2016

SUSTAINABLE DEVELOPMENT STRATEGY OF THE CITY OF OLEXANDRIYA UNTILL 2030

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Abbreviations

UN	the United Nations
SDGs	Sustainable Development Goals of the UN Global 2030 Agenda for Sustainable Development
SDG 11	Goal 11 (sustainable development of cities) in a system of UN Sustainable Development Goals
SP1	Strategic priority 1 “Decent work for all”
SP2	Strategic priority 2 “Comfortable living conditions”
SP3	Strategic priority 3 “Sustainable economic activity”
the Center	Strategic Development Center of the city of Olexandriya
the Strategy	Sustainable Development Strategy of the city of Olexandriya
CIP	City Infrastructure Plan

INTRODUCTION

The Sustainable Development Strategy of the city of Olexandriya (hereinafter – the Strategy) was developed based on methods of general theory of strategic management, comparative quantitative analysis, expert and rating assessments taking into account the new Global 2030 Agenda for Sustainable Development adopted by the United Nations in September 2015.

The goal of the Strategy is creation of a modern European city attractive for living and conduction of business based on efficient use of available resources, current competitive advantages of the city, preserving the environment and developing human capital, as well as introduction of innovations and the best international practices of sustainable development management.

Based on the analysis of the current state and potential of the city development according to the results of rating assessment and expert questioning it was formed strategic priorities of the city development:

- Decent work for all;
- Comfortable living conditions;
- Sustainable economic activity.

For each of these priorities it was determined target values that shall be achieved in 2020 and 2030 in accordance with the values of indicators of the UN Sustainable Development Goals, among them there are indicators that will allow the society to evaluate successfulness of the Strategy implementation.

Taking into account that in accordance with the international experience it is impossible to implement any development strategy if it is not based on creation/modernization of modern infrastructure (economic, social, management), it was made an analysis of the situation and problems of infrastructure development of the city of Olexandriya and proposed perspective projects for its implementation in terms of achievement of Sustainable Development Goals, preparation and implementation of which is critical for the Strategy implementation.

It was proved that the first-step tasks in the framework of implementation of the Sustainable Development Strategy of the city shall become the following:

- Development of City Infrastructure Plan aimed at achieving Sustainable Development Goals (firstly for a medium perspective (2017 - 2020), and then – for a long-term perspective (2021 - 2030);
- Establishment of Strategic Development Center of the city that would be responsible for preparation and implementation of local infrastructure plans, monitoring of fulfillment of these plans and the Strategy, informing the citizens on issues related to their implementation.

These and other tasks are included to the Action plan on the Strategy implementation at the first step (2016 - 2020).

As the first step in formation of City Infrastructure Plan it was conducted a preliminary assessment of infrastructure and other investment projects proposed by the city (executive authority bodies, communal enterprises and private business), and it was selected among them those projects that are important for achievement of Sustainable Development Goals and require additional analysis to determine expediency of their inclusion to the Plan for 2017 - 2020. As the selected projects do not cover the whole spectrum of tasks on infrastructure development of the city, in the Strategy it was presented recommendations on directions and essence of investment projects, proposals for which shall be developed in the nearest future in connection with their urgency for achieving the target values for each strategic priority and Sustainable Development Goals until 2030 in general.

It was reviewed institutional mechanisms of the Strategy implementation.

Taking into account novation and innovation nature of the Strategy that is the first example of adaptation of national strategic documents to UN Sustainable Development Goals until 2030 in Ukraine, it is stressed on necessity to attract for its implementation Ukrainian and international experts and international organizations engaged in these issues.

SECTION 1. GENERAL STRATEGY FRAMEWORK

In late September 2015 the United Nations have adopted the new Global 2030 Agenda for Sustainable Development and approved 17 Sustainable Development Goals (hereinafter – SDGs) and 169 tasks that shall be implemented for their fulfillment by all countries of the world. These documents have been supported by UN Member States, including Ukraine.

In the framework of discussion of means of SDGs implementation at the UN Plenary Assembly it was underlined the importance of adaptation of strategic documents of the countries of the world and separate territories to the new Global 2030 Agenda for Sustainable Development, and development of mechanisms of their implementation, including based on principles of public-private partnership.

The Sustainable Development Strategy of the city of Olexandriya (hereinafter – the Strategy) prepared based on UN Global 2030 Agenda for Sustainable Development is aimed at determination of target values of development of the city until 2020 (interim task) and 2030 in accordance with Sustainable Development Goals and means of their practical implementation.

The Strategy is developed using methods of the strategic planning theory and envisages implementation of the following stages one after another:

- formation of tree of goals and system of indicators of the Strategy taking into account goals and tasks of the new UN Global 2030 Agenda for Sustainable Development;
- complex analysis of the current state and development potential of the city of Olexandriya, including expert questioning in the context of achieving Sustainable Development Goals;
- determination of problem issues that hinder city development and potential growth points; based on this formation of priority directions of the city sustainable development in the context of SDGs;
- analysis of possible means of the Strategy implementation;
- development of Action plan on implementation of the Strategy with determination of concrete measures, financing sources and means of control of fulfillment of the tasks included to it;
- determination of mechanism of monitoring and correction of the Strategy implementation.

Sustainable Development Goals until 2030, necessity of achievement of which was taken into account in the process of preparation of Sustainable Development Strategy of the city of Olexandriya are presented in Table 1.1.

Table 1.1

UN Sustainable Development Goals until 2030

SDGs	*Goal of sustainable development*	*Short name*
1	End poverty in all its forms everywhere	No poverty
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Zero hunger
3	Ensure healthy lives and promote well-being for all at all ages	Good health and well-being
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Quality education
5	Achieve gender equality and empower all women and girls	Gender equality
6	Ensure availability and sustainable management of water and sanitation for all	Clean water and sanitation
7	Ensure access to affordable, reliable, sustainable and modern energy for all	Affordable and clean energy
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Decent work and economic growth
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Industry, innovation and infrastructure
10	Reduce inequality within and among countries	Reduced inequality
11	Make cities and human settlements inclusive, safe, resilient and sustainable	Sustainable cities and communities
12	Ensure sustainable consumption and production patterns	Responsible consumption and production
13	Take urgent action to combat climate change and its impacts	Climate action
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Life below water
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Life on land
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	Peace, justice and strong institutions
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	Partnerships for the goals

A separate goal of the new Global 2030 Agenda for Sustainable Development (SDG 11) is dedicated to sustainable development of cities and settlements, it witnesses about the importance of urban development in the modern world.

In order to achieve this goal (SDG 11) the following tasks shall be implemented:

11.1. Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

11.2. Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

11.3. Enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11.4. Strengthen efforts to protect and safeguard the world's cultural and natural heritage

11.5. Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.6. Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11.7. Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

11.a. Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning

11.b. Substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

11.c. Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials

The first seven tasks describe strategic targets on transformation of cities into "sustainable and smart", and ensure the basis for determination of indicators, achievement of which witnesses about sustainability of cities development.

The last three tasks (11.a. - 11.c.) include mechanisms of achieving SDGs by 11 cities that intend to become sustainable and smart. One of such mechanisms is implementation of complex strategy of the city development built taking into account

the tasks of Sustainable Development Goals in general. Ensuring of sustainable development of a city is not limited by implementation of only SDG 11. A number of indicators that sustainable and smart cities shall have depends on implementation of some tasks envisaged by other Sustainable Development Goals[1].

Analysis of these tasks has allowed revealing interrelation between the main components of sustainable city development (such as economic, ecological and social development of a city) in the framework of SDG 11 and other SDGs stipulated in the Global 2030 Agenda for Sustainable Development (Figure 1.1).

[1] Each of 17 SDGs has its own list of tasks, part of which are directly related to ensuring sustainable development of a city

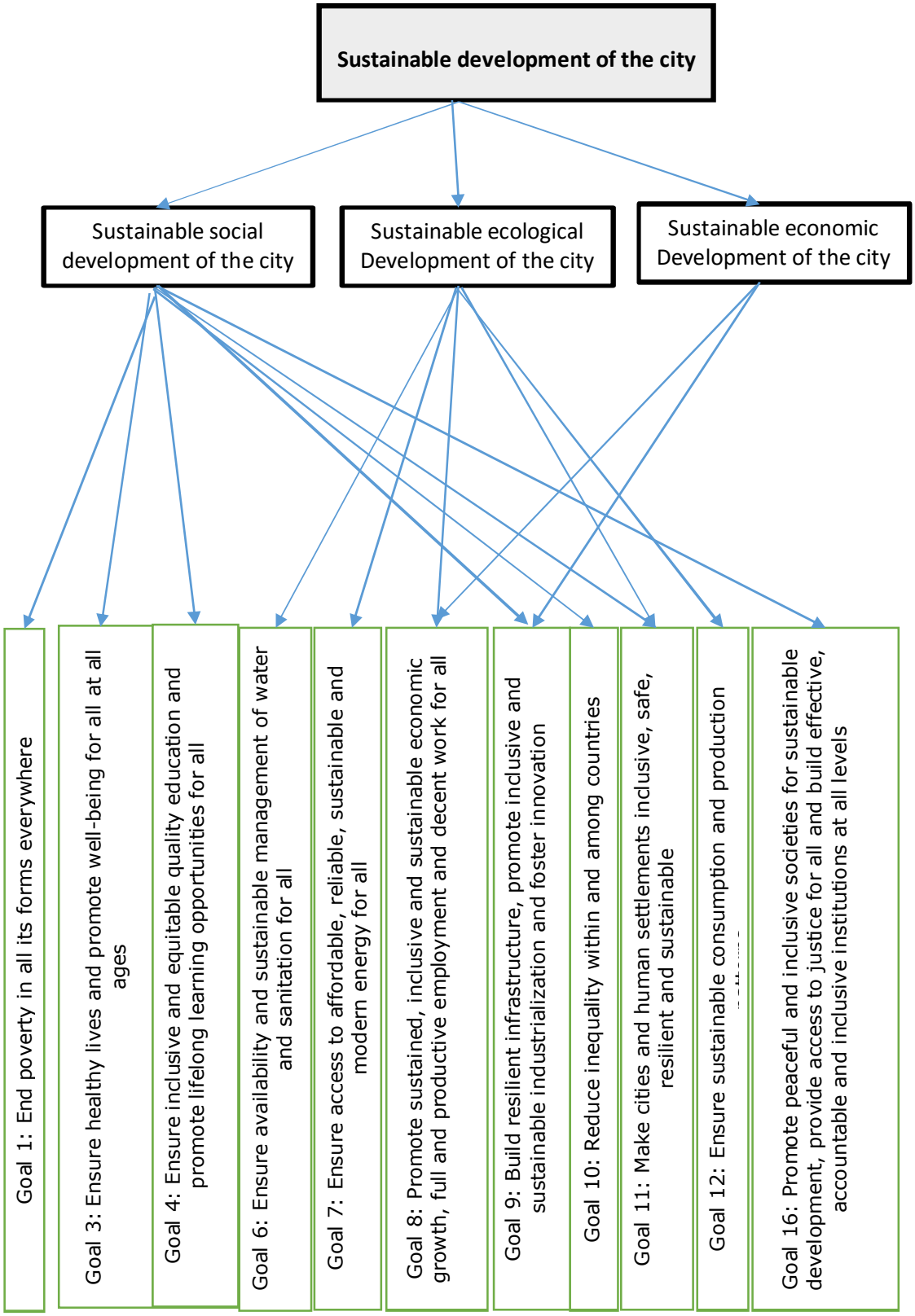


Fig. 1.1. Interrelation between the main components of sustainable city development (such as economic, ecological and social development of a city) in the framework of SDG 11 and other SDGs

Monitoring and analysis of the tasks of all 17 SDGs directly related to ensuring sustainable development of cities has allowed determining targets of implementation of Sustainable Development Strategy of the city of Olexandriya, and structuring them by components and directions of sustainable development (Table 1.2).

Table 1.2

Targets for formation of the Sustainable Development Strategy of the city of Olexandriya in the context of UN Global 2030 Agenda for Sustainable Development

Directions	*Tasks of UN SDGs*
SUSTAINABLE ECONOMIC DEVELOPMENT OF THE CITY	
Economic growth	**Goals 8, 9** Tasks: Sustain per capita economic growth in accordance with national circumstances. Increase industrial production share in GDP. Support development of small-scale and medium enterprises, in particular by providing access to financial services. Encourage creation of new jobs. By 2030, achieve full employment, By 2020, substantially reduce the proportion of youth not in employment, education or training
Investment-innovation development	**Goals 8, 9.** Tasks: Increase share of modernized industrial enterprises by ensuring increasing of efficiency of use natural resources use and introduction of innovation technologies. Encourage grown of productivity of labor in industry by introducing innovations. Facilitate scientific and technical research
SUSTAINABLE ECOLOGICAL DEVELOPMENT OF THE CITY	
Rational resources use	**Goals 6, 7, 12** Tasks: Increase efficiency of natural resources use; ensure access of population to information on resources use. Ensure access of all population to drinking water. Ensure access to energy supply for all. Increase share of energy use from renewable sources. Increase in 2 times global energy efficiency ratio
Quality environment	**Goals 6, 11, 12** Tasks: Increase quality of air, drinking water and surface waters. Decrease in 2 times share of untreated waste water. Ensure proper utilization of waste. Decrees in 2 times (per capita) amount of food waste and loss of food. Increase share of recycled and secondary used waste. Increase areas and ensure access to green zones (square meters per capita)

Directions	*Tasks of UN SDGs*
SUSTAINABLE SOCIAL DEVELOPMENT OF THE CITY	
Standard of living	**Goals 1, 10** Tasks: Progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average. Fully eradicate extreme poverty [2]. Reduce by 50% the proportion of poor population (in accordance with national definitions). Ensure social protection for poor and vulnerable
Quality of life	**Goals 3, 4, 8, 11,16** Tasks: By 2030 ensure full access to affordable and secure housing and main services of life support. Reduce maternal mortality ratio to less than 70 per 100,000 live birth, to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births. Ensure universal access to reproductive health-care services. By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases. By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being. Decrease the level of diseases caused by narcotic drug and alcohol. Increase level of access to medical services. Ensure full access to pre-primary and primary education, increase level of access to professional-technical and higher education. Strengthen efforts to protect and safeguard the cultural heritage and develop tourism. Reduce level of crimes, corruption and ensure access to justice
Sustainable urban infrastructure	**Goals 3, 9, 11, 16** Tasks: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport. Halve the number of deaths from road traffic accidents By 2030 develop quality, reliable and sustainable infrastructure and modernize technologies for modern and sustainable energy supply. By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management. Establish efficient and transparent management bodies, ensure responsible decision taking at all management levels with participation of all population and protection of main freedoms in accordance with national legislation

[2] Extreme poverty – less than 1.25 USD per day per person

Formalization, detalization and assessment of opportunities to achieve targets presented in the table allows structuring the available (starting) characteristics of the current socio-economic state of the city in the coordinate system of Sustainable Development Goals, and determining the indicators to assess fulfillment of tasks of the Sustainable Development Strategy of the city of Olexandriya.

These indications are presented in details in form of tree of goals that was used as a basis for preparation of the Sustainable Development Strategy of the city of Olexandriya in the context of UN Global 2030 Agenda for Sustainable Development (Figure 1.2).

For each indicator of the lower (4^{th}) hierarchy level of this tree of goals there is a corresponding list of indicators that allow controlling achievement of the goals determined in the Strategy.

System of indicators of the lowest level, their values as of the moment of preparation of the Strategy and forecast for 2020 and 2030 are presented in Annex 1. At the same time, target values for 2030 shall be annually revised as a result of monitoring of the Strategy implementation.

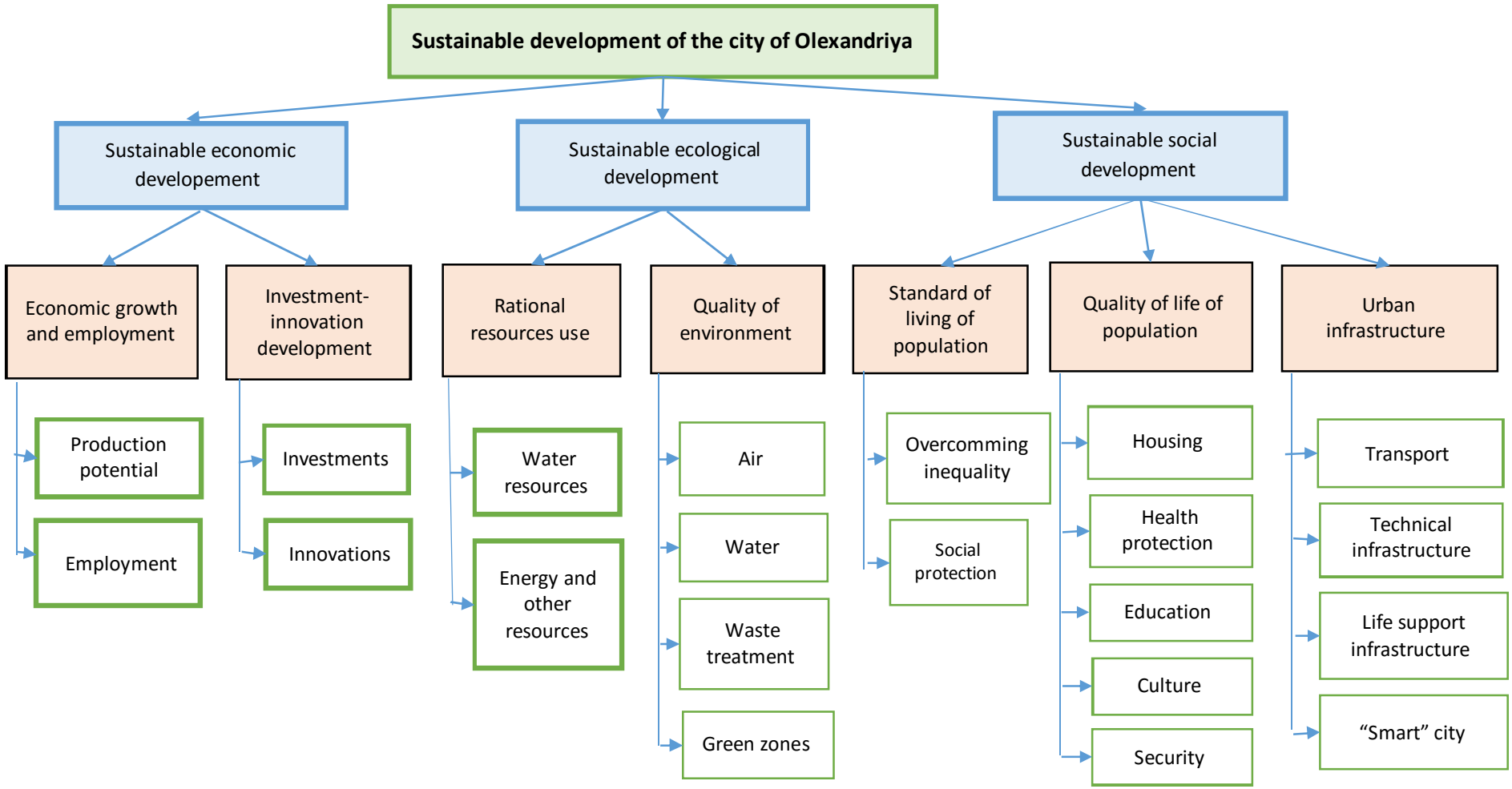


Fig. 1.2. Tree of goals as basis for development of the Sustainable Development Strategy of the city of Olexandriya according to UN SDGs

SECTION 2. ASSESMENT OF THE CURRENT STATE AND DEVELOPMENT POTENTIAL OF THE CITY

2.1. General characteristics of the city

Olexandriya is a city of regional subordination at the east of Kirovogradskyi region. The city is located in the central part of Ukraine in 75 km from Kirovograd, in the plains, at the confluence of two rivers - Inhulets and Berezivka. Besides these rivers, to the surface water of the city belongs Beshka river, Voynivske water reservoir on river Inhulets, flooded brown coal pit mines. On three sides the city is surrounded by heights of 136-142 meters, where the main industrial zones are located.

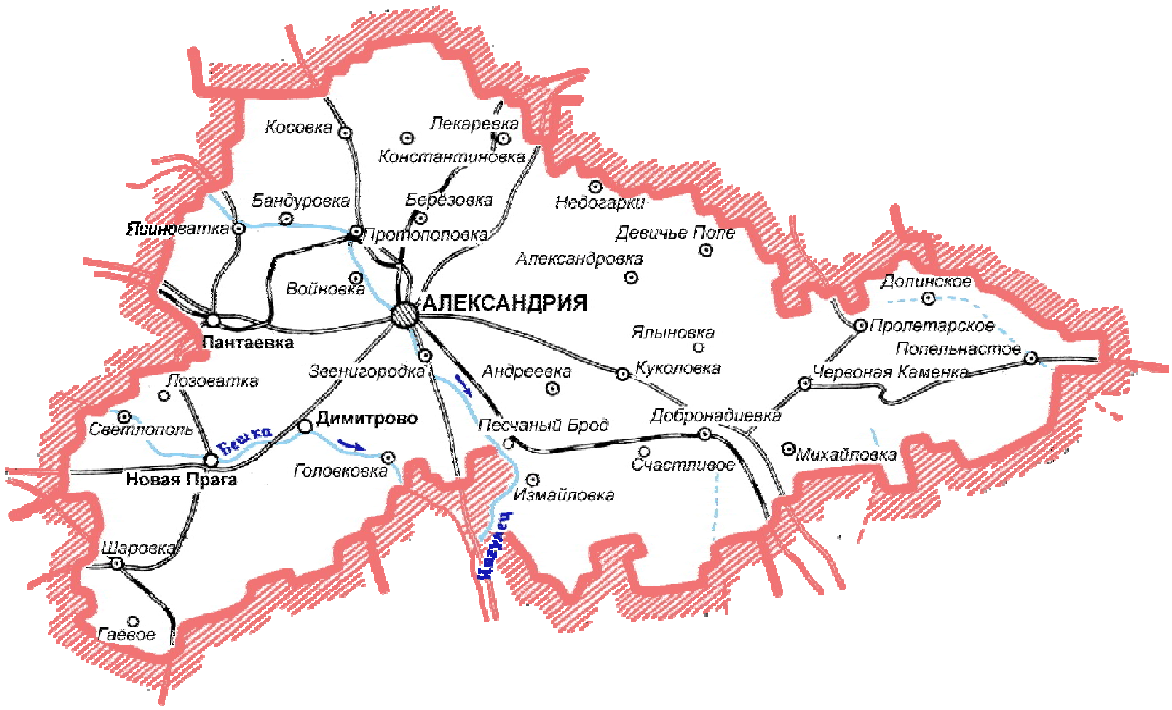
There are two woodlands at the territory of the city: Zvenigorod forest (287 hectares) and forest near Olexandriya Geriatric Recreation center (83 hectares). Areas of green areas of the city total 862.48 hectares.

Natural and climatic conditions of Olexandriya are favorable for growing crops such as winter wheat, corn, potatoes, sugar beets, as well as for the development of horticulture and vegetable growing.

Natural mineral resources are represented above all by significant deposits of brown coal. The city of Olexandriya is the center of the Dnipro brown coal basin, which integrates fields of 5 central regions of Ukraine (Zhytomyr, Vinnytsia, Kyiv, Kirovograd, Cherkasy, Zaporizhia and Dnipropetrovsk regions). Among the fields of open pit mining, more than half are located in Kirovograd region. Olexandriya is one of three largest centers of brown coal industry. Active and actually explored capacity of 12 deposit sites of brown coal of Olexandriya totals 207.5 million tons. In addition, local subsoil is rich in deposits of 10 types of non-metallic minerals (kaolin, graphite, sand, clay, rubble, granite and other stones etc.) that are suitable for use in construction, chemical industry and other industries. The natural wealth of the city includes also

underground reserves of drinking water and groundwater sources of radon mineral water, which can be used for medical purposes.

The favorable geographical position enhances the transport accessibility to the city of Olexandriya. The city is located at the intersection of European motorways E-50 (from the French city Brest to the Russian city Makhachkala) and E-584 (from Poltava to Romanian city Slaboziya). European highway E-584 on a segment-Poltava-Olexandriya-Znamianka coincides with national motorways of international importance M-22 and M-04. The city is crossed by railways Kyiv-Dnipropetrovsk and Kharkiv-Odessa. 12 kilometers north from the city there is Korystivka junction railway station that greatly expands the range of transport railway connections. The nearest airport is at a distance of 80 km - in Kirovograd.



The bus station of Olexandriya serves more than 150 bus routes (internal and long-distance). In the city the vehicle fleet of passenger transportation is represented by buses and taxis. To service the transport needs of the population there is a network of 30 routes in Olexandriya.

The population of the city is 87.7 thousand people, and together with Dimitrove and Pantayivka villages subordinated to Olexandriya the area 6142 hectares is a home to 91.8 thousand people. Significant rates of natural decrease and aging of population result in increased demographic pressure on working population. That is 33 thousand people of working age who constitute the labor resources are characterized by a variety of specialties and skills received in 7 higher education institutions of II-III accreditation level and 4 professional-technical schools.

The economy of Olexandriya has always been focused on the brown coal industry, which has occupied a dominant position in the structure of industrial production for more than half a century. The best years came at the end of 1980. That days the coal was mined in seven mines and three opencast and about 15 thousand people have worked at the brown coal enterprises. Today the brown coal industry is in crisis and that results in accumulation of social and economic problems.

The city has a strong engineering enterprises group and developed food industry. Production of engineering enterprises constitutes an important share of commodity export. The most important export items are machinery, equipment and mechanisms; electrical equipment, food products. The activities of SMEs of Olexandriya are mainly concentrated in such areas as trade, transportation, industrial production, provision of various services.

2.2. Rating assessment based on analysis of statistic information

Rating assessment of the situation and perspectives of development of Olexandriya was carried out based on analysis of the actual values of indicators of socio-economic state of the city for 2015 structured in SDGs coordinate system, and their forecasted values for 2020 and 2030.

It should be noted that the forecasted values for 2020 and 2030 have been only partially provided by the city administration (Annex 1). Accordingly, the list of indicators for rating assessment was formed on the basis of procedure of preliminary analysis of the provided data. For the indicators with no forecasted values it was taken one of two decisions: either to withdraw the indicator from the list (if this indicator was not critical in relation to SDGs), or determine forecasted indicator based on existing standards and thresholds adopted in domestic and international practice.

Actual and forecasted values of indicators for rating assessment of the current state and perspectives of Olexandriya development are presented in Table 2.1. Indicators determined based on the existing standard and threshold values are marked with *.

Table 2.1

Actual and forecasted values of indicators for rating assessment of the current state and perspectives of development of the city of Olexandriya

Indicators	*2015*	*2020*	*2030*
SUATAINABLE ECONOMIC DEVELOPMENT OF THE CITY			
Economic growth and employment			
Share of the city in the economy of rayon, region, %	4.8	8	11
Rate of economic growth, % (to basis 2014) (on growth rates of industrial production)	72.8	81.5	87.2
Level of industrial funds use in industry, %	50	65	90
Share of non-functioning or unprofitable enterprises, %	50	35	15
Industrial output sold per capita, UAH	10560	27233	76253
Retail turnover per capita, UAH	9804	25054	72985
Share of SMEs, %	89.2	93	96
Coefficient of import coverage by export (ration between export and import), times	0.66	1.25	1.06
Unemployment level of working population	12	7	5
Unemployment level among youth	41	30	10
Creation of jobs (persons per year)	1672	1700	1700
Investment-innovation development			
Capital investments per capita, UAH	2691.7	3500*	3900*
Share of direct foreign investments in general investments, %	55	40*	30*
Share of innovation products output, %	0	7	15
SUSTAINABLE ECOLOGICAL DEVELOPMENT OF THE CITY			
Rational resources use			
Share of ground water resources in general water supply, %	0	25	45
Share of treated waste water (%)	100	100	100
Share of water losses in general use, %	29.8	25	12
Heat losses in engineering networks, %	13	12*	11*
Evaluation of energy efficiency in buildings (share of public buildings and housing stock where energy modernization has been conducted)	0	20*	50*
Rational resources use (Ecological security)			
Emissions of pollutants in the air per capita, kg/person	41.26	40.0*	38.0*
Presence in the city of ecologically dangerous enterprises (yes/no)	0	0	0
Quality of drinking water (5-point scale) in accordance with the standard ДСанпіН2.2.4-171-10 “Sanitary requirements to drinking water for human consumption»	3	4	5
Share of secondary municipal waste treatment	0	20	70
The percentage of congested and dangerous landfills (degree of filling of existing landfills, %)	100	90	80
Share of separate waste collection	0	20	70
Square of public green space per capita	12.6	13*	14*
Share of population that lives not far than300 m from green zones, %	100	100	100
SUATAINABLE SOCIAL DEVELOPMENT OF THE CITY			
Standard of living of population			

Indicators	*2015*	*2020*	*2030*
Ratio of average salary to subsistence level, times	2.1	2.5*	3.0*
Debt on salary payments per capita, UAH	203.07	174.3	0
Population with monthly income less than subsistence level (in % to total population)	3.8	2.5	1.5
Ratio of pensioners to working population, times	0.56	0.56*	0,5*
Share of population that requires social assistance in general population, %	28.27	27*	25*
Ratio of average pension to subsistence level, times	1.19	1.2*	1.3*
Quality of life of population			
Level of housing ensuring (square m per capita)	23.1	23.5	24.0
Share of buildings with more than 50% depreciation (including old and in emergency state)	40	38*	35*
Level of equipment of medical institutions, demand in repair works, %	80	90	100
Share of deaths in working age (per 1000 persons)	3.42	3.40	3.40
Share of deaths caused by comunicable diseases	0.13	0.12	0.12
Share of costs for initial medical assistance in general costs for health protection, %	28	35	35
Death level from oncological diseases (persons per 100 thosand population)	220.7	213.2*	209.7
Share of patients with initial oncological diseases among total patients with oncological diseases, %	17.8	21.3	22.8
Share of patients with the 4th stage among the patients with initial oncological diseases, %	24.9	19.9	14.9*
Quantity of medical personnel per 1000 persons	10.46	10.5	10.5
Level of pre-school institutions availability (Coefficient of use of kindergartens: number of children per 1 place)	1.17	1.05	1.0
Number of children in kindergartens per 1 supervisor	13	10	10
Number of pupils per 1 teacher	11	10	10
Ratio of salary in education to average monthly salary in the region, times	0.88	0.90	0.95
Coefficient of “fluidity” of teaching personnel, %	15	12	7
Share of educational institutions requiring repair, %	95	70	50
Level of availability of cultural institutions, %	100	100	100
Quantity of tourists per 1000 persons, persons	117	138	178
Level of security in the city (points 0-5)	3	4	5
Urban infrastructure			
Route network of the city (number of routs)	30	30	30
Density of transport network, km/square m	0.14	0.5	1.0
Quantity of transportation means engaged	39	39	39
Depreciation level of city transport, %	90	70	50
Square of roads / square of the city, % (Coverage rate)	3.2	4	4.2
Share of roads requiring repair, %	20.4	20*	15*
Level of availability of water supply systems for population, %	83.5	85*	87*
Level of availability of sanitation systems for population, %	55.7	65*	70*
Heat supply for population, % (1497.7 thousand. m^2 of general square)	72.4	75*	80*
Share of old and emergency water networks (in % to general length)	41.02	40*	35*

Indicators	*2015*	*2020*	*2030*
Depreciation of heating networks, %,	69	60*	50*
Presence of the territory of city extension, share of unconstructed square of the city, %	59	50*	40*
Coverage of population with telecommunication services (%)	90	95*	100*
Share of administrative services that could be received using IT-technologies	3.9	10*	30*
Transparency level of local authorities activity (points 0-10)	4	6*	8*

Results of rating assessment based on statistical information are presented in Table 2.2.

In order to extend the possibility to compare indicators in Table 2.1 structured by the components "economic development", "ecological development", "social development" in the calculation it was used standard values equal to optimal values for each indicator.

Methodology of analysis is based on the assumption that integral assessment of standard equals to 100%. As the actual value of each indicator cannot exceed its standard value, the calculated rating values are within the interval [0; 100].

Table 2.2

Rating assessment of the current state and perspectives of development of the city of Olexandriya by the components of sustainable development, %

Assessments:	*Sustainable development of the city*	*Including the components:*		
Indicators		*Economic development*	*Ecological development*	*Social development*
Current state of development of Olexandriya in 2015	55.8	44.8	54.7	68.7
Perspectives of development of Olexandriya for 2020	74.2	70.6	72.4	79.8
Perspectives of development of Olexandriya for 2030	97.1	96.2	97.6	97.5
STANDARD	**100**	**100**	**100**	**100**

According to general assessment of statistical data for 2015 the current state of development of Olexandriya is 55.8% of maximal possible standard value 100 % (target value of socio-economic state of Olexandriya in 2010 in accordance with SDGs). The weakest and the most problematic is the component "sustainable economic development", situation with social development of the city is more positive.

Forecasted values of indicators of sustainable development in 2020 and 2030 presented in Annex 1 total correspondingly 74% and 97% in comparison with 100 % - target value of socio-economic state of Olexandriya in 2030 taking into account requirements of Global 2030 Agenda for Sustainable Development (Figure 2.1).

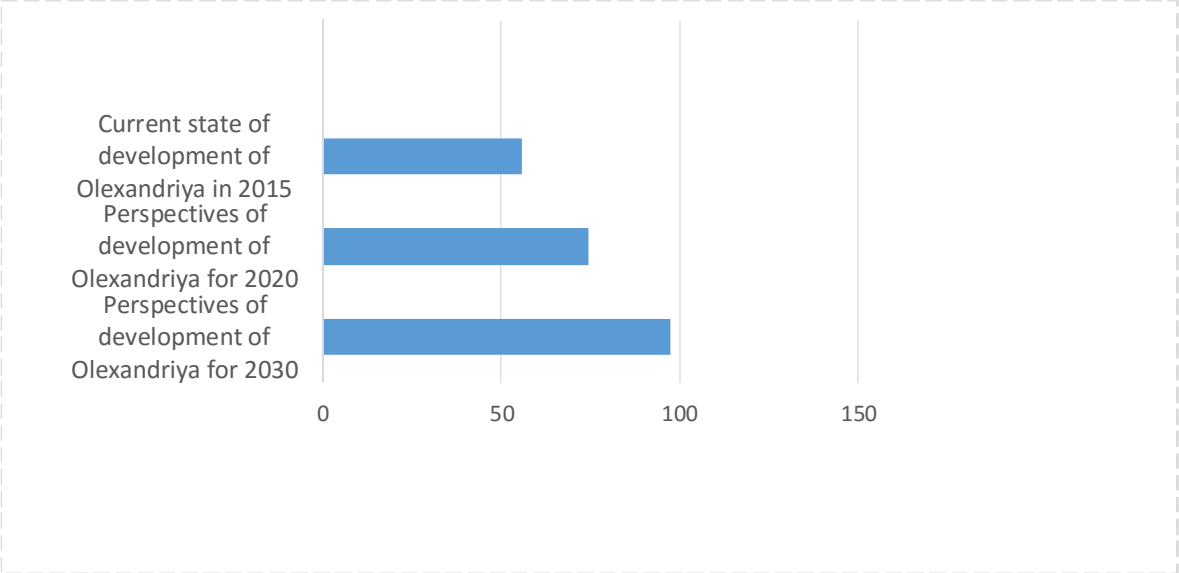


Fig. 2.1. Dynamics of growth of the value of integrated rating assessment of the city sustainable development until 2030

The difference between the current and forecasted state of development of the city by the directions essential for achieving SDGs is quite high. "The distance" that shall be overcome in the framework of the Strategy implementation by each of these directions is visually demonstrated by Figure 2.2. and Table 2.3.

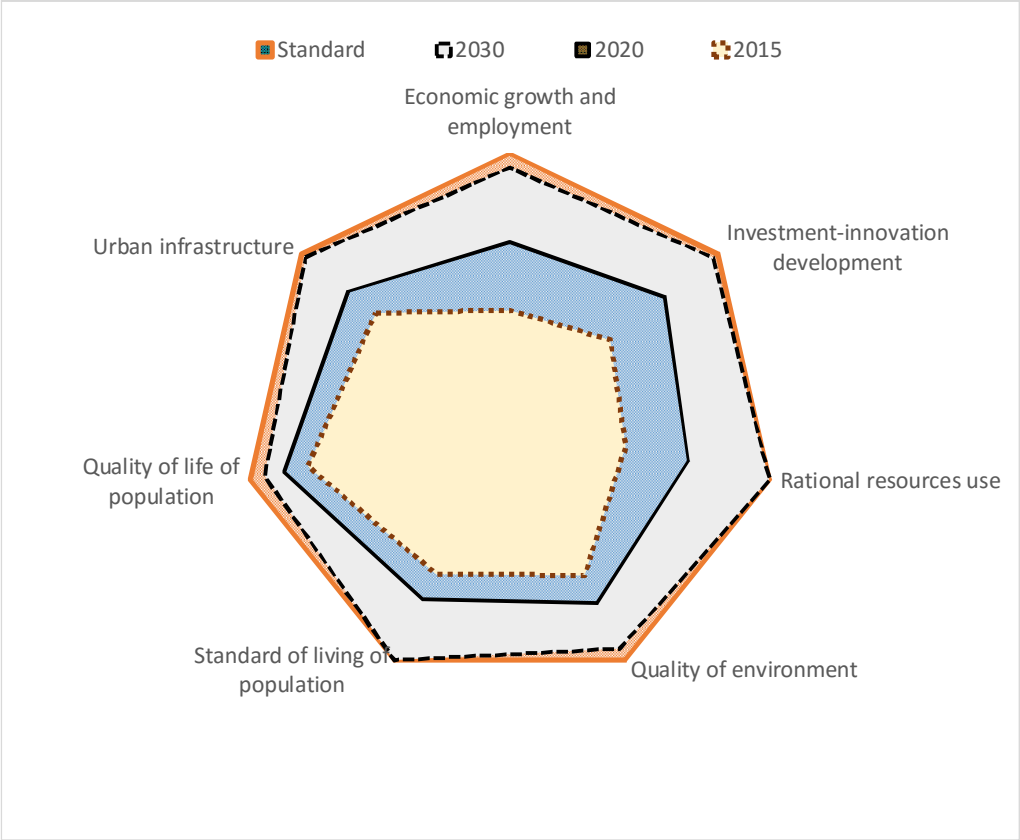


Fig. 2.2. Comparison of rating assessments of sustainable development of Olexandriya in 2015, 2020, 2030 by main directions

Table 2.3

Rating assessment by the main directions of sustainable development, %

#	*Directions of sustainable development*	*2015*	*2020*	*2030*
1	Economic growth and employment	41,3	66,9	94,8
2	Investment-innovation development	48,3	74,4	97,7
3	Rational resources use	44,6	68,7	100
4	Quality of environment	64,7	76,0	95,2
5	Standard of living of population	64,0	74,8	100
6	Quality of life of population	77,8	87,0	94,4
7	Urban infrastructure	64,5	77,6	98,1

The information presented on Figure 2.2 and Table 2.3 demonstrates that in order to achieve the forecasted values in less than 15 years left before 2030 it is necessary to make serious efforts almost in every direction of "tree of goals" of strategic development of Olexandriya.

The most problematic for the city would be moving in the directions directly related with sustainable economic and ecological development, namely:

- Economic growth and employment;
- Investment-innovation development;

- Rational resources use (Table 2.3).

The value on these directions shall grow in 2-2.3 times for the period until 2030. It means that a special attention shall be paid to planning of measures in the framework of implementation of these directions.

Other directions are characterized by presence of much stronger internal potential of development. Target tasks on increasing of standard of living of population and urban infrastructure shall increase a little more than in 1.5 times until 2030 in comparison with present, and those that determine quality of life of population and quality of environment - less than in 1.5 times (in 1.21 and 1.47 times correspondingly).

Use of quite a simple approach (so-called "traffic lights") increases visual understanding of the reviewed conclusions and allows attracting attention to the main results of the assessment using colors.

For characteristics of the result of analysis the following correspondence between the colors of traffic lights and assessments is set:

- The most problematic issues of sustainable development of the city are marked in ***red*** color, that means ***the highest danger level*** in terms of implementation of its tasks (presence of serious problems and threats of internal and external nature that make it more complicated or even impossible to implement them). These directions require special attention of local authorities to find the counteractions for the existing threats.

- The directions marked in ***yellow*** color correspond to ***medium danger level*** – there are certain opportunities in the city to develop these directions and problems that threten their implementation. Opportunities and threats are ballanced by medium level values.

- The directions of sustainable development that are the most favorable for implementation are marked in ***green*** color that corresponds to ***low danger level***. Due to presence of sufficient internal reserves on implementation of measures under these directions a quick progress in implementation of the Strategy could be achieved. In its turn it will ensure positive attitude of the city's population to the activity of local authorities in the process of implementation of the Strategy.

Use of "traffic light" system in rating assessment makes more visible the analysis of the obtained results (Table 2.4).

Table 2.4

Results of rating assessment ("traffic lights" principle)

Directions	*Conclusions of rating assessment (according to official statistics)*
Economic growth and employment	
Investment-innovation development	
Urban infrastructure	
Rational resources use	
Quality of environment	
Quality of life of population	
Standard of living of population	

Detailed analysis of the current socio-economic state of the city based on the values presented in Annexes 1-2 has allowed revealing the most problematic issues on implementation of directions ("quality of environment" and "quality of life of population") that have the greatest potential for implementation. These problematic issues are related to the following infrastructure objects, improper state of which causes concerns in the context of SDGs:

- Water supply and sanitation systems (their quality, reliability, availability)

  At the moment the share of water losses in general use totals 29.8%; quality of drinking water in the five-point system is estimated at 3 points; level of public water supply is 83.5%, availability of sanitation systems - 55.7%; share of old and emergency water supply networks is 41% of their length.

- Heat supply systems (their efficiency, reliability, availability)

  Depreciation of heating networks in the city totals 69 %; only 72.4 % of population has access to heat supply systems.

- Residential and public buildings (their technical state and energy efficiency characteristics)

  About 40 % of housing stock has depreciation level that is higher than 50%; 95% of educational institutions require repair; thermo-modernization of buildings has almost not been conducted (for residential as well as for public buildings).

- Local transport (its security, availability and convenience)

At the moment the depreciation level of city transport totals 90 %; level of coverage of the city with roads – 3.2 %, 20.4 % out of them requires repair.

- Infrastructure on waste treatment (its impact on environment)

  This is the most problematic sphere for the city – all available waste landfills are overloaded; there is no secondary waste recycling in the city; separate collection of waste is not introduced.

The outlined above issues require consideration in the planning process for the measures under directions “quality of life", "quality of environment", "urban infrastructure". They require deep attention within the Strategy, because without solving these problems it is impossible to talk about sustainability of city development.

When planning activities under the Strategy it should also paid attention to such important task as creation of new jobs, especially for young people. The unemployment rate among young people in the city is 41%. The number of pensioners is higher than the number of the working population. The average salary in Olexandriya in only 2.1 times higher than the subsistence level, and in education it is 88% of the average salary of teachers in the region. About 30% of the population requires social assistance. Given the steep increase in tariffs, this proportion will increase significantly in the nearest future. It means that without solving the employment problem, the city will not be able to sustainably develop. The city has a production potential to solve this problem. However, the available potential is not sufficiently used. About 50% of industrial enterprises either do not work or work at a loss; the level of use of available funds in the industry is low (50%); innovative products are not produced at all. Investments are at the low level - in 2015 capital investments amounted only 2692 UAH. (About 100 Euro) per person.

The above witnesses about the need for incentives from the local authorities to develop industry and promote implementation of a wide range of commercial projects that will ensure creation of new jobs. Preference shall be given to the projects involving creation of innovative products, and those that can meet the needs of the city in vital and affordable goods and services.

2.3. Expert assessment based on questioning

Analysis of opinions of expert environment in Olexandriya was carried out based on the results of a questioning participated by 65 experts, including 33 experts representing local authorities and NGOs, and almost the same number (32 experts) of employees of state and private enterprises.

Overall, the summarized opinion of the public and private sector of the city was concentrated in 34% of all questioning surveys; the remaining responses reflected the

views of local authorities (37%) and employees of public institutions and enterprises (29%) (Figure 2.3).

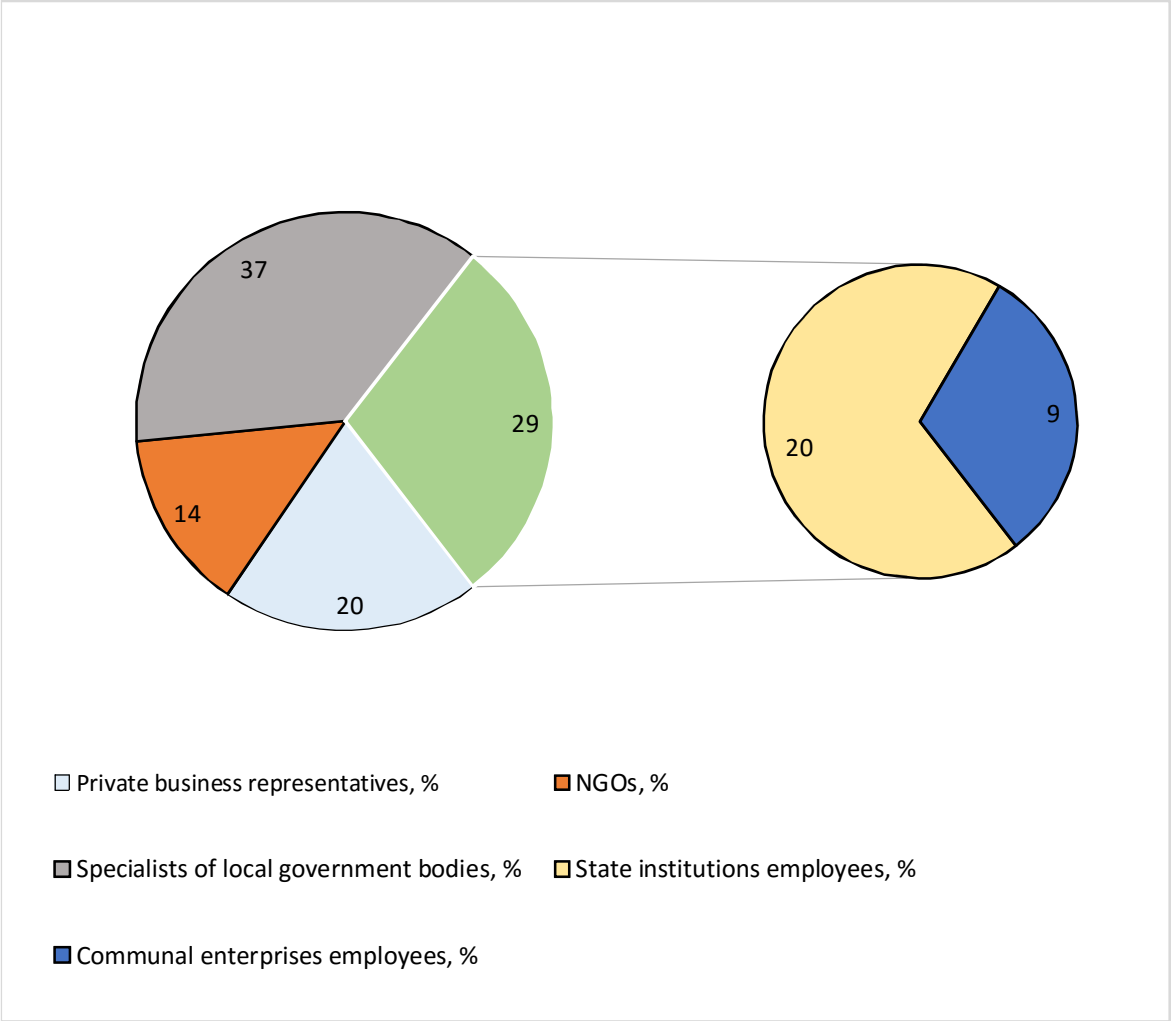


Fig. 2.3. Structure of expert environment that has participated in the questioning

SWOT-analysis of the questioning results has determined five most valuable factors that in opinion of experts have a positive impact on sustainable development of the city in economic, ecological and social spheres. They are internal and external factors (strengths and opportunities) that extend opportunities of use of the city development potential (Table 2.5). It has also been revealed five negative factors (weaknesses and external threats) that essentially limit opportunities for sustainable development of the city (Table 2.6).

Table 2.5

Five most valuable positive impact factors on economic, ecological and social sustainable development of Olexandriya (according to the results of expert questioning)

#	*Strengths of the city and external opportunities*	*Points (0-6)*
	Sustainable economic development	
1	The city has favorable geographical location - the intersection of two major highways and two railroads	5.69
2	Developed food industry	5.40
3	A powerful group of engineering companies, companies working for the defense sector	5.37
4	Possibility to produce construction materials and food products from local raw materials	5.09
5	Possibility to upgrade equipment of the existing enterprises to produce new competitive products, create conditions for implementing innovative projects of higher technological modes	5.03
	Sustainable ecological development	
1	Presence of deposits of underground water – it is possible to build water supply enterprise	5.26
2	Presence of various local raw materials (brown coal, graphite, kaolin, rubble)	5.23
3	Presence of underground sources of radon water - prospect to create a network of medical institutions	4.60
4	Favorable climate for renewable energy sources (solar, wind), possibility to implement projects on self-sufficiency of the city by own energy resources, use of own "green" resources	1.80
5	Possibility to build waste treatment plant	1.80
	Sustainable social development	
1	Professional education system in the city is capable to ensure training and retraining of specialists for any specialty	5.25
2	Developed infrastructure: network of roads, gas pipelines, electricity networks; centralized water supply and sanitation system	5.25
3	The city has highly developed sphere of services, restaurants, hotels (development of tourism)	4.46
4	Population of the city is its investor, thousands of employees monthly transfer funds to the city	4.45
5	Network of cultural institutions (libraries, clubs, music schools, museums, etc.) developed youth sport, presence of a professional football team "Olexandriya"	1.80

Table 2.6

Five most valuable negative impact factors on economic, ecological and social sustainable development of Olexandriya (according to the results of expert questioning)

#	*Weaknesses and external threats*	*Points*
	Sustainable economic development	
1	Insufficient use of potential of engineering and brown coil industry	5.17
2	Accumulation of social and financial-economic problems at the brown coil enterprises that have not been solved by years and do not depend from the city	5.11
3	Leading enterprises of the city operate in the regime of not full use of production capacities ("Etal", "Plant "Avtoshtamp", "Oksamyt", "Olexandriya pryvid" etc.)	4.97
4	Certain enterprises have stopped their production activity (LLC "NVF "Kran", SE "Zarina", LLC "RastTrading" etc.)	4.94
5	The city lags behind in terms of innovation development (techno-parks, industrial parks, eco- and sociologies etc.)	4.66
	Sustainable ecological development	
1	Waste landfills are overloaded; there is a necessity to eliminate the former city solid waste landfill, which borders with Poliova street.	5.34
2	Insufficient level of implementation of separate waste collection, lack of modern technologies for street cleaning, collection and recycling of solid waste	5.12
3	Insufficient implementation of energy saving measures in the housing stock, lack of popularization of energy saving idea among the citizens	4.55
4	Unsatisfactory quality of water coming from water pipeline "Dnipro-Kirovograd"	4.52
5	Need for restoration of favorable hydrological regime of rivers Berezivka and Inhulets in the city of Olexandriya, cleaning of places of mass recreation, beaches in the city	4.26
	Sustainable social development	
1	Moral and physical depreciation of technical infrastructure systems, necessity to modernize heat supply system of Olexandriya	5.12
2	Accumulation of social problems at the brown coil enterprises that that have not been solved by years and do not depend from the city	5.11
3	Need for construction of a bypass ring road around Olexandriya	4.97
4	Bad state of roads (need for reconstruction, capital and current repair of roads, internal access roads)	4.75
5	High rates of population aging, natural downsizing, rising of demographic pressure on people of working age	4.66

Integral assessment of positive and negative factors impact on sustainable development of the city calculated as a result of questioning (Annex 4) has shown the most perspective directions of the city development are the following:

- economic growth and employment (extension of production and employment);

- investment-innovation development.

These directions have received the highest score from experts (Table 2.7, Figure 2.4). Available internal potential of the city in these spheres exceeds the impact of negative factor.

Table 2.7

Assessment of influence of factors on main directions of sustainable development (based on expert questioning data)

#	*Directions of sustainable development*	*Influence rates (from 0 to 6):*	
		positive factors	*negative factors*
	Sustainable economic development		
1	Economic growth and employment (extension of production and employment)	4.57	3.39
2	Investment-innovation development (attraction of investments to economy and development of innovations)	3.87	2.95
	Sustainable ecological development		
3	Rational resources use (water, energy and other resources)	3.22	4.07
4	Quality of environment (quality of air, water, waste treatment, development of green zones)	1.39	2.94
	Sustainable social development		
5	Standard of living of population (increasing of income, overcoming inequality, development of social protection system)	3.46	3.01
6	Quality of life of population (increasing of quality of housing, health protection, education, culture, life safety)	2.90	2.30
7	Urban infrastructure (transport, technical and other infrastructure, concept of smart city)	3.42	3.53

The next directions by the priorities are the following:

- development of urban infrastructure (in the first place, life support infrastructure);
- standard of living of population.

These directions have received a medium score of experts. In their opinion, in these areas the use of existing internal resources of Olexandriya is counterbalanced by the existence of significant problem issues that limit opportunities to use internal potential.

The most problematic, according to expert opinion, is implementation of measures related to improving the quality of life and quality of environment, as well as rational resources use (water, energy, introduction of alternative energy sources). This is due to the existence of significant negative (including external, that do not depend on the city) factors that exceed the positive impact of possibilities of the city and create obstacles to implementation of these sustainable development directions.

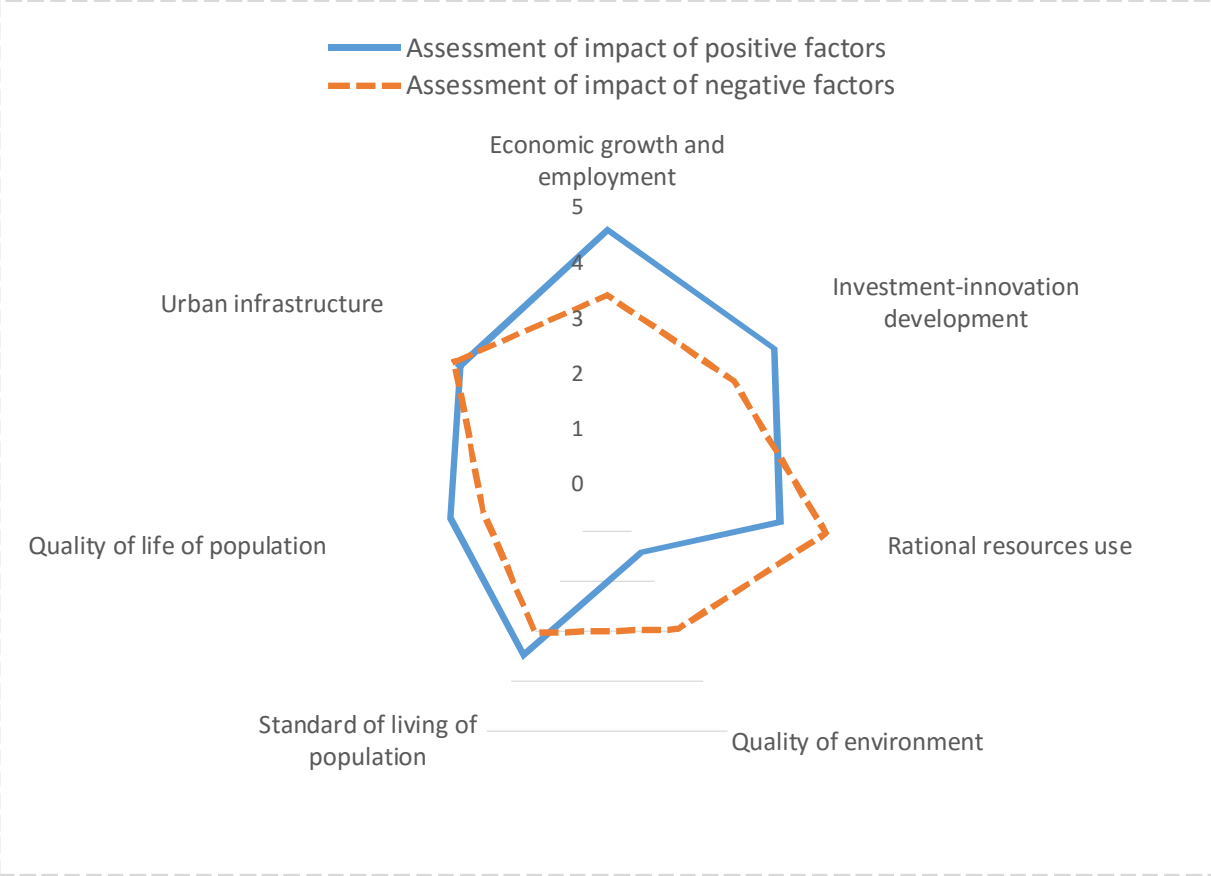


Fig. 2.4. Impact of positive and negative factors on main directions of city sustainable development according to expert assessment data

Conclusions of expert assessment on perspective directions of development of Olexandriya to some extent differ from the results obtained by the rating assessment of official statistics data (Table 2.8 and Annex 3). The experts give high score to internal city potential under such directions as "economic growth and employment", "investment-innovation development", at the same time official statistics, in regard to the need for achieving the forecasted values in 2030, shows presence of significant difficulties in implementing the opportunities that exist in these areas.

On the other hand, unlike the rating assessment based on statistic data, the experts underestimate the internal resources of the city on improvement of quality of environment (quality of water, air, waste management, expansion of green areas). Of course, it is a difficult and time-consuming process to solve infrastructure problems in these spheres and it requires a systematic approach and significant investments. However, implementation of projects in this sphere will makes it possible to achieve a significant effect on improving the quality of life of the city population, make the city attractive for living and for investments.

Table 2.8

Comparison of conclusions of rating and expert assessments ("traffic lights" principle)

Directions	*Rating assessment (official statistics)*	*Expert assessment*
Economic growth and employment		
Investment-innovation development		
Urban infrastructure		
Rational resources use		
Quality of environment		
Quality of life of population		
Standard of living of population		

Such difference in assessments could be explained. Rating analysis based on statistic data has been performed taking into account future development of the city from the point of possibility to achieve the forecasted values of indicators that correspond to the expectations of the international community in regard to SDGs in 2020 and 2030, it means that such analysis has a strategic nature and is for a long-term perspective. In contrast, the experts have evaluated the current situation and the existing potential of the city it a shorter term perspective taking into account their own vision on these issues in today's conditions. Their vision in not based on the tasks implementation of which is envisaged by the Global 2030 Agenda for Sustainable Development.

The combination of rating and expert analysis results has allowed obtaining more balanced assessments of the current state and perspectives of the city development in the context of SDGs and taking into account the vision and "feeling" of the current situation by the expert environment.

The results of complex analysis are presented in Section 2.4.

2.4. Complex assessment based on the results of rating and expert assessment

The complex analysis conducted based on combination of statistic and expert data with use of rating and SWOT-analysis methods has allowed receiving general conclusions on strategic priorities of Olexandriya sustainable development.

In the framework of complex analysis it was calculated the adjusted assessment of the impact level of positive and negative factors on the development potential of the city in achieving the target values by the main directions of sustainable development (Figure 2.5).

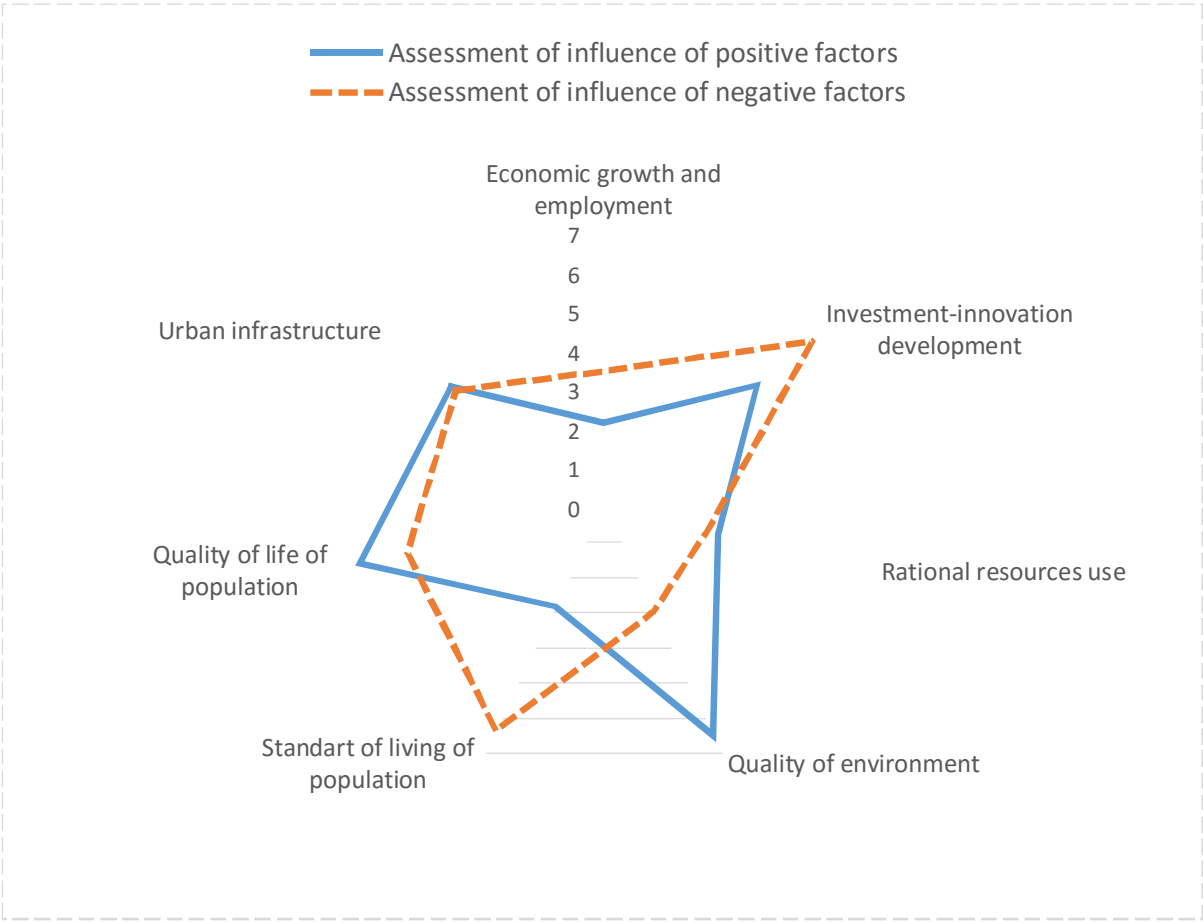


Fig. 2.5. Impact of positive and negative factors on main directions of the city sustainable development according to complex analysis values (based on statistic and expert data)

McKinsey matrix built on the basis of this information allows visually evaluating the importance of each direction on achieving of Sustainable Development Goals (Figure 2.6) [3].

[3] Ideal is deemed the location in the upper quadrant of the matrix with a high level of internal possibilities and low dependence on negative factors

Dependence on negative factors (weaknesses and external threats)	Impact of positive factors (strengths and external favorable conditions)		
	High (6-9)	Average (3-6)	Low (0-3)
Weak (0-3)	o Quality of environment	o Rational resources use	
Average (3-6)	o Quality of life of population	o Urban infrastructure	o Economic growth and employment
Strong (6-9)		o Investment-innovation development	o Standard of living of population

Fig. 2.6. Level of importance of sustainable development directions by complex analysis rates (based on statistical and expert data)

Analysis of McKinsey matrix allows determining three groups of directions by the level of their importance in the context of SDGs achievement.

To ***the first group*** belong the most problematic directions for the city related to ensuring of:

- economic growth and employment;
- investment-innovation development;
- growth of standard of living of population.

The city doesn`t have sufficient internal reserves for implementation of measures under these directions. In addition, there are significant problems associated with the negative impact of external factors that hinder the opportunities of the city under these directions. It should also be kept in mind that the level of economic, investment and innovation development of the city directly influences on standard of living of population meaning that to some extent these directions are interrelated.

Problems with the implementation of measures related to economic investment and innovation development, confirmed the rating assessment based on statistical data (Table 2.9). These areas are marked with high risk, which means the need for increased attention to finding ways to implement them within the strategy of sustainable development.

Problems on implementation of measures related to economic and investment and innovation development are also confirmed by the rating assessment based on statistical information (Table 2.9). These directions are marked by high danger level that means that there is a necessity to pay special attention to search for the ways of their implementation in the framework of Sustainable Development Strategy of the city.

To ***the second group*** belong the most perspective directions for the city that will allow ensuring increasing of:

- Quality of life of population;
- Quality of environment.

The importance and potential of implementation of measures aimed at increasing of quality of life of population could be also observed from the results of expert questioning (Table. 2.9), according to which the existing potential and opportunities in this sphere are assessed as high. However, local authorities shall take serious efforts to mobilize reserves for identification and implementation of measures that would allow essentially improving quality indicators.

Equally important and perspective direction is "quality of environment". Mostly its indicators cause increase of quality of life for future generations. This direction is expedient to be included to the second group.

To ***the third group*** belong directions “urban infrastructure” and “rational resources use” that have medium danger level. Internal reserves and favorable external conditions for implementation of tasks in the framework of these directions are assessed as a medium level. At the same time it shall be noted that in these spheres overcoming of significant impact of negative factors shall be expected (Figure 2.6).

Table 2.9

Results of complex analysis (“traffic lights” principle)

Directions	*According to complex assessment*	*For comparison:*	
		According to rating assessment	*According to expert assessment*
Economic growth and employment			
Investment-innovation development			
Urban infrastructure			
Rational resources use			
Quality of environment			
Quality of life of population			

Directions	*According to complex assessment*	*For comparison:*	
		According to rating assessment	*According to expert assessment*
Standard of living of population			

2.5. Strategic priorities on the city development according to complex analysis

Conclusions regarding the potential of implementation of measures that could ensure sustainable development of Olexandriya in the context of Global 2030 Agenda for Sustainable Development have allowed forming three **strategic priorities** (hereinafter - SP) based on grouped development directions according to complex analysis aimed at achieving of specific results comprehensible to the society.

The directions under each of these strategic priorities are interlinked by the level of security related to their achievement (high, medium, low) and by values to be achieved as a result of implementation of the Strategy characterizing the success of the corresponding measures.

These strategic priorities are the following.

SP1 "Decent work for all"

This priority could be achieved as a result of implementation of measures under directions: economic growth and employment; investment-innovation development; growth of living standards.

Directions included to this priority, are the most problematic and the most difficult for implementation which is constrained by presence of many negative factors both internal and external with quite high impact.

The tasks envisaged in the framework of this strategic priority, in the first place, shall be aimed at development of technological and innovation jobs that would contribute to solving the employment problem and growth of living standards of the city population.

The main indicators by which the society will assess the success of this strategic priority implementation are: unemployment level, including among young people; the ratio of the average salary to the subsistence level.

SP2 "Comfortable living conditions"

This priority could be achieved as a result of implementation of measures under directions: improvement of quality of life of population and improvement of quality of environment.

The existing potential and opportunities for implementation of measures under directions related to this priority are assessed as quite high and their implementation can provide a significant impact and demonstrate to the population of the city the efficiency of the Strategy.

The main indicators by which the society will assess the success of this strategic priority are: share of poor people; drinking water quality; scope and quality of waste water treatment; the degree of utilization/recycling of waste; transport security.

SP3 "Sustainable economic activity"

This priority could be achieved as a result of implementation of measures under directions: urban infrastructure development and rational resources use.

Measures under this priority are strategic in nature and mostly aimed not at achieving of short - and medium-term goals, but to address strategic issues affecting the future generations. In addition, implementation of directions envisaged by this priority will have positive impact and enhance efficiency of measures envisaged under other SP. Firstly, it will allow having savings of budget funds and funds of residents, and consequently, enhancing the ability of the city on development of social infrastructure. Secondly, it will improve the quality and comfort of life in the city.

The main indicators by which the society shall assess this success of implementation of this strategic priority are: share of term modernized buildings (residential and budget); losses of water and heat; share of renewable resources use; effectiveness of e-government.

Detailed analysis of compliance of the determined strategic priorities (SP1, SP2, and SP3) with UN Sustainable Development Goals and their impact on achievement of SDGs are presented in Table 2.10.

Table 2.10

Relation of Strategic priorities in achieving goals 2020 with UN Sustainable Development Goals

#	*UN SDGs*	*Type of impact on achievement of SDGs*			*Impact assessment, points*		
		No impact (0 points)	*Indirect impact (5 points)*	*Impact (10 points)*	*SP1*	*SP2*	*SP3*
1	No poverty		SP2, SP3	SP1	10	5	5
2	Zero hunger		SP1, SP2, SP3		5	5	5
3	Good health and well-being		SP1, SP3	SP2	5	10	5
4	Quality education		SP1, SP3	SP2	5	10	5
5	Gender equality		SP1, SP2, SP3		5	5	5
6	Clean water and sanitation			SP1,SP2, SP3	10	10	10
7	Affordable and clean energy		SP2	SP1, SP3	10	5	10
8	Decent work and economic growth			SP1, SP2, SP3	10	10	10
9	Industry, innovation and infrastructure		SP2, SP3	SP1	10	5	5
10	Reduced inequality		SP3	SP1, SP2	10	10	5
11	Sustainable cities and communities			SP1, SP2, SP3	10	10	10
12	Responsible consumption and production		SP1, SP2	SP3	5	5	10
13	Climate action		SP1, SP2, SP3		5	5	5
14	Life below water	SP1, SP2, SP3			0	0	0
15	Life on land	SP1, SP2	SP3		0	0	5
16	Peace, justice and strong institutions		SP1, SP2, SP3		5	5	5
17	Partnerships for the goals		SP1, SP2, SP3		5	5	5
	Impact on SDGs, points	-	-	-	**110**	**105**	**105**

Comparison of the selected strategic priorities by the level of their impact on implementation of UN Sustainable Development Goals witnesses about approximately equal level of importance of these priorities. At the same time, the greatest impact on SDGs is made by SP1 “Decent work for all”. Achievement of target values that characterize this strategic priority will indirectly influence on results of activity under two other priorities.

In order to determine measures to be implemented under each strategic priority it is necessary to elaborate in details the indicators that shall be achieved under each SP in the context of new Global 2020 Agenda for Sustainable Development. These indicators are presented below in the Table 2.11.

Table 2.11

Strategic priorities of sustainable development of Olexandriya in the context of SDGs based on results of complex analysis

Tasks of UN SDGs			Main goals of Olexandriya	
			2020	2030
ACHIEVEMENTS OF SUSTAINABLE ECONOMIC DEVELOPMENT OF THE CITY				
Economic growth	Per capita economic growth in accordance with national circumstances Industrial production share in GDP Development of SMEs New jobs Full employment (2030) Proportion of youth not in employment and study (2020 – considerably decrease)	**Decent work for all**	12% increase of industrial production (comparing to 2015) Level of use of industrial funds in industry – up to 65%. Increase industrial production sale per capita in 2.5 times (comparing to 2015) General unemployment – down to 7%, unemployment among youth – down to 30%.	20% increase of industrial production (comparing to 2015) Level of use of industrial funds in industry – up to 90%. Support of SMEs development Increase unemployment down to 7%, among youth – down to 10%.
Increasing of investments and innovation development	Share of modernized industrial enterprises Efficiency of use natural resources use and introduction of innovation technologies Productivity of labor in industry Scientific and technical research	**Decent work for all**	Increase capital investment per capita by 30% (comparing to 2015) Share of innovation production output - 7%	Increase capital investment per capita by 50% (comparing to 2015) Share of innovation production output - 15%

ACHIEVEMENTS OF SUSTAINABLE ECOLOGICAL DEVELOPMENT OF THE CITY				
Rational resources use	Efficiency of natural resources use Access of population to information on resources use Full access of all population to drinking water. Access to energy supply Share of energy use from renewable sources. Global energy efficiency ratio (increase in 2 times)	**Sustainable economic activity**	Increase share of thermo-modernized Water losses in general use down to 25%.	High level of energy efficiency in public and residential buildings Essential decrease water losses in general use – down to 12%. Essential increase of share of renewable energy in the city energy balance
Quality of environment	Quality of air, drinking water and surface waters. Share of untreated waste water (decrease in 2 times) Proper utilization of waste Amount of food waste and loss of food (decrease in 2 times (per capita) Share of recycled and secondary used waste Areas and access to green zones	**Comfortable living conditions for everybody**	Increase drinking water quality Increase quality of waste water treatment Share of separate collection of waste and secondary solid waste treatment – at least 20% Improvement of existing parks and squares of the city.	High quality of drinking water and surface waters Separate collection of waste and secondary solid waste treatment – 70%. High level of improvement of existing parks and squares using landscape design

ACHIEVEMENTS OF SUSTAINABLE SOCIAL DEVELOPMENT OF THE CITY				
Standard of living	Income growth of the bottom 40 per cent of the population at a rate higher than the national average. Fully eradicate extreme poverty (extreme poverty – less than 1.25 USD per day per parson) Proportion of poor population (reduce by 50%) Social protection for poor and vulnerable	**Decent work for all**	Debt on salary payments per capita (decrease at least in 1.2 times) Decrease in 1.5 times share of poor population (comparing to 2015). Ensure ratio of average pension to subsistence at level 1.2.	Liquidate debt on salary payments Maximal decrease of share of poor population – down to 1.5% in general population Optimal ratio of pensioners to working population. Social protection for vulnerable population
Quality of life	Full access to affordable and secure housing and main services Maternal mortality ratio (down to less than 70 per 100,000 live birth) Neonatal mortality under 5 years (12 per 1,000 live births and under-5 mortality - 25 per 1,000 live births) Universal access to reproductive health-care services. End the epidemics of AIDS, tuberculosis, malaria Combat hepatitis and other communicable diseases Mortality from non-communicable diseases (by 1/3) Level of diseases caused by narcotic drug and alcohol Access to medical services. Full access to pre-primary and primary education Level of access to professional-technical and higher education Protect and safeguard the cultural heritage and develop tourism. Level of crimes, corruption Access to justice	**Comfortable living conditions for everybody**	Level of housing ensuring up to 23.5 square m per capita Equipment of medical institutions at the level of 90%. (renovation of material-technical base) 100% engagement of personnel in medical institutions and ensuring housing for all medical employees. Increasing of salary of medical employees via local stimulus. Capital repair in all medical institutions. Decrease share of deaths in working age – 3.4 per 1000 persons. Increase share of costs for initial medical assistance in general costs for health protection up to 35%. Ensure coefficient of use of kindergartens at the level 1.05. Decrease of share of educational institutions that require repair down to 70%. Ensure access to cultural institutions,	Bringing level of housing ensuring in compliance with norms 100% level of equipment of medical institutions and increasing of costs for initial medical assistance Decrease of deaths from oncological diseases by 5%. Share of deaths in working age – 3.4 per 1000 persons 100% level of pre-school institutions availability Ensure access to cultural institutions, increased number of tourists – up to 178 per 1000 persons Access to justice and increasing of security level in the city

			increased number of tourists – up to 138 per 1000 persons Increasing of security level in the city	
Sustainable urban infrastructure	Sustainable transport systems Access to safe, affordable, accessible transport Use of public transport Deaths from road traffic accidents Quality, reliable and sustainable infrastructure Sustainable energy supply Ecologically sustainable urbanization Sustainable human settlement planning and management Efficient and transparent management bodies	**Sustainable economic activity**	Depreciation level of city transport – down to 70%. Decrease share of roads requiring repair Access to reliable water and heat supply systems, decreasing depreciation of engineering networks of the city Increasing share of administrative services that could be received using IT-technologies Increasing transparency level of local authorities activity	Ensuring of essential renewal of city passenger transport (depreciation level – 50%). Density of transport network increased up to the norm. Quality road cover Essential decreasing of heat losses in engineering networks Remote provision of administrative services Maximal transparency level of local authorities' activity.

Taking into account the forecasted values of indicators presented in Table 2.11, it is necessary to solve the following tasks in order to achieve interim goals in the medium-term perspective (until 2020) and long-term perspective (until 2030)

SP1. Decent work for all

1) Implementation of large infrastructure projects (modernization of systems of heat supply, water supply and sanitation, creation of waste treatment infrastructure, construction of bypass road, creation of industrial park etc.).

2) Implementation of commercial innovation projects at the existing production areas.

3) Organization of trainings for youth and re-qualification/increasing of qualification of personnel that lost job.

SP2. Comfortable living conditions

1) Development of transport infrastructure of the city; construction of ring road; renewal of city passenger transport

2) Ensure access to water supply and sanitation for all; increasing of drinking water quality; increasing of scope and efficiency of waste water treatment.

3) Conduction of capital repair and complex thermo modernization of public and residential buildings

4) Solving the problem of utilization, recycling and disposal of waste

5) Increasing of efficiency of system of medical services providing (improvement of material-technical state of medical institutions, available staff, creation of hospice, modern diagnostic and rehabilitation centers, improvement of oncological situation in the city).

6) Development of infrastructure for leisure and sport; development of touristic and recreation infrastructure.

SP3. Sustainable economic activity

1) Conduction of complex thermo-modernization of public buildings and attraction of private business for implementation of this task; creation of the corresponding mechanisms

2) Creation of conditions for lower consumption of energy resources in residential buildings

3) Introduction of secondary use of waste.

4) Decreasing losses of energy resources in heat supply, water supply and sanitation systems

5) Introduction of e-Government.

The above measures are of general nature and shall be detailed in the process of development and implementation of City Infrastructure Plan taking into account efficiency of each of the projects included to it.

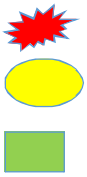
SECTION 3. URBAN INFRASTRUCTURE DEVELOPEMNT AS A BASIS OF STRATEGY IMPLEMENTATION

International experience shows that any development strategy cannot be implemented in practice unless it is based on creation/modernization of modern infrastructure (economic, social, management). Creation of such infrastructure is a prerequisite for ensuring sustainable development. Achievement of targets indicators for each of the strategic priorities for Olexandriya is not an exception.

Taking into account the above, implementation of infrastructure and other investment projects aimed at providing modern infrastructure, the lack of which hinders sustainable development shall become the basis of Sustainable Development Strategy of the city of Olexandriya.

Table 3.1 below presents the list of perspective investment projects that could contribute to solving of problems that exist in achieving of each of the identified strategic priorities (SP1 - SP3).

For better visualization it was again used the principle of "traffic light" to mark the importance of a particular group of investment projects and complexity of their implementation:



- ***red*** – impact on all strategic priorities;
- ***yellow*** – impact on two strategic priorities;
- ***green*** – impact on only one strategic priority.

Table 3.1

Infrastructure and other investment projects important for achieving the Strategic priorities

Groups of perspective investment projects	*Strategic priorities on achievement of which investment project will have impact*			*Importance and complexity of project implementation*
	SP1	*SP2*	*SP3*	
1. Creation of industrial park	X			
2. Modernization of heat supply systems, extension of use of renewable energy sources	X	X	X	
3. Modernization of water supply and sanitation systems (increasing quality of water treatment; decreasing water and energy resources losses)	X	X	X	
4. Use of ground water deposits for recreation measures	X		X	
5. Increasing of scope and efficiency of waste water treatment		X	X	

Groups of perspective investment projects	*Strategic priorities on achievement of which investment project will have impact*			*Importance and complexity of project implementation*
	SP1	*SP2*	*SP3*	
6. Construction of ring road	X	X	X	
7. Repair and renovation of internal access roads		X	X	
8. Liquidation of former city solid waste landfill (Poliova street)	X	X	X	
9. Regulation of the existing waste landfill	X	X	X	
10. Construction of waste treatment plant	X	X	X	
11. Introduction of separate waste collection system		X	X	
12. Conduction of capital repair and complex thermo modernization of public buildings	X	X	X	
13. Creation of mechanisms of conduction of complex thermo modernization of residential buildings		X	X	
14. Implementation of projects on improvement of green areas of the city		X		
15. Implementation of commercial innovation projects at the existing production areas	X			
16. Introduction of secondary use of waste	X	X	X	
17. Organization of trainings for youth and re-qualification/increasing of qualification of personnel that lost job	X	X	X	
18. Renovation and modernization of city passenger transport		X	X	
19. Increasing of efficiency of system of medical services providing (improvement of material-technical state of medical institutions, available staff, creation of hospice, modern diagnostic and rehabilitation centers, improvement of oncological situation in the city)		X		
20. Development of infrastructure for leisure and sport		X		
21. Development of touristic and recreation infrastructure	X	X		
22. Introduction of e-Government		X	X	

The above groups of potential investment projects cover all strategic priorities (Figure 3.1). At the same time, the most of the projects are mainly aimed at solving the task of the first strategic priority SP1 “Decent work for all” that is the most important for ensuring of sustainable development of the city.

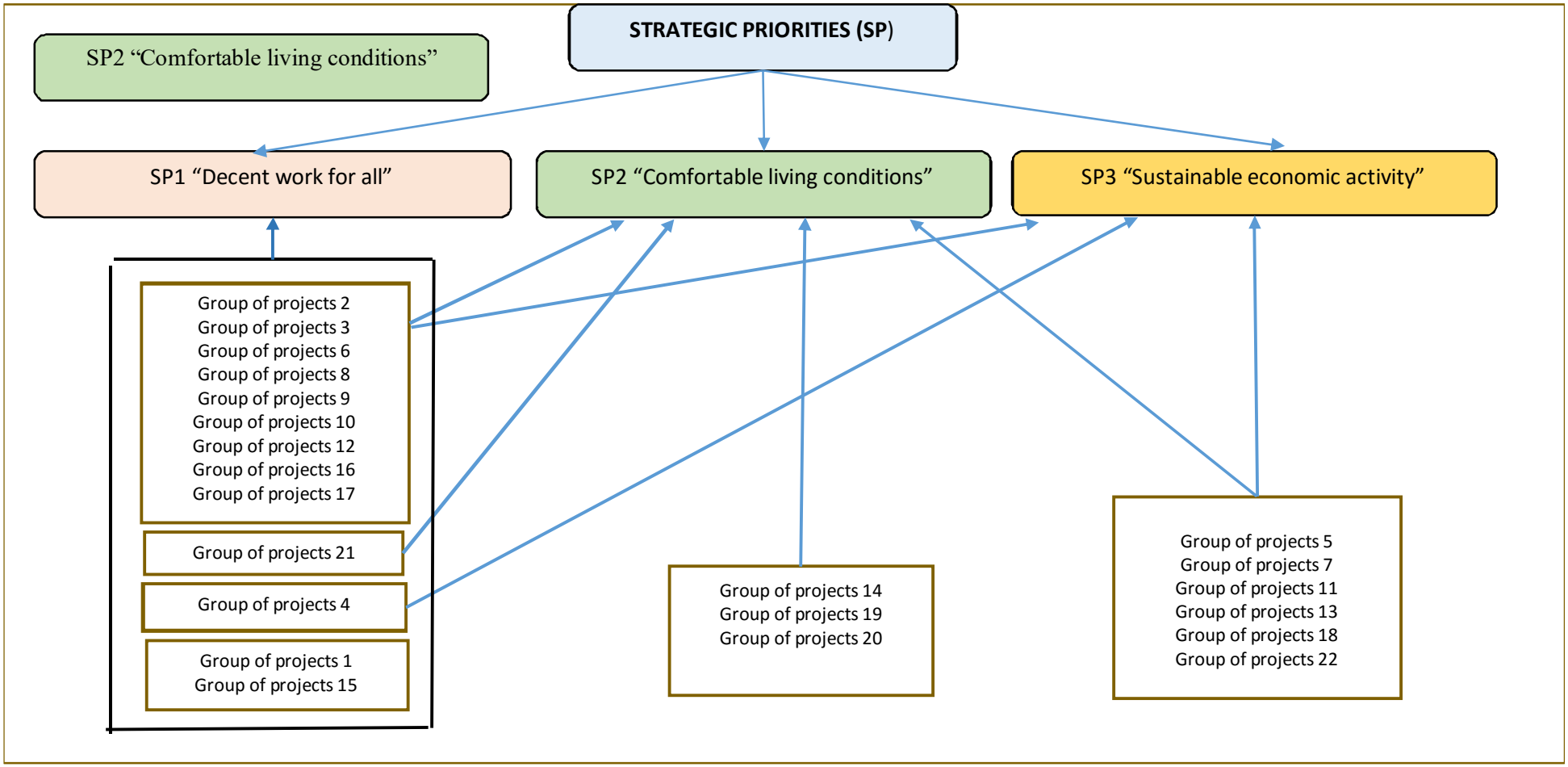


Fig. 3.1. Impact of groups of projects important for achievement of strategic priorities of sustainable development

Today, in the city it was developed a number of investment projects implementation of which could be considered in the framework of the Sustainable Development Strategy. The level of preparedness of these projects is very different - from the project idea to the developed project documents and feasibility studies. This list consists of real proposals for 42 projects. The main characteristics of these projects are presented in Annex 5, their general characteristics is shown in Table 3.2.

Table 3.2

General characteristics of projects proposed for implementation in the framework of the Strategy

General characteristics of the proposed projects	*Quantity*		*Cost*		
	projects, quantity	*Share in general quantity*	*Mln UAH*	*Mln UDS**	*Share in general cost*
TOTAL	42	100 %	6574.41	260.27	100 %
Including **large long-term infrastructure projects** (potential projects in field of heat supply, waste treatment and industrial production mostly proposed by private business aimed at international financing sources)	6	14.28 %	6344.12	251.153	96.5 %
Status of development:					
- Potential projects	13	31 %	5909.442	233.945	89.9 %
- Developed projects	29	69 %	664.965	26.325	10.1 %
Terms of implementation:					
- Short-term projects (1-2 years)	17	40.5 %	95.048	3.763	1.5 %
- Medium- and long-term projects (more than 2 years)	25	59.5 %	6479.359	256.504	98.5 %
Proposed financing sources:					
- Only state budget funds	3	7.1 %	6.740	0.2668	0.10 %
- Only local budget funds	6	14.3 %	11.063	0.438	0.17 %
- Joint financing from state and local budgets	5	11.9 %	26.523	1.050	0.40 %
- Only funds of international financial institutions	16	38,1 %	6383,191	252.699	97.09 %
- Joint financing from various sources	12	28,6 %	146.889	5.815	2.23 %
Initiators of projects:					
- Private business	8	19.05 %	5864.92	232.182	89.20 %
- Local authorities	30	71.43 %	194.763	7.710	2.96 %
- Communal enterprises	4	9.52 %	514.724	20.377	7.83 %
Main directions:					
- Development of industrial production	5	11.90	4324.2	171.187	65.77
- Modernization of heat supply systems	3	7.14 %	1470.02	58.196	22.36 %

General characteristics of the proposed projects	Quantity		Cost		
	projects, quantity	Share in general quantity	Mln UAH	Mln UDS*	Share in general cost
- Increasing of water supply and waste water treatment systems	7	16.67 %	91008	3.603	1.38 %
- Thermo-modernization of public buildings	5	11.90 %	22.302	0.883	0.34 %
- Thermo-modernization of residential buildings	7	16.67 %	37.251	1.475	0.57 %
- Improvement of waste treatment systems	3	7.14 %	576.254	22.813	8.76 %
- Development of transportation and increasing of roads quality	9	21.43 %	29.486	1.167	0.46 %
- Equipment of medical institutions	3	7.14 %	23.886	0.946	0.36 %

** According to the official exchange rate of the NBU as of 20.05.2016: 1 USD=25.26UAH*

13 out of 42 proposed projects implementation of which should be the basis for achieving the strategic priorities of the city in the context of Sustainable Development Strategy according to the opinion of local experts are potential that are actually at the phase of design idea and initial justification.

Only 6 out of the provided projects could be attributed to large infrastructure projects. They make up only 14% of total number of projects, but require more than 96% of total funding. These are potential projects in field of heat supply, industrial production and waste treatment, which are mainly proposed by the private business with expectations on international sources of funding. According to the available information implementation of only these projects will result in creation of at least 700 new jobs.

Concerning other projects, their implementation will result in creation on only 25 permanent jobs. At the same time, only 4 out of these projects are those that will provide employment for a long period. All other projects are also important, but create jobs only for the duration of their implementation. Implementation of some of them could even reduce number of jobs. It means that when taking the decision on their implementation one shall also immediately think about “projects-compensators” that would make it possible to increase the number of new jobs.

The total amount of financial resources needed to implement the proposed projects is approximately 6.6 billion UAH. (260.27 million USD). At the same time only 1% of necessary financing is planned to be financed only by budget funds (through state and local budgets), the lion's share of funding (97.1%) is proposed to be financed by international financial institutions, and only 2.2% - through joint funding, including based of public-private partnership. Opportunities of project financing based on PPP are undervalued.

Most of the projects proposed by the city (81 %) are aimed at solving of certain tasks in the framework of priorities SP2 and SP3. At the same time:

- 21 % of projects are aimed at achievement of goals under priority SP2 “Sustainable economic activity”;
- 24 % of projects - at achievement of goals under priority SP3 “Comfortable living conditions”;
- 36 % of projects - at achievement of goals under priorities SP2 and SP3.

Only 19 % out of the proposed projects “work for achievement” of strategic priority SP1 “Decent work for all” (Figure 3.2). This means that the city underestimates the tasks of strategic nature and it mostly looks for a short-term perspective while planning infrastructure development.

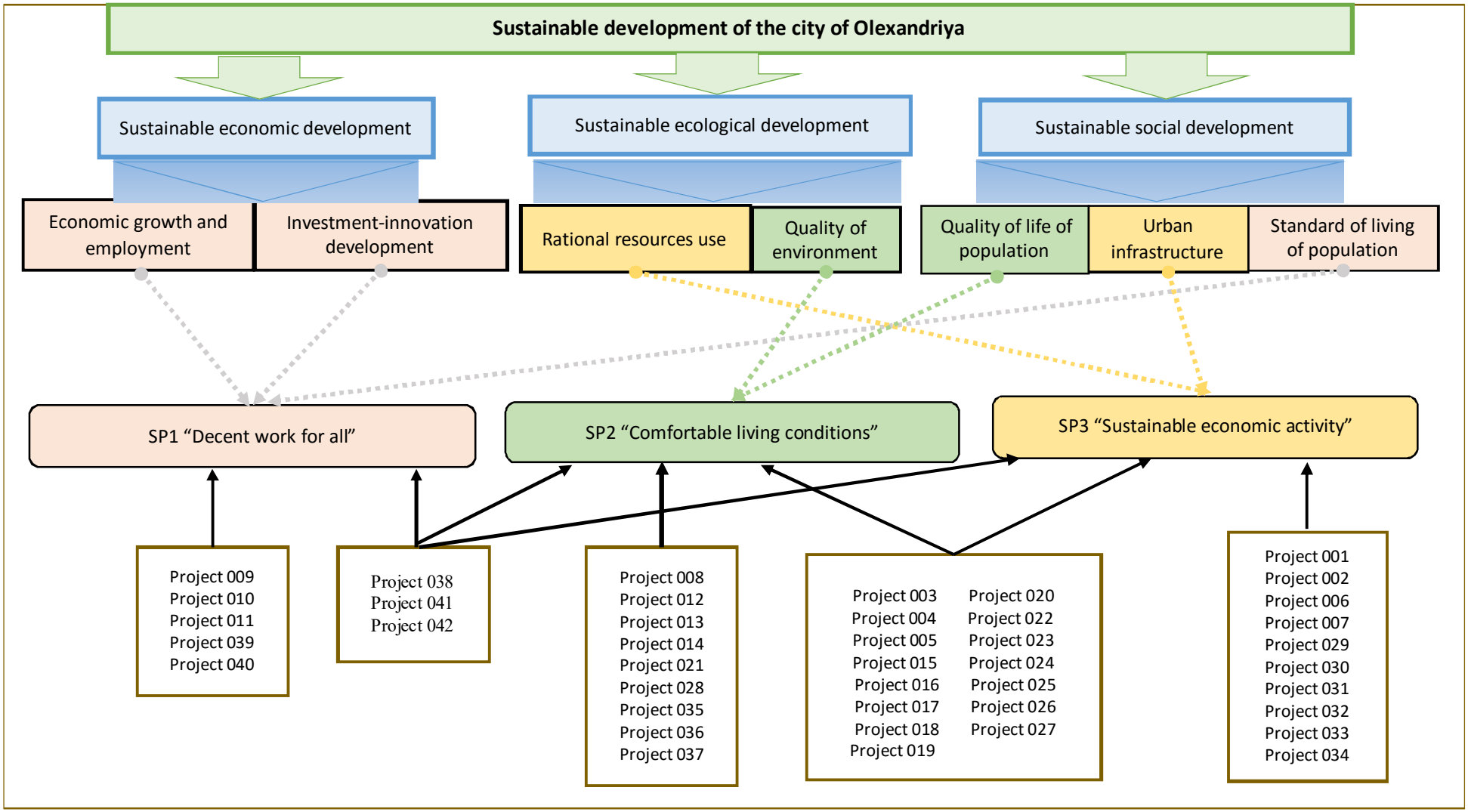


Fig. 3.2. Distribution of the proposed projects by Strategic priorities of sustainable development of the city of Olexandriya

More detailed analysis of project proposals (Table 3.3) has shown that the proposed projects cannot ensure in the full scope achievement of the determined Strategic priorities of the city development until 2020 not even speaking about Sustainable Development Goals until 2030. So there is an urgent need in development of additional projects of strategic nature that could influence on achievement of SDGs.

Table 3.3 besides "traffic lights" has also color indications that draw attention to the projects on development and analysis of the impact of which on sustainable development of the city it should be paid attention in the Strategy.

These color indications have the following meaning:

! - it is necessary to pay attention on development of project/projects of the corresponding direction;

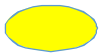
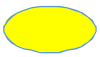
\+ - there are perspective projects in the context of SDGs. At the same time they require careful analysis for inclusion into City Infrastructure Plan

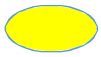
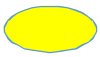
Table 3.3

Analysis of the proposed investment projects in terms of their impact on achieving SDGs

Group of perspective investment projects	Comments to the list of the proposed projects	Impor-tance according to SDGs [4]	Necessity to improve
1. Creation of industrial park	The project was not even considered among the proposed projects. But it has high potential for creation of new jobs, development of innovations and could efficiently add to implementation of other projects from the list of priority projects (for example, in case of organization of production of energy efficient equipment and materials)		!
2. Modernization of heat supply systems, extension of use of renewable energy sources	It was proposed 3 infrastructure projects that correspond to the task (projects 001, 038, 041) and project 002 that envisage construction of modular boiler house. These projects are not agreed in-between and require adoption of concept decision on their implementation		+
3. Modernization of water supply and sanitation systems (increasing quality of water treatment; decreasing water and energy resources losses)	It was proposed 3 projects on implementation of this task with implementation term – 4 years (projects 019, 020, 028).		+

[4] The color indicates importance and complexity of the project: red – the project has impact on achievement of SP1, SP2, SP3; yellow – the project has impact on achievement of two strategic priorities; green – the project has impact on achievement of one strategic priority.

Group of perspective investment projects	Comments to the list of the proposed projects	Impor-tance according to SDGs [4]	Necessity to improve
4. Use of ground water deposits for recreation measures	This project is not considered as potential		!
5. Increasing of scope and efficiency of waste water treatment	It was proposed 3 projects on implementation of this task (2 of them are potential – 015, 017, and one is developed – 016).		+
6. Construction of bypass road	This project is not considered as potential		!
7. Repair and renovation of internal access roads	It was proposed 7 projects that envisage capital repair of road cover of streets (1 of them is potential – 006 and 6 developed – 029-034). These projects are of tactical nature.		+
8. Liquidation of former city solid waste landfill (Poliova street)	This project is not considered as potential, at the same time it is developed the project on construction of the second stage of landfill (project 021)		+
9. Regulation of the existing waste landfill	This project is not considered as potential, at the same time it has a high importance for SDGs achievement		!
10. Construction of waste treatment plant	It was proposed one potential long-term project 042, that envisage full cycle of waste recycling and possibility of treatment of waste disposed in landfills.		+
11. Introduction of separate waste collection system	The project is proposed as potential – 008		+
12. Conduction of capital repair and complex thermo modernization of public buildings	It was proposed 5 projects that solve this task (002-005 – term of implementation is 1 year, 018 – term of implementation – 2 years). At the same time, this task requires deep attention and could be solved in complex in case of introduction of the corresponding mechanisms		!
13. Creation of mechanisms of conduction of complex thermo-modernization of residential buildings	It was proposed 7 projects that are insufficient for complex solving of the task of creation of mechanisms of energy efficiency problems solving. Projects 022-027 are developed for 4-year implementation period, project 037 – for 5-year implementation		+
14. Implementation of projects on improvement of green areas of the city	Projects 035, 036 are developed with 4-5 year implementation period. In addition, implementation of project 008 partly assists to solving green areas problems		+
15. Implementation of commercial innovation projects at the existing production areas	It was proposed 5 large potential infrastructure projects that shall ensure at least 700 new jobs (creation of energy, agricultural and energy-chemical clusters – 038, 039, 040, construction of CHP and waste treatment complex – 041, 042). In addition, it was proposed 3 projects that will ensure creation of 22 jobs (creation of		+

Group of perspective investment projects	Comments to the list of the proposed projects	Impor-tance according to SDGs [4]	Necessity to improve
	beekeeping– 009; production of pellets from wood – 010, repair and servicing of military equipment – 011).		
16. Introduction of secondary use of waste	Solving of this task is not included in the presented projects. But such project is important , in particular, for ensuring recoupment of the project on separate waste collection		!
17. Organization of trainings for youth and re-qualification/increasing of qualification of personnel that lost job	There are no projects aimed at implementation of this task. At the same time the city has an infrastructure capable to ensure training of various specialists		+
18. Renovation and modernization of city passenger transport	There is only one small potential project – 007 with 1year implementation term.		+
19. Increasing of efficiency of system of medical services providing (improvement of material-technical state of medical institutions, available staff, creation of hospice, modern diagnostic and rehabilitation centers, improvement of oncological situation in the city)	It is proposed only 3 projects (on creation of center for Nephrology and Dialysis – 012; purchase of computer tomograph and orthopantomograph – 013-014). All projects are potential with implementation term – 1-2 years		+
20. Development of infrastructure for leisure and sport	5 projects out of the list are partly related to solving of these tasks. Projects 003-005 envisage repairing within a year buildings of culture palace, library and museum. Projects 035, 036 – create within 4 years conditions for leisure and satisfaction of cultural needs of citizens		+
21. Development of touristic and recreation infrastructure	There are no projects directly aimed at implementation of this task. Indirect relation have projects 003-005, 035-036.		!
22. Introduction of e-government	There are no projects aimed at implementation of this task		!

The conducted analysis shows that today Olexandriya doesn't have a sufficient number of investment projects of infrastructural nature, implementation of which is a prerequisite for achieving the Strategic priorities of the city, based on UN SDGs until 2030.

Most of the proposed projects (except for some of them) are temporary and aimed at solving of separate painful problems of the city. They do not have significant impact on achievement of sustainable development goals neither in 2020 nor in 2030. It will not assist in radical change of socio-economic situation in the city, not to mention turning the city into "sustainable and smart".

In main conclusion of the conducted analysis is that the first step in implementation of Strategic priorities of the city development until 2020 and formation of basis for achievement of Sustainable Development Goals until 2030 shall become development of ***City Infrastructure Plan*** (hereinafter – CIP).

This Plan shall include the projects important in terms of Strategic priorities of the city development, analyzed their influence on achievement of SDGs indicators in 2020 and 2030, determined possible mechanisms of implementation of these projects, their implementation stages (taking into account their social, budget and economic efficiency), and planned the measures on implementation of these projects.

Preparation and implementation of City Infrastructure Plan shall become ***task #1*** in implementation of the Strategy and include measures that would allow:

- introducing in the city of modern innovation technologies of sustainable development management based of the best international practices;
- increasing competency of local authorities, civil society and expert environment in field of implementation of infrastructure programs in the framework of Sustainable Development Strategy of the city;
- ensuring active participation of the society and business (domestic and international) in implementation of Sustainable Development Strategy based on trust and cooperation between authorities, business and civil society in achieving Sustainable Development Goals until 2030.

The system of target values of implementation of Strategic priorities of Sustainable Development Strategy of the city is formed mostly on the basis of forecasted data determined by the relevant departments of the City Council (Annex 1). Comparison of these target values with the values that meet international and national standards in this area is presented in Table 3.4.

The information presented in this table shows that forecasted data determined by experts of the City Council do not cover the entire list of target values. In addition, not all of them fully comply with UN SDGs. Comparison of the target values of Sustainable Development Strategy of Olexandriya with thresholds of target values formed in accordance with international and domestic standards are presented on Figures 3.3-3.4.

Table 3.4

Target values of achievement of Strategic priorities till 2020 and 2030

Indicators of achievement of Strategic priorities	*Strategic priority*	*Values/years*				*Comments*
		2020		*2030*		
		TA [5]	*SDGs* [6]	*TA*	*SDGs*	
Rate of economic growth, % (to basis 2015) (on growth rates of industrial production)	SP1	11.9	10	19.8	30	Threshold: shall annually grow by 2%
Share of non-functioning or unprofitable enterprises, %	SP1	35	35	15	0	Threshold: shall decrease to 0.
Rate of increasing of new jobs, % (to basis 2015)	SP1	101.7	105	100	112	Threshold: number of new jobs shall ensure full employment
Unemployment level of working population, %	SP1	7	6	5	4	Threshold: according to methodology of International Labor Organization – less than 7% for working population. At the same time UN SDGs until 2030 it shall be ensured **full employment** for all men and women of working age. It is necessary to think about improvement of these indicators
Unemployment level among youth, %	SP1	30	25	10	9	Threshold: according to methodology of International labor Organization – less than 10%. According to UN SDGs until 2020 it shall be **considerably decreased** share of youth that doesn't work and study
Share of innovation active enterprises (share of enterprises introducing innovations), %	SP1	7	20	15	50	Threshold: according to international experience – more than 50%. According to UN SDGs until 2030 it is necessary to ensure **considerable increasing** of production due to diversification, technical modernization and innovation activity

[5] Target forecasted indicators determined by thye relative departments of Olexandriya City Council
[6] Target values determined in accordance with UN Sustainable Development Goals due to international standards

Indicators of achievement of Strategic priorities	*Strategic priority*	*Values/years*				*Comments*
		2020		*2030*		
		TA [5]	*SDGs* [6]	*TA*	*SDGs*	
Ratio of average salary to subsistence level, times	SP1, SP2	-*	2.5	-*	3.0	Depends on forecast of other indicators. Threshold: according to methodology of the Ministry of Economy - more than 3 times
Extreme poverty rate – share of population with monthly general income per capita lower than substance level (in % to general population)	SP1, SP2	2.5	2.5	1.5	0	Threshold: according to UN SDGs until 2030 the extreme poverty rate shall be 0.
Ratio of pensioners to working population, times	SP1, SP2	-*	0.5	-*	0.4	Threshold: according to international experience – optimal level 0.34-0.42 (France, Austria, Poland).
Ratio of average pension to subsistence level, times	SP1, SP2	-*	1.3	-*	1.6	Threshold: according to methodology of the Ministry of Economy shall be 1.5-2 times. At the same time this indicator mostly depends on external factors
Quality of waste water treatment (points 0-10)	SP2	-*	8	-*	10	Determined by complex assessment. Threshold: max 10 points. According to UN SDGs until 2030 it shall be ensured full access to sanitation systems, increased quality of waste water due to **decrease in 2 times** of share of untreated water and considerable increasing of scope of safe second use of waste water
Quality of drinking water (points 0-5)	SP2	4	5	5	5	Determined by complex assessment. Threshold: 5 points. According to UN SDGs until 2030 it shall be ensured full and equal access to safe, quality and affordable drinking water.
Share of secondary municipal solid waste treatment, %	SP2	20	30	70	100	Threshold – 100%. According to UN SDGs until 2030 it shall be **considerably decreased** scope of waste due to implementation of measures on decreasing, recycling and secondary use

Indicators of achievement of Strategic priorities	*Strategic priority*	*Values/years*				*Comments*
		2020		*2030*		
		TA [5]	*SDGs* [6]	*TA*	*SDGs*	
Share of separate waste collection, %	SP2	20	20	70	100	Threshold – 100%. According to UN SDGs until 2030 it is necessary to considerably decrease negative ecological impact of cities per capita, paying attention to waste treatment.
Level of improvement of green areas (parks, gardens etc.)% of total area of green zones	SP2	-*	50	-*	100	Threshold – 100%
Level of equipment of medical institutions, %	SP2	90	90	100	100	Threshold - 100%
Share of deaths in working age (per 1000 persons)	SP2	3.4	3.35	3.4	2.6	Threshold: according to UN SDGs until 2030 it shall be **decreased by 1/3** early deaths from non communicable deceases (for the city it is 2.57).
Share of costs for initial medical assistance in general costs for health protection, %	SP2	35	35	35	60	Threshold: average level in EU countries - 60%. Depends mostly on external factors
Level of pre-school institutions availability (Coefficient of use of kindergartens: number of children per 1 place)	SP2	1.05	1.1	1.0	1.0	Depends on forecast of other indicators Threshold: according to UN SDGs until 2030 it shall be ensured **full access** of children to pre-school education to prepare them for schools (value of the indicator is 1).
Ratio of salary in education to average monthly salary in the region, times	SP2	0.9	1	0.95	1.2	Depends on forecast of other indicators Threshold: more than 1. (At the moment it is 0.88)
Quantity of tourists per 1000 persons, persons	SP2	138	140	178	196	Threshold: according to the forecast of International Touristic Organization, average annual rate of growth of number of tourists in the world is 4 %.
Share of water losses in general use, %	SP3	25	20	12	4	Threshold: in accordance with methodic of the Ministry of Regional Development, Construction and Housing and Communal Services it shall be not more than 4-5 % (200-250 cubic m per 1000 cubic m of lifted water)

Indicators of achievement of Strategic priorities	*Strategic priority*	*Values/years*				*Comments*
		2020		*2030*		
		TA [5]	*SDGs* [6]	*TA*	*SDGs*	
Heat losses in engineering networks, %	SP3	-*	10	-*	5	Threshold: normative value for Ukraine – less than13 % (minimal value in Ukraine – 5 %)
Share of renewable energy in the city energy balance, %	SP3	-*	10	-*	20	Threshold: according to UN SDGs until 2030 it is necessary **to considerably increase** share of renewable energy in the city energy balance
Evaluation of energy efficiency in buildings (share of public buildings and housing stock where energy modernization has been conducted)	SP3	-*	20	-*	50	Threshold – 100%. According to UN SDGs until 2030 the value of global energy efficiency shall be increased at least in 2 times
Assessment of energy efficiency in buildings: share of public buildings thermo-modernized	SP3	-*	50	-*	100	Threshold– 100%. According to UN SDGs until 2030 the value of global energy efficiency shall be increased at least in 2 times
Density of transport network, km/square m	SP3	0.5	1.5	1.0	2.0	Threshold: according to DBN Б.2.2-1-01 normative 1.5-2.5 km/square km (the value for the city today – 0.14).
Depreciation level of city transport, %	SP3	70	70	50	30	Threshold: minimal value 0.
Share of roads requiring repair, %	SP3	-*	25	-*	0	Threshold: 0.
Share of administrative services that could be received using IT-technologies, %	SP3	-*	45	-*	80	Threshold: 80. (At the moment it is 3.9 %)
Transparency level of local authorities activity (points 0-10)	SP3 SP2	-*	8	-*	10	Threshold: 10. Determined by complex assessment

* forecasted values for this indicator have not been provided by the city. While determining target values of the Strategy under this indicator it was used values that correspond to SDGs and international standards

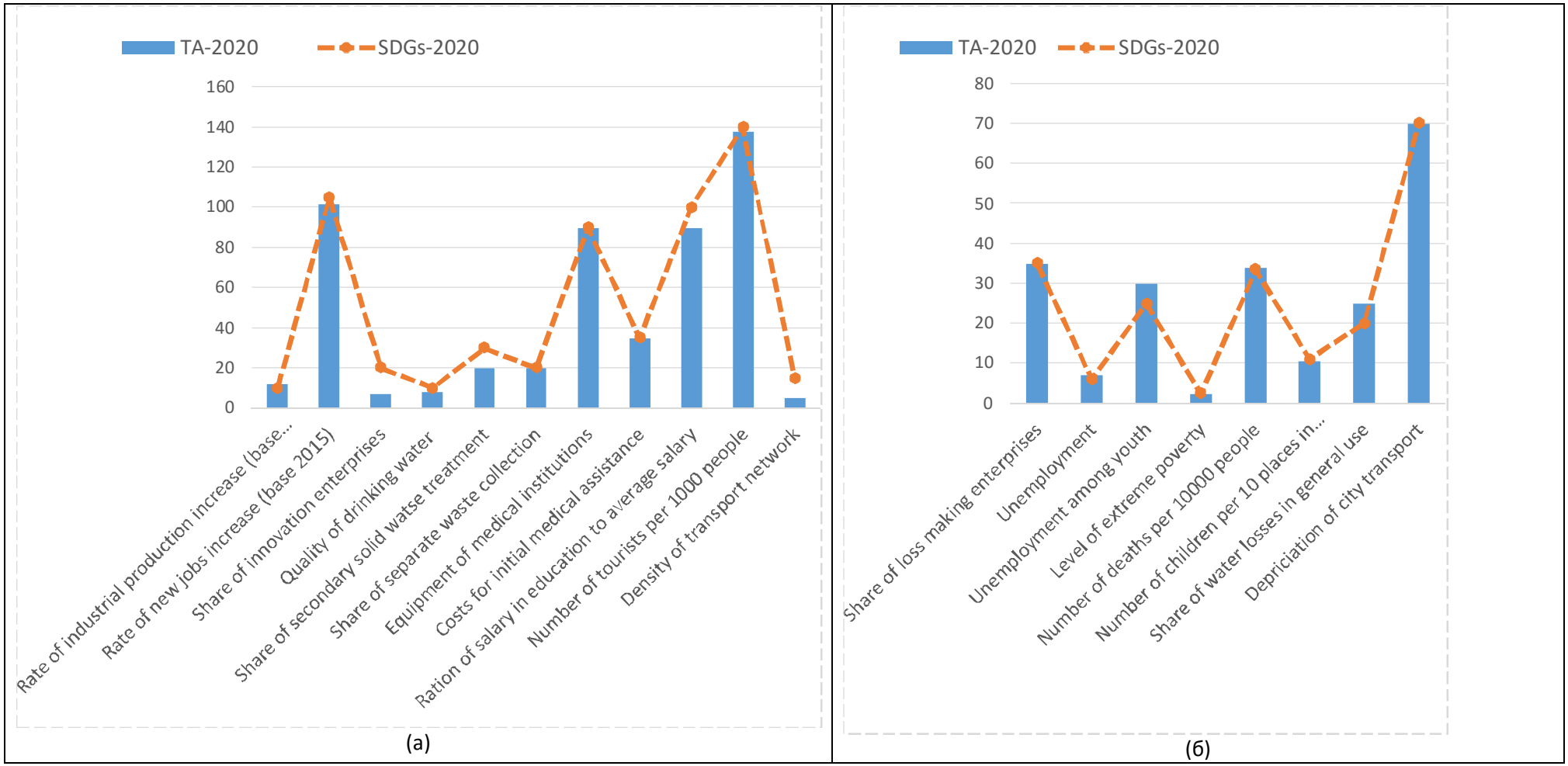


Fig. 3.3. Comparison of forecasted values for 2020 determined by specialists of the City Council with forecasted values that correspond to SDGs and international standards

(a) – indicators-stimulators (the more value it the better);
(b) – indicators-destimulators (the lower value is the better).

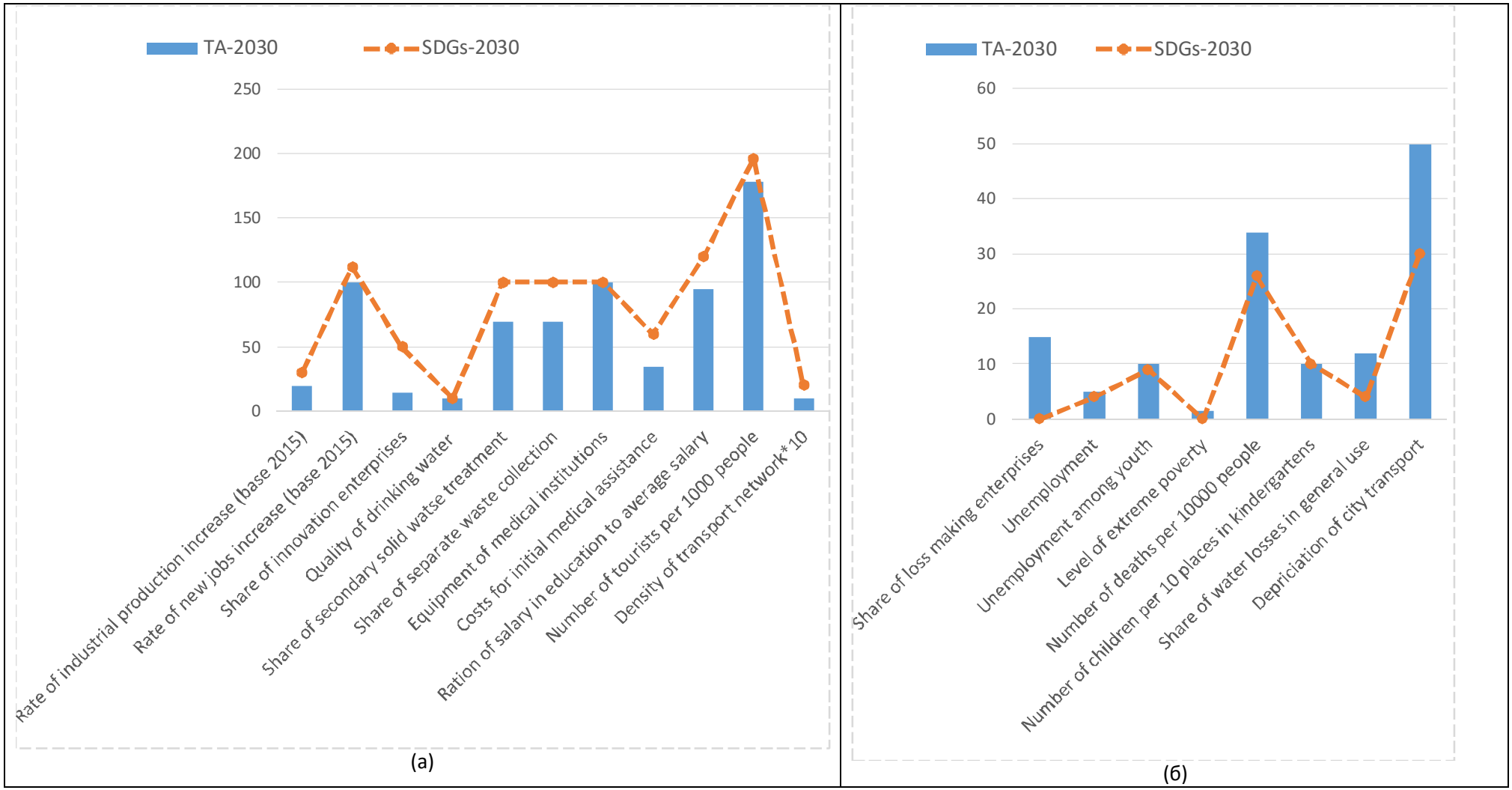


Fig. 3.4. Comparison of forecasted values for 2030 determined by specialists of the City Council with forecasted values that correspond to SDGs and international standards

(a) – indicators-stimulators (the more value it the better);
(b) – indicators-destimulators (the lower value is the better).

Analysis of target values of Sustainable Development Strategy of the city[7] in comparison with their values in accordance with Sustainable Development Goals and international standards has shown that while implementing the Strategy it is necessary to pay special attention to the following issues:

- stimulation of innovations development (*according to the forecast the corresponding values are essentially behind the target values of SDGs determined in accordance with international standards in 2020 and in 2030)*;
- development of city transport network and increasing of safety of transport means (*it is observed that the corresponding values are behind the target values of SDGs determined in accordance with international standards in 2020 and in 2030*);
- ensuring employment among youth (*it is observed that the corresponding values are essentially behind the target values of SDGs determined in accordance with international standards in 2020 and in 2030).*

In addition, as a result of analysis (Figures 3.3 – 3.4) it was revealed a number of important issues in terms of strategic perspective of the city development, underestimation of which today will have results in the next decade and will hinder achieving the values under a number of indicators in accordance with requirements Sustainable Development Goals. In order to prevent negative development of the situation and ensure full implementation of tasks of the Strategy, it is necessary to pay attention today on:

- stimulation of industrial production development;
- development and implementation of projects in field of waste treatment (introduction of separate collection of waste, creation of modern enterprises on waste recycling, utilization of landfills) in the framework of complex approach;
- Increasing of efficiency of system of medical services providing (improvement of material-technical state of medical institutions, available staff, creation of hospice, modern diagnostic and rehabilitation centers, improvement of oncological situation in the city);
- stimulation of education development (introduction of approach "education during the life time", finding additional resources for financing educational measures).

[7] For those indicators, forecased values of which have been provided by the relevant divisions of the City Executive Committee

SECTION 4. INSTITUTIONAL MECHANISMS OF STRATEGY IMPLEMENTATION

Implementation of provisions of the Strategy will be carried out through the use of resource potential available at the local level (material, financial, human, intellectual, information resources, etc.), attraction of leading Ukrainian and international experts, and international organizations such as the UN Economic Commission for Europe, the World Bank, International Financial Corporation, European Bank for Reconstruction and Development etc.

Financial sources of Strategy implementation will be funds of local and state budgets, donor funds attracted in the framework of international technical assistance projects, funds of private business (domestic and international) to be used for projects of public-private partnership, loans from international financial institutions.

Strategic Development Center of the city

To organize measures on implementation of the Strategy and, in particular, development and implementation of City Infrastructure Plan under (in) the Executive Committee of the city it shall be established ***Strategic Development Center of the city*** (the Center).

This Center has to become a modern highly qualified institution, real competence center for strategic development of the city and public-private partnership that will ensure coordination of implementation of Sustainable Development Strategy of the city and preparation and implementation of plans for infrastructure development of the city on the medium (up to 2020) and long-term perspective.

The Center has to work closely with the Mayor of the city, City Council and relevant departments of the Executive Committee of the City Council for quick preparation, coordination and approval of administrative decisions by City Council on issues of implementation of the Strategy and City Infrastructure Plan.

The functions of the Center shall also include monitoring of implementation of the Strategy and CIP and informing the management of the city and public about the monitoring results. The Center will also coordinate preparation and implementation of communication strategies on issues of socio-economic development and preparation of infrastructure projects involving private business.

City Council

In the framework of implementation of the Strategy the City Council adopts:

- City Infrastructure Plans (interim – until 2020 for next years);
- Target programs aimed at solving strategic development tasks;
- Regulatory documents necessary for implementation of the Strategy and CIP;
- Annually reviews the results of their implementation and correspondingly revises Sustainable Development Strategy and City Infrastructure Plan.

City Infrastructure Plan

The First City Infrastructure Plan shall be adopted no later than in one year after the approval of the Strategy.

During its preparation it shall be conducted additional research on already proposed investment projects that are important in terms of achieving sustainable development goals until 2030 (the list of the proposed projects - candidates for inclusion to the CIP are presented in Table 4.1) and developed new projects urgent for development of the city based on sustainability principles that have not yet been formed, even in the form of project proposals (Table 4.2)

Table 4.1

Projects-candidates for inclusion to City Infrastructure Plan

#	Name of the developed project	Term of performance, years	Year of beginning	Initiator	Cost, thous. UAH (in prices 2013-15)	Strategic priorities	Status of project preparation
Heat and energy supply system of the city (i.2 of Table 3.1) (Modernization of heat supply systems, extension of use of renewable energy sources)							
001	Optimization of heat supply system of Olexandriya	4	2017	CE "Teplokomunenergo"	490900	SP3	X
041	Replacement of natural gas in heat supply of central district of Olexandriya (potential)	4	2016	Private business	533520	SP1, SP2	!
038	Creation of energy infrastructure cluster (potential)			Private business	445600	SP1, SP2	!
Water supply and sanitation system (i. 3,5 of Table 3.1) (Modernization of water supply and sanitation systems (increasing quality of water treatment; decreasing water and energy resources losses); Increasing of scope and efficiency of waste water treatment)							
015	Reconstruction of Marto-Ivanisk waste water treatment facilities with capacity of 10 thousand cubic m per day (potential)	1	2016	Regional CE "Dnipro-Kirovograd"	15000	SP2, SP3	!
016	Reconstruction of drainage of raw sludge and excessively active sludge with introduction of technology of intensification of the sludge dewatering process at sludge sites of Marto-Ivanisk waste water treatment facilities	1	2016	Regional CE "Dnipro-Kirovograd"	4824	SP2, SP3	X
017	Reconstruction of Dmitrievski waste water treatment facilities (potential)	1	2016	Regional CE "Dnipro-Kirovograd"	4000	SP2, SP3	!

#	Name of the developed project	Term of performance, years	Year of beginning	Initiator	Cost, thous. UAH (in prices 2013-15)	Strategic priorities	Status of project preparation
020	Reconstruction of storm water sewage on Lunacharskiy str.	4	2017	Local authorities	996.709	SP2, SP3	X
019	Reconstruction of water supply system of district"Radianskiy"	4	2017	Local authorities	5834.344	SP2, SP3	X
028	Construction of the 2nd route of water pipeline to CTP 122 on Lenina prov.	4	2017	Local authorities	502.662	SP2	X
	Waste treatment (i. 8-11, 16 of Table 3.1) (Liquidation of former city solid waste landfill (Poliova street); Regulation of the existing waste landfill; Construction of waste treatment plant; Introduction of separate waste collection system; Introduction of secondary use of waste)						
008	Creation of system of separate waste selection at the territory of the city (potential)			Local authorities	11686	SP2	!
021	Construction of solid and non-toxic waste landfill in Olexandriya (II stage)	3	2018	Local authorities	2968.549	SP2	X
042	Construction of complex on full cycle waste treatment (potential)	4		Private business	561600	SP1, SP3	!
	City transport (i. 7, 18 of Table 3.1) (Repair and renovation of internal access roads; Conduction of capital repair and complex thermo modernization of public buildings)						
006	Improvement of transport network of Olexandriya (potential)	1	2016	Local authorities	150	SP3	!
007	Renovation and modernization of city passenger transport (potential)	1	2016	Local authorities	1500	SP3	!
	Medical infrastructure (i 19 of Table 3.1) (Development of diagnostic centers and improvement of medical care efficiency)						
012	Providing medical care of nephrology profile, requiring treatment by dialysis. Creation of Nephrology and Dialysis Center (potential)	2	2017	Local authorities	5086	SP2	!
013	Purchase of computer tomograph 16-32 slice (potential)	2	2017	Local authorities	18000	SP2	!
014	Purchase of orthopantomograph (potential)	1	2016	Local authorities	800	SP2	!
	Environment (i. 21 of Table 3.1) (Development of touristic and recreation infrastructure)						
036	Restoration of favorable hydrological regime of rivers Berezovka and	5	2017	Local authorities	59850	SP2	X

#	Name of the developed project	Term of performance, years	Year of beginning	Initiator	Cost, thous. UAH (in prices 2013-15)	Strategic priorities	Status of project preparation
	Inhulets in the city bounders						
Commercial projects (i.15 of Table 3.1) (Implementation of commercial innovation projects at the existing production areas)							
039	Creation of agricultural cluster (potential)			Private business	2875000	SP1	!
040	Creation of energy-chemical cluster (potential)			Private business	1437500	SP1	!

In Table 4.1.:

X – developed projects, ! – potential projects

It means that only 19 out of 42 proposed projects could be considered as candidates to inclusion into City Infrastructure Plan and only 6 out of them are somehow developed.

Table 4.2

List of infrastructure and other investment projects that require development at the level of project proposals for analysis of expediency of their inclusion to CIP

Perspective investment projects	Importance and complexity of project implementation in terms of Strategic priorities (table 3.1)	Criticality of projects preparation in terms of achievement of SDGs (fig. 3.3-3.4)
Creation of industrial park		!
Use of ground water deposits for recreation measures		
Construction of bypass road		!
Conduction of capital repair and complex thermo modernization of public buildings		!
Creation of mechanisms of conduction of complex thermo modernization of residential buildings		!
Implementation of projects on improvement of green areas of the city		
Implementation of commercial innovation projects at the existing production areas		!

Perspective investment projects	Importance and complexity of project implementation in terms of Strategic priorities (table 3.1)	Criticality of projects preparation in terms of achievement of SDGs (fig. 3.3-3.4)
Organization of trainings for youth and re-qualification/increasing of qualification of personnel that lost job		
Development of infrastructure for leisure and sport		
Development of touristic and recreation infrastructure		
Introduction of e-government		!

Taking into account the broad "scope of work" on preparation and analysis of project proposals and projects for inclusion into the City Infrastructure Plan and the need for a complex approach to analyzing and prioritizing these projects it would be expedient to attract national and international experts and representatives of international organizations for preparation of CIP.

The most problematic issues that need expert support are the following:

- training of representatives of the Center and City Executive Committee on SDGs issues and preparation of City Infrastructure Plans;
- learning the best international practices on SDGs, development and implementation of CIP and PPP projects aimed at achievement of Sustainable Development Goals;
- developing methodological basis on preparation of infrastructure and other investment projects for their inclusion into CIP;
- expert assessment of some of investment projects planned to include to CIP, in particular, in terms of their impact on SDGs; ensuring of their prioritization and revealing of optimal mechanisms of their financing;
- assistance to attraction of strategic business to participation in PPP projects included to CIP.

Taking into account that the Sustainable Development Strategy of Olexandriya is the first experience of preparation and introduction of strategic documents aimed at SDGs achievement, and considering importance of spreading of this approach for other cities of Ukraine it is proposed to address to international organizations in and outside Ukraine proposing cooperation on building mechanisms of its implementation.

Management of implementation of the Strategy

Management of implementation of the Strategy envisages implementation of the following measures:

- developing innovation mechanism of management of the city strategic development and preparation of administrative documents on this issue;
- developing methodological basis of monitoring and control of implementation of the Strategy and City Infrastructure Plan;
- organizing communication with expert environment and public on issues related to implementation of the Strategy;
- introducing modern approaches to timely update mechanisms and target values envisaged by the Strategy and City Infrastructure Plan;
- learning and using the best international experience of strategic development of cities and attracting private business to this process in the context of Sustainable Development Goals;
- ensuring continuous exchange of information with international partners in this sphere, extending the number of such partners, attracting them to projects implementation;
- promoting and promoting of measures and mechanisms of implementation of the Strategy among Ukrainian and foreign cities; creating a positive image of the city as the pioneer city in implementation of sustainable development strategies in accordance with SDGs in Ukraine.

Organizational support of implementation of the Strategy

Organizational support of implementation of the Strategy includes:

- learning and using modern mechanisms of infrastructure projects implementation (using the State regional fund, attracting loans from international financial institutions, attracting grants and other forms of technical assistance in the framework of measures under SDGs, public-private partnership mechanisms);
- creating in the city favorable conditions for conduction of investment activity (developing competitive environment, preventing artificial monopolization of markets, creating available and convenient information base for investors and citizens, developing advisory service on legal and informational support of business, including foreign, simplifying application procedure to administrative bodies of local government, including on efficiency of applying to local government);
- creating conditions to improve the skills of the working population, representatives of executive authorities, facilitating introduction of training courses/trainings of innovative orientation for youth;

- creating conditions for self-employment of the population through development of infrastructure of business centers, business incubators, coworking, logistics centers, development of the Internet - communication;
- creating conditions for interregional and international cooperation, conduction of conferences, exhibitions, seminars etc.

Financial support of implementation of the Strategy

Financial support of implementation of the Strategy will be organized by:

- optimizing of expenditures of development of local budgets based on the Strategy and CIP;
- supporting infrastructure and other investment projects taking into account their budget efficiency and capacity to influence on increasing of local budget revenues;
- introducing incentives to simplify access to land and unused production capacity for projects included in CIP;
- granting temporary exemptions from local taxes and fees, land rent for projects implementation of which will have considerable impact on achievement of strategic priorities, ensure new jobs creation, particularly for young people, resulting in higher revenues to the local budget, reducing pressure on the local budget in paying for energy;
- acquiring competence on preparation of projects that can be financed by the state budget funds, including within the State Regional Development Fund, ensuring quality and timely preparation of projects that can be financed by these funds;
- attracting funds from international financial institutions (in particular, EBRD) for the projects of local infrastructure development; increasing institutional capacity of public authorities in this field;
- creating conditions for private business participation in implementation of City Infrastructure Plan, including international private business. The above, along with others, will assist in mastering new technologies and modern management, to enter new export markets of innovative products;
- attraction of Official Development Assistance, as provided for in accordance with the task 17.2 of Sustainable Development Goal 17 to implementation of the Strategy and the dissemination of the experience in other cities of Ukraine.

Inclusivity

Attraction to implementation of the Strategy of all elements of the society – population, business, civil society (inclusivity) will be ensured by:

- forming efficient system of e-Government and creation of e-platform for public discussion of issues on the Strategy implementation;
- introducing in practice of activity of local authorities the wide discussions of local authorities` plans on its revision taking onto account the opinion of the society while developing City Infrastructure Plans in part of determination of priorities in implementation of socially important projects in the city;
- widely developing public-private partnership by preparing large-scale and small projects that could be replicated taking into account international standards in this sphere;
- conducting wide educational activity in the city on issues of development management and public-private partnership;
- implementing the policy of informational openness of authorities based on principles of modern informational technologies.

SECTION 5. STAGES OF STRATEGY IMPLEMENTATION

Sustainable Development Strategy of the city of Olexandriya will be implemented in 2 stages:

- I stage (2016 – 2010) – solving of the most painful problems of city life on the principles of sustainability and creation of framework for achieving Sustainable Development Goals in 2030;
- II stage (2021 - 2030) – transformation of the city into smart and sustainable in the meaning of UN Global 2030 Agenda for Sustainable Development (SDG 11).

I stage

During the first interim stage of implementation of the Strategy it shall be implemented the tasks presented in Table 5.1 below.

Table 5.1

Main tasks on implementation of Strategic priorities of sustainable development of Olexandriya

Name of task	*Years*								*Responsible for implementation*
	2016	*2017*				*2018*	*2019*	*2020*	
		I	*II*	*III.*	*IV*				
I. Development of institutional environment for the Strategy implementation purposes									
1.1. Establishment of Strategic Development Center of the city (Center)									City Council, Department of Economy
1.2. Training of specialists of the Center and management of the City State Administration									City Council, Department of Economy
1.3. Development of mechanisms of the Strategy implementation, formation of the first CIP until 2020 and the corresponding methodological documents for its implementation in practice									Center with attraction of external experts including international
1.4. Creation of electronic platform for attraction expert environment and wide public to discussion of implementation of the Strategy and CIP									Center
1.5. Organization and conduction of informational, educational and clarification measures in issues of implementation of the Strategy, CIP and their									City Council, Department of Economy, Center

Name of task	*Years*								*Responsible for implementation*
	2016	*2017*				*2018*	*2019*	*2020*	
		I	*II*	*III.*	*IV*				
popularization among public									
II. Development and implementation of City Infrastructure Plan until 2020									
2.1. Preparation of preliminary economic justification of infrastructure projects envisaged for implementation of Strategic priorities (according to "color indication" of Table 3.3)									Center with attraction of external experts including international
2.2. Conduction of expert assessment on possibility of preparation and implementation of these projects and mechanisms of their financing									Center with attraction of external experts including international
2.3. Development of draft City Infrastructure Plan until 2020									Center with attraction of external experts including international
2.4. Conduction of expert assessment of draft City Infrastructure Plan and preparation of materials/measures for its discussion with citizens									International experts
2.5. Public discussion City Infrastructure Plan, its revision upon the results of the discussion									City Council, Department of Economy, Center
2.6. Adoption City Infrastructure Plan by the session of the City Council									City Council
2.7. Implementation of City Infrastructure Plan									City Council, Department of Economy, Center
III. Monitoring and correction of City Infrastructure Plan and amending correspondingly the Strategy (in part of revision of values of indicators of its performance and measures envisaged in the framework of the Strategy)									
3.1. Presentation of City Infrastructure Plan until 2030 and clarification of approaches to assessment of success of its performance									City Council, Department of Economy, Center
3.2. Reporting on the results of monitoring of CIF and the Strategy (at the end of each year at the official web-site and in the framework of wide public discussion of the results of performance of the Strategy and CIP)									
3.3. Development of proposals on amendments to City Infrastructure Plan and the Strategy and									City Council, Department of Economy, Center

Name of task	*Years*								*Responsible for implementation*
	2016	*2017*				*2018*	*2019*	*2020*	
		I	*II*	*III.*	*IV*				
preparation of proposals on inclusion of the corresponding norms to the decisions of the Council									
IV. Preparation and adoption of changes to the Strategy regarding the II stage of its implementation									
4.1. Detalization of target values, measures and work plan for the second stage of the Strategy implementation									City Council, Department of Economy, Center
4.2. Preparation of amendments to the Strategy and their adoption by the City Council									City Council, Department of Economy, Center
4.3. Development and adoption of City infrastructure Plan until 2030									Center with attraction of external experts including international, City Council

During implementation of the I stage of the Strategy the center will annually (in December) submit for approval to the City Mayor the draft Plan of detailed measures on implementation of the Strategy for the next year, and since 2017 - also the draft Plan of implementation of City Infrastructure Plan for the next year for review and adoption of these documents according to the established procedure.

II stage

At this stage the city will implement strategic priorities until 2030 in accordance with Sustainable Development Goals and developed City Infrastructure Plan for 2021-2030 aimed at achievement of the indicators revised as a result of implementation of the I stage of the Strategy.