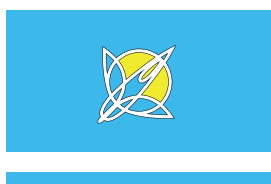


## Annex 3

to the Development Strategy of the city of Horishni Plavni

# REPORT ON THE STRATEGIC ENVIRONMENTAL ASSESSMENT OF THE HORISHNI PLAVNI CITY DEVELOPMENT STRATEGY UNTIL 2028

city of Horishni Plavni, 2017



The Report on Strategic Environmental Assessment (SEA) of the Horishni Plavni city Development Strategy until 2028 has been prepared by the Working group on SEA with support from the Heinrich Boell Foundation Regional Office in Ukraine and the International Technical Assistance Project «Partnership for Local Economic Development and Democratic Governance» (PLEDDG) being implemented by the Federation of Canadian Municipalities (FCM) and financed by Global Affairs Canada.

The content of this document is exclusively authors' opinions and not necessarily coincide with the stand of Global Affairs Canada or the Government of Germany.



PLEDDG aims to strengthen Ukraine's municipal sector, to implement an efficient democratic governance model and accelerate economic development by increasing capacities in Ukrainian cities to advance local democracy and economic development; to create enabling conditions for the creation and growth of small and medium-sized enterprises, facilitate decentralization of authorities and integrated development planning at the local, regional and national levels.

[www.pleddg.org.ua](http://www.pleddg.org.ua)

The Heinrich Boell Foundation is a legally independent German political foundation. Office in Ukraine has been operating as a nongovernmental resource organization popularizing democratic agenda and changing the public discourse towards green democratic transformations since 2008. Priority activities of the Foundation: promoting democracy and strengthening civil society, political education of society, green energy transition and climate protection, gender equality and human rights advocacy. The Foundation, follows the principles of grassroots participatory democracy, gender mainstreaming and raising public awareness of the green ideas in its everyday practices.

[www.ua.boell.org](http://www.ua.boell.org)

	<b>Introduction</b>	<b>2</b>
<b>1.</b>	<b>SEA Methodology</b>	<b>3</b>
<b>1.1.</b>	<b>Legislative and Regulatory Framework for SEA in Ukraine</b>	<b>3</b>
<b>1.2.</b>	<b>SEA Methodology</b>	<b>3</b>
<b>2.</b>	<b>Horishni Plavni city Development Strategy until 2028</b>	<b>8</b>
<b>3.</b>	<b>Assessment of environmental situation in Horishni Plavni</b>	<b>15</b>
<b>3.1.</b>	<b>The city's key environmental problems</b>	<b>15</b>
<b>3.2.</b>	<b>SWOT-analysis of the environmental situation in the city</b>	<b>17</b>
<b>3.3.</b>	<b>Analysis of the trends related to the state of environment</b>	<b>18</b>
<b>4.</b>	<b>Analysis of the Strategy's correspondence to the regional environmental goals</b>	<b>25</b>
<b>5.</b>	<b>Assessment of the potential impact of the Strategy realization on environmental</b>	<b>28</b>
<b>5.1.</b>	<b>Possible anthropogenic and natural change factors</b>	<b>28</b>
<b>5.2.</b>	<b>Strategy's potential impact on the environmental components</b>	<b>29</b>
<b>6.</b>	<b>SEA Recommendations</b>	<b>35</b>
<b>7.</b>	<b>Organization of monitoring of the actual impact of the Strategy on the environment</b>	<b>37</b>
<b>8.</b>	<b>Conclusions</b>	<b>39</b>
<b>9.</b>	<b>List of used sources</b>	<b>40</b>
<b>10.</b>	<b>List of participants in the Working Group on Strategic Environmental Assessment</b>	<b>42</b>

## Introduction

The concept of sustainable development, which seeks to integrate economic, social and environmental components of development, becomes of increasing importance in international, national and regional policies at the present stage of society development. The emergence of this concept is related to the need to solve environmental problems and to take into account environmental issues in the planning and decision-making processes on socio-economic development at national, regional and local level.

Strategic environmental assessment of strategies, plans and programs provides an opportunity to focus on a comprehensive analysis of potential impacts of planned environmental activities and use the findings of this analysis to prevent or mitigate environmental impacts in the strategic planning process. Strategic Environmental Assessment (SEA) is a new tool for implementing environmental policies based on a simple principle: it is easier to prevent negative environmental consequences of activities at the planning stage than to identify and correct them at the stage of implementing a strategic initiative.

The objective of SEA is to ensure a high level of environmental protection and to enhance incorporation of environmental factors into the preparation of plans and programs to ensure sustainable development.

Ukraine has the preconditions in place for the implementation of SEA process associated with the development of strategic planning and national practices of environmental assessment.

The Strategic Environmental Assessment of the Horishni Plavni Development Strategy until 2028 was carried out under the support from the International Technical Assistance Project «Partnership for Local Economic Development and Democratic Governance» (PLEDDG) being implemented by the Federation of Canadian Municipalities (FCM) and financed by Global Affairs Canada and the Heinrich Boell Foundation Regional Office in Ukraine. SEA Working Group was formed to carry out the SEA.

# 1. SEA Methodology

## 1.1. Legislative and Regulatory Framework for SEA in Ukraine

The key international legal instruments for the SEA are the Protocol on Strategic Environmental Assessment (SEA Protocol) to the Convention on Environmental Impact Assessment in a Trans-boundary Context (Espoo Convention) ratified by the Verkhovna Rada of Ukraine (No. 562-VIII of 07/01/2015) and Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. The implementation of this directive is prescribed by the EU-Ukraine Association Agreement.

The principles of the environmental policy of Ukraine are defined by the Law of Ukraine «On the Basic Principles (Strategy) of the State Environmental Policy for the Period until 2020» (adopted by the Verkhovna Rada of Ukraine on 21 December 2010). In this law, SEA is mentioned among the basic principles of national environmental policy, tools for implementing national environmental policy and indicators of the Strategy efficiency. In particular, one of the indicators in Goal 4 «Integration of environmental policy and improvement of the integrated environmental management system» of the Strategy is the following indicator: «the share of national, sectoral, regional and local development programs that have passed the strategic environmental assessment - percentage».

In 2012, the Order of the Ministry of Ecology and Natural Resources of Ukraine (No. 659 of 17 December 2012) approved the «Basic Plan for Adaptation of the Environmental Legislation of Ukraine to the Legislation of the European Union (Basic Approximation Plan)». In particular, according to this plan it is necessary to bring the regulatory framework of Ukraine in line with the requirements of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment.

The Law of Ukraine «On Strategic Environmental Assessment» was adopted by the Verkhovna Rada of Ukraine on 4 October 2016, and on November 1, but the President of Ukraine vetoed them and submitted proposals to the bill. On 17 January 2017, the Verkhovna Rada of Ukraine did not support the revision of the bill.

On 21 February 2017, a new version of the draft law «On Strategic Environmental Assessment» was re-registered in the Verkhovna Rada of Ukraine (registration No. 6106). The purpose of the bill is to establish the scope and procedure for implementing a strategic environmental assessment of the state planning documents. The draft law was developed pursuant to paragraph 239 of the Action Plan on implementation of the EU-Ukraine Association Agreement and is focused on the implementation of Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programs on the environment.

## 1.2. SEA Methodology

The methodology is based on the Ukraine's practices of strategic environmental assessment of regional development strategies. SEA, according to this methodology, was performed for the Dnipropetrovsk Region Development until 2020 and the Lviv Region Development Strategy until 2027. Process was carried out in 2013-2014 with the support from the international technical assistance projects «Capacity building to economic development planning regions and cities of Ukraine» (EBED Project) and «Municipal Local Economic Development» (MLED Project) implemented by the Conference Board of Canada and the Federation of Canadian Municipalities (FCM) financed by the Government of Canada.

SEA methodology consists of six stages:

### Stage 1. Preparation

**1.1. Making a decision to conduct SEA.** Currently, the legal procedure for conducting SEA is not defined in Ukraine. Therefore, a decision to conduct SEA can be taken by a mayor or a city council.

**1.2. Establishing a Working Group on SEA and ensuring continuous cooperation with all developers of the Strategy.** The working group shall be composed of representatives of public authorities and local self-government, environmental experts, academicians, representatives of the public and other stakeholders. The Working Group should be provided with free access to information and capability to comment and make recommendations to policy makers.

**1.3. Determining the scope of authorities, which will take part in consultations.** SEA envisages consultations with environmental authorities and health authorities, which should be provided with opportunity to comment on the draft strategy and the SEA report.

**1.4. Determining the scope of stakeholders, and the degree of public engagement in consultations and participation.** Successful and efficient public participation is important for the success of SEA. In accordance with SEA Protocol, general public should be empowered to participate in SEA. A draft strategy and SEA report must be timely communicated to the public. The public should be provided the opportunity to express their views on the draft strategy, as well as on the SEA report. The public should be consulted as soon as possible and ideally at the time of establishing the SEA Working Group. Public participation at this early stage will indicate public interest in SEA, enhance transparency of the SEA process, provide an opportunity to identify potential conflicts of values among different social groups, and ensure that important public issues are addressed when defining the scope of SEA. In identifying a stakeholder attention should be paid to social groups that can potentially be affected by the environment deterioration and those for whom environmental conservation is one of the key activities (scientists, representatives of environmental NGOs, educators).

**1.5. Public outreach.** Requirements for informing the public are articulated in Art. 5 of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention). Informing the public is an important component at all stages of the SEA. The start of the process and the formation of a SEA Working Group should be communicated to the public at the preparation stage.

## Stage 2. SEA scoping

**2.1. Determining key environmental problems.** A review of environmental issues is needed to help focus SEA on those environmental components that are important for the city. The following questions can help in determining the priority of environmental problems: 1) What are the oldest and most important problems in the city? 2) What changes are happening in the environment? 3) What is the history and origins of these problems? The SEA team should identify major environmental problems of the city based on available analytical materials. Aiming of these problems can be determined through an expert survey of the SEA Working Group members as well as a broader sociological survey.

**2.2. Determining geography and timeline of the assessment.** The spatial scale of the assessment should cover natural, socio-economic and cultural resources and interrelationship between them as well as the land use practices that may be potentially affected by any of the alternative scenarios developed.

**2.3. Consultations with environment protection authorities and health authorities before incorporating information into the SEA report.**

## Stage 3. Assessment of environmental situation in the territory of the city

**3.1. Collecting and analyzing information on the current state of environmental components, including key environmental indicators.** Environmental components (both environmental and socio-cultural) should be defined, which SEA will focus on. It is important to identify key indicators that characterize the state of the constituents of the environment (for example, water quality indicators, health status of the population, etc.). These indicators will enable decision makers to assess changes in the environment, focusing on those parameters that will respond to the changes and create feedback as well as those parameters that may be efficiently monitored. The collected information will enable assessment of current status of the environment.

**3.2. SWOT-analysis in terms of environmental situation.** SWOT-analysis gives a chance to determine strengths and weaknesses in the environmental situation in the city and opportunities and threats affecting the environmental situation. Detection of threats will contribute to the assessment of their environmental impact, and identification of opportunities will help to find ways to reduce environmental impact of the planned activities.

**3.3. Analysis of trends in the state of environment.** High-quality assessment of environmental problems of the city's development in the past (with emphasis on key trends and expected problems) is the basis for beginning SEA documentation development. In many cases 50% or more of the total SEA time is spent precisely on determining the baseline state of the environment. At the same time, this analysis allows to evaluate alternatives to a proposed city development strategy grounded by objective trends in dynamics of the state of environment.

## Stage 4. Conducting SEA (assessment of the proposed by the Strategy measures in terms of their impact on environment and consistency with the regional environmental goals)

**4.1. Assessment of the degree, in which regional environmental objectives are considered in strategic and operational goals of the Strategy.** SEA Working Group assesses the extent to which environ-



mental conservation objectives are taken into account in the proposed development strategy. To this end, they use environmental legislation, regional strategic documents and environmental programs.

**4.2. Holding consultations with the public on environmental goals.** The results of assessing the extent to which regional environmental objectives are taken into account should be discussed with the public in order to collect comments and proposals and incorporate them in SEA documentation.

**4.3. Determining potential anthropogenic and natural factors that cause changes.** Change factors in the city could be human reasoned or natural. Regional policy and management also are change factors. Changes in the city's ecological situation often are due to synergy of economic, administrative, demographic and socio-cultural factors, as well as development level of industry, agriculture, science and technology. Change factors may be expansion or reduction of certain economic sectors (mining, energy sector, agriculture, processing industry, forestry, etc.); change of models of urban and rural development; expansion or reduction of interaction between state authorities, local self-government bodies, businesses and NGOs; changes in city's population number; changes in land use practices, etc. It is also important to distinguish local factors and factors related to regional, national and global influences. Higher-level factors are often linked to national policies and international agreements aimed at, for example, sustainable development, biodiversity conservation and climate change.

**4.4. Conducting an assessment of the Strategy impact on environment components and health and wellbeing of population.** Where the Strategy envisages specific measures and projects tagged to certain geographic areas, SEA Working Group assess impact of the proposed measures on environmental components (impact on atmospheric air, water, soils, natural resources, biodiversity) as well as on health and well-being of the population (danger to public health, socio-economic consequences, waste management, infrastructure development, transport, aesthetic characteristics of the territory, use of landscapes for recreational purposes, etc.). Where it is impossible to clearly identify territorial attachment of specific activities and projects, impact assessment of the strategy should be based on an expert assessment of SEA Working Group. Checklist can be used to assess the impact, as well as the matrix of interactions, conflicts and synergies. In this case, direct, indirect, secondary, aggregate, synergetic, short-term, temporary and long-term effects are assessed.

## **Stage 5. Elaborating SEA documentation and submitting it for approval**

**5.1. Preparation of SEA report and recommendations for preventing, reducing or mitigating potential negative environmental and public health consequences, which may result from the Strategy implementation.** All stages of SEA should be covered in the SEA report. Based on the analysis, SEA Working Group prepares recommendations for preventing, reducing or mitigating potential negative environmental and health impacts that may result from the Strategy implementation. Alternative strategies are not often considered when preparing city development strategies. More often, a more flexible approach is used, which involves analysis of various scenarios in the strategy that allows considering diverse development scenarios. Therefore, one or more



alternative scenarios for implementing the Strategy can be developed on the basis of proposed recommendations.

**5.2. Discussion of documentation, collection and consideration of proposals by interested authorities and the public.** Discussion of SEA documentation is an integral part of SEA, since it allows not only to publicize the results of SEA, but also to collect proposals to the Strategy from interested authorities and the public. The authorities may assess correctness of the SEA process and evaluate quality of the SEA documentation.

**5.3. Developing final draft of SEA documentation and submit it to the City Council for review and approval.** SEA Working Group ensures that recommendations submitted by authorities and the public (NGOs) are incorporated into the SEA report. The non-incorporated recommendations should also be present in the SEA documentation along with the explanations of the reasons why they have not been included. The report developed in the SEA process should be submitted to authorities for review and approval. In general, SEA recommendations should be taken into account to the maximum extent in a final version of the Strategy. The Strategy's developers should indicate which recommendations have been incorporated, and which ones have not been incorporated and why.

**5.4. Providing public access to the developed documentation.** The SEA documentation should be posted on the City's website along with an approved city development strategy.

## **Stage 6. Monitoring of actual environmental impacts of the Strategy implementation**

### **6.1. Creating the system of monitoring and assessment of Strategy environmental impact.**

SEA documentation should contain proposals on organizing a system to monitor the environmental impact of the Strategy implementation. This system should take into account the fact that development planning is a gradual process that depends on the development and approval of the Strategy, selection of projects and programs for its implementation, monitoring of actual impact and launch of a new planning cycle. SEA should be an integral part of all these planning stages. In this regard, implementation of the Strategy should be monitored taking into account: 1) indicators that characterize the implementation of environmental protection measures during the implementation of the Strategy; 2) results of environmental impact assessment of individual projects that will be implemented within the framework of the Strategy. The results of such monitoring should be taken into account when updating the Strategy or preparing new strategic documents.

**6.2. Establishing a working body to monitor environmental impact of the Strategy.** A working body should be established to monitor environmental impact of the Strategy. This body may function as part of a strategy monitoring system. Members of the SEA Working Group, including public representatives, may join it. The monitoring body should ensure public and government access to monitoring results.

## 2. Horishni Plavni city Development Strategy until 2028

The goal of the Horishni Plavni Development Strategy is to address common problems and implement joint activities for efficient development of the productive forces of the community, rational use of the resource potential, creation of comfortable living conditions for the inhabitants, ensuring environmental safety and improvement of territorial organization of the society. This is achieved through joint realization of the interests of authorities, community and business sector.

According to the strategic vision, Horishni Plavni is a young, green and vivid city on the Dnieper bank, which is ever-evolving and attracting investment. It is:

- the center of the mining industry, the cleanest industrial city in Ukraine demonstrating high energy efficiency and energy saving indicators;
- the capital of European knitwear fashion under its own brands, which develops a competitive highly-profitable small and medium businesses;
- a city of industrial, sports, artistic and historical tourism;
- a modern city with an active community capable of cooperating with local authorities, a city with healthy living environment and a maximum comfortable city for its residents and guests.

A desirable «trajectory» of the city's development, which should bring the community to the implementation of its strategic vision, includes a number of strategic directions for development. Each strategic direction is specified in strategic and operational goals. For each operational goal, operational tasks / project implementation areas have been developed (Table 1).

The implementation of the Development Strategy is divided into four stages, for which relevant Implementation Plans to be drafted:

- first stage – 2017-2019;
- second stage – 2020-2022;
- third stage – 2023-2025;
- fourth stage – 2026-2028.

**Table 1. Strategic directions, strategic and operational goals and operational tasks of the Horishni Plavni city Development Strategy**

Operational goal	Operational task / project implementation area
<b>Development direction A. City of developed export-oriented business sector</b>	
<b>Strategic goal A.1. Creating an efficient system of support and provision of services to businesses</b>	
A.1.1. Establishing institutions to support businesses	<ol style="list-style-type: none"><li>1. Establishing a business center to support environment-friendly start-ups</li><li>2. Organizing provision of consulting, information, education services to entrepreneurs</li><li>3. Creating and updating databases of resources for doing business</li><li>4. Holding contests for entrepreneurs</li><li>5. Establishing partnerships with the Entrepreneurship Support Foundation, Employment Centre, Chamber of Commerce and Industry</li></ol>

A.1.2. Incentives to business entities	<ol style="list-style-type: none"> <li>1. Promoting entrepreneurship via partial compensation of interest rates on loans</li> <li>2. Leasing premises on preferential terms</li> </ol>
A 1.3. Supply of professional staff to SMEs	<ol style="list-style-type: none"> <li>1. Holding meetings, round tables, workshops engaging SMEs, youth, representatives of educational institutions, employment service</li> <li>2. Elaborating of recommendations and amendments to specialist training and retraining programs and publication of vacancies</li> <li>3. Improving entrepreneurs' knowledge of business psychology, business planning, marketing, fundraising, foreign economic activity, innovation management, energy efficiency and competitiveness, foreign language skills</li> <li>4. Internship for specialists in foreign companies to be implemented with the support from international projects</li> <li>5. Delivery of trainings for SMEs' representatives on «green» business, energy management, renewable energy and sustainable consumption and production models</li> </ol>
A 1.4. Making a positive image of entrepreneurship	<ol style="list-style-type: none"> <li>1. Studying and disseminating «Success Stories» of doing business</li> <li>2. Popularization of information sources on starting up and maintaining of businesses</li> <li>3. Conducting a series of meetings «An Experienced Entrepreneur to a Future Entrepreneur»</li> <li>4. Implementation of mentoring programs</li> </ol>
<b>Strategic goal A.2. Forming of economic clusters and promoting exports</b>	
A.2.1. Encouraging creation and operation of production clusters	<ol style="list-style-type: none"> <li>1. Drafting profiles of production clusters</li> <li>2. Drafting a concept of cluster development: goals and areas, assessment of needed funding, market analysis</li> <li>3. Research into target sectoral world market</li> </ol>
A.2.2. Promoting exports via unions of local manufacturers	<ol style="list-style-type: none"> <li>1. Compiling information materials for exporters: databases, analytics on priority markets and industries</li> <li>2. Education for exporters: trainings, workshops, webinars</li> <li>3. Cooperation with the Export Promotion Office to the Ministry of Economic Development and Trade of Ukraine</li> <li>4. Creation of an interdepartmental commission on development of exports at the City Council</li> <li>5. «Business association of fellow-countrymen» and establishing twin-city relations</li> </ol>
A 2.3. Encouraging local manufacturers to enter foreign markets	<ol style="list-style-type: none"> <li>1. Compiling information materials for exporters: databases, analytics on priority markets and industries</li> <li>2. Education for exporters: trainings, workshops, webinars</li> <li>3. Cooperation with the Export Promotion Office to the Ministry of Economic Development and Trade of Ukraine</li> <li>4. Creation of an interdepartmental commission on development of exports at the City Council</li> <li>5. «Business association of fellow-countrymen» and establishing twin-city relations</li> </ol>

<b>Strategic goal A.3. Attracting additional inputs into SMEs development</b>	
A.3.1. Ensuring SMEs access to funding	<ol style="list-style-type: none"> <li>1. Assistance to SMEs in obtaining international financial assistance via project writing and implementation</li> <li>2. Holding grant contests for exporter business plans</li> <li>3. Holding contests for refunding of the bank lending cost of export business plans</li> <li>4. Dissemination of best practices and success stories as to loans and grants received by SMEs</li> </ol>
A.3.2. Updating spatial planning documentation	<ol style="list-style-type: none"> <li>1. Amending the city's general development plan incorporating information on the state of the environment (areas with complex engineering conditions, plots and sanitary-protective zones of industrial enterprises, utilities and warehouse enterprises, areas of landfills, protected shoreline belts near rivers and other reservoirs, natural reserve fund territories)</li> <li>2. Development of zoning plan of the city territory</li> <li>3. Development of detailed plans of the territory</li> <li>4. Creation of a city planning cadaster for a transparent comprehensive study of the investment attractiveness of the city's territory.</li> <li>5. Giving public access to information contained in the general development plans</li> </ol>
A 3.3. Preparing new investment products	<ol style="list-style-type: none"> <li>1. Creating the system of support to investment activities</li> <li>2. Establishing the list and characteristics of «Greenfield» land plots</li> <li>3. Preparation of investment projects and database</li> </ol>
<b>Development direction B. Comfortable, energy efficient and environmentally safe city</b>	
<b>Strategic goal B.1. Developing tourism and recreation potential of the city</b>	
B.1.1. Constructing of city's recreational infrastructure near the reservoirs	<ol style="list-style-type: none"> <li>1. Organizing a safe and comfortable recreation area in Naberezhna street taking into account the needs of various groups of population</li> <li>2. Improvement of the territory limited by Myru, Dobrovol'skoho and Naberezhna streets</li> <li>3. Construction of the embankment with sports grounds and playgrounds</li> <li>4. Establishing observation and aid posts for those who rest near the water reservoirs</li> </ol>
B.1.2. Constructing of accommodation infrastructure	<ol style="list-style-type: none"> <li>1. Hotel construction and reconstruction</li> <li>2. Improvement of the class of accommodation infrastructure</li> <li>3. Increasing the number of accommodation facilities</li> </ol>
B.1.3. Creating new and promoting existing tourist products	<ol style="list-style-type: none"> <li>1. Development and implementation of Open Air Museum Project (Barbara Archeopark)</li> <li>2. Formation of new tours: hiking, cycling, horseback riding, river tours</li> <li>3. Organization of exhibitions, cultural and artistic events, festivals</li> <li>4. Creation of advertising and souvenir tourist products using tourist symbols as well as conditions for their distribution.</li> <li>5. Promoting local tourist products: participation in international and national exhibition events, forums, conferences</li> </ol>

B.1.4. Creating cycling infrastructure in the city	<ol style="list-style-type: none"> <li>1. Creating new and repairing existing sidewalks and fences</li> <li>2. Organizing safe movement for cyclists along the city streets</li> <li>3. Installation of road signs and road marking</li> <li>4. Construction of exits from sidewalks to roadways</li> <li>5. Development of the Concept of Cyclist Traffic Development in the City</li> </ol>
<b>Strategic goal B.2. Energy efficient urban management</b>	
B.2.1. Efficient system of municipal energy management and energy monitoring	<ol style="list-style-type: none"> <li>1. Municipal energy management, professional education and training for energy managers</li> <li>2. Launching energy monitoring information system, analysis and updating of Sustainable Energy Action Plan</li> <li>3. Establishing an investment platform for launching of energy service</li> </ol>
B.2.2. Energy efficient management of buildings and establishing a platform for dialogue with the public	<ol style="list-style-type: none"> <li>1. Introduction of new forms of building management: condominiums, management companies</li> <li>2. Introduction of energy efficiency lending mechanisms for the population «Warm Loans»</li> <li>3. Project management in energy efficiency, engaging international technical assistance for implementation of residential building energy efficiency projects</li> </ol>
B.2.3. Energy audit of buildings	<ol style="list-style-type: none"> <li>1. Energy audits of buildings in community ownership (education, health care, culture)</li> <li>2. Energy audits in residential housing sector</li> </ol>
B.2.4. Energy efficient modernization of street lighting networks	<ol style="list-style-type: none"> <li>1. Introduction of energy efficient equipment and modernization of street lighting</li> <li>2. Increasing the outdoor lighting coverage area</li> </ol>
B.2.5. Thermal modernization of buildings and implementation of alternative energy sources	<ol style="list-style-type: none"> <li>1. Thermal modernization of buildings</li> <li>2. Introduction of solar systems to supply hot water to buildings</li> </ol>
B.2.6. Reconstruction of boiler houses with application of energy saving technologies	<ol style="list-style-type: none"> <li>1. Reconstruction of boiler houses with installing energy efficient equipment</li> </ol>
<b>Strategic goal B.3. Improving state of the environment and safety of the city</b>	
B.3.1. Creating an integrated system of municipal solid waste management	<ol style="list-style-type: none"> <li>1. Reconstruction of the solid waste landfill including installation of a sort line</li> <li>2. Introduction of mechanized sorting of domestic waste with recovery of valuable resource components and their recycling</li> <li>3. Technical re-equipment and upgrading of special machinery fleet and containers</li> <li>4. Reconstruction of container sites</li> </ol>
B.3.2. Reconstruction of individual municipal wastewater treatment facilities	<ol style="list-style-type: none"> <li>1. Reconstruction of gravity sewage collector from house No.89 Heroyiv Dnipra Avenue to the group of buildings in 15th microdistrict of Horishni Plavni</li> <li>2. Putting into operation the plant for mechanical dewatering of sewage sludge.</li> <li>3. Automation of the process of sewage mechanical treatment</li> </ol>

B.3.3. Restoration of the hydrological regime and bank stabilization of Dneprodzerzhinsk water reservoir and the city reservoirs	<ol style="list-style-type: none"> <li>1. Cleaning and deepening the Dnieper river bed</li> <li>2. Protecting the Dnieper river, the Park lake and restoration of sanitary and hydrological regimes</li> <li>3. Lakes protection and cleaning of reservoirs in the territory of «The Forest Lakes» local reserve</li> <li>4. Cleaning the coastal strip of the Dnieperdzerzhinsk Water Reservoir from cane, aquatic plants, herbaceous vegetation, bushes and parts of trees</li> </ol>
B.3.4. Landscaping of the city	<ol style="list-style-type: none"> <li>1. Reconstruction and expansion of the city's irrigation system</li> <li>2. Acquisition and planting of greenery (trees and shrubs)</li> <li>3. Controlling quarantine plants</li> </ol>
<b>Development direction C. The city of open creative space and active community</b>	
<b>Strategic goal C 1. Creative educational and cultural space</b>	
C.1.1. Civil active school – modern information and training space	<ol style="list-style-type: none"> <li>1. Involving active city residents in reforming the educational process</li> <li>2. Improving the socio-psychological environment for each member of the community</li> <li>3. Stirring up parent participation and creating permanent parenting lectures for parents' community</li> <li>4. Launching new information and communication technologies in the educational process</li> <li>5. Implementation of the system for headhunting and training of academically capable and gifted children</li> <li>6. Development of environmental education program for educational institutions of the city</li> <li>7. Introduction of environmental and sustainable development education into the educational process</li> </ol>
C.1.2. Forming an art space for implementation of creative projects	<ol style="list-style-type: none"> <li>1. Creation of art sites for communication, awareness raising, creative development of children and youth</li> <li>2. Establishing creative circles, organizing festivities, cultural events, creative workshops</li> <li>3. Organizing contests for youth</li> <li>4. Conducting environmental contests, creating ecological groups, conducting ecological festivals</li> </ol>
C.1.3. Novel library	<ol style="list-style-type: none"> <li>1. Equipping libraries to create modern, creative and comfortable space for residents of the city</li> <li>2. Ensuring availability and usefulness of library resources and services, on-line user access to library resources</li> <li>3. Maintenance and preservation of knowledge resource and information potential for present and future generations</li> </ol>
C.1.4. STEM-education in the modern school	<ol style="list-style-type: none"> <li>1. Establishing training courses and apprenticeship programs for successful employment</li> <li>2. Formation of sophisticated skills based on mathematical knowledge and scientific concepts as well as interaction, independent decision-making</li> <li>3. Launching robotics as one of STEM education lines designed to expand robotics in the educational environment of the city and transform the city into one of the centers of robotics in Ukraine</li> <li>4. Foreign language studies</li> </ol>

<b>Strategic goal C.2. Healthy community – meeting special needs</b>	
C.2.1. Creating accessible space for disabled persons	<ol style="list-style-type: none"> <li>1. Engaging disabled children, adolescents and youth into creative circles, sports sections, social workshops</li> <li>2. Creating a charity network</li> <li>3. Public awareness campaign on healthy lifestyle and prevention of social diseases</li> <li>4. Creating a social video studio in the city</li> <li>5. Analysis of sport and cultural facilities accessibility for disabled persons and development of recommendations on eliminating barriers.</li> </ol>
C.2.2. Healthy lifestyle and sport school	<ol style="list-style-type: none"> <li>1. Arrangement of sports grounds for the development of various sports and physical education classes among students of city's sports and youth schools</li> <li>2. Renaissance and development in the city of the Olympic sports such as shot putting, discus and javelin throwing</li> <li>3. Development of sports-oriented inclusive education, involvement of experienced disabled athletes in training of young athletes, holding an open field championship in athletics among disabled persons for the mayor's cup</li> <li>4. Public awareness campaign on healthy lifestyle and modern approaches and methods of disease prevention.</li> </ol>
C.2.3. Military and patriotic education of young people	<ol style="list-style-type: none"> <li>1. Creation of specialized sites for military and patriotic training of students</li> <li>2. Curricula improvement and updating for school, vocational school teachers, unions of Afghanistan veterans, ATO soldiers, military commissariat</li> </ol>
<b>Strategic goal C.3. Youth self-governance and development community</b>	
C.3.1. Launching youth self-governance	<ol style="list-style-type: none"> <li>1. Creation of «Youth Council», an efficient youth self-government body, identifying priorities, drafting development programs</li> <li>2. Training opinion leader for active social activities, conducting a series of trainings, workshops and participation in socially important events and projects</li> <li>3. Ensuring representation of girls in youth self-government bodies</li> <li>4. Establishment of youth interregional and international relations</li> <li>5. Holding discussion platforms for schoolchildren self-governments to identify ideas, problems and initiatives.</li> <li>6. Support to youth environmental initiatives</li> </ol>
C.3.2. International youth training camp	<ol style="list-style-type: none"> <li>1. Improving knowledge of culture, mentality and traditions of partner countries</li> <li>2. Engaging diplomatic representatives of partner countries into expansion of interethnic relations</li> <li>3. Cultural exchange with partner cities (Orhei, Ungheni, Zhodino, Carmel, Raciborz) of creative children's and youth's teams.</li> <li>4. Improving knowledge of foreign languages</li> </ol>
C.3.3. Implementation of youth projects	<ol style="list-style-type: none"> <li>1. Training a managers' team and training in project management</li> <li>2. Development and implementation of youth projects</li> </ol>



<b>Strategic goal C.4. An open community – efficient governance</b>	
C.4.1. Engaging community in municipal management	<ol style="list-style-type: none"> <li>1. Advisory and consultative bodies are in operation</li> <li>2. Organizing public debates to discuss socially important community problems</li> <li>3. Public budget as a tool of public involvement in efficient budget management and implementation of initiatives</li> <li>4. Holding public consultations on issues related to community socio-economic development</li> <li>5. Expanding channels of communication to the community, feedback</li> <li>6. Creating the system of city's public engagement to solve environmental problems, in particular, raising their awareness of environmental issues and environmental safety</li> <li>7. Organizing and conducting environment protection actions</li> </ol>
C.4.2. Provision of high-quality CAS services	<ol style="list-style-type: none"> <li>1. Expanding the list of services and improving their quality</li> <li>2. CAS marketing, software, launch of new information and communication technologies</li> <li>3. Improving document submission process where citizens wish to get administrative services</li> </ol>
C.4.3. E-governance	<ol style="list-style-type: none"> <li>1. Creation of a unified system, which includes a unified portal of city services and software applications for institutions, departments, enterprises under the City Council</li> <li>2. Improve existing and create new web resources that will ensure high performance of municipal institutions and organizations</li> <li>3. Creation of the «Environment» page on the City Council's website to inform the public about environmental situation in the city</li> </ol>

### 3. Assessment of environmental situation in Horishni Plavni

Horishni Plavni is a one-company city. The city's budget is strongly dependent on tax payments from FERREXPO Group enterprises. The city's specific feature is the functioning of mining industry with open-pit mining method, which involves the accumulation of wastes and blocking of land plots.

Horishni Plavni is an industrial city with high man-induced load. Two mining plants are located on the city's territory (Poltava Mining and Processing Plant PJSC and Yeristovo Mining Processing Plant LLC), as well as 2 crush stone quarries (Ryzhivsky Granite Quarry PJSC and Redutsky Quarry of the Industry Management Center branch of Ukrzaliznytsya PJSC). These companies have strong effect on the atmospheric air in the process of minerals extraction connected with drilling and blasting work, as well as during processing.

Research and Development Company Ferolit and the Private Enterprise Commercial Industrial Company Eurostahl-Komsomolsk manufacture finished metal products (except for machines and equipment). Device LLC, Commercial Industrial Company Radon, Diesel Firm LLC, Private Enterprise Galla Lux; collective enterprise Credo, Ferostroy LLC, Ferrotrans Subsidiary Company carry out the repair of machines and equipment.

With a view to organize work in the environmental protection area, the city council approved the Program of Environmental Protection, Rational Use of Natural Resources and Environmental Security in Komsomolsk for 2016-2020. The key goal of the program is to improve the environmental status and boost environmental security. In addition, the Program for Development and Preservation of Green Plants in Komsomolsk for 2016-2017 and the Program for Protection of the Fauna and Control over the Population of Stray Animals in Komsomolsk for 2015-2020 are currently in effect. The draft Program for Handling Solid domestic wastes in Horishni Plavni for 2017-2021 was prepared.

The Covenant of Mayors was signed and the Action Plan for Sustainable Energy Development was drafted. Energy efficient actions are being actively implemented in the municipal sector. The city is actively cooperating with the Energy Efficiency in Municipalities project (GiZ).

### 3.1. The city's key environmental problems

The Working Group on SEA has determined the rating of the city's key environmental issues (table 2).

**Table 2. The environmental problems of Horishni Plavni**

No. (rating)	Issue
1	Unsatisfactory state of the municipal solid wastes (MSW) landfill
2	MSW disposal and burial
3	Lack of enterprises processing MSW
4	Pollution of the atmosphere with the emissions produced by industrial enterprises and vehicles
5	Unsatisfactory condition of sewage networks and rain sewer facilities
6	Pollution of water bodies with the return waters discharged by industrial enterprises and municipal utility companies
7	Handling the wastes of hazard class I-III
8	High energy intensity and resource intensity of the production process
9	Insufficient efficiency of waste treatment facilities
10	Poor environmental culture of business and the general public
11	Insufficient use of renewable energy sources
12	Disposal and treatment of the wastes of mining and other industries
13	Imperfect environmental monitoring system
14	Weak levels of influence of the local self-government bodies on the processes related to man-induced load in the city
15	Poor standards of the implementation of energy efficient technologies

### 3.2. SWOT-analysis of the environmental situation in the city

The Working Group on SEA performed SWOT analysis of the environmental situation in Horishni Plavni; the summarized results of the analysis are presented in table 3.

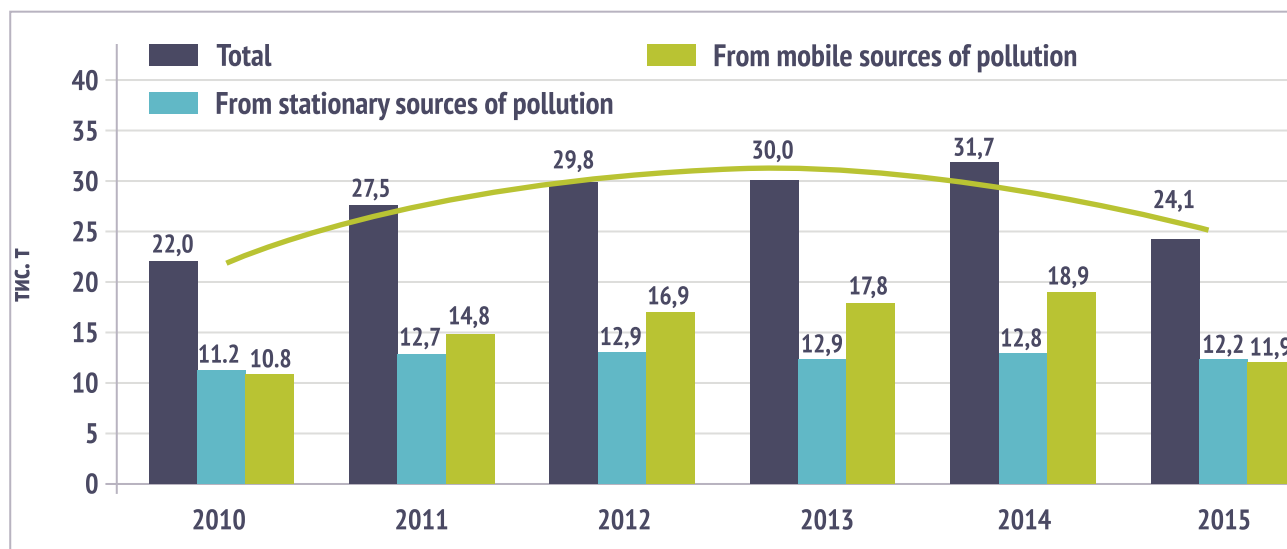
**Table 3. SWOT analysis of the environmental situation in Horishni Plavni**

Strengths	Weaknesses
<p>Substantial water resources (the Dnieper river, the Psel river, the Onufrievske lake in the Forest Lakes nature reserve, the park lake)</p> <p>Resources of Kremenchuk iron ore area, which ranks second in Ukraine in terms of iron ore raw material resources reserves (10 deposits)</p> <p>Large deposits of granites, adergneiss, gneiss, quartzite, marbles, crystalline schist, occurrences of nonferrous metal ores, semiprecious stones, diabase, sand, sandy loam, mineral colors, clays, mineral waters</p> <p>Developed extractive industry</p> <p>The Covenant of Mayors was signed and the Action Plan for Sustainable Energy Development drafted</p> <p>Highly professional and educated residents</p> <p>Developed engineering and communication infrastructure</p> <p>The housing fund is equipped with energy resources consumption accounting devices</p> <p>Energy efficient actions are being implemented in the municipal sector</p> <p>Rather developed urban amenities in the city center</p> <p>The city is surrounded by pine woods</p> <p>The city is one of the leaders in terms of the number of green plants per resident</p> <p>Sanitation work to eliminate ragweed and poplar wool is carried out in the city</p> <p>Active environmental education is in place (city environmental events, community cleanup days)</p> <p>Collection of batteries at schools was organized</p>	<p>Availability of environmentally hazardous objects</p> <p>Availability of man-made seismic activity sources</p> <p>Availability of artificial man-made sediments</p> <p>Withdrawal of lands for waste dumps</p> <p>Violation of hydrological regime of ground and subterranean waters, the mineral content above the allowed limit</p> <p>Deterioration of the quality of surface waters as a consequence of the eutrophication of Dnieperdz-erdzhinsk water reservoir</p> <p>Wearing away of river banks</p> <p>Emission of pollutants into the atmosphere by 18 industrial companies</p> <p>Unsatisfactory condition of the sewerage system and equipment because of strong wear and tear</p> <p>Significant volumes of sewage waters have industrial origin, which has negative effect on the capacities of sewage treatment plants</p> <p>High level of wear and tear of treatment plants</p> <p>High level of wear and tear of storm-water sewer, the lack of treatment plants</p> <p>MSW landfill does not meet sanitary and technical requirements, the protection from subterranean water pollution is not available</p> <p>Large volumes of industrial and domestic wastes</p> <p>Poor management of energy efficiency and energy consumption</p> <p>Growing number of allergic diseases</p> <p>Poor provision of information on the receipt of recyclable materials</p>
Opportunities	Threats
<p>Stimulation of energy efficiency in the manufacturing and housing utility sector</p> <p>Alternative energy development</p> <p>Implementation of high-tech and energy efficient technologies</p> <p>Further development of environmental management</p> <p>Opportunity to receive loans from international financial institutions</p>	<p>Political turbulence and hostilities in the East of Ukraine</p> <p>Man-made disasters</p> <p>Increasing number of accidents due to worn-down municipal infrastructure facilities</p> <p>Growing pollution of waters as a consequence of inefficient waste water treatment system</p> <p>Growing incidence of diseases as a consequence of environmental pollution</p>

### 3.3. Analysis of the trends related to the state of environment

#### Atmospheric air

The key pollutants of the atmospheric air in Horishni Plavni are mobile sources attributing 50-60% of the total gross emission of pollutants and industrial companies (40-50% of the pollutants). The dynamics of pollutants emission into atmospheric air in Horishni Plavni in 2010-2015 (picture 1) demonstrates steady volumes of emissions from stationary sources and the increase of emissions from mobile sources in 2010-2014 (with a considerable reduction in 2015).

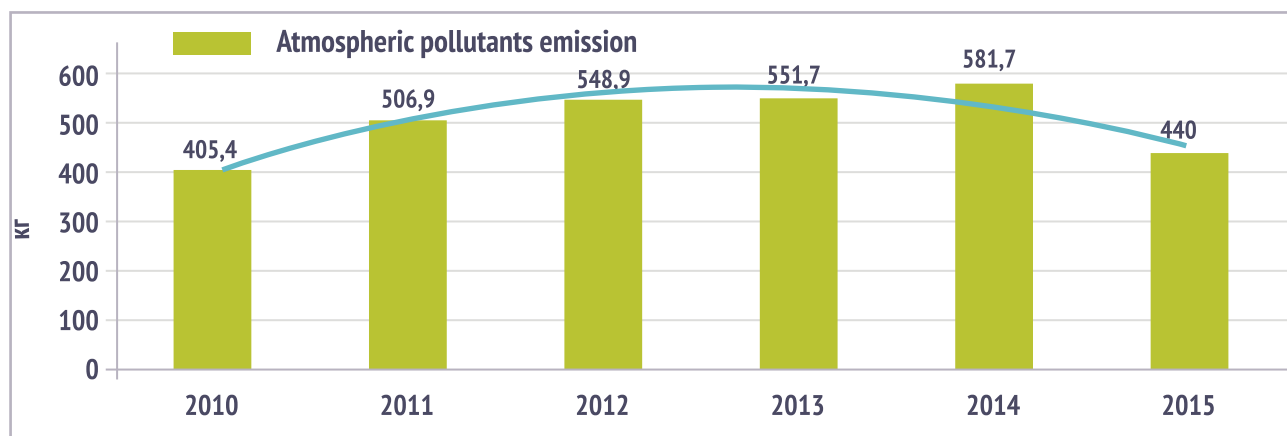


Source: Information of the Main Statistics Department in Poltava region

**Picture 1. Dynamics of pollutants emission into the atmospheric air in Horishni Plavni in 2010-2015, thousand ton**

In 2015, Horishni Plavni was one of the key pollutants of the atmospheric air in Poltava region, contributing 21.9% of the total emissions of pollutants into the atmosphere with the region's stationary sources (for comparison: 28.9% was attributed to Kremenchuk, and 2.17% of all emissions from stationary sources was attributed to Poltava).

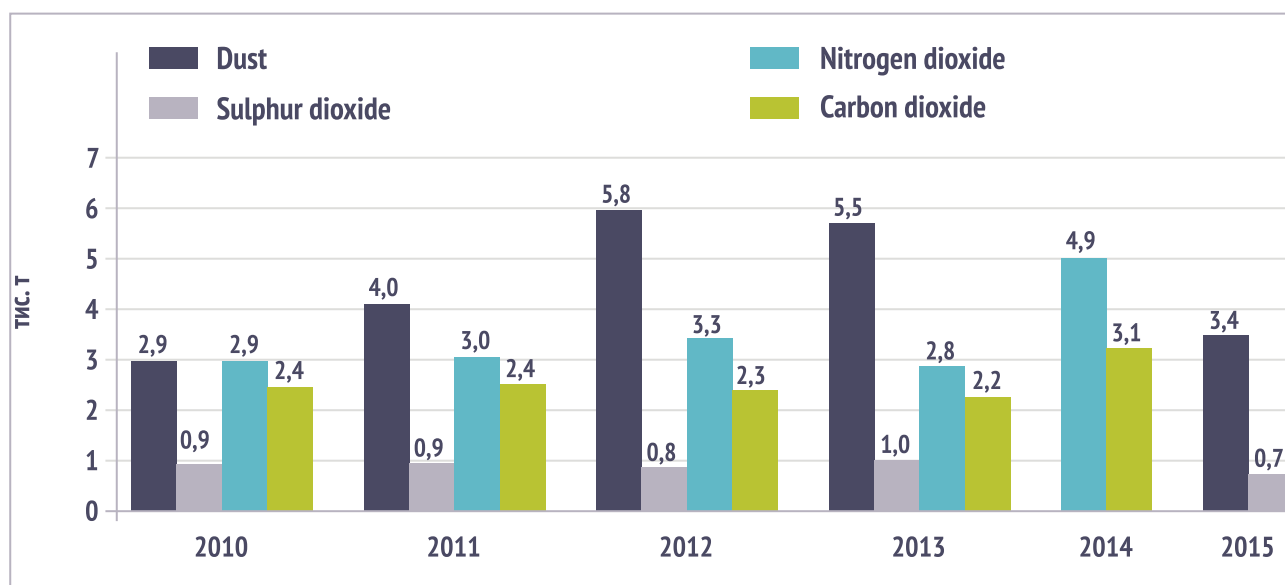
In terms of the volume of atmospheric emission of pollutants per person, Horishni Plavni is an indisputable leader in Poltava region – 440 kilos per person in 2015 (for comparison: 124.1 kilos per person in Kremenchuk, 56.7 kilos per person in Poltava). The dynamics of atmospheric emission of pollutants per person in Horishni Plavni in the last five years is presented in picture 2.



Source: Information of Main Statistics Department in Poltava region

**Picture 2. Dynamics of atmospheric pollutants emission per person in Horishni Plavni**

There are 18 enterprises emitting pollutants into the atmospheric air in the city. All of them are operating according to the approved emission permits. The companies of extractive industries are the key contaminators of the atmospheric air. In 2015, the pollutants emitted into the atmospheric air by Poltava Mining and Processing Plant PJSC amounted to 10.9 thousand tons (about 90% of the stationary sources of pollution in the city and 18.2% in the region), by Yeristovo Mining and Processing Plant LLC – 1 thousand ton (8.3% of the city's and 1.8% of the region's emissions). The dynamics of emission of the most common pollutants into the atmospheric air from the city's stationary sources demonstrates the increased emission of nitrogen dioxide and carbon monoxide.



Source: Regional report on the environmental status in Poltava region in 2015

**Picture 3. Dynamics of emissions of the most common pollutants into the atmospheric air from stationary sources in Horishni Plavni in 2010-2015, thousand ton**

Systematic observations over the content of pollutants in the atmosphere in Horishni Plavni are carried out by Kremenchuk Laboratory for Observations over the Atmospheric Air Pollution of Poltava Hydrometeorology Center at one of the fixed monitoring stations.

The results of observations for 2015 demonstrate low total atmospheric pollution level in Horishni Plavni for the year based on the pollution index. The value of the atmospheric pollution index (API) in 2015 was 2.5 (in 2014 – 2.8, in 2013 – 2.9; in 2012 – 2.8). The level of atmospheric air pollution was driven by such pollutants as dust, phenol, nitrogen dioxide, ammonia, hydrogen chloride.

Over the last 5 years (2011-2015), the annual average content of almost all pollutants, except for carbon monoxide, increased. Slight reduction of dust is observed. In terms of heavy metals, the trend of increased content of cadmium and zinc in the atmosphere and the reduction of iron, manganese, copper, lead and chromium is observed.

In 2015, nitrogen dioxide and carbon chloride exceeded the permitted air pollution level (maximum one-time concentration) on the city's streets and amounted to 1.1 Maximum Permissible Concentration (MPC) and 1.15 MPC, respectively.

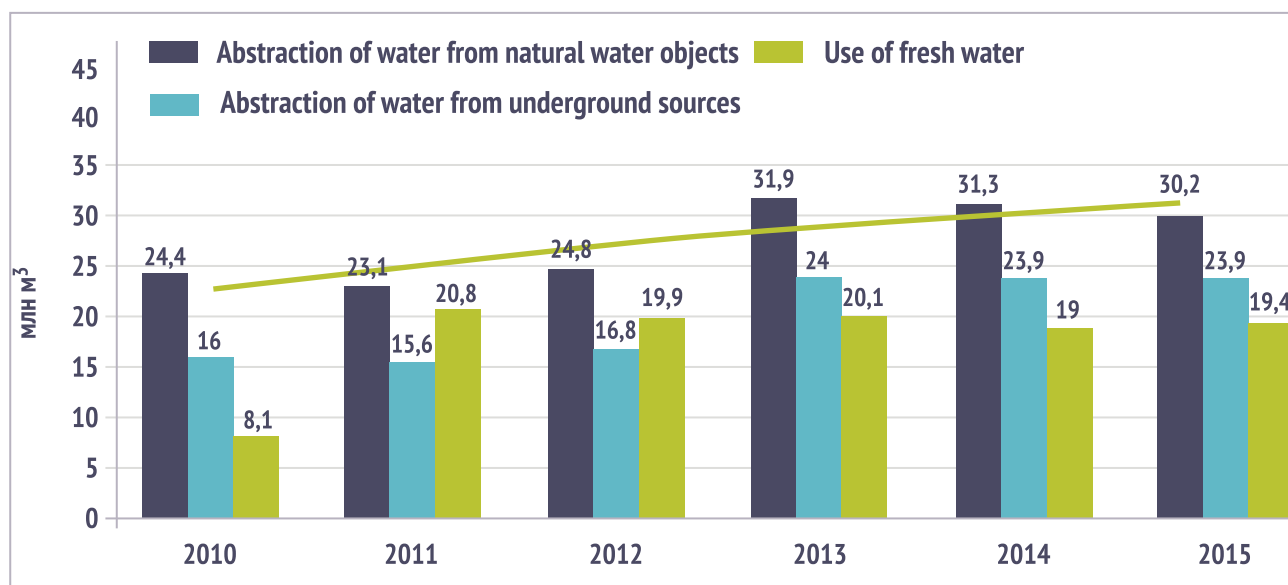
**Table 4. The highest average and maximum concentrations of pollutants (the multiples of MPC) in Horishni Plavni's atmospheric air in 2015.**

Pollutant	MPC, mg/m <sup>3</sup>	Average concentration	Maximum one-time concentration
Dust	0,15	0,479	0,8
Sulphur dioxide	0,05	0,024	0,014
Carbon monoxide	3,0	0,182	0,6
Nitrogen dioxide	0,04	0,777	1,1
Soot	0,05	0,082	0,3
Carbon chloride	0,2	0,395	1,15
Ammonia	0,04	0,327	0,25

*Source: Environmental passport of Poltava region (2015). Водокористування*

## Water Use

The main water artery of Horishni Plavni is the Dnieper River, which is a part of Dnieperdzershinsk reservoir. The processes of this reservoir's organic enrichment improve water quality and create a hazardous situation in the area of the city's public water supply abstraction on the Richyshche channel (the Dnieper bay).



*Source: Main Statistics Department in Poltava region*

**Picture 4. The dynamics of fresh water abstraction from natural water bodies and subterranean water sources and its use in Horishni Plavni**

Public utility company Production Department of Water and Waste Water Services (PUC PDWWS) of Horishni Plavni city council provides potable water for over 52 thousand consumers residing in 235 houses, Poltava Mining and Processing Plant and numerous other industrial companies, public amenities and state-funded organizations. 24/7 potable water supply to the city is ensured with the help of 13 high-lift pumping stations. The length of water supply networks is 107.3 km, out of which 15 km of networks are in critical condition.

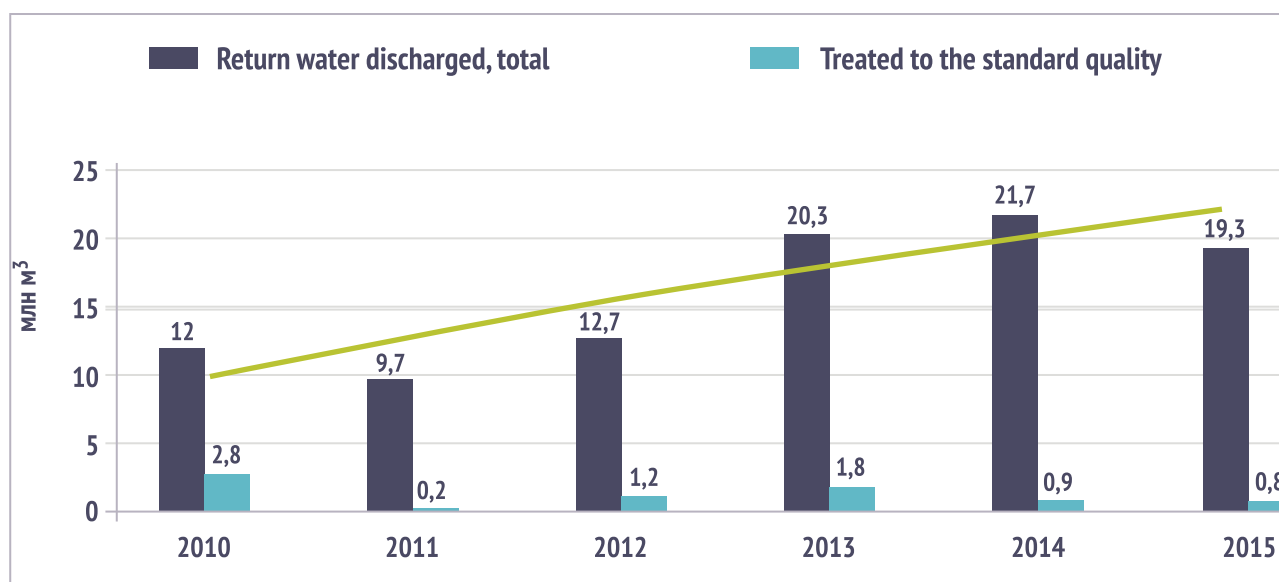


**Table 5. The use of Horishni Plavni's water resources**

Use of water resources	2010	2011	2012	2013	2014	2015
Fresh water used, mn m <sup>3</sup>	8,1	20,8	19,9	20,1	19	19,4
The volume of circulated and recycled water	491,1	528,1	532,9	573,7	565,3	597,7

PUC PDWWS receives waste waters from household and other consumers (enterprises, state-funded organizations, small and medium businesses) to the treatment plants. The waste waters from the city's area are received via the system of 13 waste water pumping stations (WWPS) located on the city's territory, into the main waste water pumping station WWPS No. 1, which dispenses the utility fluids into the waste water treatment plants. The total length of the city's sewerage network is 81.27 km, including the pressure manifolds of 10.52 km. The total length of emergency networks is 16 km. The utility fluids of Poltava Mining and Processing Plant PJSC are discharged directly into the main station of the waste water treatment plant. The waste waters undergo mechanical, biological treatment and post-treatment and discharged into the third section of the tailings dam of Poltava Mining and Processing Plant PJSC.

The tailings dam of Poltava Mining and Processing Plant PJSC accumulates the spent iron ore and waste waters (the settling of pulp, with the help of which these wastes are supplied to the hydraulic structures). The volume of accumulated wastes in the tailings dam is over 440 million tons, and the volume of waste waters is over 12 mn m<sup>3</sup>. The enterprise discharges waste waters into the rivers Dnieper and Sukhiy Kobeliachok. The plant carries out annual work to build up the bund walls of the tailings dam. If the bund walls of the tailings dam are damaged, or the tailings dam is overfilled, this may result in grave consequences related both to environmental pollution and a threat to the lives of the city's residents.



Source: Information of the Main Statistics Department in Poltava region

**Picture 5. Dynamics of return water discharge into the water bodies of Horishni Plavni, mln m<sup>3</sup>**

The process of banks' wearing away is a major issue, resulting in irreversible loss of land, the silting up of rivers and lakes.

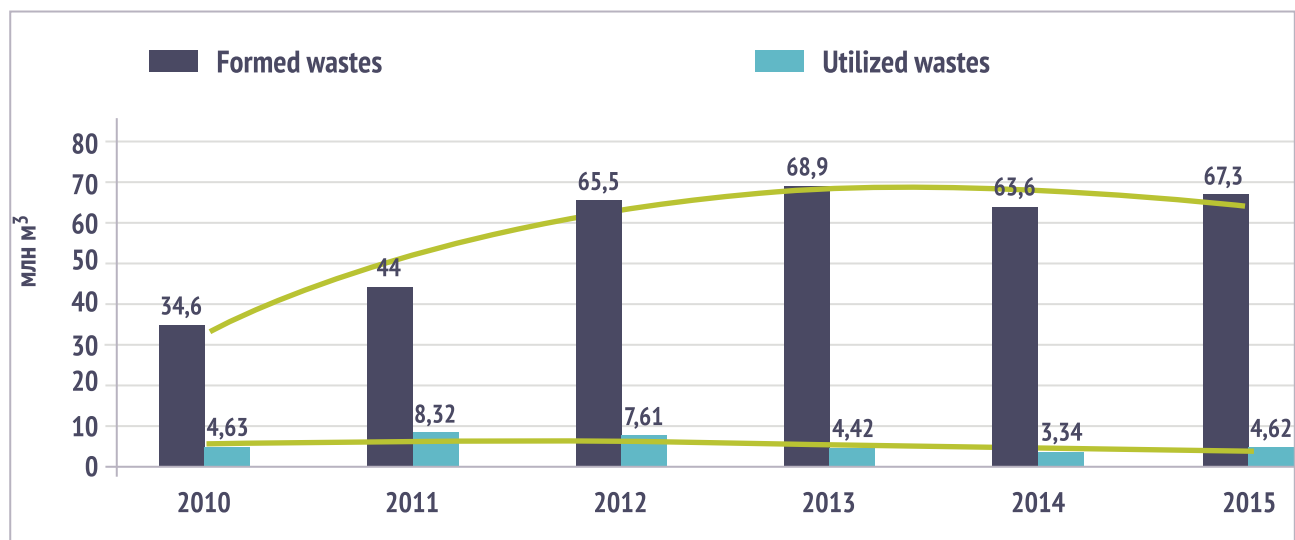
## Wastes

The large-scale use of the resources and the city economy's focus on the mining contribute to a considerable build-up and accumulation of manufacturing wastes. Although some part of wastes is processed in the course of manufacturing and used as secondary resources, most of them are accumulated in the dumps and tailings dams.

The dynamics of the build-up and utilization of the wastes of hazard classes I-IV in Horishni Plavni is presented in picture 6 and table 6. Some stabilization of the volume of the waste build-up and disposal can be observed. The total volume of the accumulated wastes keeps growing steadily.

**Table 6. Build-up and accumulation of wastes, thousand ton**

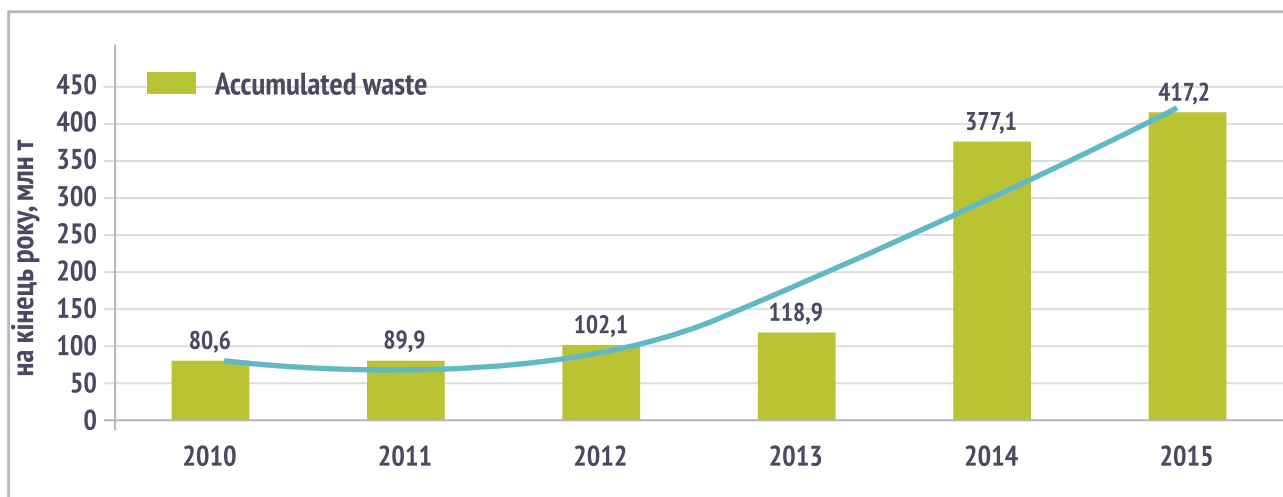
	2010	2012	2013	2015
<b>Build-up of wastes:</b>				
hazard classes I-IV – total	34,6	68,9	63,6	67,2
including hazard classes I-III	19,7	25,6	22,7	21,7
<b>Availability of wastes as of the year end:</b>				
I-IV hazard classes – total	80,6	118,9	377,2	417,2
including I-III hazard classes	77,3	125,7	23,0	25,2



Source: Main Statistics Department in Poltava region

**Picture 6. Dynamics of build-up and recovery of wastes of I-IV hazard classes in Horishni Plavni**

The key contaminators of the environment are the facilities of Poltava Mining and Processing Plant PJSC (0.5% of all wastes of hazard classes I-IV disposed of in the region). As of 01.01.2016, 2.206 billion ton of non-toxic wastes of iron ore quarry development, iron ore slime and tailings was accumulated at Poltava Mining and Processing Plant. In 2015, for the purpose of the construction and bunding of the slime storage, the setting up of the construction sites and the building of roads, 0.4 mn m3 of waste rock and 3.301 million ton of iron ore slimes were used (in 2014 – 2.125 mn m3 and 13.421 mn ton; in 2013 – 1.571 mn m3 and 15.015 mn ton, respectively, in 2012 – 1.556 mn m3 and 11.536 mn ton, in 2011 – 1.1 mn m3 and 11.840 mn tons, respectively) were used.



Source: Information of the Main Statistics Department in Poltava region

**Picture 7. Dynamics of accumulated wastes of hazard classes I-IV in Horishni Plavni**

Poltava Mining and Processing Plant PJSC operates the sludge dump and the industrial landfill at Zakhidna railway station. The volume of accumulated rock in the waste dumps is 1754.683 mn ton, while in the slime storage it amounts to 451.994 mn ton. If the protective dikes of the sludge dump are damaged or the dump is overfilled, this may result in grave consequences related to environmental pollution.

## Green Plants

The city's greenfield area includes common amenities (parks, squares and city forests), restricted areas (plants on the territory of civilian objects and other facilities) and special-purpose areas (plants in the streets and sanitary protective plantings). The total area of the city's green plantings is 508.03 hectares (98.0 m<sup>2</sup> per resident), including 208.8 hectares of public use areas (40.3 m<sup>2</sup> of green plants per resident).

2 parks, 9 squares owned by the city's community, the streets with greenfields, flower gardens, ornamental trees and other greenery sites are located on the city's territory. The area of parks is 28.7 hectares, squares – 9.3 hectares, embankments – 8.6 hectares, forest parks – 159.9 hectares, and other amenities – 2.8 hectares.

As Horishni Plavni is founded on sandy soils, which is poor in nutritive substances, the issue of keeping land fertility is highly relevant. For the improvement of the soil fertility and more effective growth of green plants, black soil has to be brought in, which has the highest content of humus and numerous other useful substances necessary for the plants. The watering of trees, bushes, flower gardens and lawns is an important part of the green plant maintenance.

## Environmental security

The sources of man-made seismic activity – Redutsky Granite Quarry and Poltava Mining and Processing Plant's iron ore quarry are located in close proximity to the hazardous industrial sites or the sites of the residential area of Horishni Plavni. Maximum recorded soil displacement velocity under the impact of seismic waves corresponds to the earthquake intensity of 6 under MCK-64 scale (5 under Richter scale), and the total duration of such explosion may reach 19 seconds. Oil product pipeline, which is a high-risk object, is laid on the territory of the seismically active area of Horishni Plavni at the distance of 150 m from the border of the Redutsky granite quarry field, on the bottom of the Dnieper river. The nature of hazard consists in possible pollution of the country's main water artery with oil products, the destruction of flora and fauna, deprivation of a number of the country's big cities of the major source of potable water. Alongside the oil product pipeline, the Dnieper river high-voltage power transmission line crosses the Dnieper. If the foundation of the starting pylon of the power transmission line is damaged, the high-voltage wires may fall into the river Dnieper and subject the river fauna to electric shock.

## 4. Analysis of the Strategy's correspondence to the regional environmental goals

The regional environmental goals for Poltava region were set out in the Development Strategy of Poltava Region for the Period until 2020 (see Insert 1).

Insert 1

### Development Strategy of Poltava Region for the Period until 2020

#### Strategic Goal 1. Human Capital Development

##### ***Operational Goal 1.3. Creating Comfortable and Secure Living Environment for the Residents***

- 1.3.1. Developing an effective system of solid domestic waste management
- 1.3.2. Cleaning the region's territory from fly dumpings and garbage. Preventing the pollution from industrial facilities and minerals extraction
- 1.3.3. The use of local Ukrainian traditions for healthy patriotic education and teaching children and young people to care for the environment
- 1.3.4. Ensuring the protection of populated localities from flooding, displacement of soil and abrasion of river banks
- 1.3.5. Improving the quality of potable water and water supply to the consumers

##### ***Operational Goal 2.3. Ensuring energy security, developing energy efficient civilian, agrarian and industrial sectors***

- 2.3.1. Boosting energy resource management efficiency in cities and rural settlements
- 2.3.2. Implementation of energy saving and energy efficiency technologies
- 2.3.3. Using local types of fuel and increase of internal production of gas
- 2.3.4. Alternative energy development
- 2.3.5. Diversification of electric power sources
- 2.3.6. Creating the conditions for the upgrading of energy resources networks for equal access of the consumers
- 2.3.7. Thermal modernization of buildings and energy efficient construction

##### ***Operational Goal 2.4. Unlocking of the region's tourism potential***

- 2.4.1. Unlocking the potential of medical and recreational, cultural and educational, sports, business and eco-tourism

The Working Group on SEA conducted the analysis of the correspondence between the Horishni Plavni Strategy goals and the regional environmental goals (table 7).

**Table 7. Analysis of the correspondence of the Strategy's goals to the regional environmental goals**

Regional environmental goals	Strategic areas of Horishni Plavni's development strategy		
	A. City of developed export oriented business	B. Comfortable, energy efficient and environmentally safe city	C. City of open creative space and active community
1. Setting up an effective system of solid domestic waste management	0	++	0
2. Preventing pollution from industrial facilities	0	+	0
3. Anti-flooding protection of inhabited localities	0	+	0
4. Improvement of the quality of potable water and water supply to the consumers	0	++	+
5. Promoting care for the environment	+	++	++
6. Developing alternative energy sources	+	++	+
7. Increasing the efficiency of energy resource management in cities and rural settlements	0	++	+

A five-point scale is used to assess the correspondence of the goals:

**++** – The Strategy's goals are well-aligned with the regional environmental goals

**+** – The Strategy's goals and regional environmental goals are aligned in principle, however, not aligned in strategic terms. Closer links between the goals have to be ensured at the following stages of planning or at the level of actions.

**0** – the Strategy's goals and regional environmental goals are neutral towards each other

**-** – The Strategy's goals and regional environmental goals are not approved, however, may be approved. As part of subsequent planning, special actions are necessary for the alignment of the Strategy's goals with the regional environmental goals

**--** – The Strategy's goals and regional environmental goals contradict each other in principle. Urgent actions to revise this goal of the Strategy are necessary

Development area «A», City of developed export oriented business aims to develop business, first of all, small and medium business. The goals of this area are mostly neutral towards regional environmental goals. The area is, in principle, aligned with regional environmental goals 5 and 6. For more complete alignment with these goals, the following should be included into the area:

- To Operational Goal A.1.3 – providing training projects for SMB representatives on «green» business, energy management, alternative energy and sustainable consumption and production models;
- To Operational Goal A.3.2 – 1) the task to ensure the access to the information from master plans for the general public; 2) the task to ensure the incorporation of the information on the environmental status: the territory with complex engineering conditions (increased seismicity, flooding, swamping) into the City's Master Plan; the stations and sanitary protection areas of manufacturing and utility-storage companies; dump site territories; protected shoreline strips of rivers and other water bodies; nature reserve fund areas, and other data, which constitute environmental information;
- To Operational Goal A.3.3 – the projects on comprehensive environmental and architectural rehabilitation of «brownfields» to improve the city's environmental status, including the city environment's aesthetic properties and its micro climate.

Development area B, «Comfortable, energy efficient and environmentally safe city» seeks to improve the environmental status of the city. Therefore, it is well aligned with regional environmental goals 1 and 4-7. Regional environmental goal 3, «Anti-flooding protection of inhabited localities» for Horishni Plavni is not relevant. For more complete alignment of the development area B with regional environmental goal 3, the projects of facilitation to the use of waste rock to ensure road foundation and construction materials manufacture with the involvement of small and medium businesses should be incorporated.

Development area C, «City of open creative space and active community» provides for the transformation and improvement of the city space, as well as the development of social connections via communication and joint activities. This area is, in principle, aligned with regional environmental goals 4, 6, 7 and well-aligned with goal 5. For more complete approval of development area C with the regional environmental goals, its environmental-educational part should be enhanced and the following items should be incorporated:

- To Operational Goal C.1.1 – the projects to implement environmental and sustainable development education into educational process;
- To Operational Goal C.1.2 – the projects to hold environmental competitions, set up environmental interest groups, hold environmental festivals;
- To Operational Goal C.3.1 – the projects to support environmental youth initiatives;
- To Operational Goal C.4.3 – the project to create the Environment web page on the city council's web site to inform the general public on the city's environmental status.



## 5. Assessment of the potential impact of the Strategy realization on environmental

### 5.1. Possible anthropogenic and natural change factors

Highly developed mining industry and metallurgy companies whose activities result in strong environmental pollution still remain one of the human-induced change factors in the city.

At the same time, the focus of the Strategy's long-term vision is to make Horishni Plavni the cleanest industrial city in Ukraine with high energy efficiency and energy saving indicators. Therefore, one of the Strategy's directions of development is B «Comfortable, energy efficient and environmentally safe city», which is aimed at the improvement of the city territory's environmental status. The incorporation of this area into the Strategy, in the long run, will contribute to the reduction of anthropogenic impact on the environment.

One of the most important natural change factors, which may affect the city's development, is climate change. Unfortunately, the Strategy does not provide for the actions of adaptation to the climate change. At the same time, the implementation of the Strategic Goal B.2 «Energy efficient urban management» should result in the reduction of atmospheric emissions of carbon dioxide.

Unsatisfactory condition of the municipal solid waste landfill and the issue of MSW placement and disposal is an important man-made change factor. Operational Goal B.3.1 «Creating an integrated system of solid domestic waste management» shall contribute to the reduction of this factor's weight.

Operational Goal B.3.2 Reconstruction of individual municipal wastewater should contribute to the reduction of pollutants' discharge into the Dnieper and the city's water bodies.

The development direction A «City of developed export oriented business» is aimed at creating a business environment favourable for the development of small and medium businesses and for the promotion of the local manufacturers' products in the foreign markets. This area of development should not result in negative environmental impact. At the same time, the development of new investment products may result in increased man-induced load on the environment, if the implementation of the respective goal (A.3.3) does not include environmental requirements.

The environmental status may be affected by the demographic factor. Therefore, the development direction C «The city of open creative space and active community», is extremely important. The implementation of this direction has to result in the raising of the city residents' environmental culture.

Another important factor of man-made changes is large volume of accumulated industrial wastes. At the same time, the Strategy is not aimed at the increase or reduction of this indicator's weight.

## 5.2. Strategy's potential impact on the environmental components

The Working Group on SEA has completed expert assessment of the Strategy's potential impact on the environmental components based upon the checklist provided in table 8.

**Table 8. Assessment of the Strategy's potential impact on the environment based on the check-list**

Information on whether the Strategy's implementation may cause:		Negative impact			Mitigation
		Yes	Probably	No	
Air					
1.	Increase of the pollutants' emissions from stationary sources			●	+
2.	Increase of the pollutants' emissions from mobile sources			●	
3.	Deterioration of the quality of atmospheric air			●	+
4.	Origination of the sources of bad odours			●	
5.	Changes of wind flows, humidity, temperature or any other local or regional climate changes			●	
Water resources					
6.	Increase of discharge into surface waters			●	
7.	Any changes to the surface waters' quality (including, but not limited to their temperature, dissolved oxygen, transparency)			●	+
8.	Increase of the discharge of mine and quarry waters into water bodies			●	
9.	Considerable reduction of the number of water bodies used for water supply to the residents			●	
10.	Increase of the load on the sewage systems and deterioration of the quality of waste water treatment				+
11.	Origination of threats for the people and material objects related to water (such as flooding or waterlogging)			●	
12.	Changes of direction and velocity of surface water flow or changes in the volumes of water of any surface water body			●	
13.	Violation of hydrological and hydro-chemical properties of the region's minor rivers			●	+
14.	Changes of direction or velocity of subterranean water flow			●	

Information on whether the Strategy's implementation may cause:		Negative impact			Mitigation
		Yes	Probably	No	
15.	Changes of the volumes of subterranean waters (through recovery or discharge, or the displacement of water-bearing stratum)			●	
16.	Pollution of subterranean water-bearing strata			●	+
Wastes					
17.	Increase of the volume of solid domestic wastes built-up			●	+
18.	Increase of the number of built-up or accumulated industrial wastes of hazard class IV			●	+
19.	Increase of the volume of wastes of hazard class I-III			●	+
20.	Construction of environmentally hazardous waste handling facilities			●	+
21.	Build-up or accumulation of radioactive wastes			●	
Land Resources					
22.	Disturbance, displacement, compaction of soil layer			●	
23.	Any increase of wind or water erosion of soil			●	+
24.	Changes in topography or landscape specifications			●	
25.	Origination of such threats as earthquakes, shifts, sill flows, land sinks or other similar threats because of the instability of lithogenic base or geological structure change			●	
26.	Considerable changes in the structure of land resources, existing or future practices of land use			●	
27.	Conflicts between the approved goals of the strategy and the goals of local communities			●	+
Biodiversity and recreation zones					
28.	Negative effect on the nature reserve objects (reduction of the areas, starting hazardous operations close to, or on the territory of such objects etc)			●	
29.	Changes in the number of plant or animal species, their population or number on a certain territory			●	+
30.	Increase of the areas of grain crops or agricultural lands in general			●	
31.	Destruction or degradation of habitats of wild animals			●	

Information on whether the Strategy's implementation may cause:		Negative impact			Mitigation
		Yes	Probably	No	
32.	Any impact upon the number and quality of the recreation facilities available			●	+
33.	Any impact on the objects of historical and cultural habitat			●	+
34.	Other negative effects on the aesthetic indicators of environmental objects (obstacles for the viewing of beautiful landscapes, appearance of unaesthetic places, destruction of natural sanctuaries etc)			●	+
Population and Infrastructure Facilities					
35.	Changes in the distribution, placement, density and growth of population of any territory			●	+
36.	Effect on the current status of housing supply or origination of new housing needs		●		
37.	Considerable effect on the current transport system, changes in the structure of transport flows			●	+
38.	Necessity to build new facilities to enable transport communications			●	
39.	Needs in new utility services or a considerable effect on the existing ones			●	+
40.	Appearance of any actual or potential threats to human life			●	
Environmental Management and Monitoring					
41.	Weaker legal and economic controls in the area of environmental security			●	+
42.	Deterioration of environmental monitoring			●	
43.	Elimination of the local self-government bodies' existing levers of influence on man-induced load processes			●	+
44.	Stimulating the development of environmentally hazardous manufacturing industries			●	+
Other					
45.	Increasing the use of any type of natural resources			●	
46.	Considerable depletion of any non-recoverable resource			●	
47.	Increased consumption of substantial volumes of fuel or energy			●	+
48.	Considerable deterioration of natural environment			●	+

Information on whether the Strategy's implementation may cause:		Negative impact			Mitigation
		Yes	Probably	No	
49.	Origination of opportunities to reach short-term goals, which will make the achievement of long-term goals in future more difficult			●	
50.	Such effects on the environment or people's health that will be minor per se, however, in aggregate, will cause significant negative environmental impact directly or indirectly affecting people's wellbeing.			●	

Based on expert evaluations provided in table 9, the following conclusions on the Strategy's effect on the environment can be drawn.

**Impact on atmospheric air.** As a result of the Strategy's implementation, no increase of the emissions of pollutants into atmospheric air or deterioration of the latter is expected. The air quality may even be improved as a consequence of development of bicycle traffic in the city and implementation of energy efficient municipal economy management.

**Impact on water resources.** The Strategy does not provide for the establishment of enterprises whose operations will result in the increased volume of polluted water discharge into surface waters. Therefore, the Strategy's implementation should not result in the deterioration of the water resources. At the same time, the Strategy has operational goals B.3.2 Reconstruction of individual municipal wastewater and B.3.3 Restoration of the hydrological regime and bank stabilization of Dneprodzerzhinsk water reservoir and the city reservoirs and the achievement of these goals should result in the surface waters' quality improvement as a consequence of waste water treatment and the recovery of the Dnieper's and the Park Lake's sanitary hydrological conditions.

**Wastes.** The build-up and accumulation of large quantities of industrial and domestic wastes is characteristic of the city. The implementation of goal B.3.1 Creating an integrated system of solid domestic waste management» should contribute to the reduction of volumes of solid domestic wastes. At the same time, there is an open issue of the disposal of accumulated industrial wastes of hazard class IV. which can be solved in future via the development and use of innovative industrial waste disposal technologies.

**Impact on land resources.** As a consequence of the Strategy's implementation, no changes in the topography or landscape specifications, or such threats as earthquakes, soil displacements, sill flows, land sinks or other similar threats are expected. The implementation of operational goal B.3.4 Landscaping of the city should contribute to the reduction of wind and land erosion of soil. The implementation of goal C.4.1 Engaging the Community in Municipal Management should help to avoid any conflicts between the strategy's goals and the local community's goals.

**Impact on biodiversity and recreation areas.** The Strategy does not provide for the implementation of tasks, which may result in a negative impact on biodiversity. On the contrary, the implementation of operational goal B.1.1 Constructing of the city's recreational infrastructure near

the reservoirs should contribute to the growth of number and quality of recreational facilities and the improvement of the aesthetic indicators of recreation areas near water reservoirs.

**Impact on cultural heritage.** The implementation of the Strategy is not expected to result in the negative impact on the existing objects of historical and cultural heritage. On the contrary, the implementation of operational goal B.1.3 Creating new and promoting existing tourist products comprises the Open Air Museum project, which involves the establishment of an attractive historical and educational environment (Barbara Archeopark).

**Impact on the population and infrastructure.** The Strategy is not expected to give rise to any new risks for the health of the region's residents. Moreover, the implementation of operational goal C.2 Healthy Community – Meeting Special Needs should contribute to the improvement of the city residents' health. Operational goal B.1.4 Creating cycling infrastructure in the city should result in the improvement of the transport system.

**Environmental management, monitoring.** The Strategy is not expected to result in the weaker legal and economic controls in the area of environmental security, and on the contrary, involves the improvement of waste handling and increasing energy efficiency of municipal economy's management. As part of the Strategy, the system of monitoring should be established and implemented. The monitoring will be based on the analysis of the planned results' achievement using the defined indicators, including environmental indicators.

The implementation of strategic goal B.2 «Energy efficient urban management» should contribute to the reduction of fuel and energy consumption volumes.

**Cumulative impact.** The Strategy's implementation is not likely to have the effects on the environment or people's health that will be minor per se, however, in aggregate, will cause significant negative environmental impact directly or indirectly affecting people's wellbeing.

Thus, the implementation of the Development Strategy of the City of Horishni Plavni will not entail any new negative consequences for the environment. At the same time, the implementation of many of the Strategy's Operational Goals may result in the improvement of the city's environmental status.

## 6. SEA Recommendations

This section was outlined based on the proposals submitted by the members of the Working Group on Strategic Environmental Assessment of Horishni Plavni Development Strategy. These suggestions, which are given in Table. 9, should be considered by the developers of the Strategy and taken into account when possible. The working group proposed a number of projects, the implementation of which can contribute to improving the environmental situation in the city.

During the development of the Strategy, close cooperation was established between the Strategic Environmental Assessment Working Group and the Strategy's developers. In particular, some members of the SEA WG were also a part of the Strategy developer group, which made it possible to forward the proposals worked out by the SEA Working Group to the consideration of the Strategy's developers in a timely manner and either take them into account or reasonably reject.

**Table 9. Consideration of the SEA Working Group proposals to the Development Strategy of Horishni Plavni**

Direction, goal	Proposals of the Working Group	Status of incorporation
<b>Direction of development A. A city of strong export-oriented business</b>		
<b>Strategic Goal A.1. Creation of an efficient system of support and provision of services to business</b>		
A.1.1. Creation of business support institutions	<u>Add the task:</u> Promotion of development of environmentally friendly small and medium businesses	Incorporated
A 1.3. Provide SMEs with skilled staff	<u>Add the task:</u> Giving trainings for SME representatives on «green» business, energy management, alternative energy and sustainable consumption and production models	Incorporated
<b>Strategic Goal A.3. Engaging additional resources for SME development</b>		
A 3.3. Preparation of new investment products A.3.2. Preparation of modern spatial planning documentation	<u>Add the task:</u> 1) to ensure that the information contained in the master plans is accessible to the public; 2) to include the information on the environment conditions into the General Urban Plan: territories with complicated engineering conditions (increased seismicity, water-logging, flooding); plots of land and sanitary protection areas of industrial and municipal-warehousing enterprises; areas used for landfill; water-side protective strips of rivers and other water bodies; the territory of the natural reserve fund and other data constituting environmental information	Incorporated
A 3.3. Preparation of new investment products	Replace the title of Task 2 from «Creating a List and Characteristics of plots of land «Greenfield», «Brownfield»» to «Creating a List and Characteristics of Land Plots «Greenfield» because there are no «Brownfield» plots in the city.	Incorporated

Direction, goal	Proposals of the Working Group	Status of incorporation
Development direction B «Comfortable, energy efficient and environmentally safe city»	Replace the title of the goal from «Comfortable and Safe City» to «Comfortable, energy efficient and environmentally safe city»	Incorporated
<b>Strategic Goal B.1. Development of the tourist and recreational potential of the city</b>		
B.1.4. Creation of bicycle infrastructure in the city	Add an operational goal with that title.	Incorporated
<b>Strategic Goal B.3. Improvement of the environment condition and the safety of the city</b>		
B.3.2. Renovation of individual treatment facilities of the city	Remove from the title of Task 2 «Installation of the shop for mechanical dehydration of sewage sludge and industrial sediments» the words «and industrial sediments».	Incorporated
B.3.3. Restoration of the hydrological regime and bank strengthening of Dneprodzerzhinsky reservoir and water bodies of the city	Add the operational goal «Protection of the water front from excessive erosion and destruction»	Incorporated
B.3.4. Urban greening	Add the task «Fighting Quarantine Plants»	Incorporated
<b>Direction of development C. City of open creative space and active community</b>		
<b>Strategic Goal C.1. Creative educational and cultural space</b>		
C.1.1. The community-active school is a modern informational and educational space	Add the task: Introduction of ecological education and education for sustainable development into the educational process Add the task: Development of the program of environmental education for educational institutions of the city	Incorporated
C.1.2. Creation of an Art Space for the implementation of creative projects	Add the task: Organization of environment contests, creation of environment hobby groups, holding of environment festivals	Incorporated
<b>Strategic Goal C.3. Community of youth self-administration and development</b>		
C.3.1. Creation of youth self-administration	Add the task: «Support to youth environmental initiatives»	Incorporated
<b>Strategic Goal C.4. Open community – effective governance</b>		
C.4.1. Involvement of the public into urban management	Add the task: 1) Increase awareness of the managers of enterprises and city residents on issues of environmental protection and environmental safety 2) Create a system for involvement of the city residents to solution of environmental issues 3) Organize and carry out environmental actions	Incorporated
C.4.3. Electronic governance	Add the task: Creation of the «Environment» page on the website of the city council to inform the population about the ecological situation in the city	Incorporated



## 7. Organization of monitoring of the actual impact of the Strategy on the environment

The SEA does not end with arriving at the decision to approve the Strategy. Significant consequences for the environment, including for the health of the population, should be monitored during the implementation of the Strategy, among other things, to identify unforeseen adverse consequences and to take measures to eliminate them.

The results of the monitoring should be available to the authorities and the public. The SEA Protocol establishes the need for monitoring of significant environmental impacts (including public health) from the implementation of the approved plan or program (Article 12). The monitoring results should be communicated to environmental authorities and public health authorities as well as to the public.

Monitoring can be used for:

- comparison of the expected and actual consequences, which allows obtaining information on the implementation of the plan or program;
- obtaining information that can be used to improve future assessments (monitoring as the SEA quality control tool);
- checks on compliance with environmental requirements established by the relevant authorities;
- verifying that a plan or program is carried out in accordance with an approved document, including measures to prevent, reduce or mitigate adverse effects.

The organization of monitoring requires to identify who should monitor, who should provide access to the results, what should be monitored, which information should be made public (direct measurement data or the results of their analysis), where monitoring should be done, what frequency and for what time, when the results should be published, which methods of monitoring and dissemination of information should be used.

Existing monitoring and information systems may be used for monitoring organization or they should be specially developed for the SEA purposes.

To organize the monitoring, the Strategy proposes to create an Implementation Management Committee. The Committee should include representatives of the local government, public and business (the city mayor and the deputies, heads of departments and offices of the city executive committee, private entrepreneurs, representatives of public associations).

The results of the monitoring are presented once every six months in the form of semi-annual reports.

The following is documented and analyzed:

- a) the degree of progress of each project task;
- b) unfulfilled tasks, reasons for rejection, proposals;
- c) data on indices reflecting the progress of project implementation;
- d) assessment of financing needs;
- e) proposals for the improvement of the existing monitoring system.

Monitoring is based on consideration of a limited number of selected indices (indicators) for each of the strategic directions and on analysis of the achievement of the planned results. The system of indicators proposed in the Strategy includes ecological and economic as well as environmental indicators:

- saving of budget funds because of implementation of energy efficient measures;
- saving of energy resources because of implementation of energy efficient measures;
- amount of funds of international technical assistance, credits, investment resources of financial institutions in energy efficiency projects, raised by the city;
- the amount of funds raised by the population as part of «heating loans»;
- reduction / increase of emissions of harmful substances into the air by stationary and mobile sources of pollution;
- amount of financing for environmental protection measures;
- the number of people involved into environmental education activities.

The number of environmental indicators can be expanded using the indices, for which there are monitored data (see Table 10).

**Table 10. Environmental indicators for monitoring the Strategy implementation**

Nº	Indicator
<b>Air Pollution</b>	
1.	Volumes of emissions of pollutants into the atmosphere from stationary and mobile sources
2.	Emissions of the most common pollutants (carbon monoxide, dust, nitrogen dioxide and sulfur dioxide) into the atmosphere
3.	Index of atmospheric pollution
<b>Water Resources</b>	
4.	Volume of freshwater intake and use
5.	Volume of discharge of return water into water bodies
6.	Volume of discharge of treated and not sufficiently treated return water into water bodies
7.	Water quality in the Dnieper river and small rivers
<b>Urban greening</b>	
8.	Degree of urban territory gardening
<b>Power Industry</b>	
9.	Consumption of energy resources by municipal utilities
10.	Consumption of energy resources by the population per 1 thousand of inhabitants
<b>Waste</b>	
11.	Volume of formation of solid household waste in the city
12.	Volume of formation of solid industrial waste in the city
13.	Volume of disposed industrial waste
14.	Volume of accumulated industrial waste
<b>Public Health</b>	
15.	Level of morbidity of the city population
16.	Number of neoplasms at the city residents

## 8. Conclusions

1. The Horishni Plavni city Development Strategy until 2028 is based on the principle of sustainable development, since the strategic directions of the city's development, defined in the Strategy, cover the economic, environmental and social components of development.
  2. A specific feature of the city is active mining industry, with the extraction being carried out in an open manner that involves accumulation of waste, clogging of land plots. The prominent level of industry development leads to a significant man-induced burden on the environment of the city, which causes pollution of air and water basins, land resources, and it has a negative impact on the health of the population.
  3. The analysis of trends in state of the environment in the city indicates the stabilization of volumes of emissions into the air from stationary sources and the growth of emissions from mobile sources, the growth of fresh water intake and discharges of reverse water, stabilization of volumes of generation and disposal of waste. At the same time, the total volume of accumulated waste of I-IV classes of hazard continues to grow steadily, which is related to the activity of PJSC «Poltava Ore Mining and Processing Enterprise».
  4. The Strategy in general is aimed at reducing the man-induced impact on the environment. The objectives of the Strategy are consistent with the regional environmental objectives defined in the Strategy for the Development of Poltava Region for the Period until 2020.
  5. The main man-induced factor of changes in the city remains the prominent level of development of enterprises of the mining and metallurgical industry. A significant man-induced factor is the poor state of landfill for solid household waste and the issue of locating and disposal of solid household waste.
  6. The implementation of the Horishni Plavni Development Strategy should not be accompanied by the emergence of new negative environmental impacts. At the same time, the implementation of many operational objectives of the Strategy can lead to an improvement of the ecological situation in the city.
  7. The probability that implementation of the Strategy will lead to such possible negative impacts on the environment or health of people who per se will be insignificant but which together will have a significant total (cumulative) impact on the environment is insignificant.
  8. The monitoring of the environmental indicators of efficiency of the Strategy implementation is an important form of verification of the actual impact on the environment by the Strategy, as well as the prerequisite for ensuring the sustainable development of the city. It is necessary to provide for the regularity of the collection of monitoring data according to the specified indicators and their ongoing analysis for consideration when deciding on future development planning.
- In view of the stated above, one can state that in general, the development of the Horishni Plavni Development Strategy was conducted with the consideration of the probable environmental impacts and the desire to minimize them. Implementation of the Strategy, subject to compli-

ance with environmental requirements, should promote reduction of the man-induced burden on the environment. The combination of efforts to promote entrepreneurship and the improvement of educational and cultural space, with efforts aimed at environmentally sustainable development, will ensure smooth improvement of the environment and achieving high energy efficiency and energy saving in Horishni Plavni.

## 9. List of used sources

1. Environment of Poltava Region. Monograph / Under the editorship of Yu.S. Golik, O.E. Ilyas – Poltava: Copy Center, 2014. – 256 pages
2. Environmental Passport of Poltava Region (2015). – 2016. – 138 pages
3. Information from the Statistics Chief Administration in Poltava Region (2015).
4. V.I. Karamushka Environmental balance of strategic initiatives and projects (integration of environmental aspects into strategic planning and project activities): a practical guide / V.I. Karamushka. – Kiev: K.I.S., 2012. – 138 pages
5. H.B. Marushevsky Strategic Environmental Assessment: method book / H.B. Marushevsky. – Kiev: REOP Project, 2015. – 95 pages
6. Action Plan for Sustainable Energy Development of Komsomolsk for the period up to 2025. - [Electronic resource] – Access mode: [mycovenant.eumayors.eu/docs/seap/20913\\_1449425864.pdf](http://mycovenant.eumayors.eu/docs/seap/20913_1449425864.pdf)
7. Program for environmental protection, sustainable use of natural resources and provision of environmental safety in Komsomolsk in 2016-2020
8. Program for the protection of fauna and the regulation of the number of stray animals in Komsomolsk in 2015-2020
9. Solid Waste Management Program in Horyshni Plavni in 2017-2021 (draft)
10. Program for the development and preservation of green plantations in Komsomolsk in 2016-2017
11. Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Trans-Border Context. - [Electronic resource] – Access mode: [http://zakon2.rada.gov.ua/laws/show/995\\_b99](http://zakon2.rada.gov.ua/laws/show/995_b99)
12. Regional report on the state of the environment in Poltava Region in 2015. – Poltava: Poltava Regional State Administration, Department of Ecology and Natural Resources, 2016. – 170 pages
13. Development Strategy of the Poltava Region for the Period till 2020. – Poltava: Poltava Regional Council, Poltava Regional State Administration, 2014. – 131 pages
14. M.V. Khotuleva Strategic environmental assessment for the development of regional and municipal planning: manual for practical experts / [M.V. Khotuleva, Ye.V. Pivtsakova, V.N. Vynnychenko and others]. – Moscow: Ecoline, 2006. – 61 pages

## 10. List of participants in the Working Group on Strategic Environmental Assessment

Full Name	Position
<b>Oleksandr Chupryna</b>	First Deputy Mayor for the activities of executive bodies of Horishni Plavni City Council
<b>Olga Ovchynnikova</b>	Director of the Department of Economic Development and Resources of the executive committee of Horishni Plavni City Council, the municipal coordinator of the PROMIS project
<b>Hennadii Marushevsky</b>	Consultant of the PROMIS project on environmental issues
<b>Yuri Kovpak</b>	Head of the Department of Public Health of Horishni Plavni City Council
<b>Vitalii Myakinin</b>	General Director of «Puls Krayiny» Public Organization
<b>Iryna Chernushyts</b>	Head of the Municipal Ecology and Planting Division, Department of Housing and Communal Services of Horishni Plavni City Council
<b>Vitalii Zamkovyi</b>	Head of the city public organization of «Zeleny Svit» environmental association
<b>Oleksandr Kochubei</b>	Head of the Ecology Department of the Private JSC Poltava Ore Mining and Processing Enterprise
<b>Diana Skyba</b>	Head of the laboratory of the Private JSC Poltava Ore Mining and Processing Enterprise
<b>Mariana Zaviyska</b>	Expert of the Heinrich Böll Foundation's Office in Ukraine
<b>Natalia Boiko</b>	Consultant on strategic planning of the PROMIS project
<b>Yuri Holik</b>	Professor, ecology department chair of the Poltava Y. Kondratyuk NTU, Director General of the Scientific and Technical Center of the Poltava Branch of the Engineering Academy of Ukraine
<b>Antonina Kruglova</b>	Head of NGO «Perspekt»