water bodies, green areas, etc.); economic resources formed by human production activity (means of production, engineering equipment (electricity/power), water supply, sanitation, etc.)	88
5	Social	Training and explanation of expediency of actualization of the offered development course of industrial territories; improving the status of the thrown industrial object; safety improvement near and directly on the territory of an industrial facility	88
6	Innovative development	Renewal and improvement of production technologies; transition to environmentally friendly and less energy-consuming production mechanisms	82
7	Stage-by-stage implementation of restructuring	Accounting for the scale of restructuring of industrial facilities (temporary, financial, etc.); stage-by-stage implementation of project proposals	82
8	Historical and cultural	Valuable functional design mission of the territory; valuable planning structure of the territory; valuable buildings/complexes/ensembles of cultural and historical significance; valuable memorable places	76

Note: compiled based on an expert survey; * – percentage of expert mentions

At that, according to one of the experts (Kairat Aukenov, ecologist of the Department of Urban Planning and Urbanism): "all industrial enterprises in the city area can be divided into two types: effective and ineffective; specific restructuring methodology should be developed for each of them". Thus, according to the expert community, the restructuring of industrial areas aimed at their further development is possible in two directions, each having specific tasks (Table2):

- 1) Combined reconstruction of the industrial territory of a cost-effective enterprise.
- 2) Reorganization of the industrial territory of the ineffective enterprise for which preservation of production function is incompatible with city-planning, ecological and sanitary-hygienic requirements, or it is economically inexpedient.

Table 2. The restructuring objectives of the industrial areas

No	Combined reconstruction	%*	Reorganization	%*
1	Improving planning organization of industrial area (separation of traffic and people flows, etc.)	94	Compositional and functional accentuation of ineffective industrial areas	91
2	Improving operational and economic characteristics of industrial areas	91	Forming new landscape and recreational facilities based on the sanitary protection zone and areas free from building fragments	88
3	Improving sanitary and hygienic conditions (correcting microclimate, reducing harmful emissions)	88	preserving, reconstructing, and adjusting industrial buildings valuable in architectural, artistic, historical and cultural senses	76
4	improving the aesthetic level of the industrial and surrounding areas	88		

Note: compiled based an expert survey; * – percentage of expert mentions

4. Discussion

As follows from the research results, the main tasks during the combined reconstruction of the industrial area are its environmentalization and aestheticization, as well as the modernization of the technological process and equipment operating in the territory of the industrial enterprise.

At that, modernization of technological process and equipment is understood as the implementation of new production technologies and the provision of modern technical equipment designed to reduce harmful impact on the environment, and increase production capacity, economic efficiency, and competitiveness, as well as to improve working conditions. Environmentalization is understood as a reduction of the negative impact on the environment, which is achieved due to the modernization of technological processes and the increase of the landscape component efficiency of the site. Aestheticization means the design of the architectural environment of the territory, that is, the improvement of external and internal architectural and artistic characteristics of buildings and structures, as well as the renewal and improvement of internal recreational spaces and adjacent landscape areas.

According to experts, the leading direction in the reconstruction of the industrial territory is the intensification of its production use. At that, it is necessary to conduct cadastral zoning of the industrial area according to its condition:

1) transformation zone is the area which includes objects, whose further operation is impractical for a number of reasons (sanitation, deterioration of structures);

2) the renovation zone is the area that includes the objects that are in need of substantial modernization.

Thus, the combined reconstruction of industrial areas corresponds to the implementation of environmental requirements such as reducing the negative impact on the environment, increasing the percentage and efficiency of use of landscape areas, and increasing the artistic and architectural expressiveness of urbanized areas.

Speaking about the second option of restructuring as a secondary use of industrial areas in the urban structure, experts note that the selection of industrial areas for reorganization is based on the following criteria:

1) location in the urban structure (the central planning district or peripherals) defines conditions of accessibility and the architectural image of the city;

2) the area of sanitary protection zone as a recreational potential of the industrial area;

3) cost-effectiveness, *i.e.* the feasibility of moving industrial areas outside the central planning district or city;

4) hazard class, characterizing the impact on the environmental situation in the city.

Therefore, first of all, industrial territories located within the residential area in the historic center of the city, with harmful effects on the environment, and provided with railway or roads crossing residential areas and areas that hinder environmental improvement or reconstruction of other parts of the city and improvement of the planning organization of the whole urban structure, are subject to reorganization.

Experts gave some examples of implemented restructuring of industrial areas, which had proved to be successful projects.

A) London Docklands (United Kingdom), which is the former territory of docks and wharves. Today it is a mixed-use area of London, which includes sites of housing, offices, recreation, services, education, and culture, and which has become London's main business district (Church 1988).

According to experts, the London Docklands is an example of a comprehensive program on the restructuring of industrial areas at the level of a multimillion city which has allowed:

1. Changing district industrial function to new ones, namely, housing, offices, recreation, service, education, and culture.
2. Conducting environmentalization of the territory, *i.e.* implementing and maintaining ecological standards of the environment.
3. Ensuring growth of socio-economic efficiency of the territory use, *i.e.* taking measures on psychological rehabilitation of asocial territories, transformation of economically burdensome territories into an effective structural element of the whole city, and the growth of the prestige of the district as business center, active marketing and involvement of international organizations and corporations in the district development.
4. Creating a certain image, carrying out the rebranding of the territory, and ensuring recognition of the object on a world scale, involving well-known architects in the project design.

B) Emscher Park in the valley of the Ruhr coal basin. For more than 100 years this territory has been monofunctional (focused on heavy and coal industry, and mining). After restructuring, a chain of 22 scientific and technological centers was established on the site of old industrial facilities. In total, this project consisted of 120 projects. Various decentralized urban projects (17 projects) were combined into one structure (Hospers 2004).

According to experts, this was a program of comprehensive, large-scale restructuring of degraded industrial areas by means of regional planning. The structural policy of the industrialized landscape restoration has resulted in the following:

1. Changing industrial function, *i.e.* restoring the Emscher Park landscape. Combining features such as culture, recreation, and production. Ensuring international recognition as one of the cultural capitals of Europe.
2. Carrying out environmentalization, *i.e.* increasing the ecological level of the environment and maintaining its high standards. Taking measures towards the revival of environmentally disadvantaged areas. Developing Emscher Park as the largest center to solve environmental pollution problems.
3. Preserving the industrial heritage and emphasizing the preservation of artifacts of industrial architecture and technology as part of the heritage of industrial culture in Germany.
4. Improving the socio-economic efficiency of the use of territories, namely, the transformation of economically burdensome, unprofitable territories into an effective structural element of the Ruhr region.

C) Gasometers in Vienna (Austria) – four gas holders for coal gas storage were the main industrial objects used to store illuminating gas. Today it is a multifunctional complex which includes parking lots on the underground level, entertainment and shopping centers on the first floors, office space on the middle floors, housing, and offices on the upper floors, as well as service institutions such as cinema, music hall, municipal archive, student dormitory, etc. At that, green areas were organized in the inner space of the gas holders (Vanheusden 2007).

According to experts, this project is an example of a starting point in the development of the city by attracting depressive industrial areas into the city structure. The implementation of this project has allowed:

1. Preserving industrial heritage, *i.e.* preserving the territory and the corresponding objects as a national heritage, country's architectural and historical value in the framework of a large-scale reconstruction project of the historic part of Vienna.
2. Improving social and economic indicators by transforming unprofitable territories into an equal structural element of the city with the subsequent positive effect on the development of the city in general.
3. Acquiring new functions, such as creating multifunctional facilities, giving abandoned industrial facilities with a new designation.

As an example of another approach to the development of industrial areas that are not part of urban settlements, the experts cited the biological reclamation of disturbed lands of the Kokjon deposit (dump No. 2 of the Kistas site, the Zhambyl Region).

The main disturbance of agricultural land and pollution of natural complexes in the South-Western part of the region is associated with the extraction and processing of phosphorites. Waste products of Karatau-Zhambyl phosphorite industrial complex created a kind of biogeochemical province, whose boundaries were not clearly marked.

As a result of mining of phosphorite deposits, technogenic relief was formed which represented quarries of various depths and terraced forms mostly elongated along the low mountains. In the vicinity, there were overburden dumps, for which significant areas of land were allocated with the preservation of the potentially fertile layer in the heaps.

Biological reclamation was carried out at the experimental site by sowing tree and shrub crops and grasses, mainly cereals (black saxaul, elm tree, tamarisk, oleaster, salt tree, red fescue, perennial ryegrass, cocksfoot, meadow fescue grass, awnless brome, and wild ruttishness).

During the observation period (2016-2018) at the experimental site, where biological reclamation of the waste dump of the phosphorite deposit was carried out, tree-shrub and herbaceous crops were in satisfactory condition, the survival rate of tree-shrub cultures amounted to 4%. Drought-resistant grain-like cereals, such as melilot, ephedra, artemisia, and other crops showed the predominance, despite the acute lack of moisture (Kesyana 2010). In general, the recultivated area was characterized by the self-vegetation process.

In general, recultivation has resulted in the following:

- formation of a thin layer of humus and improvement of granulometric fractions were noted on the reclaimed area while increasing the moisture content of the soil;
- the granulometric composition of soil samples was dominated by large dust sand fractions;
- the physical properties of soil components, depending on the depth of occurrence, tended to increase the percentage of large particles while reducing small fractions;
- the increase in large fractions of soil while reducing small fractions created the most favorable conditions to form films of bound water, providing a moisture-holding capacity of soil components with a deepening of the moisture penetration zone.

At the end of the discussion, the experts proposed the following recommendations to restructure industrial areas with regard to their planning structure, functional organization, and ensuring the environmental condition:

1) recommendations for planning structure of the industrial territory: to ensure the orderliness of the planning structure elements in the territory; to generate a hierarchical planning structure elements; to associate the natural and human elements that form the integrity of the territory; to intensify the area (increasing the density of areas of an industrial facility); to provide the flexibility of the planning structure (the ability to make changes in the future).

2) recommendations for the functional organization of industrial area: to provide proportionality of the functional load of the industrial area (the balance between the feature set of the territory), and to ensure adaptability (ability to functional conversion according to the requirements of the time).

3) recommendations for ensuring the ecological condition of the industrial territory: to maintain a balance between natural and anthropogenic elements; to carry out preliminary rehabilitation of territories by cleaning the natural elements of the territory (soil, water, biological diversity, buildings and structures (subject to their preservation)).

Conclusion

One of the directions of the ecological development of industrial and urbanized territories should be restructuring as one of the tools to implement the principles, provisions, and foundations of sustainable development. Environmental restructuring is also one of the tools of environmentalization, which provides for the implementation of measures aimed at ensuring the environmental security of the city, and serves as a mechanism to regulate territorial development.

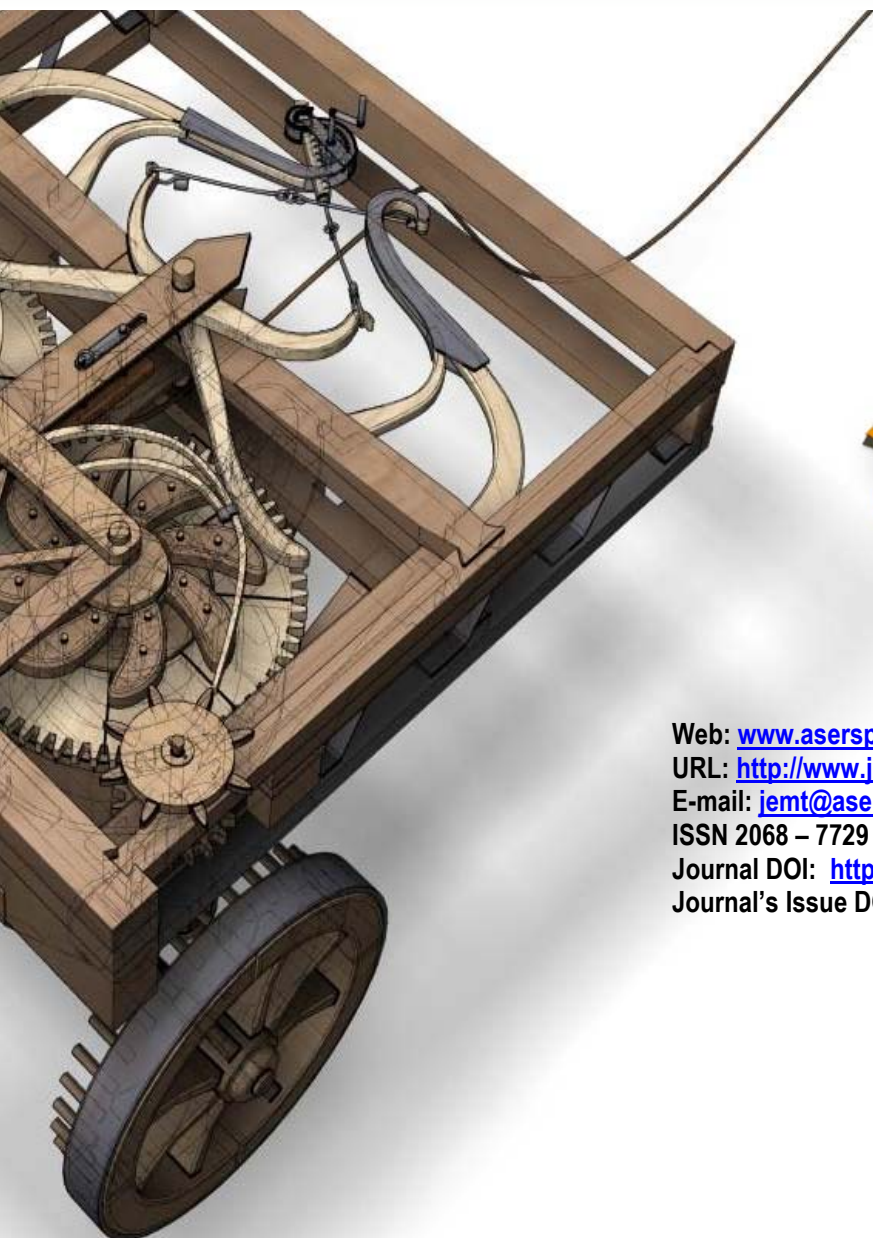
Thus, the conducted study has confirmed the hypothesis that the main development course of industrial and urbanized territories in the context of economic and environmental security is their ecological restructuring, whose application should ensure the formation of the integral structure of the urbanized area and comply with the following requirements, namely, reducing negative impact on environment, increasing the percentage and efficiency of the landscape use, improving architectural expressiveness, ensuring socio-economic conditionality of urban planning solutions.

References

- [1] Andreoni, A., and Gregory, M. 2013. Why and how manufacturing still matters: Old rationales, new realities. *Revue d'Economie Industrielle*, 144: 17-53.
- [2] Bakinova, T., et al. 2019. Information Support of Monitoring as a Tool of Ecological Optimization of Agricultural Land Use. *Journal of Environmental Management and Tourism*, 10(1): 195-201.
- [3] Bancerova, O., and Kasimova, A. 2018. Formation of Ethnocultural Tourism Clusters in Russia-Kazakhstan Borderline Territory. *Journal of Environmental Management and Tourism*, 9(4): 771-776.

- [4] Belik, I.S., Burmakina, L.A., Vivarets, K.A., and Starodubets, N.V. 2015. *Economic and environmental security*. Yekaterinburg, Ural Federal University, 152 p. (In Russian)
- [5] Buletova, N.E. 2012. Conceptual bases of ecological and economic security studies and their application in the regional economy. *National Interests: Priorities and Security*, 41(182): 10-23. (In Russian)
- [6] Church, A. 1988. Urban regeneration in London Docklands: A five-year policy review. *Environment and Planning, Government and Policy*, 6(2): 187-208.
- [7] Goffe, N. 2016. Social problems in the economic space of the metropolis. *World Economy and International Relations*, 60(10): 62-72. (In Russian)
- [8] Hassink, R., and Shin, D.-H. 2005. The restructuring of old industrial areas in Europe and Asia. *Environment and Planning*, 37(4): 571-580.
- [9] Hospers, G.-J. 2004. Restructuring Europe's rustbelt: The case of the German Ruhrgebiet. *Intereconomics*, 39(3): 147-156.
- [10] Kazakov, M., et al. 2018. System Diagnostics and Monitoring of Socio-Economic and Tourist Potential of Peripheral Territories of the Region. *Journal of Environmental Management and Tourism*, 9(2): 283-290.
- [11] Kesyana, Z.A. 2010. Economic aspects of environmental security at the microlevel. *Bulletin of the Alyai State University, Economics*, 4(71): 201-206. (In Russian)
- [12] Maslennikova, I. S., and Gorbunova, V.V. 2011. *Management of environmental security and rational use of natural resources*. The St. Petersburg State University of Engineering and Economics, 566 p. (In Russian)
- [13] Moulaert, F., and Sekia, F. 2003. Territorial innovation models: A critical survey. *Regional Studies*, 37: 289-302.
- [14] Nurgaliyeva, K., Amirova, A., and Nurtazinova, A. 2019. The Green Economy in Market-Oriented Countries: The Case of Kazakhstan. *Journal of Environmental Management and Tourism*, 9(5): 1019-1029.
- [15] Ochirova, E.L. 2009. *Economic and environmental aspects of sustainable development of the modern economy*. Irkutsk, Irkutsk State Railway Transport Engineering University, 108 p. (In Russian)
- [16] Trubina, E.G. 2013. *The city in theory: Experiments of urban space comprehension*. Moscow, New Literary Review, 520 p. (In Russian)
- [17] Utkova, M.A., and Utkov, P.Yu. 2014. *Economic and environmental security in the system of regional management: A practice-oriented monograph*. Publishers of the St. Petersburg University of Management Technologies and Economics, 116 p. (In Russian)
- [18] Vanheusden, B. 2007. Brownfield redevelopment in the European Union. *Boston College Environmental Affairs Law Review*, XXXIV 3: 559-575.
- [19] Wren, C., and Taylor, J. 1999. Industrial restructuring and regional policy. *Oxford Economic Papers*, 51(3): 487-516.

ASERS



 **ASERS**
Publishing

Web: www.aserspublishing.eu

URL: <http://www.journals.aserspublishing.eu/jemt>

E-mail: jemt@aserspublishing.eu

ISSN 2068 – 7729

Journal DOI: <https://doi.org/10.14505/jemt>

Journal's Issue DOI: [https://doi.org/10.14505/jemt.v11.1\(41\).00](https://doi.org/10.14505/jemt.v11.1(41).00)