Cherkasy Region Development Strategy 2021-2027

Cherkasy – 2020

CONTENTS

Abbreviations

ASC - Administrative Service Center.
CEB - Central Executive Body.
EU - European Union.
GDP - Gross Domestic Product.
GRP - Gross Regional Product.
HPP - Hydropower Plant.
IT - Information Technologies.
SMART-specialization - an approach that provides justified identification of those strategic goals and objectives that imply development of economic activities which have innovative potential *(taking into account the competitive advantages of the region)* and contribute to increasing efficiency of the economic sectors.
SWOT-analysis - the analysis of strengths and weaknesses, favorable opportunities and threats
TPP - Thermal Power Plant.
UNDP - United Nations Development Programme.

1. INTRODUCTION

The Cherkasy Region Development Strategy 2021-2027 is the main document that determines the key directions of the region's long-term development.

The Strategy is developed on the basis of the Law of Ukraine "On the Principles of the State Regional Policy", taking into account the State Strategy of Regional Development 2021 - 2027 *(approved by the Cabinet of Ministers of Ukraine, resolution dated 05.08.2020 № 695)*, in accordance with the Procedure of formulating the regional development strategies and their implementation plans, monitoring and evaluating the effectiveness of the implementation of above-mentioned regional strategies and implementation plans *(approved by the Cabinet of Ministers of Ukraine, resolution dated 11.11.2015 № 932)*. In addition, while developing this Strategy, the positive and negative trends observed during implementation of the Cherkasy Region Development Strategy-2020 were taken into account.

The formation of the new Strategy incorporated the most important changes of economy and society in the modern world and Ukraine, particularly the course of implementing Ukrainian administrative and territorial reform. The mentioned reform has been devised to optimize the structure and to enhance the process of managing the development of territories, as well as to improve the distribution of financial resources between the territorial communities. In addition, these changes include informational and digital transformation of the society, strengthening the role of every citizen in improving the well-being of their local communities, progressive transition from local and short-term programs and projects to implementing those initiatives that keep strategic perspectives in view and are able to embrace several communities, as well as to be distributed outside the region.

The strategy is based on program-targeted and project-oriented approaches addressing the issues of regional development.

The strategy is aimed at improving the well-being of regional population, raising the comfort and quality of life, education of its citizens, boosting the economy of Cherkasy region and increasing its competitiveness, creating a positive image for the region and making the most efficient use of its resources.

An important aspect of development and implementation of Strategy is to strengthen cooperation between the authorities, the public of the region, science, business and other actors of regional development in order to achieve maximum socio-economic effect. This aspect, in particular, is reflected in the approach of SMART-specialization, on the basis of which the Strategy has been developed. SMART-specialization is a European approach which provides for identifying certain strategic goals and objectives to implement economic activities that have innovative potential *(taking into account the competitive advantages of the region)* and contribute to the transformation of economic sectors into more efficient ones.

The adoption of this document should become the basis for strategic planning in the Cherkasy region, for developing and implementing projects and programs that correlate with the goals and priorities set by the Strategy, with the aim of attracting the necessary financial and human resources.

The Strategy has been coordinated by the Cherkasy Regional Development Agency and developed in compliance with the principles of transparency and publicity. In order to effectively communicate and attract the stakeholders of regional development, "Cherkasy Region Development Strategy 2021-2027" website was launched (*https://strategy2027-ck.gov.ua/*). Please address the website for further information on the process of Strategy developing and implementing.

2. APPROACH, METHODS, AND THE PROCESS OF THE STRATEGY DEVELOPMENT

Strategic planning is a systemic method of managing changes and reaching consensus in the region, creating a common vision of future development, a constructive way of identifying the problems and harmonizing of the goals, tasks and strategies that need to be implemented to solve them. Strategic planning is also a powerful tool of uniting the efforts of business, local authorities, science and the public of the region. It has a positive effect on local business and competitive status of the community, influences solving other issues related to the living standards of every citizen.

The process of the Strategy development bore an ascending character. It was outlined by the expert group that defined the ways of development and areas of action implementation. The expert group consists of 82 members and included a wide range of stakeholders. In particular, they are:

- representatives of the science and research sector - 14 members;
- representatives of public organizations - 18 members;
- business representatives - 8 members;
- representatives of local governments *(including the Regional Council)* - 14 members;
- representatives of public authorities - 13 members;
- representatives of other organizations and institutions *(municipal enterprises, regional development institutions, territorial subdivisions of CEBs in the region, UNDP in Ukraine)* - 15 members.

The time frame of the planning tools has been determined on the basis of the combination of a long-term strategic plan and medium-term cycles of its implementation. As defined on the basis of this approach, the strategic and operational goals and objectives are long-term *(7 years)*. The plans for the Strategy realization cover two stages of implementing projects and programs:

- Stage 1-3 years *(2021-2023)*;
- Stage 2-4 years *(2024-2027)*.

The above-mentioned measures, being the key elements of the Strategy, determine the ways to achieve strategic goals.

The preparation of the Strategy was based on the following principles:

Partnership	The character of the strategic development is based on the results of varied consultations, aimed at reaching the consensus, and the reasonable community expectations. All the stakeholders *(authorities, businessmen, scientific organizations, entrepreneurs associations, and community members)* were invited to take part in decision-making and developing the strategic goals.
The principle of joint participation of public and private sectors	It provides a broad social consensus and evident public support for the Strategy. All steps have been worked out in the way excluding the excessive influence of the development process members, involving specified persons, who adopt decisions of the stakeholders, experts, members of public organizations etc.
Viability	The basis for providing viability is to keep proper balance and consistency of internal components of the Strategy *(goals, actions).* Another way of providing viability is to develop comparative advantages determined according to the SWOT-analysis results *(devising opportunities that soften evident flaws and drawbacks)*. Besides, we apply the matrix of weak points and threats to detect the synergy links between them that can negatively affect the viability *(for risk management)*.

Integration	It has been provided in two ways: 1) integration of common local needs on regional level based of territory and content. It means that achieving any regional goal will also be displayed on the local level. Integration is possible due to active participation of stakeholders; 2) integration as a multidimensional plan of development of high-priority sectors and areas of activity ensures elimination of conflicts and negative effects. In such a way integration provides focusing on compatibility and synergy of actions.
Innovation	It is used as a principle in the project identification process and relates mainly to the proposed approach and the most efficient use of available resources.
Hierarchy of strategic plans	Higher-level strategic plans are more general in nature and lay the groundwork for identifying specific actions at lower levels.
Institutional memory	Work on the Strategy was based on the results achieved while developing previous strategic documents, in particular Cherkasy Region Development Strategy-2020.
Subsidiarity	The definition of strategic measures, starting from the lowest level *(based on the needs of local communities)*, was carried out using regional development resources.

Stages of developing the Strategy:

1. Organization of work

The expert group formed to work on the Region Development Strategy and its implementation plans; the steering committee; the subgroup working on SMART-specialization.

2. Socio-economic analysis and SWOT-analysis

The starting point for the process of the Strategy development is the statistics data inventory. The strategic analysis is something more than evaluating statistics indexes, as it implies estimation of structural, political, economical and social conditions. In this meaning quantitative and empirical aspects are closely related to qualitative aspects.

Considering the Cherkasy region, its specificity, socio-economic analysis, comparative advantages, challenges and risks are the focus of the strategic planning. They combine the community needs and the ways of problem solving.

Analysis of the the situation was followed by commencing the potential analysis of Cherkasy region. The methodology for that stage was based on the SWOT-analysis. In practice, the expert group defined strengths of the region, opportunities for development, weaknesses and external threats. During the sessions the expert group brainstormed to define the synergetic interaction of factors within each SWOT-analysis component to define the strategic orientation, identify the comparative advantages and enable risk-management.

After defining strengths and weaknesses, opportunities and threats, a clearer view of the current situation, problems and potentials of the regional development were identified, which connects the socio-economic analysis and the Strategy. Moreover, the orientation of the Strategy and the main components of the strategic goals become evident in the end of this stage.

The results of the implementation of the stage are the following: 1) The socio-economic analysis of Cherkasy region for the period of 2013-2018; 2) SWOT-analysis and SWOT-matrix; 3) Comparative advantages, challenges and risks of the region; 4) the scenarios of regional development.

External and internal analyzes enabled the expert group to identify the main problems of the economic development and together with the Regional Profile data serve for the formulation of the strategic directions and goals of development till 2027.

3. Defining of the strategic Vision

The expert group has defined the strategic Vision of the regional development. The Vision is an expected status of the socio-economic system in the future that can be indicated by the specific date. The correct formulation of the Vision with precise indication of components of the general goal of development is very important for the successful implementation, further monitoring and estimation of its fulfillment.

The strategic Vision reflects the status of the region achieved as the result of the Strategy implementation and shows the specific expected result.

4. Formation of strategic, operational goals and objectives

The strategic goals have been defined for 7 years. This term was determined to comply with the time frame for which the State Strategy for Regional Development was designed. Based on this approach, a strategic platform that includes two stages, 3 and 4 years of duration correspondingly, has been created. The strategic goals were determined basing on the comparative advantages of the region, taking into account the challenges, as well as probable obstacles and development risks. Operational goals have been determined as landmarks on the way of achieving the strategic goals that imply realization of necessary objectives. The objectives have been set so as to achieve the corresponding strategic goals for the period up to 2027.

The process of creating the Strategy Implementation Plan for the period of 2021-2023 also began at this stage. The Plan is based on the determined strategic and operational goals. Expert subgroups coordinate project proposals that should be implemented to reach the Strategy goals. The project proposals imply assigning responsible stakeholders, terms of the implementation and the amount of necessary resources. The Strategy Implementation Plan is being developed according to each strategic and operational goal and is presented as "the goals tree". It is formed following the "general-to-specific" principle and bears a high level of detalization.

5. Strategic environmental assessment

The Strategy and its Implementation Plan are subject to strategic environmental assessment in order to determine the degree of impact the measures offered in these documents may have on the environment.

6. Public discussion and adoption of the Strategy

Having the Strategy and its Implementation Plan developed, the expert group initiates public auditions *(or other forms of public discussions)*. After a public discussion, the revised Strategy and its Implementation Plan are submitted for adoption to Cherkasy Regional Council.

7. Implementation and monitoring

To provide an appropriate level of responsibility for the Strategy implementation, a monitoring system has been created. This monitoring is to be carried out by preparing and submitting a quarterly report on accomplishing the project ideas included in the Implementation Plan for the relevant period.

In general, the Strategy presents the basis for its implementation through projects of regional development that emerge from the goals and objectives of the Strategy, and also the basis for adoption of administrative and budget decisions in the areas of regional development.

3. SUMMARY OF THE REGIONAL SOCIO-ECONOMIC DEVELOPMENT

3.1. General characteristics of the region

Cherkasy region was founded on January 7, 1954.

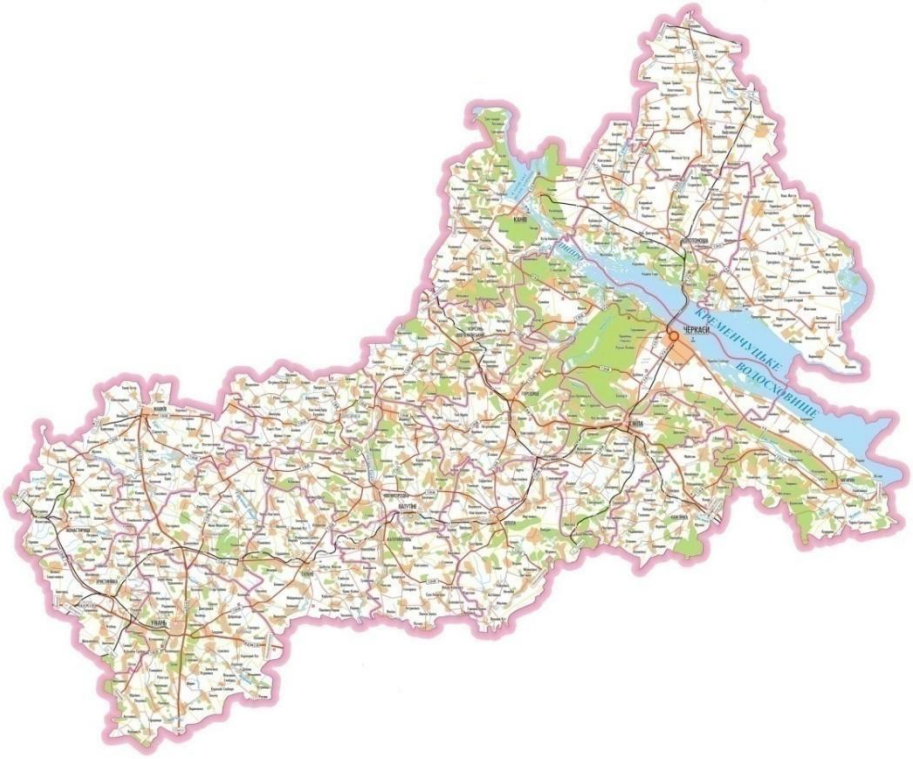


Fig. 1 The map of Cherkasy region

Cherkasy region is located in the central forest steppe part of Ukraine, in the middle flow of the Dnipro and the Southern Bug. It borders on Kiev region in the North *(340 km length)*, Poltava region in the East *(212 km length)*, Kirovohrad region in the South *(388 km length)* and Vinnytsia region in the West *(124 km length).*

The geographical center of Ukraine is located in the vicinity of Maryanivka village.

Cherkasy region area is 20.9 thousand sq. km. It calculates for 3.5% of the Ukrainian territory *(18th place in Ukraine)*.

The number of the population in Cherkasy region equals 1192.1 thousand people *(16th place in Ukraine)* as of 01.01.2020, including urban population - 678.7 thousand people *(56.9%),* rural population - 513.4 thousand people *(43.1%).* The average population density is 57 people per sq. km.

The distances from Cherkasy to the largest economic centers of Europe are: 1 523 km to Berlin, 1 234 km to Budapest, 954 km to Warsaw, 1 534 km to Vienna, 1 599 km to Prague.

The region is mainly flat and conditionally divided into two parts: right-bank and left-bank. The vast part of right-bank is located within the Dnipro Upland with the highest top of the region 275 m above sea level *(near Monastyryshche)*. On the adjoining part of the Dnipro we can find Irdyn-Tyasmyn swampy lowland and Kaniv hills. The left-bank part of the region has lowland relief as it is situated within Dnipro Lowland.

Cherkasy region is part of the Central Economic District, a key role in the economy of which is assigned to agriculture, food and chemical industries, engineering *(mainly transport and agriculture ones)*, light industry and construction industry.

As of 01.01.2020, according to the administrative-territorial division, the region consisted of 20 districts, 6 cities of regional subordination *(Cherkasy, Vatutine, Zolotonosha, Kaniv, Smila, Uman)*, 10 cities of district significance, 14 urban-type settlements, 824 rural settlements.

The Resolution of the Verkhovna Rada of Ukraine № 807-IX *(17.07.2020)* approved the administrative-territorial structure of the basic and district levels of Cherkasy region, which provided for the formation of 4 districts and 66 territorial communities.

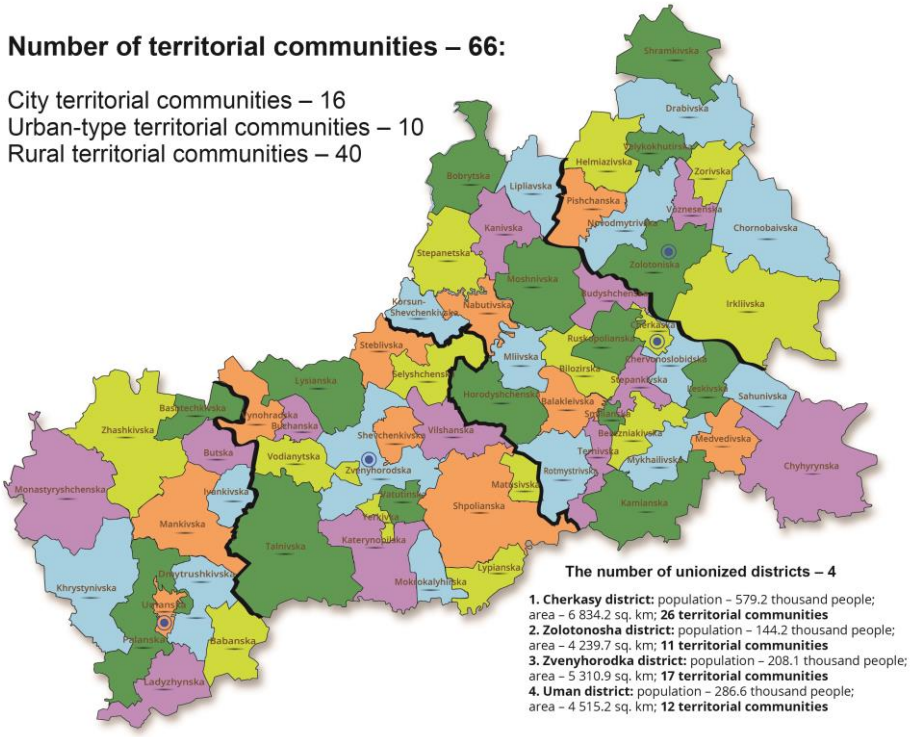


Fig. 2 The administrative-territorial division of Cherkasy region *(according to the Resolution of the Verkhovna Rada of Ukraine № 807-IX (17.07.2020)*

The most populated localities within the region are the following cities: Cherkasy *(275.7 thousand people), Uman (82.6 thousand people), Smila (67 thousand people), Zolotonosha (28.6 thousand people), and Kaniv (23.6 thousand people).*

3.2. Natural resources of the region

The climate of Cherkasy region is moderately continental, relatively warm, with unstable moisture supply. Winters are light and mild, summers are warm and moderately humid.

The average annual air temperature in the region is 7.7 - 8.2ºC *(with average temperature of the coldest month of January -5.5 to -6.0ºC, average temperature of the warmest month of July +19.0 to + 20.3ºC).*

The average annual rainfall is 574 mm. On average, 140-155 days of precipitation per year are observed with at least 0.1 mm of water.

The climatic conditions of the region are favorable for agricultural development.

The agricultural area makes up 1487 thousand ha *(71.1%)* of the 2091.6 thousand ha of the overall area of Cherkasy region. The farmland makes up 1451 thousand ha of the general area of the region *(69.4% of the region area).* The forestry land is of 338.6 thousand ha *(16.2%)*. The built-up land of the region makes up 84.4 thousand ha *(4.0%)*. There are 15.4 thousand ha of open land with no vegetation or with little vegetation *(0.7%)*. Open swampy land makes up 30.5 thousand ha *(1.5%).* 135.7 thousand ha are under water bodies *(6.5%).*

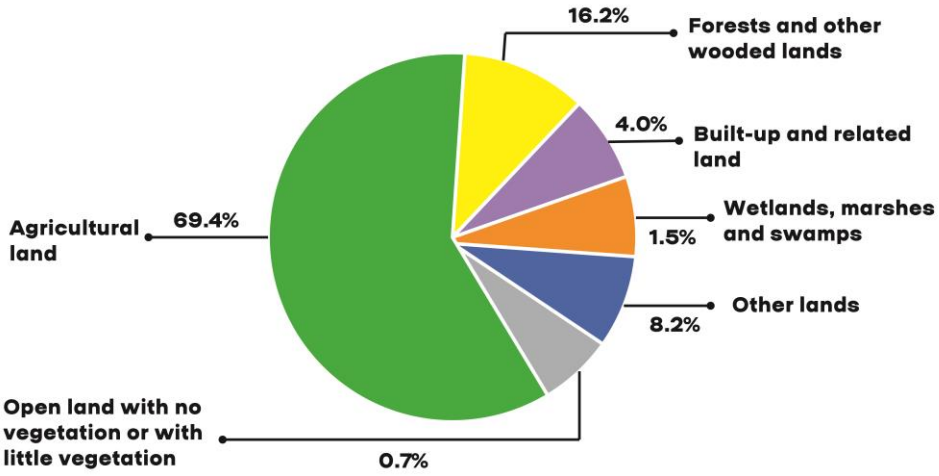


Fig. 3 The structure of the land fund of the region, %

The soil in the region is dominated by typical black soils *(also known as regur soils or chernozems)* and strongly degraded black soils, which occupy 53.7%.

Of the total area of arable land *(1271.9 thousand ha),* degraded land counts for 361.8 thousand ha *(28.4%);* unproductive land makes up 108.8 thousand ha *(8.6%);* of these 139.2 thousand ha *(or 29.6%)* need conservation.

According to the State Service of Geology and Subsoil of Ukraine, Cherkasy region possesses 270 deposits *(including 8 objects of complex deposits)* of 15 types of different minerals, of which 91 deposits *(including 6 objects of accounting)* are being developed.

Mineral and raw material base consists of 67.3% of raw materials used in production of building materials, 18.7% of fresh and mineral groundwater, 11.7% of fuel and energy minerals *(coal, peat)*, 1.5% of mining minerals, 0.4% of non-metallic minerals used in metallurgy, mining and chemical minerals.

Fig. 4 Map of mineral resources of Cherkasy region

The forest of the region is of flat type and is listed to the forest steppe zone. In general, the climate of the region is favorable for growing of a wide range of tree and shrub species, primarily highly productive oaks and pines.

The forests of the region are dominated by fresh hornbeam and oak groves. A relatively narrow strip along the right bank of the Dnipro, including the Cherkasy Bir, is occupied by a forest-typological area of fresh hornbeam and pine sub-forests, where, in addition to the main type of forest, there are oak and pine groves, hornbeam groves, raw black alder groves. Typical forest-steppe landscapes with alternation of open spaces with forested areas allot special attractiveness and originality to the territory of Cherkasy region.

Cherkasy region is located in two main Dnipro and Southern Bug river basins: the Dnipro basin makes up 12 thousand sq. km and Southern Bug basin is 8.9 thousand sq. km. The density of the river network is well-developed and makes up 0.2-0.54 km/sq. km.

There is one large river, that flows through the territory of the region, the Dnipro *(150 km within the boundaries of the region),* 7 medium-sized rivers *(703 km),* and 1 029 small rivers *(6 882 km),* with a total length of 7 735 km. Among the middle-sized rivers there are: Ros, Tyasmin, Supiy in the Dnipro basin; Velyka Vys, Hnylyi Tikich, Hirsky Tikich and Yatran in the Southern Bug basin.

38 reservoirs and 2947 ponds have been built on small and medium-sized rivers of the region. Two reservoirs of the Dnieper cascade, Kaniv and Kremenchug.ones, are pertly located on the territory of Cherkasy region. The largest of them is the Kremenchug reservoir, the total area of its surface is 2 252 sq. km, total capacity is 13.52 million cubic meters.

The water supply per capita is only 1 560 cubic meters *(in an average year by water content)*. According to the UN Economic Commission for Europe, if water resources do not exceed 1 700 cubic meters per person, the region is considered to be one of an insuffient water supply. Given the uneven formation of surface runoff over the months, even with current water

consumption there is a shortage of water supply.

The nature reserve fund of the region includes 558 territories and objects of the nature reserve fund *(of which 22 objects are national and 536 objects are of local significance)*, occupying the area of 75.8 thousand ha *(the actual area is 64.6 thousand ha).* The reserve rate is 3.1%.

The nature reserve fund of the region consists of objects belonging to the following categories: Kaniv Nature Reserve, Beloozersky and Nizhnosulsky National Nature Parks, National arboretum "Sofiyivka", Cherkasy Zoological Park, Trakhtemirov Regional Landscape Park; as well as 236 reserves, 198 natural monuments, 66 memorial parks of garden and park art, 52 protected tracts.

Public accounting includes 9 078 historical monuments, of which: 7 169 are in archaeology, 1 552 in history, 184 in architecture, 173 in monumental art. 93 monuments are of national importance,the rest are considered to be of local importance.

Cherkasy region houses 8 historical-cultural and historical-architectural reserves, 3 of them hold the national status, 5 hold the state status.

3.3. Demography and human resources

Since the formation of Cherkasy region, the population had been increasing and fetched up its top figure of 1531.6 thousand people in 1990. As of 01.01.2020 this number made up 1192.1 thousand people, of which 678.7 thousand *(56.9%)* resided in urban localities and 513.4 thousand *(43.1%)* resided in rural settlements. The population density of the region is 57 people per sq. km.

The demographic situation in the region remains complicated. The birth rate in 2018 in Cherkasy region was one of the lowest among the regions of Ukraine *(7.1‰ against the average Ukrainian 8.7‰)*. This rate was lower only in Sumy *(6.5‰)* and Chernihiv *(6.8‰)* regions. At the same time, Cherkasy region had one of the highest mortality rates in Ukraine *(16.6‰ in 2018 against the average Ukrainian 14.8‰)*. However, Poltava and Chernihiv regions had higher mortality rates *(16.8‰ and 19.1‰ correspondingly)*.

The determinative factor of the population decrease is natural reduction. During 2019, the number of population decreased by 12.1 thousand people because of natural reduction; number of migratory reduction was detected as 2.1 thousand people. 7.6 thousand people were born alive and 19.7 thousand died in the region in 2019; 18.2 thousand people immigrated and 20.3 thousand people emigrated.

The gender structure of the population is characterized by women prevailing over men. As of 01.01.2020 the number of women fetched up 643.2 thousand people *(54.1% of the general number of the resident population), the number of men reached 545.3 thousand people (45.9%). The overall Ukrainian indicator was 53.6% for women, 46.4% for men*.

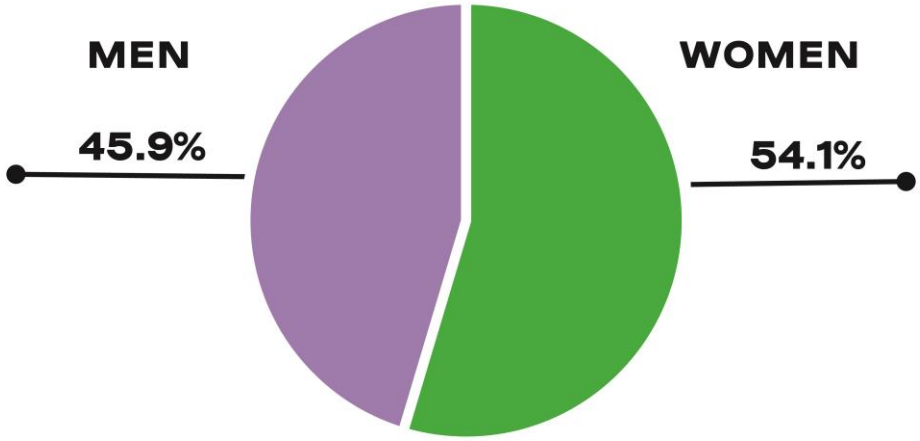


Fig. 5 The division of resident population of the region by gender *(as of 01.01.2020)*

In 2019, the average age of the population of Cherkasy region was one of the highest among the regions of Ukraine *(43.2 years against the average Ukrainian 41.8 years)*; it was higher only in Sumy *(43.5 years),* Chernihiv *(43.9 years),* Luhansk *(46.5 years)* and Donetsk (45.6 years) regions.

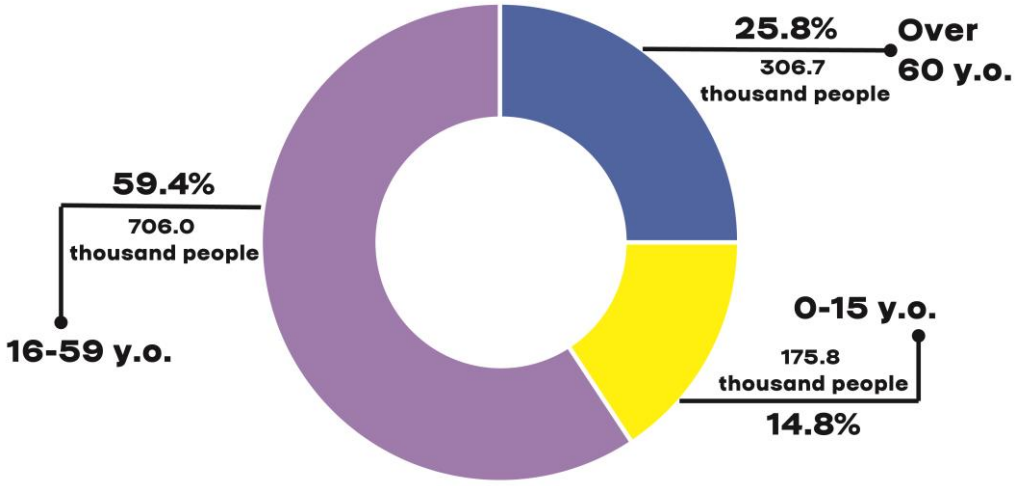


Fig. 6 Distribution of the resident population of Cherkasy region by age groups *(as of 01.01.2020)*

The employment rate of the population aged 15-70 slumped from 59.9% in 2013 to 59.3% *(531.8 thousand people)* in 2019 *(the average Ukrainian rate was 58.2%).*

The unemployment rate of the population aged 15-70 *(according to the methodology of the International Labor Organization)* has decreased by 0.6% throughout the region in recent years *(from 8.9% in 2013 to 8.3% in 2019).*

3.4. Infrastructure

Transport infrastructure

There are several international highway transport corridors that pass through the territory of the region, namely, "Cretan № 3" *(coincides with the highway M-05 (E-95) Kyiv - Odesa)*; "Baltic Sea - Black Sea" *(coincides with the highways M-05 Kyiv - Odesa and M-12 Stryy - Ternopil - Kropyvnytskyi - Znamyanka)*.

Fig. 7 The map of Cherkasy region highways

The density index of Cherkasy region highways is 0.29 km per 1 sq. km, which is much less than in European countries *(in Germany it is 2.0, in France - 1.46, in Poland - 1.15)*, but more than on the average in Ukraine *(0.28 km per 1 sq. km).*

As of 01.01.2020, the length of Cherkasy region street and road network is 19267.95 km, of which 13 143.8 km is the balance length of streets and roads of communal property in the localities. 1750.2 km are state highways and 4373.95 km are local roads.

State highways are divided into: international highways *(194.9 km*); national highways (454.3 km); regional highways *(283.1 km);* territorial highways *(817.9 km).*

The highway infrastructure is in unsatisfactory condition. The main problems of public roads today are the natural aging of organic binders *(bitumen)* and the increase of heavy vehicles movement the actual weight of which exceeds the established standards.

Thus, the analysis of the total length of state highways *(1750.2 km)* shows that: 187 km of highways have lost their load-bearing capacity; 421.5 km of highways do not meet normative smoothness parameters; 877 km of highways do not meet modern regulatory requirements that ensure traffic safety and transportation comfort, have coating deformation.

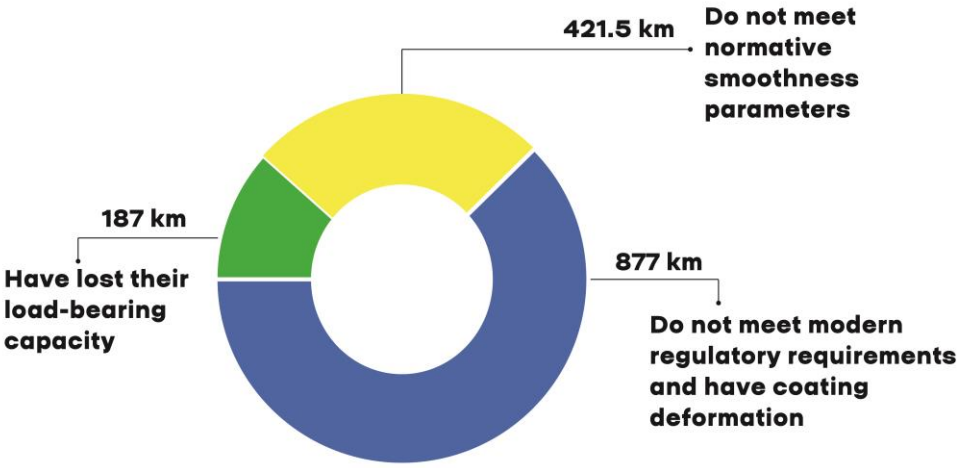


Fig. 8 Characteristics of state highways in Cherkasy region, km *(as of 01.01.2020)*

As of 01.01.2020, passenger transportation services in the region were provided by 25 enterprises and 60 private firms that worked at 529 routes.

Passengers have the opportunity to use the services of 1 central bus station, 25 local bus stations, as well as 2 880 bus stops which are located in rural areas and along public bus routes.

As of 01.01.2020, 34 rural localities do not have bus connection with district centers *(4.2%)*.

Railway transport services are provided by Shevchenkivska Railway Transportation Management of Odesa Railway, and by Kozyatynska and Darnytska Managements of Railway Transportation of the South-Western Railway. The operational length of public railways is 649.5 km *(including 145 km electrified and 504.5 km non-electrified)*.

There are 3 railway stations *(Taras Shevchenko, Cherkasy, Khrystynivka)*, 30 line stations, and 80 railway platforms in the region.

In the region there are 150 kilometers of operational river waterways. However, regular river traffic has been suspended since 1996.

Cherkasy airport has the status of an international checkpoint. However, it last received passengers on scheduled flights in 1995.

In recent years, the airport has taken charter flights only and has been used for small aviation festivals, various car shows and exhibitions.

Energy industry

The main energy-generating enterprises of the region are:

- SS "Cherkasy TPP "PJSC "Cherkasy Khimvolokno" *(average annual electricity production is 840.3 million kWh, or 51.5% of annual production in the region, and 1 million Gcal of thermal energy)*;
- Kaniv HPP Branch of PJSC "Ukrhidroenergo" *(average annual electricity production is 709.3 million kWh, or 43.5% of the total annual production in the region)*.

In 2019 the actual electricity production in Cherkasy region amounted to 1 billion 494.8 million kWh *(of which 93.5% accounted for Kaniv HPP and Cherkasy TPP).*

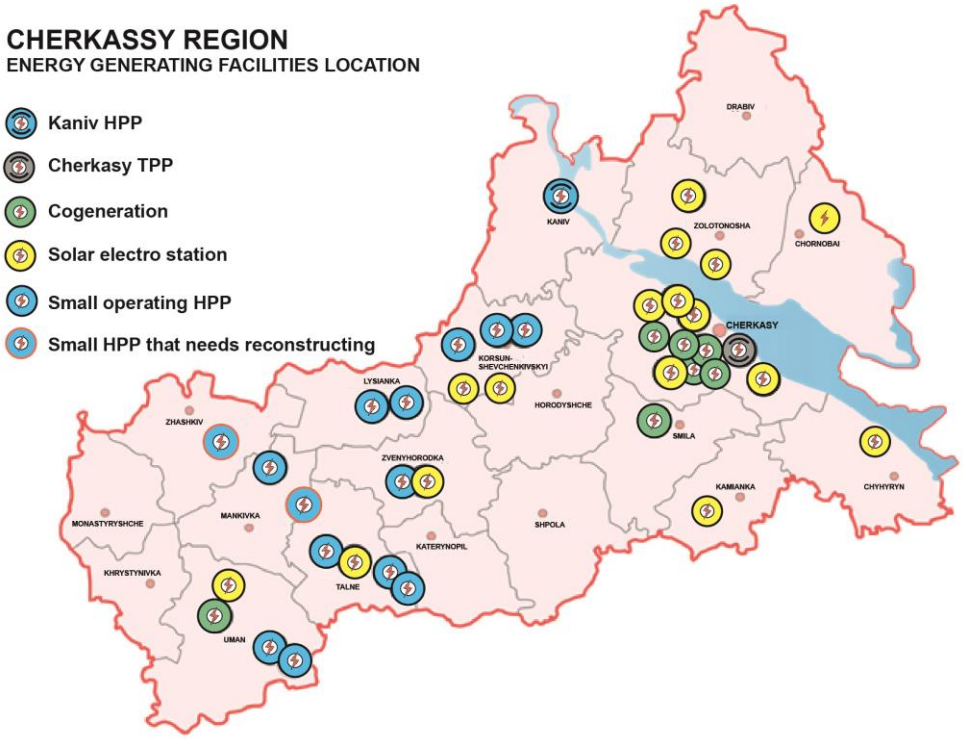


Fig. 9 The map of Cherkasy region power-generating facilities

During 2013-2019, electricity consumption in Cherkasy region was about 1.5 - 2 times higher than its production. Thus, in 2019, 2.92 billion kWh of electricity was consumed, while only 1.49 billion kWh was produced. This means that Cherkasy region is an energy-deficient one.

As for alternative energy sources, there are 12 small hydropower plants, 16 solar power plants, 7 cogeneration plants in Cherkasy region.

Housing and Communal Services

There are 15 thermal power enterprises that provide central heating services in Cherkasy region.

There are also 144 boiler houses, 85% of which run on natural gas.

The length of thermal networks in terms of two-pipe calculation is 396.21 km.

The losses in heating networks amount to 13%. The total wear of heating networks in the region is 32%.

The length of water supply networks of the region which is serviced by communal services is 2649.95 km, of which 779.43 km *(29%)* are in emergency condition.

Water supply in most localities is carried out from underground sources; in the cities of Zvenigorodka, Korsun-Shevchenkivskyi it is provided from open reservoirs; in the cities of Cherkasy, Uman there are mixed water supply systems.

In 8 localities of the region *(towns of Vatutine, Horodyshche, Kamyanka, Talne, Chyhyryn; urban-type settlements of Katerynopil, Mankivka and Chornobay)* the supply of drinking water is provided with the deviations from hygienic standards concerning its general hardness and iron content. This is explained by the lack of necessary modern water purifying complexes. However, measures of improvement are not taken at all or taken partially due to the high financial costs of their implementation.

The length of regional sewage networks is 1 091.03 km, of which 351.19 km *(32%)* are in a state of emergency.

The actual throughput capacity of sewage plants in the cities and districts is 400.1 thousand cubic meters per day.

The total housing stock of the region is 34780.7 thousand square meters, including urban houses *(16729.5 thousand square meters)*, rural houses *(18051.2 thousand square meters)*.

Nowadays 937 associations of apartment building co-owners *(condominiums)* have been registered in the region, that is 26% of the total number of multistoried apartment blocks in communal ownership.

As of 01.01.2020, the separate collection of solid waste is implemented in such cities as Cherkasy, Kaniv, Smila, Vatutine, Uman, Zolotonosha, Zvenigorodka, Kamyanka, Monastyryshche, Korsun-Shevchenkivsky, Chyhyryn; urban-type settlements of Drabiv, Chornobay, Mankivka; and such villages as Mliiv, Blagodatne, Denhy, Kovtuny, Kedyna Hora, Privitne, Podilske, Nova Dmytrivka, Korobivka, Timoshivka, Stepantsi, Liplyave, Khmilna, Kopiyuvata, Ivanky, Berezivka, Krachkivka, Khutory, Ruska Polyana, Chervona Sloboda, Dubiyivka, Yasnozirya, Verhuny, Geronymivka, Sagunivka, Stepanky, Khatsky, Buzukiv, Lukashivka, Balakleya, Dubova, Topylivka. It is provided by installation of specialized containers for separate collection of household waste at the residential buildings sites.

The total length of street lighting networks in the region is 8 200.996 km.

Construction

There are 708 construction companies in the region. In 2013-2019, the enterprises of the region performed construction works for the amount of UAH 8 780.3 million and 15 007 objects were put into operation.

In 2019, 51.8% of the total the amount of work *(UAH 1 075.3 million)* was done by Cherkasy enterprises.

In 2019, the number of houses put into operation amounted to 172.8 thousand square meters of total area of residential buildings *(new construction).* At the same time, 59.6% of the total amount of houses was put into operation in the cities of Cherkasy and Uman.

The amount of houses put into operation in urban populated areas amounted to 133.0 thousand square meters *(77%)*. In rural areas it equals 39.8 thousand square meters *(23%)*.

In 2019, among neighboring regions and some regions belonging to the same region typology *(Kyiv, Vinnytsia, Zhytomyr, Poltava, Rivne, Khmelnytsky, Kirovohrad regions)*, Cherkassy region ranked the 3rd place after Kirovohrad *(148.6%)* and Zhytomyr *(133.8%)* regions, and was ahead of Vinnytsia *(128.3%)*, Kyiv *(120.8%)*, Rivne *(110.2%)*, Poltava *(107.1%)* and Khmelnytsky *(99.6%)* regions by the rate of putting housing area into operation *(new construction) (being 131.7%).*

Science and education

The total amount of educational institutions in the end of 2019 equaled 1 336. They included 8 institutions of higher education, 21 institutions of specialized pre-higher education, 21 vocational education institutions, 580 comprehensive schools, 51 extracurricular institutions, 22 boarding schools and 633 pre-school educational institutions.

At the beginning of 2020 there functioned 633 pre-school educational institutions, including 206 educational-pedagogic complexes *(15 in the cities, and 191 in the countryside)* with 38 941 preschoolers. There were also 5 private pre-school educational institutions. 99% of the region's children receive education with the help of all forms of pre-school education.

The number of general secondary education institutions in 2019 was 580 *(with 556 of them actively functioning)*, the number of students being 116.3 thousand.

35 schools were shut down in the period from 2013 to 2019 due to the lack of pupils *(8 of them in 2019)*. 24 schools were put on a temporary shut-down *(4 schools and 2 branches in 2019)*.

15 educational districts are functioning nowadays in the region, in which basic educational institutions are provided with all proper educational and technical resources. 19 basic educational institutions and 46 educational branches were created in the period from 2013 to 2019.

All educational institutions have access to the Internet.

224 school buses are used to transport pupils to the educational institutions and back home.

As of 01.01.2020, 11 359 pupils were provided with transport services, with 10 075 *(88.7% of total amount)* those who use school buses. 100% of pupils in rural regions are provided with transport services.

In 2019 there functioned 51 extracurricular institutions *(35.5% of children)* and 22 boarding schools.

The development of inclusive education in the region is advancing. 209 educational institutions provide inclusive form of education.

Vocational education in the region is represented by 21 state educational institutions *(including 2 training centers at penitentiary institutions)*. Specialists' training was conducted in different combinations with a total amount of 109 different training courses. Current regional employment is between 98% and 99%.

8 institutions of higher education and 21 institutions of specialized pre-higher education functioned in the region in 2019.

In 2019, there were 10 528 graduates from institutions of higher education and 3 350 graduates from institutions of specialized pre-higher education.

During the academic year of 2019/2020, there were 30 400 students in higher educational institutions, the number of students studying in the institutions of specialized pre-higher education was 9 653 *(the total amount was 40 053 students).*

From 2013 to 2018 there was a tendency to increase costs in the field of scientific research *(UAH 57.5 million in 2013; UAH 98.6 million in 2018; the highest amount was UAH*

118.4 million in 2016). However, there is a decrease of human resources. In a 3-years' period, the number of people engaged in scientific research decreased by 13.3% *(from 780 in 2016 to 676 in 2018*).

Healthcare

In 2019, 272 medical and preventive institutions and their structural units *(including 248 facilities of outpatient care)*, as well as 515 paramedic and obstetric stations provided region's population with medical treatment.

As of 01.01.2020, 35 primary healthcare institutions actively functioned, including 33 centers of primary health care *(with 199 outpatient clinics)* and 2 territorial communities' clinics.

Systematic work is conducted in the region for the purpose of implementation the basic primary healthcare practice, namely, family medicine. Total amount of ambulatory rooms, including basic ambulatory rooms for family medicine has increased from 116 in 2013 to 201 in 2019. 80.6% of local population was treated according to such practices in 2019.

Municipal institution "Regional center of an emergency medical care and disaster medicine of Cherkassy Regional Council" is functioning in the region. It is the only institution in the region that is primarily responsible for a pre-hospital emergency healthcare. This institution consists of 5 first-aid stations: Cherkaska, Smilyanska, Umanska, Livoberezhna and Zvenyhorodska.

In 2019, there functioned 101 ambulance units. Total ambulance units sufficiency level in the region equals 0.8 to 10 000 of people on the average *(1.0 is considered as a standard).* The workload of ambulance units is up to the norm and equals 5.8 rides per day. A project aimed at the creating of central main building of the above-mentioned center with an operations control service is being implemented.

Hemodialysis service was actively developing from 2013 to 2019. The amount of dialysis machines has increased by 46, with a total number of 76 in 2019.

In 2017 a project "Women's health" aimed at creating a network of preventative screening centers started. As of 01.01.2020 "Women's health" preventative screening centers were opened in 5 healthcare institutions.

On March 5, 2019, an angiographic operating room of the Cherkasy Regional Cardiology Center was opened.

In 2019, 1 autotransplantation of bone marrow was performed in the center of high-dose chemotherapy with transplantation of autologous hematopoietic stem cells of peripheral blood. The operation was performed in the municipal non-profit enterprise "Cherkasy Regional Oncology Dispensary of Cherkasy Regional Council".

The Cherkasy Regional Center for Public Health was established by merging the regional center for AIDS prevention and control with the regional health center.

The shortage of medical staff in 2019 amounted to 1 510 people. The staffing of full-time positions in 2019 was 72.62%, which is insufficient for qualified medical services.

The overall incidence rate per 10 000 of population decreased from 19 295.2 in 2013 to 16 146.6 in 2019 *(by 16.3%).* The first place in the structure of the illnesses is occupied by the diseases of the circulatory system, the second by the diseases of the respiratory system, the third by the diseases of the digestive system.

Cultural sphere

At the end of 2019 there worked such cultural institutions:
1) 720 libraries;
2) 724 houses of culture, clubs, centers of culture and leisure;
3) 42 primary specialized art schools;
4) 2 higher art educational institutions of I-II levels of accreditation;
5) 2 theaters that have the status of "academic theatre" *(Cherkasy Academic Regional Ukrainian Music and Drama Theater named after Taras Shevchenko, Cherkasy Academic Puppet Theater);*
6) 2 concert establishments *(Cherkasy Regional Philharmonic, communal establishment "Association of artistic groups")*;
7) 10 cinemas.

9 078 regional monuments are registered in the state register. Of these: there are 7 169 archeological monuments, 1 552 history monuments, 184 architecture monuments, 173 objects of monumental art. 93 monuments have the status of national ones, the rest have the status of local significance monuments. On the territory of Cherkasy region the most significant monuments are united in 7 historical and cultural and 1 historical and architectural reserves. 3 of them have the status of national reserve *(National Reserve "Taras Shevchenko's Homeland", Shevchenko National Reserve, National Historical and Cultural Reserve "Chyhyryn")*. 5 reserves have the state status *(State Historical and Cultural Reserve "Trypillya Culture", State Historical and Cultural Trakhtemyriv Reserve, Kamyanka State Historical and Cultural Reserve, Korsun-Shevchenkivsky State Historical and Cultural Reserve, Stara Uman State Historical and Architectural Reserve)*. A total of 53 reserves have been created on the territory of Ukraine.

In the city of Uman there is a tomb of Tzaddik Nachman of Bratslav, the ancestor of Hasidism *(a religious movement of Judaism that originated in the 18th century in Ukraine)*. According to his will, it is visited by Bratslav Hasids from all over the world on Rosh Hashanah *(New Year)*.

In the village of Vilkhivets of Zvenigorodkyi district, there is a manor-museum of Vyacheslav Chornovil, the Hero of Ukraine *(People's Deputy of Ukraine and the leader of the People's Movement of Ukraine)*, established in accordance with the resolution of the Verkhovna Rada of Ukraine of 28.11.2002 № 258 "On honoring the memory of the Hero of Ukraine V.M.Chornovil".

It is possible to get acquainted with unique ancient monuments and interesting exhibits of Cherkassy region in 61 museums of the state form of ownership *(that include 30 museums, 26 departments, 3 branch departments, 2 sectors)*, 123 public museum establishments *(72 museums, 51 museum rooms).*

Social sphere

As of 01.01.2020, social services in the region were provided by 14 boarding schools, 29 territorial social service centers and 8 social service centers.

As of 01.01.2020, 279 thousand families received various types of state social assistance. The total amount of accrual of various types of state social assistance during 2019 was to UAH 3404.0 million.

The rate of family upbringing of orphans and children deprived of parental care was 92.0% in 2019.

In 2019, the ratio of pensioners to 100 insured persons was 120 *(i.e., 100 insured persons support 120 pensioners)*.

In 2019, there were 38 children's and youth sports schools *(CYSS)* in the region which enrolled 11.6 thousand children.

In 2019, the number of youth organizations in the field of youth policy development equaled 59.

3.5. Economy and business

The main indicator that characterizes the level of economic development of the region is the gross regional product *(GRP)* that is the value of goods and services produced by the region for final consumption. GRP is formed as the sum of gross values added *(GVA)* according to the types of economic activity.

The structure of Cherkasy region GRP in 2018 was as follows:
- industry *(23.8%);*
- agriculture, forestry and fisheries *(23.2%)*;
- wholesale and retail trade, repair of motor vehicles and motorcycles *(14.2%)*;
- real estate transactions *(7.6%)*;
- transport, warehousing, postal and courier activities *(6.8%)*;
- construction *(1.3%)*;
- other industries *(23.1%)*.

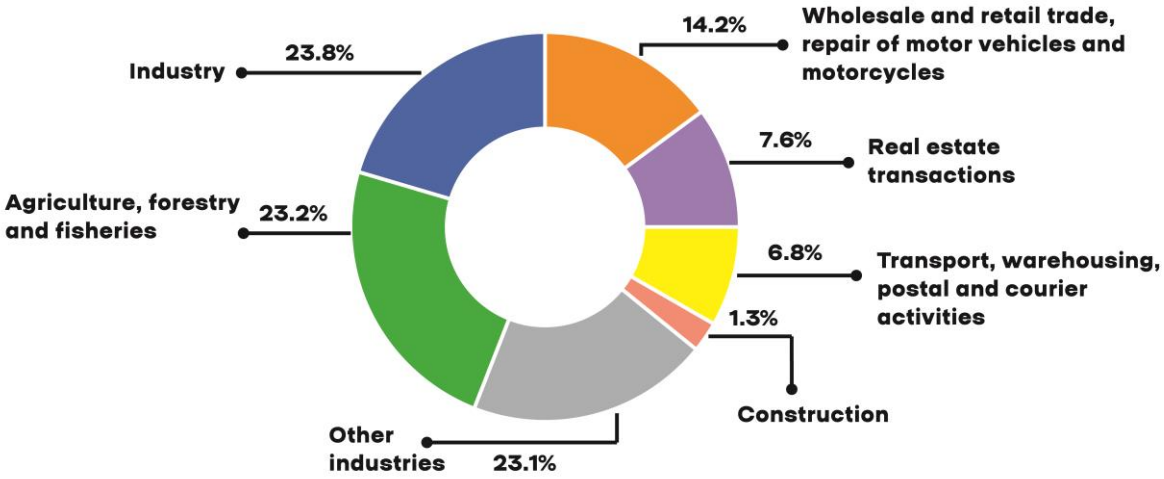


Fig. 10 Structure of gross value added of Cherkasy region *(2018)*

The volume of gross regional product of the region in 2018 *(in actual prices)* amounted to UAH 93.3 billion. Its share in the national gross domestic product increased from 2.2% in 2013 to 2.6% in 2018. Per capita, the volume of gross regional product amounted to UAH 76.9 thousand *(in actual prices)*.

In 2018, the volume of gross regional product increased in comparison with the previous year by 8.6% *(in comparable prices) (the GDP in Ukraine increased by 3.4%).*

According to the results of 2018, the region ranked the 1st place in the rate of gross regional product growth.

Industry

The industry of Cherkasy region is represented by more than 400 enterprises.

In 2019 the amount of industrial output amounted to UAH 73.8 billion, which is 3.0% of the national amount *(10th place among the regions of Ukraine).*

The main industries of the region are:
- production of food, beverages and tobacco *(56.6% of the total amount of industrial output in 2019)*;
- chemical production *(7.9% in 2019);*
- supply of electricity, gas, steam and air conditioning *(11.9% in 2019);*
- pharmaceutical industry *(5.0% in 2019)*;
- mechanical engineering, except repair and installation of machinery and equipment *(4.9% in 2019);*
- other industries *(13.7% in 2019).*

Food industry is represented by more than 80 major enterprises. In 2019 food and beverage companies produced and sold products for UAH 41.7 billion *(8% of the total sales of food and beverages in Ukraine).*

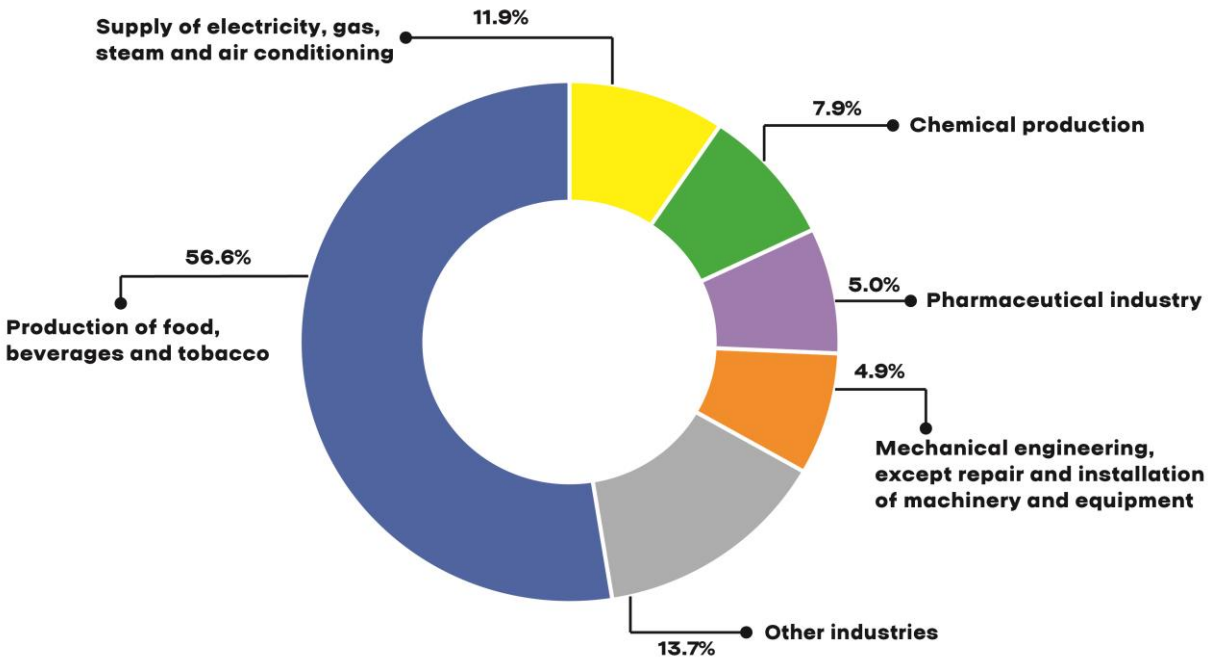


Fig. 11 The structure of industrial production of Cherkasy region in 2019 *(% of total industrial production)*

The industry of chemicals and chemical products includes 17 enterprises. In 2018 the industry emerged from a long period of production decline *(during this period from 2013 to 2017, the rate of production in industry decreased from 91.1% to 65.6%).* According to the results of 2019, the production rate in industry was 116.4% due to the increase in production at PJSC "Azot" *(in 2019 the production rate at the enterprise was 126.6% compared to 2018).*

The mechanical engineering industry includes 25 enterprises. In 2019 industry enterprises sold products for UAH 3.6 billion. 411 buses and 128 trucks were assembled at the

automobile enterprises of the region, which is 50.4% and more than 90% correspondingly of the national production.

In addition, there are such industries in the region as: pharmaceutical industry; manufacture of wood products, paper manufacturing and polygraphy; rubber and plastic manufacturing, manufacture of other non-metallic mineral products; textile production, production of clothing, leather, leather products and other materials; metallurgical industry; mining and quarrying.

The innovative activity of industrial enterprises has been growing. In 5 years, the number of enterprises which are engaged in innovations has increased *(from 15% in 2013 to 24.4% in 2017)*. The number of new technological processes introduced at industrial enterprises has doubled in 2 years *(15 new processes in 2015, 30 in 2017).*

Expenditures on innovative activity of enterprises increased 4.4 times *(from UAH 28.6 million in 2013 to UAH 124.7 million in 2017).* It should be noted that the main source of financing of innovative activity is the funds of enterprises.

Industrial enterprises that actively introduced new technological processes into production and expanded the range of products in 2019 were: PJSC "Cherkasy Silk Plant", PJSC "Cherkasy Bus", PJSC "Azot", LLC "Cherkasyelevatormash", LLC "Factory of Agrochemicals", LLC "Magnitprilad" *(Kaniv)*, PE "Uman Garment Factory", PJSC "Technologist" *(Uman)* and PJSC "World of Furniture Ukraine" *(Uman district)*.

The high degree of depreciation of fixed assets in industry *(from 40% to 90%)* leads to a decrease in the competitiveness of production in domestic and foreign markets. At the same time, a significant amount of unused areas remains on the territory of Cherkasy region, which can be a reserve for increasing the industrial potential of the region.

Agro-industrial complex

The region has a wide range of production enterprises: 598 agricultural enterprises, 1306 farms, about 201 thousand private farms, more than 16 thousand taxpayers.

In 2019 the production of gross agricultural output in the region amounted to UAH 15.9 billion.

The region`s share in the total production of agricultural products in 2019 was 5.8% *(5th place among the regions of Ukraine).*

In 2018 agricultural products per one person amounted to UAH 13.4 thousand *(2nd place among the regions of Ukraine).*

In 2019 food security of the population was ensured. The production of food grain exceeded its consumption requirement by 3.8 times, potatoes - by 5.4 times, vegetables - by 2.6 times, oil - by 10.6 times, meat - by 4.4 times, milk - 1.1 times, eggs - 2.9 times.

As of 01.01.2020, 128 agricultural service cooperatives have been registered in the region *(including 52 in the framework of the project "The Establishment of the regional training and practice center for the development of multifunctional cooperatives" (EU grant program "Support to regional development policy in Ukraine").* In 2019 2 agricultural service cooperatives were established.

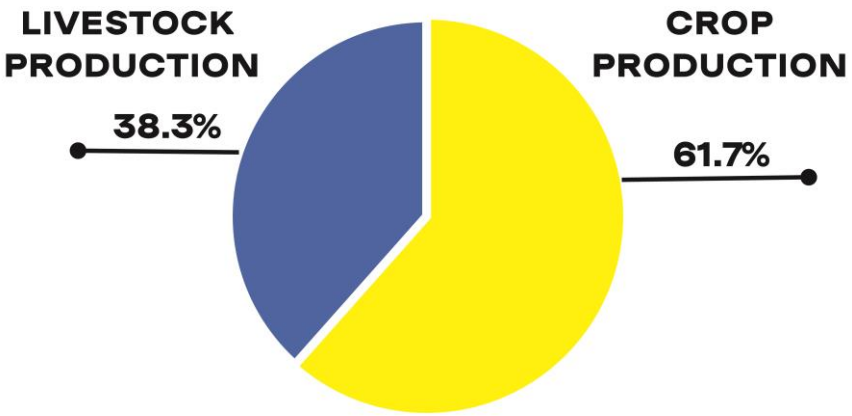


Fig. 12 The structure of agriculture of Cherkasy region in 2019 *(% of total gross agricultural output)*

The crop sector is the main component of agricultural production in Cherkasy region, its share in the total production in 2019 was 61.7% *(4.9% of the total output).*

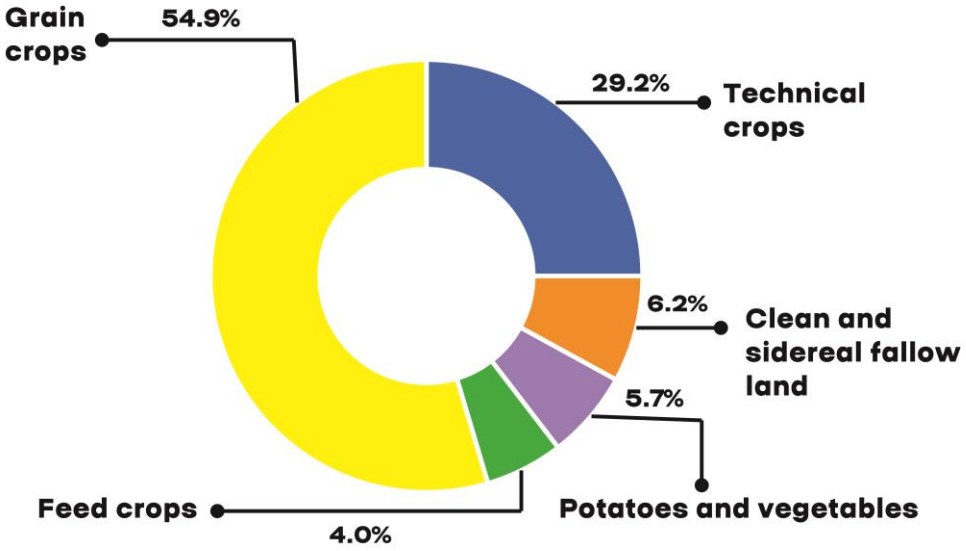


Fig. 13 Crop production of Cherkasy region *(crop patterns in 2019)*

Crop patterns in 2019 were as follows:
- grain crops - 54.9%;
- technical crops - 29.2%;
- feed crops - 4.0%;
- potatoes and vegetables - 5.7%;
- clean and sidereal fallow land - 6.2%.

In 2019 Cherkasy region took the 1st place in the production of grain legume yields *(69.3 c/ha)* among the regions of Ukraine.

In 2019 the production of livestock products provided 38.3% of all agricultural products in the region *(8.5% of the national total output).*

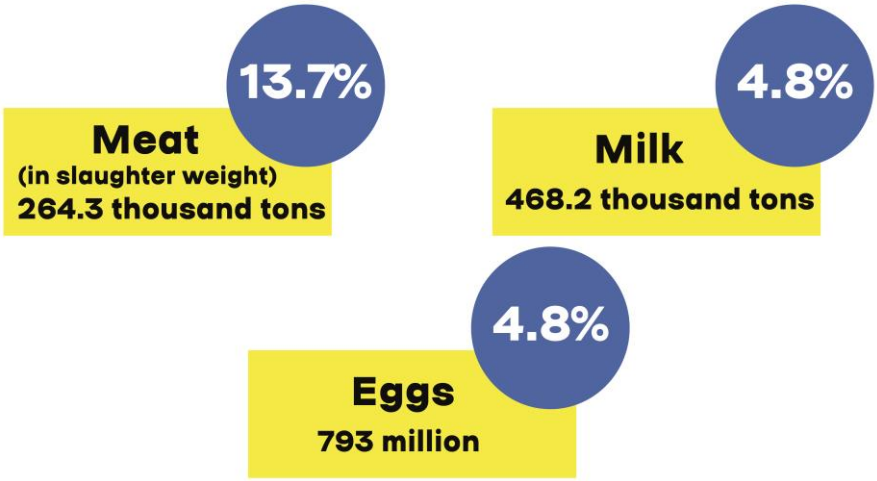


Fig. 14 The production of main types of livestock products of Cherkasy region in 2019 *(% of national total output)*

In 2019 the following amount of the main types of livestock products was produced in Cherkasy region:

- meat *(in slaughter weight)* - 264.3 thousand tons *(13.7% of the national total output)*;
- milk - 468.2 thousand tons *(4.8% of the national total output)*;
- eggs - 793 million *(4.8% of the national total output)*.

In 2019 in all types of farms the number of cattle amounted to 154.2 thousand heads *(including cows - 70.0 thousand heads),* pigs - 293.3 thousand heads, poultry - 25.2 million heads.

Investment activity

The current problem is the high degree of fixed assets depreciation of enterprises in Cherkasy region *(in particular, in industry it is from 40 to 90%)*. Therefore, capital investments are needed to upgrade the fixed assets of enterprises. Such investments are aimed at increasing production capacity on a new technological basis and accordingly - at labor productivity.

In 2019 UAH 11.4 billion of capital investments were absorbed in Cherkasy region *(14th place in Ukraine*). Per one person capital investments amounted to UAH 9 522.7.

Capital investments in 2019 were absorbed in the following types of assets:

- buildings and structures *(non-residential, residential, engineering)* - UAH 4.7 billion *(41.6%)*;
- machinery, equipment, inventory - UAH 4.6 billion *(40.0%)*;
- vehicles - UAH 1.2 billion *(10.2%)*;
- intangible assets - UAH 0.29 billion *(2.6%*);
- others - UAH 0.6 billion *(5.3%)*.

By type of economic activity, in 2019 the largest amount of capital investments was absorbed in:

- agriculture, forestry, and fisheries - 31.8%;
- industry - 30.6%;
- construction - 7.1%;
- wholesale and retail trade, repair of motor vehicles - 3.9%;
- other industries - 26.6%.

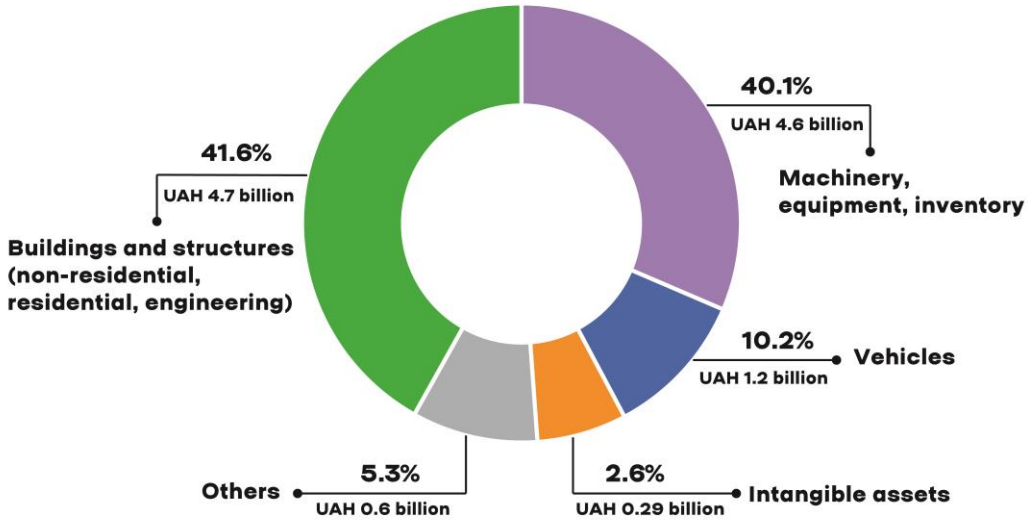


Fig. 15 The main assets of capital investments in Cherkasy region in 2019

The main capital-investment financing sources in 2019 were:
- the funds of enterprises and organizations - 73.1%;
- the state budget - 8.8%;
- local budgets - 8.1%;
- bank loans and other loans - 4.3%;
- public funds - 3.6%;
- other sources - 2.1%.

The amount of attracted investments *(share capital)* from the beginning of investing in the economy of the region as of 01.01.2020 amounted to USD 357.2 million *(or 1.0% of the total amount of investments in the economy of Ukraine)* and per one person amounted to USD 298.7. Foreign direct investments came from non-residents from 44 countries.

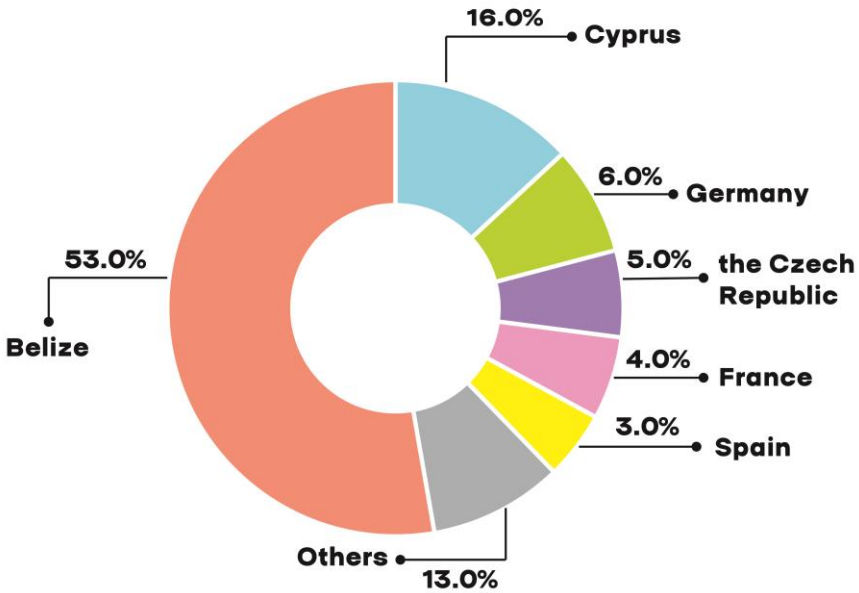


Fig. 16 The geographical structure of foreign investments in the economy of the region *(% of the total amount, as of 01.01.2020)*

The main investor countries, which accounted to 87% of total foreign capital, were: Belize - 53%, Cyprus - 16%, Germany - 6%, the Czech Republic - 5%, France - 4%, Spain - 3%.

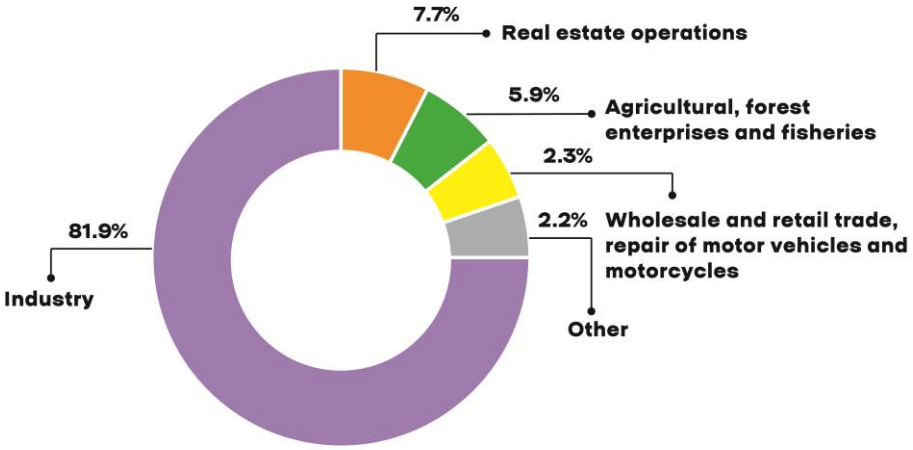


Fig. 17 The sectoral structure of foreign direct investments in the economy of the region *(% of the total amount, as of 01.01.2020)*

The largest amount of foreign direct investments in 2019 were concentrated on:
- industrial enterprises *(81.9%);*
- enterprises and organizations engaged in real estate operations *(7.7%)*;
- agricultural, forest enterprises and fisheries *(5.9%)*;
- wholesale and retail trade enterprises, repair of motor vehicles and motorcycles *(2.3%)*;
- others *(2.2%)*.

As of 01.01.2020, direct investments of the enterprises of Cherkasy region were made to Vietnam.

Foreign economic activity

In the structure of foreign trade of goods in Cherkasy region in 2019, exports were higher than imports *(the balance was positive)*. Namely: the amount of exports amounted to USD 863.6 million, imports - USD 691.2 million *(balance + USD 172.4 million)*.

Foreign trade transactions of goods were conducted with partners from 138 countries.

In 2019 the commodity structure of exports of the region were:
- plant products - USD 375.7 million *(43.5%)*;
- fats and oils of animal or vegetable origin - USD 219.9 million *(25.5%)*;
- ready-made food products - USD 74.0 million *(8.6%)*;
- live animals, products of animal origin - USD 48.0 million *(5.6%)*;
- wood and wood products - USD 36.2 million *(4.2%)*;
- other products - USD 109.8 million *(12.6%)*.

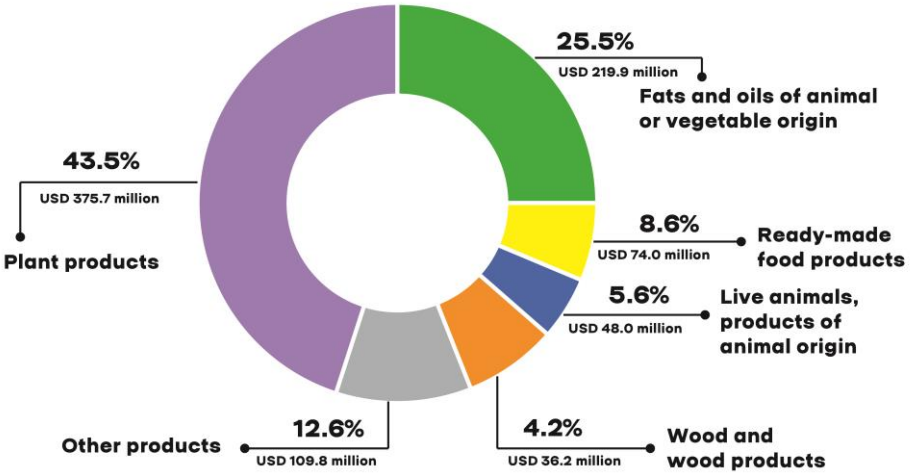


Fig. 18 The commodity structure of exports of Cherkasy region in 2019

Countries to which the products of Cherkasy region were exported most of all in 2019:
- China *(14.1% of total exports)*;
- The Netherlands *(7.5%);*
- Germany *(6%)*;
- India *(5.7%)*;
- Spain *(5.3%)*;
- Egypt *(5.2%)*.

Exports of goods to the European Union amounted to USD 346.5 million, or 40.1% of total exports of goods.

In 2019 the following types of products were imported into the region:
- mineral products - USD 259.8 million *(37.6%)*;
- machines, equipment and mechanisms; electrical equipment - USD 105.8 million *(15.3%)*;
- chemical industry products and related industries - USD 99.1 million *(14.3%)*;
- land vehicles, aircraft, floating vehicles - USD 39.2 million *(5.7%);*
- textile materials and textile products - USD 27.7 million *(4%)*;
- other products - USD 159.6 million *(23.1%)*.

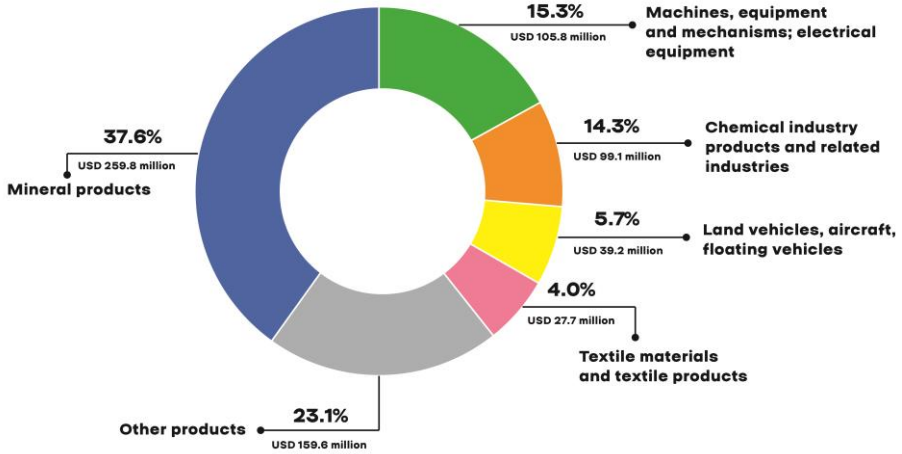


Fig. 19 The commodity structure of imports of Cherkasy region in 2019

Countries that imported the most marketable products to Cherkasy region in 2019:
- Hungary *(15%)*;
- Slovakia *(12.8%)*;
- China *(11.9%)*;
- Germany *(10.3%)*;
- Poland *(10.1%)*.

Imports of goods from the European Union amounted to USD 436.1 million or 63.1% of the total amount of goods.

In 2019 exports of services amounted to USD 38.6 million, import of services - USD 19.99 million *(balance +USD 18.6 million)*. Foreign trade operations with services were conducted with partners from 84 countries.

Consumer market

The infrastructure of the trade network and restaurant industry of the region includes more than 10 thousand objects of all forms of ownership, of which 73.8% - shops and pharmacies, 15.3% - kiosks and gas stations, 10.9% - restaurants.

In 2019, the retail trade turnover of the region amounted to UAH 27.1 billion. Retail turnover of enterprises - legal entities amounted to UAH 15.1 billion.

In the structure of retail trade turnover of the region in 2019, the share of retail trade turnover of enterprises - legal entities was 55.9%. The share of retail trade turnover of entrepreneurs, whose main economic activity is retail trade was 44.1%.

Entrepreneurship

In 2018, the enterprises of Cherkasy region were as follows:
- 11 large enterprises *(0.1% of the total number of enterprises);*
- 474 medium-sized enterprises *(5.2%)*;
- 8 691 small enterprises *(94.7%)*, of which 7533 are micro-enterprises *(or 82.1% of the total number of enterprises)*.

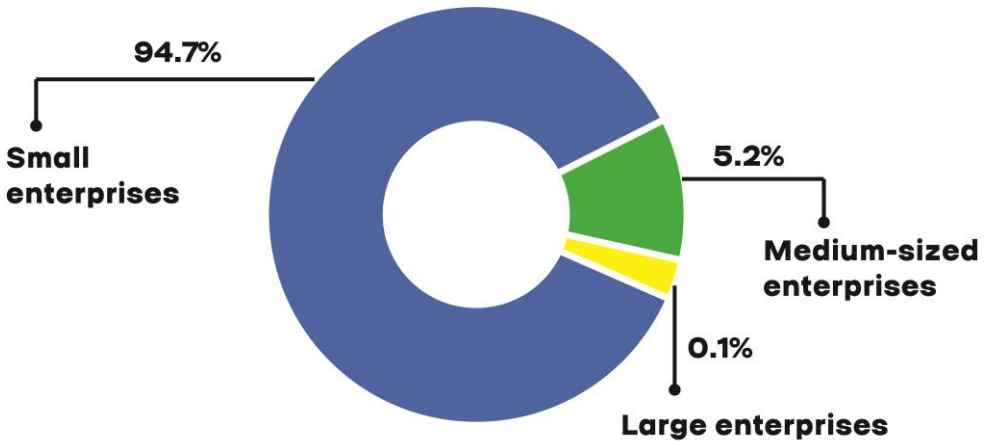


Fig. 20 The share of enterprises *(depending on their size)* of Cherkasy region in 2018

The largest number of employees in 2018 was in medium-sized enterprises *(55.7% of the total number of employees in enterprises)*. 12.4% of employees were employed at large enterprises, and 31.9% at small ones.

The average number of employees at large enterprises was 1 514 people, at medium ones - 158 people, at small ones - 5 people.

In total, 134.4 thousand people were employed at the enterprises of the region in 2018, including 43 thousand people in small business.

In 2018 the distribution of employees at enterprises by the types of economic activity was as follows:

- industry - 38.4% of employees *(1 250 enterprises, or 13.6%)*;
- agricultural, forestry, and fisheries - 26.6% of employees *(2 222 enterprises, or 24.2%)*;
- wholesale and retail trade enterprises, repair of motor vehicles and motorcycles - 13.2% of employees *(2 035 enterprises, or 22.2%)*;
- transport, warehousing, postal and courier activities - 4.8% of employees *(464 enterprises, or 5.1%);*
- other industries - 17% of employees *(3 205 enterprises, or 34.9%)*.

In 2018 the share of products of small enterprises in the total sales of enterprises was 22.9% *(UAH 39.6 billion)*, large enterprises - 31.1% *(UAH 53.9 billion),* medium-sized enterprises - 46% *(UAH 79.8 billion)*.

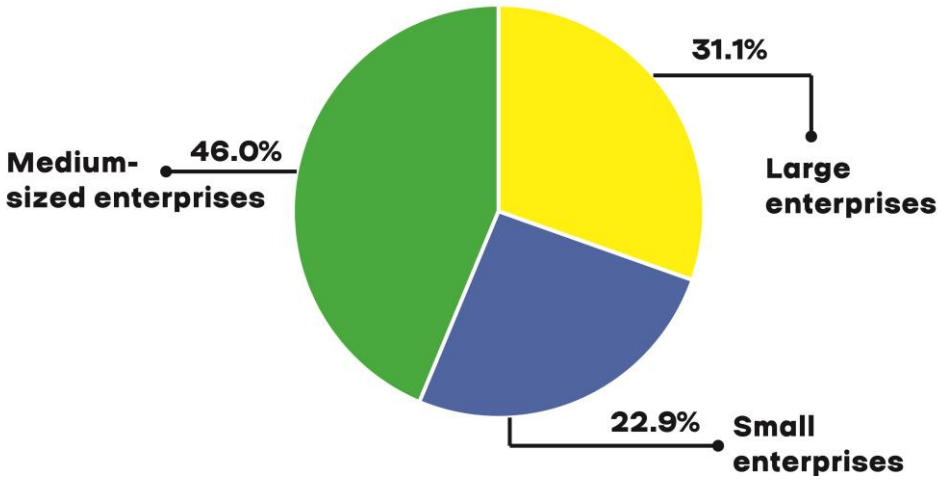


Fig. 21 The total amount of production sold by the enterprises of Cherkasy region in 2018 *(% of total amount of sales)*

Per 10 000 population of Cherkasy region in 2018 there were 72 small enterprises *(in Ukraine there were 80 enterprises).*

Tourism

There are 259 travel agencies registered in Cherkasy region, 20 of which are tour operators.

Since 2016 a significant increase in number of tourists has been seen in the region. In 2015, 710 thousand tourists visited the region, while in 2019 their number was 1 million 363 thousand people *(an increase of 92%; this also exceeds the number of tourists in 2018 by 8%).*

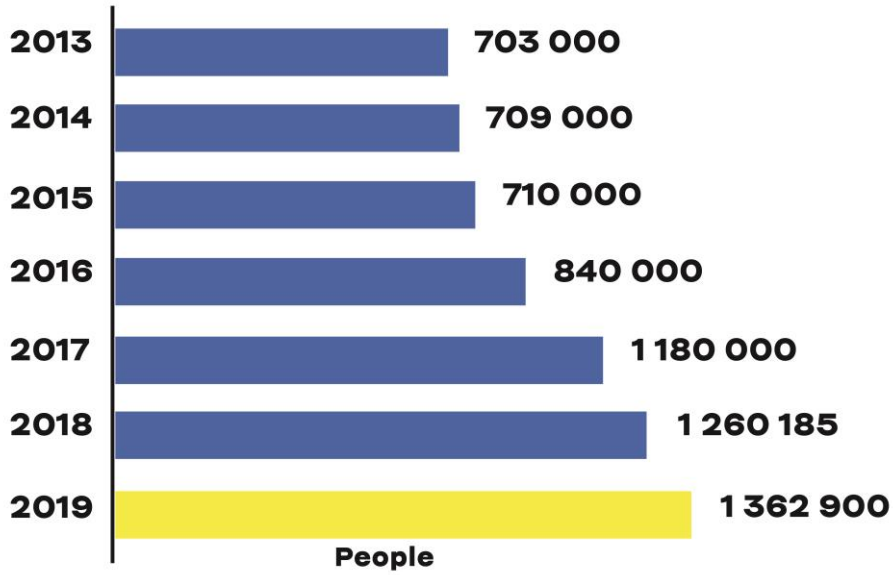


Fig. 22 Tourist flow of Cherkasy region in 2013-2019

The most significant tourist attractions and events in Cherkasy region are:

- Sofiyivka National Dendrological Park and its updated part "Fantasy Park" *(Uman);*
- Chyhyryn National Historical and Cultural Reserve *(including the residence of B. Khmelnytsky and the site of the Khmelnytsky's family estate in the village of Subotiv, Illinska Church, 1000-year-old oak of Maksym Zalizniak)*;
- National Reserve "Motherland of Taras Shevchenko" *(the village of Moryntsi, Shevchenkove, Budyshche, Zvenyhorodka district)*;
- Tarasova *(Chernecha)* Mountain *(burial place of T. Shevchenko, Kaniv)*;
- Cherkasy *(including a motorship trip along the Dnipro river)*;
- Trypillia settlement in the village of Legedzyne;
- Kholodny Yar;
- Kamyanka *(in particular O. Pushkin and P. Tchaikovsky Literary-Memorial Museum, the canyon on the Tyasmin river)*;
- Zhashkiv equestrian complex;
- ski sports and recreation complex "Vodianyky" *(Zvenihorodka district)*;
- festival movement *(in particular "Tarasova Hora" - the largest motorcycle festival of Ukraine, "Trypilska toloka" (Legedzyne village)*, international festival "Jazz Dilizhans" *(Cherkasy).*

According to the number of visitors, the TOP-3 most popular tourist locations in the region in 2019 were:

- National Dendrological Park "Sofiyivka" in Uman - 490 thousand people;
- Cherkasy Regional Museum of Local Lore - 133 thousand people;
- Places of the National Historical and Cultural Reserve "Chyhyryn" - 126 thousand people.

The amount of income from the tourist tax in the region amounted to UAH 4 million 727 thousand. This sum is 6.5 times higher than in 2018 *(such an increase can be explained by changes in legislation, as in 2019 new rates of tourist tax were set)*.

There are 75 hotels and similar types of accommodation in the region, 2 tourist information centers and 46 rural green estates.

The tourist brand of Cherkasy region "Cherkasy region - a place of strength" was developed and presented in 2020.

3.6. Financial and budget sector

During 2013-2019 there was an increase of revenues to the budget at all levels. In 2013 it was UAH 7201.7 million, while in 2019 - UAH 16 970.4 million, or 2.4 times more.

In 2019 local budgets received an income of UAH 7 923.6 million, which is 3.2 times more than in 2013.

The level of subsidies for local budgets decreased from 4.8% in 2015 to 2.7% in 2019.

In the structure of local budget revenues of 2019, the budget share of cities of regional significance was 39.5%, districts - 26.3%, regional budget - 15.1%, the budget of territorial communities - 19.1%.

The main source of local budgets revenues is the personal income tax *(in 2019 it amounted to UAH 4 530 million, or 61.2% of the revenues of the general fund of local budgets)*.

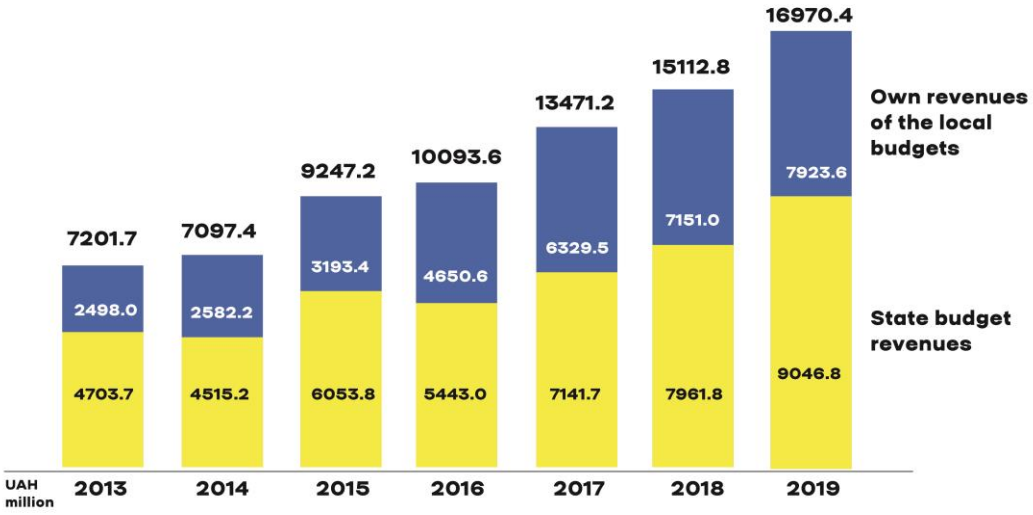


Fig. 23 Dynamics of revenues to budgets of all levels in the region

In 2015 the process of creating united territorial communities started in the region. In 2019, 53 territorial communities formed and executed their budgets independently.

The average amount of local budget revenues *(excluding transfers)* per one person in the territorial communities of the region increased from UAH 2 245 in 2016 to UAH 4 985 in 2019 *(2.2 times more).*

In 2019 the total amount of revenues to the development budget of local budgets amounted to UAH 56 million *(0.7% of the total revenue structure)*.

Income of the population increased from UAH 35.0 billion in 2013 to UAH 93.0 billion in 2019 *(preliminary data)*.

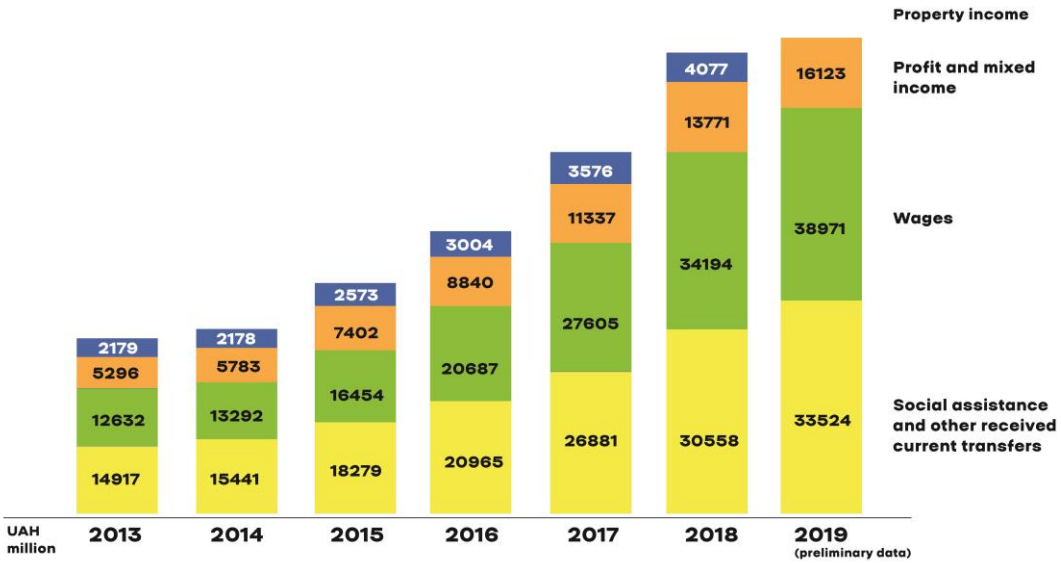


Fig. 24 The structure of income of the population of the region during 2013-2019

Disposable income in 2019 amounted to UAH 70.5 billion *(preliminary data).*

In 2019 the disposable income of the population per one person was UAH 58 808 *(14th place among the regions of Ukraine) (preliminary data).*

Wages remain the main source of income of the population. The average monthly salary per full-time employee in 2019 was UAH 8 838 *(14th place among the regions of Ukraine).*

3.7. Ecology

In 2019 emissions of pollutants into the atmosphere from stationary sources amounted to 51.8 thousand tons.

The main air pollutants in Cherkasy region are energy enterprises, chemical and agricultural companies, which produce more than 90% of all pollutant emissions. Among other cities and districts with the same industries, the highest amount of emissions into the atmosphere by stationary sources was observed in Cherkasy - 21.2 thousand tons *(41% of emissions from stationary sources in the region)*, former Kaniv district - 6.5 thousand tons *(12.5% of emissions from stationary sources in the region).*

In 2019, the largest emissions of pollutants into the atmosphere were from: SS "Cherkasy TPP" of PJSC "Cherkasy Khimvolokno" *(16.1 thousand tons)*, PJSC "Myronivska Poultry Farm" *(6.4 thousand tons)* and PJSC "Azot" *(4.0 thousand tons).* These enterprises accounted for 51% of the total amount of pollutants emitted into the atmosphere from the stationary sources.

There is one enterprise in Cherkasy region included to the list of 20 objects which emit the most of pollutants into the atmosphere - PJSC "Cherkasy Khimvolokno".

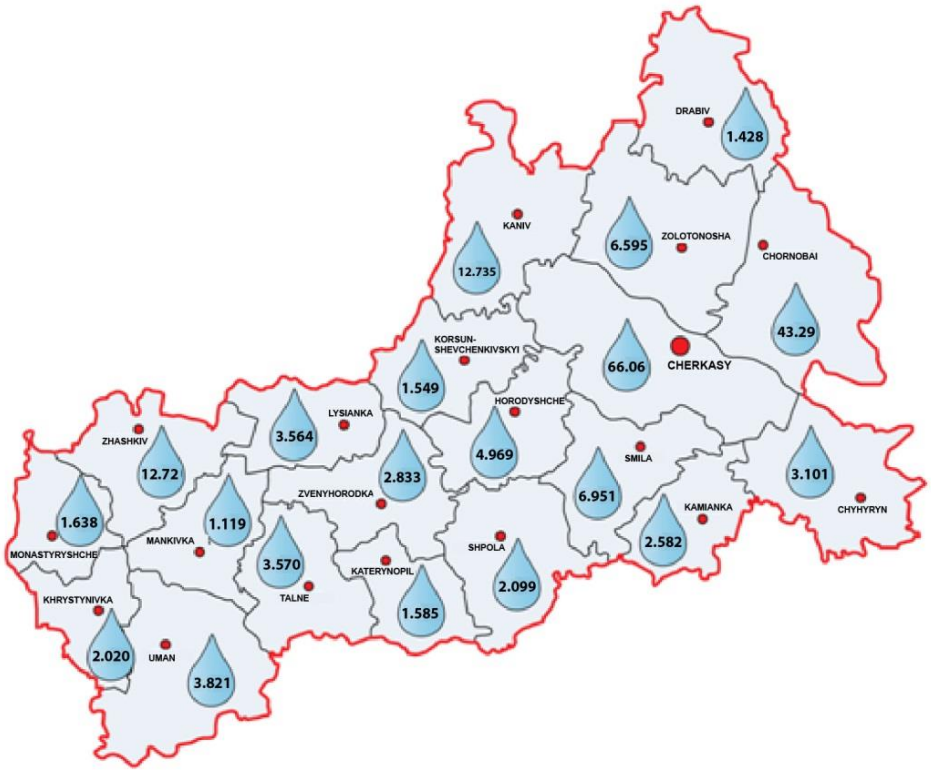


Fig. 25. Distribution of actual data of abstracted water in terms of districts in 2019, MCM

Emissions of carbon dioxide *(the main greenhouse gas)* into the region's air in 2019 amounted to 2 616.8 thousand tons.

In 2019, 184.4 MCM of water were taken from natural water bodies in Cherkasy region, including 138.2 MCM from surface water sources, 46.2 MCM from groundwater sources.

Water use in 2019 amounted to 149.7 MCM, including: 82.79 MCM for production needs, 23.52 MCM for household needs, 20.71 MCM for irrigation, 22.68 MCM for other needs.

The discharge volume of return water into surface water bodies was 87.6 MCM *(of which 2.85 MCM was contaminated return water*). The volume of discharge into the Dnipro river basin amounted to 70.6 MCM *(81%),* into the basin of the Southern Bug was 17.0 MCM *(19%).*

The main sources of pollution of water bodies are treatment facilities and sewerage networks of production departments of housing and communal services.In 5 former district centers of the region there are no treatment facilities at all. These are Horodyshche, Drabiv, Zhashkiv, Korsun-Shevchenkivsky and Shpola.

The main water polluters in 2019 were CE "Misky Vodokanal" *(Zolotonosha),* Vatutine CPE "Vodokanal", CE "VodGeo" *(Smila),* Khrystynivske PMHCS *(Khrystynivka).*

The total area of land lost during 2019 due to the reshaping of the shores of the Kremenchug Reservoir within the Cherkasy region was 1.1 hectares. Within the Cherkasy region, 10 sections of the coast of the Kremenchug Reservoir with a total length of 43.6 km need protection. As of 01.01.2019, 454.8 thousand tons of waste of I-IV hazard classes were stored on the territory of the enterprises of the region.

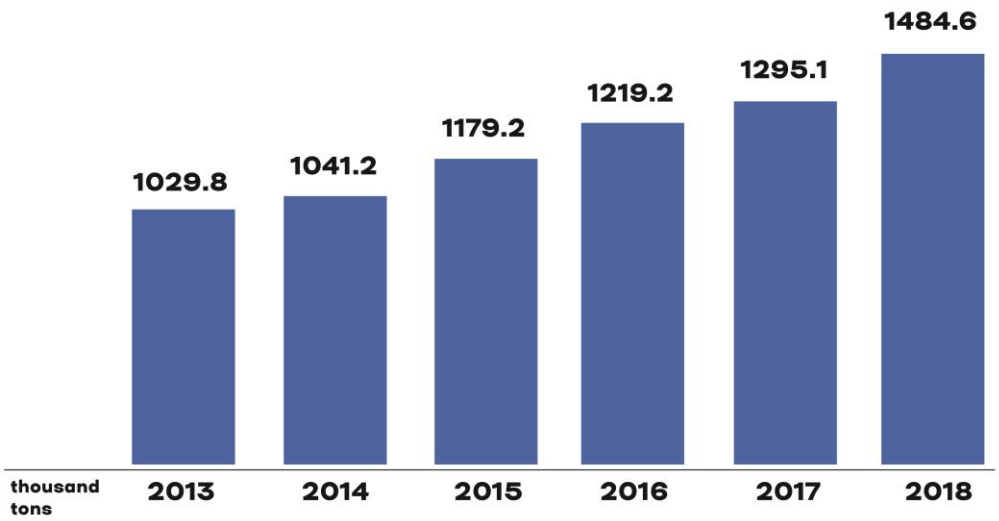


Fig. 26 Volume of waste generation in 2013-2018 in Cherkasy region

In 2018, the region generated 1 484.6 thousand tons of waste of I-IV hazard classes, that consist of: 1 333.2 thousand tons from economic activity of enterprises and organizations *(industrial waste)* and 151.4 thousand tons of household waste.

Out of 1333.2 thousand tons of industrial waste, only 0.803 thousand tons belong to I-III hazard classes. The main part of the generated waste *(99.9%)* belongs to IV hazard class.

In 2018, the largest amount of waste of I-IV hazard classes was generated at the enterprises of the former Kaniv district *(276.8 thousand tons)*, Zolotonosha district *(135.6 thousand tons)* and Cherkasy city *(243.8 thousand tons).*

During 2018, 787.4 thousand tons of waste *(53.0% of the generated)* were utilized and recycled.

A separate group of hazardous waste consists of unknown, unusable and prohibited for use chemical plant protection products *(pesticide wastes) (as of 01.01.2020, 279.1 tons of pesticide wastes were stored in the region).*

During 2013-2019, there was a decrease in the number of warehouses for storage of pesticide waste by 20 units *(by 62.5%)*. In 2019, their number was 12.

13 districts have been completely cleared of pesticide waste: former Horodyshche district, Zolotonosha district, former Kamyanka district, former Kaniv district, former Korsun-Shevchenkivsky district, former Lysyanka district, former Mankivka district, former Smila district, Uman district, former Khrystynivka district, former Chyhyryn district, former Chornobay district, former Shpola district.

3.8. Positioning of Cherkasy region among other regions of Ukraine

This section provides a comparative description of the Cherkasy region with neighbouring regions, as well as the place of the Cherkasy region in the rating of regions of Ukraine by main geographical and socio-economic indicators.

Table 1. The comparison of Cherkasy region to neighbouring regions *(area, population, employment, unemployment and income of the population)*

Region	Area, ths sq.m.	The current population as of January 1, 2020, ths people	Employment rate of the population aged 15 - 70 years,% (2019)	Unemployment rate of the population aged 15 - 70 years (according to the ILO methodology), % (2019)	Disposable income of the region's population per capita, UAH (2019) *	Average monthly salary accrued per regular employee, UAH (2019)
Ukraine	**603.5**	**41902.4**	**58.2**	**8.2**	**67528**	**10497**
Cherkasy	20.9	1192.1	59.3	8.3	58808	8838
Vinnytsia	26.5	1545.4	58.0	9.4	64729	9299
Kyiv	28.9	1781.0	59.3	5.9	75146	11003
Kirovohrad	24.6	933.1	55.6	11.0	58290	8360
Poltava	28.8	1387.0	56.6	10.6	71627	9846

* preliminary data

Therefore, in terms of geographical and demographic characteristics, the Cherkasy region is smaller in area than all neighbouring regions, in terms of the current population as of 01.01.2020 the Cherkasy region exceeded only the Kirovohrad region.

In 2019, compared to the neighbouring regions, the Cherkasy region had quite high employment rates. In particular, in terms of the level of employment of the population aged 15-70 years, the Cherkasy region occupied the highest position together with the Kiev region, and in terms of the level of unemployment of the population aged 15-70 years *(according to the ILO methodology)* - the situation was more favourable only in the Kiev region.

Meanwhile, in 2019, in terms of disposable income of the population per person, and in terms of the level of average monthly salary accrued per regular employee, compared to neighbouring regions, the Cherkasy region was better only than the Kirovohrad region.

Table 2. The comparison of the Cherkasy region to neighbouring regions *(main economic indicators)*

Region	GRP (in actual prices), UAH million (2018)	GRP per 1 person, UAH (2018)	Share of GRP of the region in total,% (2018)	The share of the region in the national volume of sold industrial products,% (2019)	The share of production of gross agricultural output in the national volume,% (2018)	Capital investments, UAH billion (2019)	Foreign direct investments, USD million (2019)	Import coverage ratio by export (goods) (2019)	Import coverage ratio by export (services) (2019)
Ukraine	**3560596**	**84235**	**100**	**100**	**100**	**623.9**	**35809**	**0.82**	**2.33**
Cherkasy	93315	76904	2.6	3.0	6.0	11.4	357.2	1.25	1.93
Vinnytsia	111498	71104	3.1	3.3	8.4	15.7	236.7	2.3	4.35
Kyiv	198160	112521	5.6	4.9	6.8	50.3	1645.3	0.47	2.14

Kirovohrad	64436	67763	1.8	1.3	4.6	7.8	74.7	2.82	1.98
Poltava	174147	123763	4.9	6.8	6.6	23.0	1166.0	1.54	0.4

Thus, according to the results of 2018, the Cherkasy region occupied relatively low positions in comparison to neighbouring regions in terms of GRP indicators. That way, the gross regional product in actual prices, as well as its share in the total volume of gross domestic product, were less only in the Kirovohrad region; in terms of GRP per 1 person, the Cherkasy region was ahead of the Vinnytsia and Kirovohrad regions, but was inferior to the Kyiv and Poltava regions. However, it should be noted that Cherkasy region ranked 1st in Ukraine in terms of the growth rate of GRP.

In comparison with the neighbouring regions, in terms of the share in national volumes of industrial products sold in 2019, as well as the production of gross agricultural output in 2018, the Cherkasy region exceeded only the Kirovohrad region.

In 2019, the Cherkasy region was characterized by relatively low indicators of investment and foreign economic activity compared to neighbouring regions. Thus, in terms of capital investments, the Cherkasy region exceeded only the Kirovohrad region; in terms of foreign direct investments, it exceeded the Vinnytsia and Kirovohrad regions, but was inferior to the Kyiv and Poltava regions. As for the import coverage ratio by export: in terms of goods, the Cherkasy region was ahead of only the Kyiv region; in terms of services, it exceeded only the Poltava region.

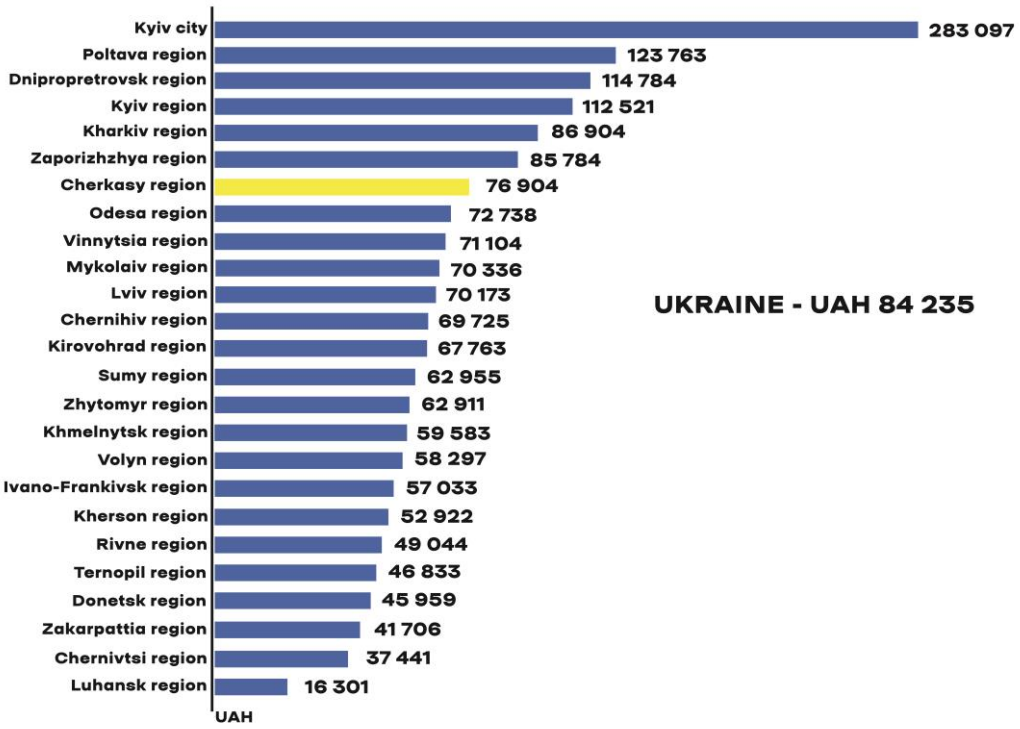


Fig. 27 Gross regional product per one person by regions of Ukraine *(2018)*

In 2018, the Cherkasy region ranked 7th among the regions of Ukraine in terms of gross regional product per one person. According to the growth rate of gross regional product, the Cherkasy region ranked 1st among the regions of Ukraine in 2018. The share of GRP of the region in the national volumes of gross domestic product was 2.6% in 2018.

In 2019, the share of the region in the all-Ukrainian volume of sold industrial products was 3.0% *(10th place among the regions of Ukraine).*

The share of gross agricultural production in all-Ukrainian volumes in 2019 was 5.8% *(5th place among the regions of Ukraine).* Agricultural products per one person in 2018 amounted to UAH 13.4 thousand *(2nd place among the regions of Ukraine).*

The volume of capital investments per one person in 2019 was UAH 9 522.7 *(10th place in Ukraine).*

The volume of foreign direct investments per one person in 2019 was USD 298.7 *(11th place in Ukraine).*

In 2019, the disposable income of the region's population per one person *(according to preliminary data)* amounted to UAH 58 808 *(14th place among the regions of Ukraine).*

The average monthly salary accrued per regular employee in 2019 was UAH 8 838 *(14th place among the regions of Ukraine).*

The employment rate of the population aged 15-70 years in 2019 was 59.3% *(5th place among the regions of Ukraine, along with the Kyiv region).*

The unemployment rate of the population aged 15-70 years *(according to the ILO methodology)* in 2019 was 8.3% *(11th place among the regions of Ukraine, along with the Rivne region).*

4. MAIN FACTORS AND SCENARIOS OF REGIONAL DEVELOPMENT

4.1. SWOT-analysis of Cherkasy region

SWOT-analysis of Cherkasy region was carried out taking into account the condition and trends of the region's development, current problematic issues of the economic complex and social field, as well as proposals provided by members of the expert group on Cherkasy Region Development Strategy for the period of 2021-2027 .

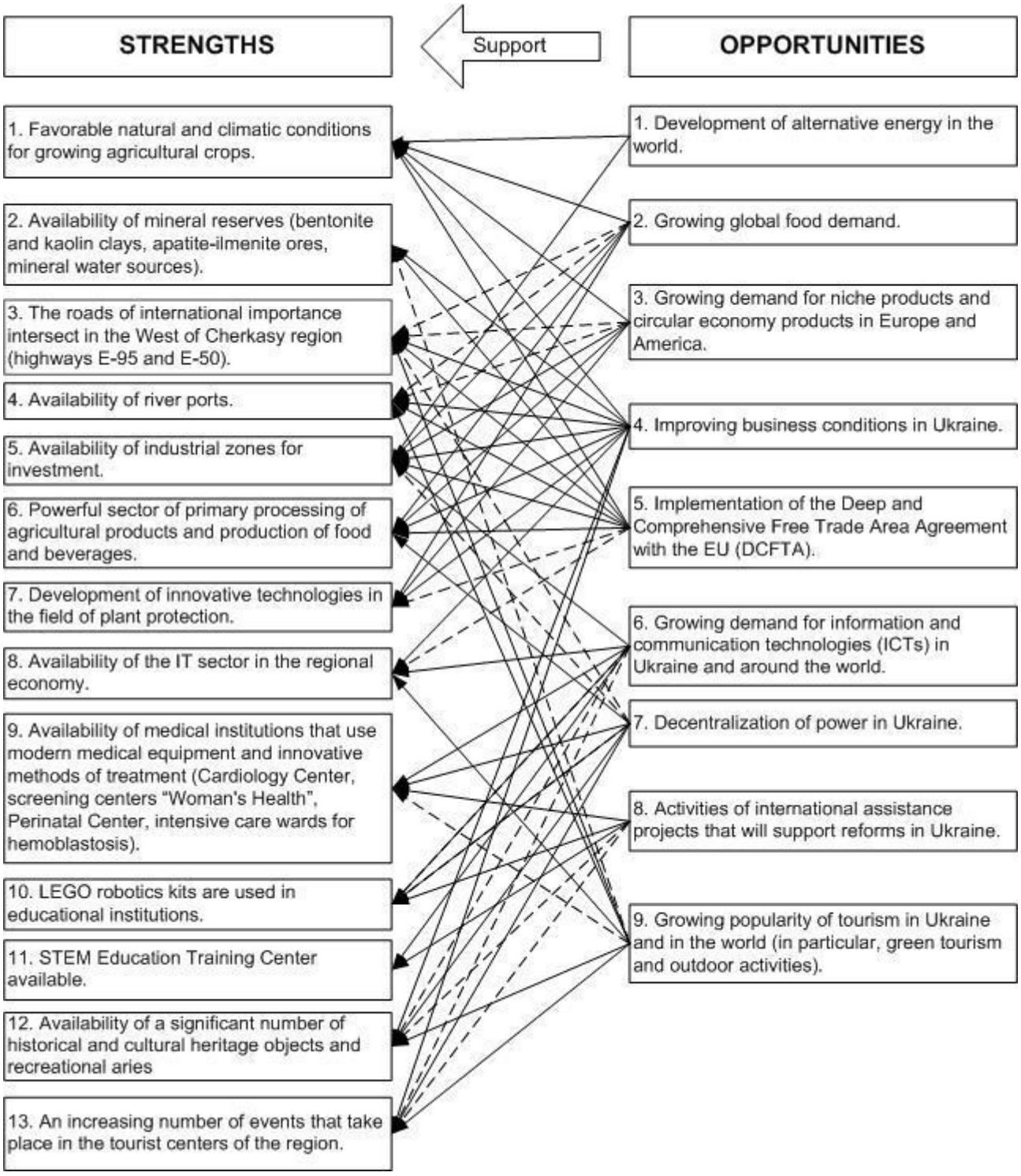
Strengths	Weaknesses
1. Favorable natural and climatic conditions for growing agricultural crops 2. Availability of mineral reserves *(bentonite and kaolin clays, apatite-ilmenite ores, mineral water sources)* 3. The roads of international importance intersect in the West of Cherkasy region *(highways E-95 and E-50)* 4. Availability of river ports 5. Availability of industrial zones for investment 6. Powerful sector of primary processing of agricultural products and production of food and beverages 7. Development of innovative technologies in the field of plant protection 8. Availability of the IT sector in the regional economy 9. Availability of medical institutions that use modern medical equipment and innovative methods of treatment *(Cardiology Center, screening centers "Woman's Health", Perinatal Center, intensive care wards for hemoblastosis)* 10. LEGO robotics kits are used in educational institutions 11. STEM Education Training Center available 12. Availability of a significant number of historical and cultural heritage objects and recreational aries 13. An increasing number of events that take place in the tourist centers of the region	1. Low level of provision of urban planning documentation at the regional and local level; low level of application of geoinformation technologies, as well as public awareness of their capabilities 2. Significant percentage of degraded and unproductive land 3. Weak logistics links, insufficiently developed transport communication with other regions, which negatively affects the investment climate of the region 4. Unsatisfactory condition of the public road network *(road surface, signs and marking)* 5. Small percentage of electrified railways *(in particular, non-electrified railway entrances to Cherkasy and Uman cities)* 6. Low level of Internet and cellular coverage in rural areas 7. Worn-out state of housing and communal services and social infrastructure facilities 8. Unfauvorable age and social structure of the population in rural areas 9. Labor migration of qualified personnel, including abroad 10. Low innovation activity of the economic complex 11. Low level of cooperation between science and the economic complex; poorly developed base for scientific and research activities 12. Low level of institutional and infrastructural support for entrepreneurship 13. Low export activity of business entities 14. Weak institutional capacity of local self-government bodies *(staffing, quality of personnel training)* 15. Small number of modern tourist facilities with a full range of meeting the needs of tourists 16. Weak promotion of the region in Ukraine

	and in the world 17. The hydrological regime and sanitary condition of the water bodies need to be improved 18. No comprehensive approaches to waste management; overloading of local solid waste landfills
Opportunities	**Threats**
1. Development of alternative energy in the world 2. Growing global food demand 3. Growing demand for niche products and circular economy products in Europe and America 4. Improving business conditions in Ukraine 5. Implementation of the Deep and Comprehensive Free Trade Area Agreement with the EU *(DCFTA)* 6. Growing demand for information and communication technologies *(ICTs)* in Ukraine and around the world 7. Decentralization of power in Ukraine 8. Activities of international assistance projects that will support reforms in Ukraine 9. Growing popularity of tourism in Ukraine and in the world *(in particular, green tourism and outdoor activities)*	1. Deployment of military operations in the Eastern Ukraine 2. Global economic recession 3. Price fluctuations in global energy markets 4. Rising of consumer prices 5. High cost of loan funds in Ukraine 6. Instability of the national currency exchange rate 7. Deepening the sector of shadow economy 8. Migration of the population *(including youths)* outside the region and abroad 9. Curtailment or inefficiency of reforms in Ukraine 10. Deterioration of climate and environment in the world 11. Breaking the traditional chains of the global economy as a result of a global pandemic/epidemic

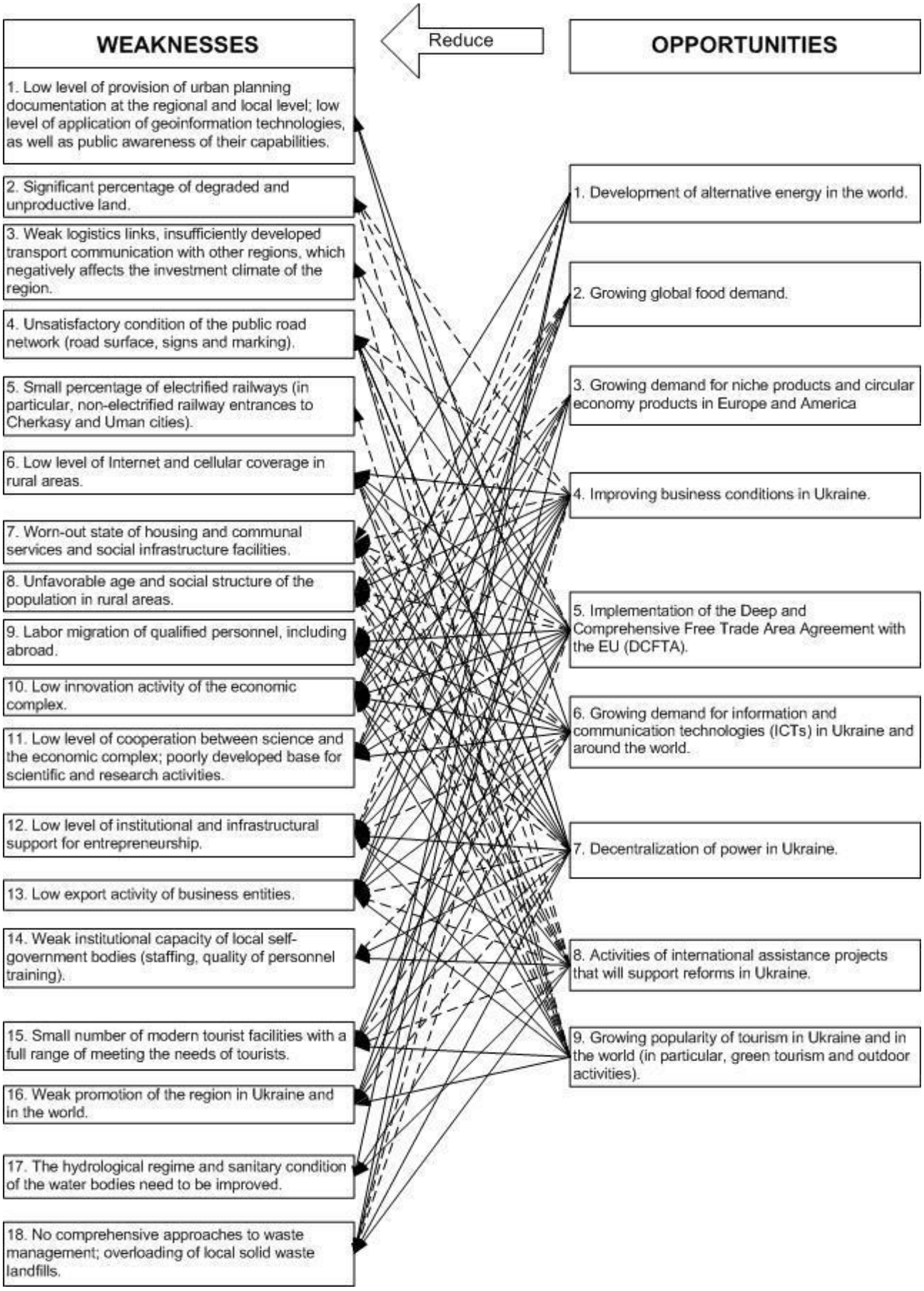
4.2. SWOT-matrix of Cherkasy region

SWOT-matrix allows to identify relationships between internal *(strengths and weaknesses)* and external *(opportunities and threats)* factors that are of strategic importance for Cherkasy region. A solid line represents a strong relationship, while a dashed line represents a weak one. These relationships allow to formulate comparative advantages, challenges and risks that are the basis for strategic choice - the formulation of strategic and operational goals for the development of the region in the long term.

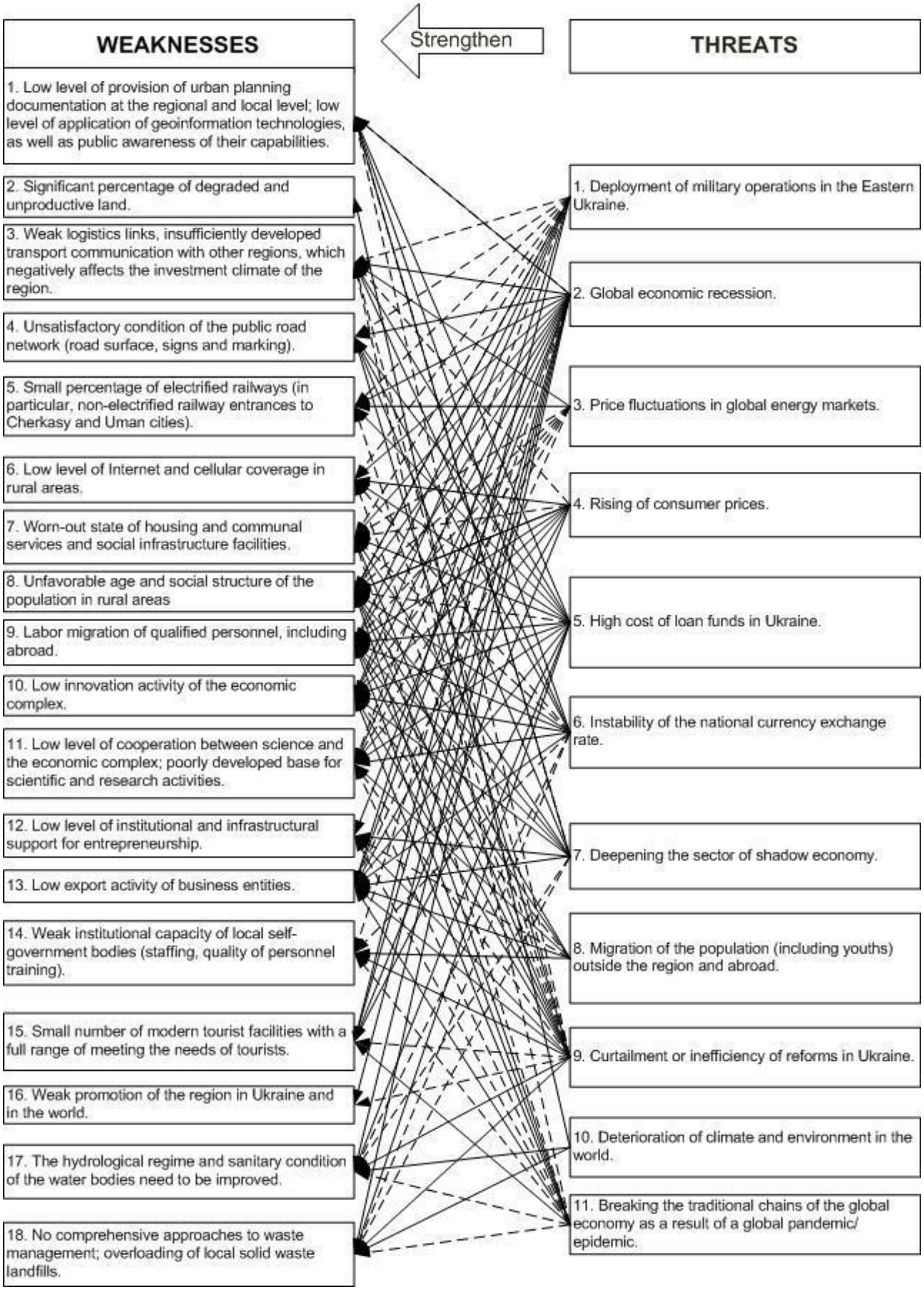
Comparative advantages



Challenges


WEAKNESSES
Reduce
OPPORTUNITIES
1. Low level of provision of urban planning documentation at the regional and local level; low level of application of geoinformation technologies, as well as public awareness of their capabilities.
2. Significant percentage of degraded and unproductive land.
3. Weak logistics links, insufficiently developed transport communication with other regions, which negatively affects the investment climate of the region.
4. Unsatisfactory condition of the public road network (road surface, signs and marking).
5. Small percentage of electrified railways (in particular, non-electrified railway entrances to Cherkasy and Uman cities).
6. Low level of Internet and cellular coverage in rural areas.
7. Worn-out state of housing and communal services and social infrastructure facilities.
8. Unfavorable age and social structure of the population in rural areas.
9. Labor migration of qualified personnel, including abroad.
10. Low innovation activity of the economic complex.
11. Low level of cooperation between science and the economic complex; poorly developed base for scientific and research activities.
12. Low level of institutional and infrastructural support for entrepreneurship.
13. Low export activity of business entities.
14. Weak institutional capacity of local self-government bodies (staffing, quality of personnel training).
15. Small number of modern tourist facilities with a full range of meeting the needs of tourists.
16. Weak promotion of the region in Ukraine and in the world.
17. The hydrological regime and sanitary condition of the water bodies need to be improved.
18. No comprehensive approaches to waste management; overloading of local solid waste landfills.
1. Development of alternative energy in the world.
2. Growing global food demand.
3. Growing demand for niche products and circular economy products in Europe and America
4. Improving business conditions in Ukraine.
5. Implementation of the Deep and Comprehensive Free Trade Area Agreement with the EU (DCFTA).
6. Growing demand for information and communication technologies (ICTs) in Ukraine and around the world.
7. Decentralization of power in Ukraine.
8. Activities of international assistance projects that will support reforms in Ukraine.
9. Growing popularity of tourism in Ukraine and in the world (in particular, green tourism and outdoor activities).

Risks


WEAKNESSES
Strengthen
THREATS
1. Low level of provision of urban planning documentation at the regional and local level; low level of application of geoinformation technologies, as well as public awareness of their capabilities.
2. Significant percentage of degraded and unproductive land.
3. Weak logistics links, insufficiently developed transport communication with other regions, which negatively affects the investment climate of the region.
4. Unsatisfactory condition of the public road network (road surface, signs and marking).
5. Small percentage of electrified railways (in particular, non-electrified railway entrances to Cherkasy and Uman cities).
6. Low level of Internet and cellular coverage in rural areas.
7. Worn-out state of housing and communal services and social infrastructure facilities.
8. Unfavorable age and social structure of the population in rural areas
9. Labor migration of qualified personnel, including abroad.
10. Low innovation activity of the economic complex.
11. Low level of cooperation between science and the economic complex; poorly developed base for scientific and research activities.
12. Low level of institutional and infrastructural support for entrepreneurship.
13. Low export activity of business entities.
14. Weak institutional capacity of local self-government bodies (staffing, quality of personnel training).
15. Small number of modern tourist facilities with a full range of meeting the needs of tourists.
16. Weak promotion of the region in Ukraine and in the world.
17. The hydrological regime and sanitary condition of the water bodies need to be improved.
18. No comprehensive approaches to waste management; overloading of local solid waste landfills.
1. Deployment of military operations in the Eastern Ukraine.
2. Global economic recession.
3. Price fluctuations in global energy markets.
4. Rising of consumer prices.
5. High cost of loan funds in Ukraine.
6. Instability of the national currency exchange rate.
7. Deepening the sector of shadow economy.
8. Migration of the population (including youths) outside the region and abroad.
9. Curtailment or inefficiency of reforms in Ukraine.
10. Deterioration of climate and environment in the world.
11. Breaking the traditional chains of the global economy as a result of a global pandemic/ epidemic.

4.3. Comparative advantages, challenges and risks of the region

Comparative advantages
(defined as a result of an analysis of strengths and opportunities)

- The availability of favorable natural and climatic conditions for growing agricultural products and industrial zones for investment, a strong sector of primary processing of agricultural products, food and beverage production, are comparative advantages in terms of projected growth in global demand for food *(particularly niche food)* and active cooperation with European Union *(implementation of a free trade agreement with the EU)*.

- Cherkasy region has a significant number of historical and cultural heritage sites and recreational areas, and the number of events and activities that take place in tourist centers is growing in the region, that is amplified by the growing popularity of tourism in Ukraine and in the world, decentralization reform and improving conditions of doing business in Ukraine.

- Ukraine has a practical chance to benefit from the free trade agreement with the European Union. Cherkasy region is located at the intersection of transport corridors, there are river ports on its territory. The location of the region in the Center of Ukraine is a comparative advantage in involving the region into the formation and transit of international and interregional flows of goods and services or the use of the strength of transport accessibility in the tourism industry. Improving the business environment in the country contributes to these benefits as well.

- The availability of raw material base of agricultural sector waste, as well as mineral reserves provides opportunities for the development of alternative energy and energy production from renewable sources *(construction of solar power plants, cogeneration plants, resumption of small hydropower plants, etc.)*.

- Decentralization of power in the country and the activities of international aid projects that support reforms, increasing demand for information and communication technology directly affect and support such strengths of the region as: the availability of medical facilities using modern medical equipment and innovative treatments, the use of LEGO robotics in educational institutions and the presence of the STEM Education Training Center.

Challenges
(defined as a result of the analysis of weaknesses and opportunities)

- Taking into account the favorable natural and climatic conditions for agriculture and the developed food and beverage sector, Cherkasy region is able to reduce a number of negative trends due to growing global demand for food products *(which include niche production as well) (particularly in Europe and America)*. This can stimulate agricultural producers to introduce innovative technologies and strengthen cooperation with scientific institutions in the area of research in the agro-industrial sector *(including plant protection)*, as well as strengthen the export activity of enterprises.

- The introduction of innovations by economic entities and the increase of export activity will also be facilitated by the improvement of business conditions in Ukraine and the implementation of the Agreement on Deep and comprehensive free trade area with the EU. In addition, the development of small and medium-sized enterprises *(including in rural areas)* will allow to equalize disparities in living standards, reduce the outflow of qualified personnel *(as there will be more opportunities to start a business in their own place of residence)*, and improve the infrastructure of local communities thanks to the financial income and the use of sponsorship funds. The catalyst for business development with an innovative component should

be the growing demand for information and communication technologies in Ukraine and the world.

- Decentralization of power in Ukraine is one of the key factors in leveling the imbalance in the development of territories and strengthening the financial capacity of communities. The possibility of access of the territorial communities to additional financial resources creates favorable conditions for infrastructure development *(reconstruction of highways, expansion of Internet and mobile communication, construction and reconstruction of social infrastructure and housing)*, strengthening of institutional and infrastructural support of entrepreneurship *(in particular through the establishment of Entrepreneurship Support Centers, competitions for grants)*, partial solution of environmental problems *(introduction of separate collection of solid waste, measures to improve the hydrological regime and sanitation of rivers)*. The process of voluntary association of territorial communities created a need to increase the institutional capacity of local governments.

- The growing popularity of tourism in Ukraine and the world *(including green tourism and active recreation)* can positively affect the solution of problematic issues of socio-economic development of the region through the use of significant tourist potential of the region. In particular, it can stimulate the development of tourist infrastructure that would fully meet the needs of tourists; stimulate starting a business in the field of tourism and expanding the activities of existing tourism businesses, as well as partially contribute to the development of community infrastructure *(including repair of local roads)*. An important factor in the successful promotion of tourism potential is the formation of the tourist brand of the region.

Risks
(identified as a result of the analysis of weaknesses and threats)

- The threat of recession in the world economy reinforces most of the already weak sides of Cherkasy region. The technological level and competitiveness of enterprise products may deteriorate due to the impairment of the investment climate, including due to weak logistics links, underdeveloped transport links of the region with other regions, unsatisfactory condition of roads. The high energy intensity of the region's enterprises creates additional pressure in terms of rising energy prices.

- A significant problem of our time is the unfavorable age and social structure of the population in rural areas and labor migration of qualified personnel, including abroad. As a result, the share of young people in the general structure of the population decreases, the percentage of migrants, in particular young professionals, increases; also the "brain drain" takes place. The decision of young people to leave the region is influenced by general negative socio-economic trends in the country *(rising consumer prices, high cost of loans, instability of the national currency, deepening of the shadow economy)*, hostilities in eastern Ukraine, curtailment or ineffectiveness of reforms in Ukraine.

- Innovation is an integral part of the socio-economic and technical progress of any territory. Unfortunately, this aspect is not given enough attention in the economic complex of Cherkasy region. Also in the region there is a low level of cooperation between science and business complex, poorly developed base for scientific and research activities and a low level of institutional and infrastructural support for entrepreneurship. This trend can be seen against the background of general regressive socio-economic processes in the country, as producers are more focused on maintaining existing profits than investing in the latest technological processes in their own production, which in turn leads to low export activity of businesses in the region due to the impossibility of quality competition with foreign goods. In addition, the loss of qualified personnel *("brain drain")* leads to a weakening of the intellectual potential of the region. Another factor that negatively affects the innovative activity of the economic complex of the region is the high cost of loans.

- Problems with waste management may be exacerbated, including storage and processing of chemical plant protection products and other hazardous wastes, reloading of local landfills, local environmental problems *(including flooding, land degradation),* deterioration of hydrological conditions and sanitation of a significant number of water bodies, reducing the efficiency of treatment facilities in the region, etc., which are directly affected by the general negative socio-economic trends in the country, as well as the deterioration of the climatic and environmental situation in the world and the recession of the world economy.

- General unfavorable socio-economic processes, curtailment or ineffectiveness of reforms in Ukraine, migration of the population deepen the already weak points of the region such as: low level of application of geographic information technology, as well as public awareness of its capabilities; low level of provision of urban planning documentation at the regional and local level; wear and tear of housing and communal services and social infrastructure; weak institutional capacity of local governments *(staffing, quality of training).*

- The tourism industry also needs to be strengthened, as the region has a small number of modern tourist facilities with a full range of meeting the needs of tourists.

4.4. Development scenarios of Cherkasy region by 2027

For the formation of socio-economic development scenarios, the key factors are identified that most determine the changes in the environment at the regional level: intraregional factors *(territorial communities formation, prospective demographic situation, intensity of the implementation of SMART-specialization, the size of the shadow economy, etc.)* and external factors *(national trend of economic development, vector of national regional policy, measures to combat corruption and their success, social activity and trust in government, etc.)*.

The division is conditional and carried out in order to determine the long-term dynamics of growth points, identify bottlenecks in the implementation of the Strategy and adjust the degree of achievement of targets. Some of these factors lie in the sphere of influence of local authorities, and therefore may be related to environmental measures. The part belongs to the macro- or global level of influence and provides adaptation measures and tools at the regional, subregional or local level.

The condition for the formation of scenarios is their alternativeness. An important condition is to take into account the principles of SMART-specialization as a tool to increase competitiveness.

The basic scenario of socio-economic development of Cherkasy region

Basic scenario assumptions :

Nationwide level

1. The economic recession of 2020-2021 due to the coronavirus pandemic and the cooling of the world economy *(fall of basic indicators in 2020 with a partial recovery in 2021)* and a gradual return to 2019 level in 2021-2022.

2. The growing demands on the quality of public administration and the need to review a number of previous decisions, as well as the training of new officials at all levels of government.

3. The decentralization vector of the national regional policy is preserved, the relevant funds continue to function to ensure regional development.

4. The continuation of the trend of recent years in the direction of shifting the emphasis in favor of the investment component against the background of continuing processes of increasing consumer activity.

5. Reforms are developed and implemented with an emphasis on technological modernization and systematic innovation policy with the introduction of SMART-specialization, but there is a lack of complexity in the implementation and coordination of tax, budget, customs, structural economic policies.

6. Ukraine's foreign economic relations are expanding and diversifying in the direction of deepening foreign economic relations with the countries of the European Union, America, Asia and Africa *(including India, China, Egypt, etc.)* against the background of stabilizing the situation in the east of the country.

7. Further harmonization of the Ukrainian legislation with the EU standards, introduction of new production standards.

8. Carrying out an active employment policy to accelerate the return of the unemployed to work, reducing the level of informal employment.

9. At the macro level, de-shadowing measures are not comprehensive enough, as a result there is a slow transfer of business to the legal field.

10. Improving the macroeconomic situation and investment climate, deregulation and business development.

11. Priority development of small and medium enterprises in the field of industry and agriculture by simplifying the administrating of taxes, creating conditions for improving access to financial *(credit)* resources and reducing the monopolization of markets.

12. Moderate social reform *(education, health)* within available resources.

13. Intensifying the fight against corruption.

14. Further integration of Ukraine's existing industrial clusters with the European Cluster Collaboration Platform in order to strengthen domestic clusters, to implement best practices used in the EU, to gain access for domestic clusters to the EU support programs *(COSME, Horizon 2020, etc.)*.

15. Priority development of farms and agricultural cooperation by improving the state agricultural policy, institutional environment, organizational and economic mechanism, financial and informational support of farms.

16. Improving the transport and operational condition of public roads of state importance on major routes, primarily in the directions of international and national transport corridors, on approaches to large cities, roads with the highest traffic intensity in order to make greater use of the logistics potential of Ukraine.

Regional level

1. Considering the national trends, there will be an economic recession in 2020-2021 due to the coronavirus pandemic *(fall of basic indicators in 2020 with partial recovery in 2021)* and a gradual return to the level of 2019 in 2021-2022.

2. The regional authorities have identified and supported strategic sectors of the region's economy, taking into account the impact of negative processes in the world and domestic economy.

3. The main exporting companies are strengthening their positions in European markets, and, at the same time, it leads to a gradual increase in prices for goods produced in the region.

4. The association of the territorial communities of Cherkasy region takes place within the framework of the national course and is completed in time.

5. Ukraine's integration into world trade, restoration of the road transport network, river and air connections strengthen the region's logistics position.

6. Focus on innovative development, maintaining the demand for public procurement in the defence sector contribute to the development of industrial enterprises in the Cherkasy region in the field of military-industrial complex, strengthening their contribution to the creation of a regional product and job creation.

7. The creation of preconditions for the development of small business, entrepreneurship, farms and cooperatives provides additional jobs in the countryside and allow to improve living conditions there.

8. Migration trends remain at the current level, but there is a tendency to reduce the outflow of population to other regions of Ukraine and within the districts of the region, in particular, due to the ban on migration because of the pandemic.

9. The project of construction of the international transport corridor GO Highway *(Gdansk-Odesa)* through Cherkasy region is being implemented.

10. Moderate growth of interest of foreign investors in Cherkasy region.

The basic scenario is implemented under the conditions of a limited system with the coordination of components of economic policy. The concept of state development will be based on technological modernization of the economy and the creation of "growth points". The sequence in solving local innovation issues at the regional level will strengthen the economic stability.

The global recession and the coronavirus pandemic will have a strong impact on development. It will lead to both money laundering from large-scale infrastructure projects, and to a decrease in demand for products produced for both export and domestic consumption. The pressure on the labor market will increase, first due to the influx of migrant workers who have returned from abroad, and then due to their outflow due to the opening of borders.

Despite the ongoing modernization processes, the volume of exports of products and services from Ukraine will yield to the volume of imports due to insufficient competition of domestic products. At the same time, Cherkasy region, due to the increase of agricultural production and the beginning of the implementation of processing, will ensure the accelerated development of exports. An additional factor in the inflow of currency will be money transfers from migrant workers.

The population of Cherkasy region will decrease slowly.

In 2020-2021, socio-economic indicators of the region's development will be lower than in 2019, due to the impact of the economic crisis. Further improvement of the socio-economic environment in Cherkasy region will be slow, in particular due to the influence of the following factors:

- reducing the number of small and medium enterprises;

- the transition of temporary labor migration into an irreversible form, i.e. emigration;

- transition of short-term labor migration to long-term form.

Under the basic scenario, there will still be the shortage of human resources at the regional level. The shortage of workers will increase the cost of labor, but at the same time will slow down economic growth by reducing the competitiveness of certain sectors of the economy *(which require high skills)*. The limited offer of labor along with the growth of its value can be one of the obstacles to attracting investment in the region.

The focus of state and regional authorities on completing the decentralization reform will help to increase the level of financial security of local executive bodies and local self-government bodies. If territorial communities work for increasing economic self-sufficiency, self-organization, activation of public position, it will be possible to slow down the rate of population departure from both communities and the country.

Stimulating the development of rural settlements together with a comprehensive policy to improve the investment climate will strengthen the agricultural and industrial components of employment, especially in small businesses, farming and cooperatives.

The basis for the development of agriculture in the basic scenario is: the implementation of rational land use *(necessary in the context of limited arable land)*; scientifically substantiated territorial organization of agriculture *(necessary for the formation of cycles of deep processing of raw materials)*; ensuring the quality of food products and their safety *(necessary in the context of sales in the EU markets)*.

The final opening of the land market in 2024 will give impetus to the economic growth not only of the agricultural sector, but also the development of the entire socio-economic field of the region.

Macroeconomic policies for improving the investment climate and innovation development will promote both direct and portfolio investment. Bringing innovative development into the strategic development priorities of Cherkasy region will provide an opportunity to accelerate the processes of creation and development of industrial and technical parks. The search for a solution of the need to create innovative growth poles in the form of business incubators, startup centers, etc. will continue. The development of infrastructure sectors will continue, first of all it will be transport *(including water transport)* and energy, which will be accompanied by attracting investments in these sectors.

At the same time, the complexity of the geopolitical situation and the set of internal crisis factors in Ukraine will divert resources and efforts from a comprehensive focus on growth points. The role of non-productive sectors in providing employment and income of the population will be important. Among the industrial directions, the food industry will continue to dominate *(with an increase in product processing).* Innovatively active enterprises will continue to focus largely on the high-tech engineering sector *(including the military)* and energy. It will be possible to achieve partially the introduction of new facilities for processing meat and dairy products, vegetables and fruits. In these areas, despite technological modernization, there will be medium-tech innovations.

Geographically, Cherkasy is planned to become the largest industrial hub with further specialization in food production, machine-building, light and chemical industries. The specialization of Uman industrial hub will be in mechanical engineering and agriculture with an emphasis on products processing *(food industry).* Due to the concentration of human resources, trade and service sector *(catering establishments, education, health and tourism*) will be developing in these two cities.

The implementation of the initiated programs of support of rural territories, together with the formation of territorial communities and repair of roads, will partially ensure the overcoming of disproportions in the socio-economic development of the territories of Cherkasy region. The main growth points that will have an effect on rural settlements during the implementation of the Strategy will be: agricultural business *(subject to streamlining of agricultural holdings)*, small business, cooperatives and farming, tourism and recreation. However, in addition, basis will be set for the formation of processing and tourism clusters, which will provide local residents with jobs.

An important task in the basic scenario is to launch work to attract investment into the construction of recreational complexes in rural areas, the restoration of historical and cultural monuments, recreational and tourist facilities.

The potential of the transport and geographical position of Cherkasy region will be realized through the development of infrastructure *(transport, warehousing, logistics)* within the international transport corridors "Baltic Sea - Black Sea", Cretan-9 and potential GO Highway *(Gdansk-Odesa)*.

Moderate reforms in health and education will continue. Reducing corruption will increase the confidence of citizens and businesses in state institutions and their involvement in decision-making. The initiated structural, investment and innovation reforms will create impulses for further sustainable development.

The main indicators that characterize the development of the region in the basic scenario imply the achievement of the forecast values of socio-economic development of Cherkasy region, set in this Strategy. The level of the shadow economy is 30-35% of official GDP.

Inertial scenario of socio-economic development of Cherkasy region

Basic scenario assumptions:

Nationwide level

1. The consequences of the coronavirus pandemic will lead to a recession in the world economy and a significant slowdown in economic activity in Ukraine. The economic crisis will have a very serious impact on the domestic economy: the fall in GDP will be at the level of 2008, inflation will be measured in double digits, unemployment will be 10-12%.

2. There is a slowdown in transformation, possible drivers of the economy are not used.

3. Slumping prices in world energy markets do not affect the domestic economy.

4. Economic policy measures are characterized by insufficient systematization.

Regional level

1. The growth rate of export of products produced in the region is declining; export is provided almost exclusively by agro-industrial complex.

2. The effects of the coronavirus pandemic will increase unemployment and labor migration abroad.

3. The creation of territorial communities of Cherkasy region is on the own initiative of local governments, which already have the potential to fill budgets. Freezing of the decentralization process is probable.

4. There is a further deterioration of the situation with the water supply of settlements, there is drying and / or siltation of some water sources.

5. Lack of planned crop rotation leads to depletion of the region's lands and deterioration of fertility; yields are either reduced or maintained by increasing the application of chemical fertilizers, which leads to a deterioration of the overall environmental situation.

6. Intensification of migration processes from the region.

7. Modernization of industrial production is almost non-existent *(exception is the food industry)*.

The fall of the economy will lead to lower living standards. In the medium term, the imbalance of the entire socio-economic system will begin.

Further development of the military conflict in eastern Ukraine will limit the inflow of investment into the economy and hinder its modernization. The growing lag of the scientific and technological component of the industrial and related fields, with the simultaneous outpacing growth of social standards, will lead to a deterioration of the economic situation and the strengthening of migration processes from the Cherkasy region. The region will have the main losses among the active part of the population and highly skilled workers.

Depopulation will primarily affect rural areas, where there is no quality infrastructure and areas of employment. In Cherkasy region there will be a significant increase in the level of demographic burden on the working age population. However, increasing the pension burden on the budget will be a national trend in general. At the same time, irreversible migration from the region will lead to a reduction in the volume of money transfers of "workers", as a result - consumer demand will reduce.

The low version of the demographic forecast for Cherkasy region provides a gradual decline in population at a rate of 0.4% to 0.7% per year. Therefore, the expected population of Cherkasy region at the end of 2027 will be 1.135 million people.

The inertial scenario envisages a slowdown in administrative-territorial reform.

The incompleteness of decentralization reform will serve as an additional argument for increasing migration flows from rural communities to cities *(including to other regions)* and abroad.

Point rural development measures that are implemented exclusively at the regional level and will not have national support will be ineffective under the inertial scenario. Under such conditions, it should be kept in mind that the positive effects for rural areas may bring additional flows of tourists and reduce the time of local residents to get to work *(if they are available at least in district centers)*. Both tasks are solved by improving the transport infrastructure, repairing the road surface and building roads. However, these decisions seem unlikely due to limited financial resources.

The area of tourism and recreation will become unsolicited due to the lack of financial opportunities of the local population and the loss of interest to Ukraine by foreign tourists. The functioning of the sector will be due to the partial further realization of the potential of historical places and cultural heritage, health facilities, ski resort, water and rural green tourism.

The share of the agricultural sector in the region's GRP will increase slightly in the first 3-5 years, due to lower industrial and energy performance. The tendency to reduce the role of the latter two will begin to intensify at the end of the forecast period due to the development of available resources and the lack of proper modernization.

The final opening of the land market in 2024 may strengthen the existing large land monopolies of agricultural holdings, which in turn may put pressure on the further development of rural areas.

Trade volumes will decline slowly, and in some industries may even increase. In the medium term, there is a threat of reduction in agricultural production due to reduced product quality and / or yield. Therefore, the role of these sectors of the economy in the formation of income of the population and effective demand in the Cherkasy region in the first half of the forecast period will be significant, but then it may begin to decline.

In case of implementation of the scenario of chaotic and unsystematic application of the instruments of state regulation, fragmentary changes of the tax legislation will take place, the practice of disregarding innovative progress at the program-target method will continue. If local authorities under such conditions focus on solving current problems and supporting measures, without focusing on strategic directions and long-term goals, the opportunity to launch the potential of "growth points" of Cherkasy region in the planning time horizon will be lost.

The combination of the described economic policy with simultaneous fatigue of the population from changes in the state and increase of the general indifference of the population is threatening. This will prevent the formation of conditions for the development and diversification of the structure of the region's economy and the launch of private initiatives.

The structure of industrial production will continue to be dominated by the food industry, which is largely focused on local resources and, in part, toll raw materials. New investments will flow into the non-capital-intensive sectors of the food industry *(based on the processing of agricultural products)*, low-tech woodworking, and the production of construction materials.

Innovatively active industrial enterprises will be further associated with Cherkasy city, Cherkasy district and the cities of Zolotonosha, Kaniv and Uman.

Migration processes under the condition of implementation of the inertial scenario will lead to a decrease in scientific and technical potential, there will be no increase in the technological level of the economy. Innovation processes in industry will take place mainly at the expense of own forces and means of the enterprises, first of all those who have the foreign investor, which will be a source of innovations.

The link between agricultural production and the food industry will deepen at a moderate pace in the processing of vegetables, fruits, dairy products and meat.

As a result, the existing potential of Cherkasy region for structural changes in the economy will not be realized, business will continue to be focused on short-term effect and high profitability in the service and trade areas. Already launched processes will allow to maintain unstable growth over the forecast horizon.

In case of signs of an inertial scenario, the main attention of the authorities in Cherkasy region should be focused on the maximum concentration of efforts towards the launch of drivers of the regional economy. The shadow economy remains high.

Optimistic scenario of socio-economic development of Cherkasy regioni

Basic scenario assumptions:

Nationwide level

1. The state's economy will be quite resistant to the global crisis: in 2021, significant growth will begin, and from 2022 the growth trajectory will be higher than that outlined in 2015-2019.

2. Domestic elites will unite in the face of the economic crisis and the coronavirus pandemic and will be able to confront together domestic economic and social problems.

3. Systemic economic reforms are aimed at structural transformations.

4. Completion of the legislative definition of decentralization reform.

5. The policy of de-shadowing the economy and fighting corruption is being successfully implemented.

6. Maximum approximation of Ukrainian legislation to EU legislation by 2025.

7. Ukraine's economy is gaining signs of sustainable development.

8. The conflict in eastern Ukraine is over. Some territories of Donetsk and Luhansk regions and Crimea have been returned to Ukraine.

9. High social activity and support for government action by society.

Regional level

1. The coronavirus pandemic will recede in 2-3 months. Regional elites will unite in the face of the threat of economic crisis and will be able to confront domestic economic and social problems together, which will be supported by loans from international organizations.

2. Reducing the scale of migration from the region.

3. The regional policy of activation of investment streams is carried out.

4. Development of priority areas of the economy on the basis of innovation and SMART-specialization.

5. Sustainable growth of foreign investors' interest in Cherkasy region.

6. Improving the environmental situation by solving certain environmental problems and reducing the negative impact on nature of large enterprises and large agricultural holdings.

7. Getting out of the "shadow" of small and medium-sized businesses.

The onset of an optimistic scenario is possible if comprehensive economic reforms in the country are combined with maximum public support for the government. The economy is being de-shadowing to 20-25% of GDP due to the improvement of the business climate and the formation of an institutional environment for which the shadow economy would become inefficient.

The implementation of the optimistic scenario on the territory of the region requires the synchronization of the systemic national economic policy with the regional policy of investment attraction: development, promotion and implementation of investment and investment-innovation projects. Increasing the number of implemented investment projects will be able to give a multiplier effect for the region.

The high version of the demographic forecast for Cherkasy region implies a gradual population growth of about 0.3-0.4% per year due to natural increase and migration flows to the region from other regions and countries. Therefore, the expected population of Cherkasy region will be - 1 240.0 thousand people in 2027. Improving the socio-economic situation in the country will stabilize the scale of long-term labor migration and reduce short-term migration. It is expected that some migrants will return to the region; also it`s probable that the appearance of migrants from Afro-Asian countries will take place.

Intensifying legislative support for local government reform and deepening decentralization will give communities sufficient powers and resources to ensure a comfortable and prosperous life for people. Therefore, in the time horizon of the Strategy implementation, local development will be fully intensified on the basis of self-organization of territorial communities. Improving social infrastructure in communities will further reduce the migration activity of the population. The idea of pendulum labor migrations between communities of Cherkasy region will be implemented. At the same time, settlements with low resource capacity, weak business activity and weak organizational potential will still suffer demographic losses.

Increased attention to SMART-specialization in the region provides a clear vector for the transformation of economic sectors and the realization of innovation potential. Measures to establish cooperation in the knowledge triangle "Education-Research-Recipients of Innovation" have an effect, which increases the attractiveness and practical orientation of regional higher education and research sector. Accordingly, the scientific and technological potential of the region will be strengthened. As a result, there will be a gradual implementation of European standards in the institutional practice of Cherkasy region.

The locomotive of technological renewal are chemical, pharmaceutical and machine-building enterprises that are able to ensure high social efficiency. High rates of modernization of facilities will also be observed in the food industry, agricultural sector, industries related to the production and distribution of electricity, gas and water, textile production, quarrying.

Investment activity makes possible a full-fledged restructuring of the region's economy on a cluster basis. The role and importance of the field of IT technologies, which are beginning to provide services for both foreign and domestic entrepreneurs, are significantly increasing.

Agriculture focuses on the comprehensive satisfaction of the needs of the region, while maintaining export orientation. Product quality makes it possible to represent actively the region in international markets, expanding the sector of environmentally friendly products and image products associated with tourism. In the context of SMART-specialization, the link between agriculture and the food industry can have a significant effect, which will increase the added value of the final product.

Launching the land reform from 2021 in terms of the sale of land up to 100 hectares of private property will have a positive impact on business development, and the final opening of the land market in 2024 will develop the entire socio-economic field of the region.

The foundations for the formation of a timber cluster based on deep wood processing and increasing the added value of furniture production will be laid.

In addition to the existing areas of health and recreation and tourism, the potential of recreational complexes *(Cherkasy district, former Kaniv district, Uman district, former Chyhyryn*

district, Zvenyhorodka district, former Smila district, former Mankivka district), tourist routes, point individual tourist services, active tourist recreation is realized. The introduction of the concept of solid waste management will increase the tourist attractiveness of the region.

When implementing the scenario, the strong factors of the region will strengthen its transport and communication capabilities through the formation of logistics, warehousing, transport infrastructure along international corridors.

Thus, due to the inflow of investment and improvement of the business climate, there is a reorientation of business to long-term results, technological renewal, and implementation of innovative solutions. The de-shadowing of the economy and the development of financial markets amplify these effects. In case of the signs of an optimistic scenario, the authorities in Cherkasy region should show initiative and organizational efforts to promote the region, attract investment, increase investment activity of existing enterprises, and create conditions for the development of creative economy.

5. STRATEGIC VISION OF REGIONAL DEVELOPMENT

Socio-economic analysis of the region's development shows that despite the existing economic potential of the region, according to some indicators of the social and economic field, which significantly affect the quality of life of citizens, the situation in the region does not fully satisfy the population of the region. Therefore, since the main object of the strategic efforts of regional development is people and their quality of life *(bringing it closer to the European level)*, the expert group decided to form the following strategic vision for the development of the region until 2027:

Strategic vision of development:

Cherkasy region-2027 is the center of Ukrainian identity and food security of Ukraine, with high-tech production, innovative enterprises, modern infrastructure and highly educated people. The center of creative economy development and a famous tourist center, rich in historical and cultural heritage. A region of equal opportunities, comfortable to live in, where everyone wants and has the opportunity to work, to relax and to create the future.

Strategic goals selected on the basis of analysis are a way to achieve a strategic vision. Their definition is due, on the one hand, to the powers of the participants in the preparation and implementation of the Strategy, on the other hand - to the availability of tools of influence.

The strategic vision will be achieved through the implementation of strategic goals:

***Strategic goal* 1**	***Strategic goal* 2**	***Strategic goal* 3**
ECONOMY: high-tech, productive, export-oriented	**PEOPLE: professional, adaptive, cohesive**	**HIGH QUALITY OF LIFE: ecology, safety, infrastructure**

SMART-specialization of the region S.1	**SMART-specialization of the region S.2**
Innovative agricultural technologies, deep processing of agricultural products, high quality food	**Development of IT industry and information and communication technologies**

The selected strategic goals will be implemented through a system of operational goals and objectives.

Implementation of the Regional Development Strategy should help to make its economy more competitive through the inflow of both foreign and domestic investment into promising sectors, stimulating entrepreneurship, human capital development, which will ultimately have a positive impact on increasing the export potential of local producers and development of new markets.

6. STRATEGIC, OPERATIONAL GOALS AND OBJECTIVES

Strategic goals	Operational goals	Objectives
Strategic goal 1 ECONOMY: high-tech, productive, export-oriented	1.1. Development of entrepreneurial initiatives and business ecosystems	1.1.1. Strengthening the development potential of business entities with equal opportunities for men and women
		1.1.2. Creation of tools and mechanisms to support business activities, including financially
		1.1.3. Stimulating the development of the creative economy
		1.1.4. Support and development of niche production in the segment of small and medium agribusiness
	1.2. Internationalization of business	1.2.1. Development of export potential
		1.2.2. Development of investment attraction infrastructure
		1.2.3. Development of tools and mechanisms for attracting investment
	1.3. Marketing and branding of territories	1.3.1. Formation of a positive image of the region
		1.3.2. Creation and promotion of local brands
		1.3.3. Promotion of a local product
	1.4. Development of the innovation sector in the regional economy	1.4.1. Formation of institutional conditions for the development of innovation infrastructure
		1.4.2. Capacity development in innovation activity
		1.4.3. Creation of incentives and tools for the development of scientific and innovative cooperation with the regional economy

SMART-specialization of the region S.1 Innovative agricultural technologies, deep processing of agricultural products, high quality food	S.1.1. Technologies of agricultural products processing	S.1.1.1. Stimulating cooperation and partnership of regional business and science in the field of agricultural processing technologies
		S.1.1.2. Integration of research and innovation in agricultural processing technologies
	S.1.2. Technologies of agricultural products promotion	S.1.2.1. Stimulating cooperation and partnership of regional science and business in the field of agricultural processing products promotion
		S.1.2.2. Integration of research and innovation in the agricultural products promotion
	S.1.3. Food quality and safety	S.1.3.1. Stimulating cooperation and partnership of regional science and business in food technologies
		S.1.3.2. Integration of research and innovation into food technologies for high food quality and safety
SMART-specialization of the region S.2 Development of IT industry and information and communication technologies	S.2.1. Innovations of information and communication technologies in regional economy	S.2.1.1. Stimulating the development of training simulators in combination with technologies of virtual, augmented reality, artificial intelligence and process automation for regional economy
Strategic goal 2 PEOPLE: professional, adaptive, cohesive	2.1. High quality of management staff	2.1.1. Formation of an effective regional development management system
		2.1.2. Improving the professional qualities of local managers
	2.2. Effective education system	2.2.1. Introduction of innovative educational technologies in primary and secondary schools
		2.2.2. Modernization of regional vocational education system
		2.2.3. Introduction of a dual form of education into the higher education sector

		2.2.4. Strengthening the human resources of educational service providers
		2.2.5. Facilitating economic activity and creating new opportunities for development and self-realization of the regional population regardless of gender, age and place of residence
	2.3. Effective health care system	2.3.1. Advanced training of medical staff
		2.3.2. Promotion of a healthy lifestyle
		2.3.3. Introduction of the newest practices and technologies to prevent civilization diseases
	2.4. Strengthening of regional cohesion and interaction	2.4.1. Creating opportunities for cooperation in the fields of education, culture, historical and cultural research
		2.4.2. Stimulating the co-working of territorial communities
		2.4.3. Encouraging community residents to participate in addressing local development issues
		2.4.4. Strengthening the capacity of non-governmental institutions
		2.4.5. Development and support of youth development, sports and cultural initiatives
		2.4.6. Integration of internally displaced persons
Strategic goal 3 HIGH QUALITY OF LIFE: ecology, safety, infrastructure	3.1. Ecological safety and environmental protection	3.1.1. Introduction of complex environmental monitoring systems
		3.1.2. Introduction of modern waste management
		3.1.3. Development of nature reserve fund, preservation of biological and landscape diversity
		3.1.4. Improving the condition of water bodies

	3.2. Safety of the population and territories	3.2.1. Increasing capacity of a region to prevent, respond to and address the consequences of emergencies
		3.2.2. Introduction of modern warning systems and public safety systems
	3.3. Development and modernization of infrastructure	3.3.1. Improving transport accessibility, developing the logistics potential of the region
		3.3.2. Development of digital infrastructure
		3.3.3. Development and modernization of social infrastructure
		3.3.4. Formation of inclusive-oriented space and equal opportunities
		3.3.5. Development of tourist infrastructure, including inclusive-oriented
		3.3.6. Improving the network of administrative service centers at local governments
	3.4. Spatial development and digital transformation of the region	3.4.1. Introduction of modern standards of community development management
		3.4.2. Introduction of electronic tools for open authority and transparency of community resources use
		3.4.3. Introduction of digital technologies

6.1. STRATEGIC GOAL 1. ECONOMY: HIGH-TECH, PRODUCTIVE, EXPORT-ORIENTED

The strategic goal "ECONOMY: high-tech, productive, export-oriented" is a strategic goal aimed at developing entrepreneurship, providing favorable conditions for attracting investment and developing export activities, introducing innovations and strengthening cooperation between the scientific sector and regional economy, promotion of the region.

Achieving the strategic goal is expected through the implementation of 4 operational goals:

OPERATIONAL GOAL 1.1	OPERATIONAL GOAL 1.2	OPERATIONAL GOAL 1.3	OPERATIONAL GOAL 1.4
Development of entrepreneurial initiatives and business ecosystems	Internationalization of business	Marketing and branding of territories	Development of the innovation sector in the regional economy

It is expected that the implementation of strategic goal 1 in the long-term perspective will lead to the following results:

- attracting domestic and foreign investment into the regional economy;
- developed business;
- creation of new jobs;
- expanding export opportunities and opening new markets;
- increasing the popularity of local brands and products;
- strengthening cooperation between scientific institutions and the economic sector in the field of innovation;
- increasing the financial capacity of territorial communities;
- income growth.

OPERATIONAL GOAL 1.1. Development of entrepreneurial initiatives and business ecosystems

An important factor in the economic growth of the region is the development of entrepreneurship as an indicator of economic activity level of the region's residents, on one hand, and the assessment of the business climate in the region, on the other.

Business creates a competitive environment, creates jobs, provides employment and self-employment, supports the development of local economies and markets, provides tax revenues to local budgets.

The share of small enterprises in the total number of enterprises in the region in 2018 reached 94.7% *(including micro-enterprises - 82.1% of the total)*. At the same time, the largest number of employees was in medium-sized enterprises *(55.7%).* By type of economic activity, the largest percentage of employees in 2018 was in industrial enterprises - 38.4%. The volume of products sold by small enterprises amounted to 22.9% of the total volume of products sold by enterprises.

At the same time, the infrastructure of business support is currently underdeveloped in the region. Business entities have very limited access to the financial resources they need to do business. In addition, the problem is the lack of necessary knowledge and skills to start and run a business.

To achieve this operational goal in Cherkasy region, it is planned to strengthen the development potential of business entities by conducting appropriate educational activities, creating tools and mechanisms to support business activities *(including the development of business support infrastructure)*, stimulating the creative economy, and supporting and development of niche production in the segment of small and medium agribusiness.

Expected results:

- increase in the number of business entities;
- expansion of the network of business support infrastructure facilities;
- improving the quality of products produced in the business sector;
- increase in the number of employees of business entities;
- increase in revenues to local budgets from the activities of business entities;
- improving the quality of information and consulting services on starting and running a business to the unemployed.

Indicators:

- dynamics of the number of small and medium enterprises per 10 thousand of population;
- the share of small and medium enterprises in the volume of sold products *(goods, services);*
- number of employees in the small and medium business sector *(including individual entrepreneurs)*;
- number of SMEs certified according to ISO standards;
- dynamics of revenues to the consolidated budget from small businesses;
- the number of operating infrastructure facilities to support entrepreneurship.

OBJECTIVES	Possible areas of implementation of projects and programs
1.1.1. Strengthening the development potential of business entities with equal opportunities for men and women	- Conducting training courses for business, as well as for those who have decided to start their own business; - Educational activities in the field of tax and financial literacy; - Conducting economic thematic forums; - Educational activities in the field of attracting investment for business; - Training in the field of standardization, certification, protection of intellectual property, personal data
1.1.2. Creation of tools and mechanisms to support business activities, including financially	- Establishment of business information points *(BIP)* - Creating a startup school - Creating a business incubator - Creating of project offices, coworking, business incubators, accelerators, clusters, startup ecosystems - Launch of a program for the development of institutional, organizational, marketing, financial and other business support - Arrangement and launch of a modern business support infrastructure in the region
1.1.3. Stimulating the development of the creative economy	- Creating a center for the development of the creative economy - Introduction of interdisciplinary educational programs

	in the field of creative economy - Creating public-private partnerships, involving donors and international organizations for the development of human capital and creative economy in the region - Launch of program of support and development of creative economy - Launch of the annual competition of creative economy - Strengthening the potential of business entities of the creative economy
1.1.4. Support and development of niche production in the segment of small and medium agribusiness	- Support and development of family, craft farms, niche agricultural production - Local programs to support the production of niche products in the segment of small and medium agribusiness - Development and promotion of organic agricultural production - Development of modern infrastructure for production, storage, processing and packaging of niche products in the segment of small and medium agribusiness - Support and development of growing agricultural products indoors, including in greenhouse complexes

OPERATIONAL GOAL 1.2. Internationalization of business

Investment has proved to be a tool of major importance for the economic development, for implementation of new technologies and best practices in the region. This, in its turn, creates pre-conditions for introducing innovative technological processes and manufacturing new products, and, as a consequence, an increase in overall competitiveness of regional economy.

The depreciation of fixed assets at the enterprises in Cherkasy region is very high *(as in the industry it ranges from 40 to 90%)*. Therefore, capital investments are needed to upgrade the fixed assets of enterprises. In terms of capital investment, the region in 2019 ranked the 14th place in Ukraine. The own funds of enterprises and organizations remain the main source of financing the capital investments *(73.1% of the total in 2019)*.

In 2019, foreign direct investment came from non-residents from 44 countries. The main investor countries, which accounted for 87% of total foreign capital, were Belize, Cyprus, Germany, the Czech Republic, France and Spain. The largest volumes of foreign direct investment were concentrated in industrial enterprises - 81.9% of the total.

An important component of entrepreneurial activity, which largely indicates the success of enterprises, is export activity. In 2019, Cherkasy region was characterized by a positive balance in foreign trade of goods. The major share in the commodity structure of exports was presented by vegetable products *(43.5% of total exports)*. The main countries to which Cherkasy region products were exported in 2019 were China, the Netherlands, Germany, India, Spain, and Egypt.

The Cherkasy Regional Development Agency directs its efforts to develop the investment and export activities in the region, supports investors and helps businesses to enter foreign markets. Measures are being taken to enhance the activities of the Industrial Park "Zolotonosha". The regional investment portal "Invest in Cherkasy Region" has been created.

Cherkasy region incorporates free zones of industrial infrastructure that can become a platform for creating new industries with technical and technological renewal of production cycles.

At the same time, we should pay attention to a number of negative factors hindering the flow of investment to Cherkasy region, such as an imperfect and unstable regulatory and legal framework, the low level of investments protection, limitations and the high cost of loan resources, corruption and price risks, the lack of an effective system of investment support, the burdensome tax system.

The above-mentioned factors, as well as insufficient level of economic and innovative development of Cherkasy region amplified by the trends of aggravating general competition for investment resources, dictate the need to increase the investment attractiveness of Cherkasy region, to coordinate the efforts for investment promotion in the region, to design attractive investment offers, to apply a systematic approach in support of identified priority fields for the development of the region. Development of investment infrastructure is also vitally important for increasing the attractiveness of investment projects; the same applies to improving the informative, legal and other aspects of the support provided to investment projects, compiling the city planning documentation.

In order to develop exports and to support investment into regional economy, this operational goal includes trade and economic missions and presentations of the region's economic potential, support for business participation in exhibitions, development of infrastructure, tools and mechanisms for attracting investment.

Expected results:

- improving investment attractiveness of the region;
- systemitizing activities to attract investment in the region;
- developing the investment infrastructure of the region;
- preparing attractive investment products;
- growth of export volumes, increase of export activity of enterprises;
- stimulating allocation of new companies in the region;
- creating new working places.

Indicators

- number of realized investment projects or launched new businesses;
- dynamics of capital investment;
- dynamics of foreign direct investment;
- dynamics of foreign direct investment per capita;
- increasing the number of countries-investors;
- export growth;
- maintaining a positive balance of foreign economic activity;
- increasing the range of countries to which the exports of the region's products and services are made.

OBJECTIVES	Possible areas of implementation of projects and programs
1.2.1. Development of export potential	- Conducting trade and economic missions and presentations of the economic potential of the region - Support for business participation in exhibitions - Conducting an exporter's school

1.2.2. Development of investment attraction infrastructure	- Improving and promoting the network of industrial, technological, science and technology parks in the region - Modernizing the investment portal
1.2.3. Development of tools and mechanisms for attracting investment	- Supporting the regional export and investment support office - Developing the investment passports for territorial communities - Establishing a regional office to support public-private partnership

OPERATIONAL GOAL 1.3. Marketing and branding of territories

The obstacle to the incomes growth of Cherkasy region population, increase of revenues to local budgets and attraction of investments to the region is the insufficient level of promotion of the region at the national and local levels. In particular, this applies to the promotion of products of local producers, as well as the promotion of the tourist product.

Within the framework of this operational goal, measures are envisaged to form a positive image of the region, which includes promoting the brand of Cherkasy region, participation in international exhibitions, creating promos about Cherkasy region, modernization of the region's tourist portal, holding thematic forums. It also implies creating and promotion of local brands at the level of individual territorial communities.

Expected results:

- formation of positive image of the region *(in particular, growth of the image of Cherkasy region as a tourist region)*;
- growing demand for products of Cherkasy region producers;
- promotion of regional tourist brand;
- marketing of the tourist potential;
- growth of tourist flow.

Indicators:

- increase in the number of published promotional products;
- modernized tourist portal of the region;
- the number of measures taken to promote the local product;
- increase in the number of tourists per year;
- volume of provided tourist services;
- increasing the number of publications in the media aimed at promotion of the region.

OBJECTIVES	Possible areas of implementation of projects and programs
1.3.1. Formation of a positive image of the region	- Marketing research of labor, infrastructural, technological, innovative, institutional potential of the region - Campaigns to draw attention to the opportunities of the region *(promotion of the regional brand, modernization of the tourist portal)* - Development and updating the brand book of

	Cherkasy region - Positioning of the region at the national and international levels *(holding thematic forums, participation in international exhibitions)* - The use of marketing communications in promoting the competitive advantages of the region *(creating promotional videos about the region)* - Assessment of the image component of regional development - Identifying problems of forming a positive image of the region
1.3.2. Creation and promotion of local brands	- Implementation of marketing strategies - Informational and marketing products - Development of marketing communications system - Stimulation and development of successful branding campaigns - Involvement of local business into the process of forming and launching brands
1.3.3. Promotion of a local product	- Support and development of campaigns to promote local products - Creating and systematization of databases of regional goods' and services' producers - Information campaigns to promote regional goods and services

OPERATIONAL GOAL 1.4. Development of the innovation sector in the regional economy

One of the key principles of the European SMART-specialization approach is close cooperation of science with the economic sector of the region. In particular, this principle is the formation of business orders for innovative research and development implemented by scientific institutions.

During the period 2013-2018 there was a tendency to increase the cost for research and development. In addition, during this period, industrial enterprises intensified innovational activity. Thus, the share of enterprises engaged in innovation increased from 15% in 2013 to 24.4% in 2017, and the number of introduced new technological processes at industrial enterprises has doubled in 2 years *(15 new processes in 2015, 30 in 2017)*. Besides, during the period 2013-2017, the costs for innovative activities of enterprises increased 4.4 times.

However, despite some positive developments, the cooperation of regional business with the scientific sector in the region is still not active enough. In addition, the regional higher educational and research institutions do not have a sufficiently developed material, technical and personnel base for conducting research and implementation of developments that could be effectively involved in the regional economy sector. There is a problem of staff reduction. Thus, in 2016-2018, the number of employees involved in research and development decreased by 13.3%. The main source of funding for innovation in enterprises are the own funds of these enterprises.

In order to intensify innovation in the region, as well as to strengthen cooperation between business and science, this operational goal implies the formation of institutional conditions for the development of innovation infrastructure, capacity building in innovational

activity, creating incentives and tools for research and innovation cooperation with the regional economy.

Expected results:

- strengthening cooperation between business and the research segment;
- growth of innovative activity of enterprises;
- increasing the material and technical base in research institutions for research and development;
- creating business schools, business hubs at regional higher educational institutions.

Indicators:

- increasing the number of business orders for innovative research and development;
- growth in the share of enterprises engaged in innovation;
- increasing the cost for research and development;
- increasing the number of introduced new technological processes at enterprises;
- increasing the costs for innovative activities of enterprises.

OBJECTIVES	Possible areas of implementation of projects and programs
1.4.1. Formation of institutional conditions for the development of innovation infrastructure	- Stimulating the development of startup incubators, startup accelerators, innovative business hubs at regional higher educational institutions - Organization of the Center for Innovative Technologies, scientific and applied laboratories - Formation and implementation of concepts of science, technology parks, science and technology parks, clusters - Formation of innovative infrastructure for the development of food technologies and agricultural products market *(food technology center, agricultural and logistics center, agricultural technology park, agro incubators, etc.)*
1.4.2. Capacity development in innovation activity	- Promotion of cluster cooperation in the environment of small and medium business and research segment - Monitoring and evaluation of the innovative potential of the economy of cities and the region - Monitoring and assessment of the innovation potential of enterprises in the real sector of regional economy - Creating conditions and stimulating the transfer of scientific knowledge to regional economy *(commercialization of scientific product, innovations)* - Creating conditions for the formation of small and medium science-intensive and technological business - Introduction of the regional program of orders of branch scientific researches, design and technological works which will contribute to solving scientific and technical, social and economic, ecological problems at regional, branch levels - Technology and marketing of innovative projects promotion - Financial and grant support for projects, including

	youth`s ones, at the stage of making prototypes - Participation of regional innovation projects, inventions, developments and technologies in Ukrainian innovation forums, exhibitions, etc.
1.4.3. Creation of incentives and tools for the development of scientific and innovative cooperation with the regional economy	- Holding an annual regional forum of innovations, innovative technologies - Launch and holding of the annual regional competition of innovative projects - "Innovator of Cherkasy region" - Support and development of cooperation between research centers and local business associations, initiatives - Development and implementation of joint, partnership innovation projects with the participation of scientific and business initiatives, including at the expence of international technical assistance

6.2 SMART-SPECIALIZATION OF THE REGION S.1: INNOVATIVE AGRICULTURAL TECHNOLOGIES, DEEP PROCESSING OF AGRICULTURAL PRODUCTS, HIGH QUALITY FOOD

Achieving this area of SMART-specialization is expected through the implementation of 3 operational goals:

Operational goal S.1.1	Operational goal S.1.2	Operational goal S.1.3
Technologies of agricultural products processing	Technologies of agricultural products promotion	Food quality and safety

OPERATIONAL GOAL S.1.1. Technologies of agricultural products processing

Agricultural production is one of the most important activities of economic entities in Cherkasy region. Agricultural lands make up 71.1% of the total area of the Cherkasy region. Cherkasy region in 2018 took the 2nd place in the production of agricultural products per capita. In the structure of gross value added of Cherkasy region in 2018, agriculture, forestry and fisheries accounted for 23.2%.

Thus, the region has a strong base for agricultural production.

At the same time, the problem is that the commodity structure of exports is inefficient and focused on raw materials. Thus, in 2019, products of plant origin accounted for 43.5%, fats and oils of animal or vegetable origin - 25.5%, live animals *(products of animal origin)* - 5.6%, and finished foods only 8.6%.

Stimulation of deep processing of products in Cherkasy region will significantly improve the commodity structure of exports, increase the volume of export foreign exchange earnings, increase the level of income of the population and the amount of taxes paid by businesses.

Improving technologies for deep processing of agricultural products can be achieved only with effective cooperation and partnership of regional business and science.

This operational goal will be aimed at stimulating cooperation and partnership between regional business and science, as well as the integration of research and innovation into the technology of deep agricultural products processing**.**

Expected results:

- increasing the number of research laboratories;
- intensification of work of scientific centers and scientific parks;
- strengthening cooperation between business and science in the field of deep processing of agricultural products;
- strengthening the role of business in the life of scientific and educational institutions;
- growing business interest in conducting scientific competitions for scientists and researchers;
- intensification of scientific activity, creating new technologies, obtaining scientific patents in the field of deep processing of agricultural products;
- development and implementation of business and science partnership projects in the field of deep processing of agricultural products.

Indicators:

- dynamics of the number of scientific laboratories;
- number of scientific centers and scientific parks;
- number of scientists and researchers in the field of deep processing of agricultural products;
- number of scientific competitions for scientists and researchers in the field of agricultural processing;
- the amount of grants from businesses for research and development in the field of deep processing of agricultural products;
- list of new innovative technologies *(obtaining patents)* for processing agricultural products;
- number of experimental productions, departments and laboratories at production enterprises;
- number of developed and implemented partnership projects of business and science in the field of deep processing of agricultural products.

OBJECTIVES	Possible areas of implementation of projects and programs
S.1.1.1. Stimulating cooperation and partnership of regional business and science in the field of agricultural processing technologies	- Creating scientific laboratories - Creating scientific centers and scientific parks - Formation of coordinational, scientific and business platforms - Conducting scientific competitions for scientists and researchers - Creating conditions for attracting resources into the field of research and development, including through co-financing funds, investment funds, etc. - Development of innovative technologies
S.1.1.2. Integration of research and innovation in agricultural processing technologies	- Creating experimental productions - Creating scientific departments and laboratories at industrial enterprises - Introduction of the newest technologies at the operating industrial enterprises - Increasing the production of deep processing products and high added value - Creating waste-free productions

OPERATIONAL GOAL S.1.2. Technologies of agricultural products promotion

In Cherkasy region there is a strong base for agricultural production. However, today, an even more important issue for businesses, in addition to production, is the issue of sales, or promotion, both in domestic and foreign markets.

In this aspect, the issues of effective management of production and processing of agricultural products, logistics, development of modern marketing strategies, technology and tools to promote such products, design technology, branding, environmental friendliness come to the fore. In particular, the role of communication between producers and consumers is growing, including through modern online tools.

This operational goal will be aimed at stimulating cooperation and partnership between science and business of the region in the field of technologies of processed agricultural products

promotion, as well as the integration of research and innovation into the technology for the promotion of agricultural products.

Expected results:

- increasing the number of scientific centers;
- formation of coordinational, scientific and business platforms for the promotion of processed products of agricultural origin;
- strengthening cooperation between business and science in the field of promotion of agricultural products, strengthening the role of business in the life of scientific and educational institutions;
- conducting scientific competitions for students, scientists and researchers on the management of production and processing of agricultural products, organic products;
- providing grants from businesses for research and development on marketing strategies, technologies and tools for the promotion of agricultural products, including organic;
- intensification of scientific activity on the development of new innovative technologies for the promotion of agricultural products.

Indicators:

- number of scientific centers;
- number of scientists and researchers in the field of agricultural promotion;
- number of scientific competitions for scientists and researchers in the field of agricultural promotion;
- the amount of grants from businesses for research and development in the field of agricultural promotion;
- list of new innovative technologies in the field of promotion of agricultural products;
- number of experimental productions;
- number of economic entities engaged in the production of organic agricultural products;
- volumes of production and sales of agricultural products, including organic;
- the number of newly created jobs in the production of finished agricultural products, including organic.

OBJECTIVES	Possible areas of implementation of projects and programs
S.1.2.1. Stimulating cooperation and partnership of regional science and business in the field of agricultural processing products promotion	- Creating research centers - Formation of coordinational, scientific and business platforms for the promotion of processed products of agricultural origin - Conducting scientific competitions for students, scientists and researchers on the management of production and processing of agricultural products - Creating conditions for attracting resources into the field of research and development on marketing strategies, technologies and tools for the promotion of agricultural products, including through co-financing funds, investment funds, etc.
S.1.2.2. Integration of research and innovation in the agricultural products promotion	- Development of innovative technologies for the promotion of agricultural products - Innovation and research in the following areas: management in production and processing of agricultural products - Marketing technologies for the promotion of organic

	products - Technologies for the promotion of agricultural products *(design, branding, environmental friendliness)* - Modern technologies for packaging of agricultural and organic products - Communication with consumers of agricultural and organic products - Logistics and modern online tools for the promotion of agricultural and organic products

OPERATIONAL GOAL S.1.3. Food quality and safety

The JRC *(Joint Research Center)* project analyzed statistics to reflect the economic and innovation potential of each region of Ukraine. Based on them, the report "Reflection of economic and innovation potential of Cherkasy region" was prepared.

According to the presented report, the areas of SMART-specialization *(according to the CEA)* can be: beverage production; processing and canning of fish, crustaceans and mollusks *(these are areas related to food production)*. Considering that agriculture, deep processing of agricultural products *(including ready-made food products)* are also important for the region, the role of food quality and safety comes to the fore.

In addition, innovative food technologies, high quality and safety of food products produced in the Cherkasy region will significantly facilitate the promotion of such products in both domestic and foreign markets.

This operational goal will be aimed at fostering cooperation and partnership between science and business of the region in food technology, as well as the integration of research and innovation into the food technology for the sake of high food quality and safety.

Expected results:

- increase of scientific laboratories, centers on food quality and safety;
- creating coordinational, scientific and business platforms and councils for cooperation on food quality and safety;
- strengthening cooperation between business and science in research and innovation in food technology, as well as food quality and safety;
- growing interest of business and science in attracting grant resources into the field of food quality and safety;
- strengthening business interest in providing grants for research and development of food technologies, quality and safety of food products;
- growing business interest in research and development of food technologies;
- creating experimental productions, laboratories at industrial enterprises;
- growth of high quality food production;
- development and implementation of business and science partnership grant projects in the field of food quality and safety.

Indicators:

- number of scientific laboratories, centers for food quality and safety;
- number of coordinational, scientific and business platforms and councils for cooperation on food quality and safety;
- number of scientific competitions on food quality and safety;
- the amount of grants provided by businesses for research and development of food

technologies, quality and safety of food products;

- list of new innovative food technologies *(obtaining patents)* introduced in production;
- number of experimental productions, laboratories at production enterprises;
- volume of high quality food production;
- number of developed and implemented business and science partnership projects in the field of food quality and safety.

OBJECTIVES	**Possible areas of implementation of projects and programs**
S.1.3.1. Stimulating cooperation and partnership of regional science and business in food technologies	- Establishment of scientific laboratories, centers for food quality and safety - Establishment of coordinational, scientific and business platforms and councils for cooperation on food quality and safety - Conducting scientific competitions on food quality and safety - Creating conditions for attracting resources in the field of research and development of food technologies, quality and safety of food products, including through co-financing funds, investment funds, etc. - Development of innovative food technologies
S.1.3.2. Integration of research and innovation into food technologies for high food quality and safety	- Creating scientific departments and laboratories at industrial enterprises - Creating experimental productions - Introduction of the newest food technologies at the operating industrial enterprises - Increasing the production of food of high quality and safety

6.3 SMART-SPECIALIZATION OF THE REGION S.2: DEVELOPMENT OF IT INDUSTRY AND INFORMATION AND COMMUNICATION TECHNOLOGIES

Achieving the strategic goal is expected through the implementation of 1 operational goal:

Operational goal S.2.1
Innovations of information and communication technologies in regional economy

OPERATIONAL GOAL S.2.1. Innovations of information and communication technologies in regional economy

One of the most dynamic sectors of economy and business is the IT sector. Thus, according to the Ukrainian IT company N-iX, the IT market of Ukraine 2019-2020 is an industry worth $5 billion and 200 000 specialists. Information and communication technologies rank third in terms of export of services with a share of 20% of all Ukrainian service exports; the Ukrainian IT sector is growing by about 26% annually; there are approximately 4 000 IT companies on the market; about 1 600 service IT companies operate in Ukraine; the number of IT specialists exceeded 185 000 in 2018.

The development of the IT industry and information and communication technologies is characterized by a number of the following positions. More than 60% of all IT professionals are employed in outsourced IT companies. Ukrainian outsourcers cooperate mainly with US companies *(81% of all clients)*. These can be both startups at the stage of bootstrapping, and tech giants. Among the latest in the portfolio of Ukrainian outsourcers are Cisco, IBM, Atlassian, Travelport, OpenText, Fluke Corporation and others. Often, outsourcing teams that work for Western clients grow into full-fledged development centers *(rarely go under the brand)* for their clients.

The IT labor market is growing at an appropriate rate. In 2018, the number of vacancies on the Ukrainian portal DOU *(dou.ua)* increased from 3,000 to 4,500 per month. The number of employers increased by 38% - from 2400 to 3 300. The most in demand were specialists in Front-end, QA and PHP, which accounted for 31% of all vacancies. Ukrainian IT companies are actively increasing their staff. Last year, employers in the top 50 were twice as active as before in opening new offices. The most popular locations were Kyiv, Lviv and Rivne.

In Cherkasy region there is a base for the development of the IT industry and information and communication technologies. This is the presence of powerful educational institutions *(Cherkasy National Bohdan Khmelnytsky University, Cherkasy State Technological University, etc.)* that train future IT professionals, the presence of IT companies and their associations. For example, Cherkasy IT Cluster, which now brings together 13 IT companies from Cherkasy, actively cooperates with higher educational institutions, teaches and employs students.

This operational goal will be aimed at stimulating the development of training simulators in combination with technologies of virtual, augmented reality, artificial intelligence and process automation for regional economy.

Expected results:

- increasing the number of IT centers, laboratories and scientific parks;
- intensification of scientific and business IT platforms for cooperation and new developments;
- strengthening cooperation between business and science in the field of information and

communication technologies;

- strengthening the role of business in the life of scientific and educational institutions in the field of information and communication technologies;
- growing business interest in providing grants for development in the field of information and communication technologies;
- growing interest of business and science in attracting grant resources for developments in the field of information and communication technologies;
- intensification of scientific and practical activities, creating new technologies, obtaining scientific patents in the field of information and communication technologies;
- introduction of new information and communication technologies, including into regional economy.

Indicators:

- dynamics of the number of IT centers, laboratories and scientific parks;
- number of scientific and business IT platforms for cooperation and new developments;
- the number of information and computer departments in higher educational institutions and the number of students studying in the relevant field;
- number of scientists and researchers in the field of information and communication technologies;
- number of competitions for students, scientists and researchers in the field of information and communication technologies;
- the amount of grants from businesses for development in the field of information and communication technologies;
- number of developed and implemented business and science partnership projects in the field of information and communication technologies;
- list of new innovative information and communication technologies *(obtaining patents)* implemented in practice.

OBJECTIVES	Possible areas of implementation of projects and programs
S.2.1.1. Stimulating the development of training simulators in combination with technologies of virtual, augmented reality, artificial intelligence and process automation for regional economy	- Creating scientific IT centers, laboratories and scientific parks - Formation of scientific and business IT platforms for cooperation and new developments - Education and training for work in the IT industry - Conducting competitions for students, scientists and researchers in the field of information and communication technologies - Creating conditions for attracting resources into research and development in the field of information and communication technologies, including through co-financing funds, investment funds, etc. - Development of new information and communication technologies - Introduction of new information and communication technologies, including into regional economy

6.4. STRATEGIC GOAL 2. PEOPLE: PROFESSIONAL, ADAPTIVE, COHESIVE

Human capital is one of the most important factors in accelerating economic development. In developed countries much attention is currently paid to the training of highly qualified personnel and cohesion of communities for solving local development issues.

The strategic goal "PEOPLE: professional, adaptive, cohesive" is a strategic goal aimed at improving the quality of management at the regional and local levels, developing the education system, improving the health care system, and strengthening regional cohesion and interaction.

Achieving the strategic goal is expected through the implementation of 4 operational goals:

Operational goal 2.1	Operational goal 2.2	Operational goal 2.3	Operational goal 2.4
High quality of management staff	Effective education system	Effective health care system	Strengthening of regional cohesion and interaction

It is expected that the implementation of this strategic goal will lead to the following results:

- improving the institutional support for the development of territorial communities;
- formation of a professional personnel reserve of executive authorities and local self-government bodies;
- ensuring effective direct communication between the education system and the regional labor market;
- modernization of the education system at all levels;
- creating conditions for the development and self-realization of the population regardless of gender, age and place of residence;
- reduction of unemployment;
- popularization and stimulation of the population to lead a healthy lifestyle;
- introduction of the latest practices and technologies of disease prevention;
- inclusion of wider sections of the population into active public life, including vulnerable groups;
- attracting additional resources received from the self-organization of the population and reducing the amount of budget funds to solve local problems;
- development of cultural services;
- raising the level of awareness and communication between territorial communities;
- providing support for projects implemented on the principles of cooperation of territorial communities;
- increase in the amount of grants for the implementation of regional development projects;
- consolidating the efforts of local communities to manage local resources.

OPERATIONAL GOAL 2.1. High quality of management staff

In modern conditions, one of the important factors of progressive development of communities and territories is high quality of management staff, both at the regional level and at the level of territorial communities. Modern representatives of public authorities and local governments must have a new creative type of thinking, be professionals in areas such as

information and communication technologies and project management. These aspects are especially relevant in the context of administrative-territorial reform.

At the moment, there is a weak institutional capacity of local governments *(this applies to both staffing and quality of training)*. This operational goal is designed to develop the professional qualities and skills of local managers and to form an effective system of regional development management.

Expected results:

- ensuring effective coordination of stakeholder actions for the implementation of the Strategy;
- improving the institutional support for the development of territorial communities;
- formation of a professional personnel reserve of executive authorities and local self-government bodies;
- ensuring the organization and conduct of educational activities *(trainings, schools of modern civil servants)*;
- acquisition of new skills by local managers *(knowledge of foreign languages, media literacy, information hygiene, conflict resolution, project management, SCRUM, modern visualization and data processing, etc.)*;
- effective management of local budgets, high-quality organization of the budget process.

Indicators:

- number of conducted training events;
- number of local managers who have undergone advanced training;
- no violations of budgetary discipline;
- number of developed and approved strategies for the development of territorial communities;
- number of implemented international technical assistance projects.

OBJECTIVES	Possible areas of implementation of projects and programs
2.1.1. Formation of an effective regional development management system	- School of modern civil servant - Monitoring and evaluation of the effectiveness of regional policy implementation *(capacity index of territorial communities)* - Monitoring and evaluation of the implementation of strategic, program documents of the region and communities - Digital transformation *(digitalization)* of the regional development management system - Practices of dialogue with local business, scientific initiatives to implement SMART-specialization of the region
2.1.2. Improving the professional qualities of local managers	- Acquisition of new skills: modern communication and information technology, foreign language skills, information hygiene and media literacy, public consultation and public involvement, conflict resolution, project management, SCRUM, modern visualization and

	data processing, etc. - Organization of the budget process in UTC - Conducting trainings, providing methodological assistance *(offline / online)* to specialists in finance, public procurement, investment attraction, UTC regulatory policy, etc.

OPERATIONAL GOAL 2.2. Effective education system

In recent years, the region has been actively implementing measures to develop and modernize the regional education system. Thus, in secondary schools, competencies in robotics are formed; there is a training center for STEM education.

In modern conditions, it is important to train skilled workers on the basis of educational institutions, who after graduation will be able to be employed at the enterprises of Cherkasy region. In this context, an important role is played by the promotion and modernization of vocational education, as well as the study of the needs of enterprises in specialists and qualified personnel in order to form orders for educational institutions for their training.

This operational goal is aimed at introducing innovative learning technologies in primary and secondary schools, expanding the network of basic schools, modernizing the regional system of vocational education, introducing dual education into the higher education sector, strengthening the human resources of educational service providers and creating new opportunities for development and self-realization of the population *(including training for adults and for vulnerable groups)*.

Expected results:

- accessible, practically oriented education system;
- increasing the level of economic activity and employment, reducing unemployment;
- providing students of secondary schools with modern multimedia teaching aids;
- growing popularity of working professions;
- implementation of a systematic study and forecasting of the needs of regional enterprises in specialists and qualified personnel and the formation of orders for their training;
- involvement of customers of workers in the development of working curricula and programs taking into account the regional component;
- involvement of employers in career guidance activities;
- modernization of material and technical base in institutions of professional *(vocational)* education, creating training and practice centers;
- conducting advanced training courses for educational service providers;
- development and launch of competitive educational products *(primary, secondary, extracurricular education)*;
- increase of economic activity of the population, popularization of education for the adult population;
- providing vulnerable groups with effective education;
- development of a dual form of education;
- development of gender-sensitive vocational guidance programs to overcome occupational segregation in the labor market.

Indicators:

- employment rate;
- share of employed citizens over the age of 45 and vulnerable groups;
- share of youth unemployment;
- number of institutions with implemented lifelong learning system;
- the number of purchased multimedia teaching tools in secondary schools;
- increasing the number of students and listeners of vocational education institutions;
- the number of vocational educational institutions in which the material and technical base has been modernized;
- increasing the number of established training and practice centers;
- the percentage of curricula agreed with the enterprises - customers of workers;
- number of career guidance activities conducted;
- the number of providers of educational services who have done professional training.

OBJECTIVES	Possible areas of implementation of projects and programs
2.2.1. Introduction of innovative educational technologies in primary and secondary schools	- Logistics of schools *(high-speed Internet, laptops, tablet PCs, etc.)* for the introduction of distance education technologies in the school learning process - Adaptation and implementation of online, cloud services into the learning process - Introduction and dissemination of successful practices of distance education at school - Ensuring equal access to knowledge *(inclusive online school, including titration of video lessons, sign language translation, typhlo translation)* - Robotics and modeling in schools - Introduction of integration, game, training, information and computer, dialogue technologies into the educational process - Development of entrepreneurial skills, basics of financial literacy of schoolchildren - Introduction of electronic document management in school institutions
2.2.2. Modernization of regional vocational education system	- Monitoring and assessment of the needs of the regional labor market - Creating training and practice centers in institutions of professional *(vocational)* education - Arrangement and launch of laboratories, workshops, fablabs, youth public spaces, etc. in vocational institutions - Introduction of distance education technologies in the educational process - Involvement of student youth in international grant programs for exchange of experience, development and implementation of projects at the expence of international technical assistance - Stimulating cooperation and partnership of vocational institutions with local business - Development and implementation of methodologies for acquiring professional skills with the help of artificial

	intelligence technologies, virtual augmented reality, automation and robotization of processes
2.2.3. Introduction of a dual form of education into the higher education sector	- Analyzing the regional enterprises' needs in experts and qualified employees and forming orders for educational institutions to train necessary specialists - Monitoring and assessing the willingness of local businesses to invest in dual education - Introducing successful practices of cooperation between universities and enterprises, institutions, organizations - Researching and introducing modern models of interaction between local higher educational institutions, employers and students - Stimulating the interconnection and interaction of different systems *(science and education, science and industry, public sector)* aimed at improving the quality of education - Activating branch scientific and educational clusters, scientific, research and production centers, laboratories, etc. - Developing and implementing projects for building sustainable links between the educational system and the regional labor market - Improving the quality of training according to the requirements of the labor market
2.2.4. Strengthening the human resources of educational service providers	- Information hygiene, media education, entrepreneurship and financial literacy of educational service providers - Formation of professional competencies in different fields - Burnout prevention - Development and launching competitive educational products *(primary, secondary education, extracurricular activities, etc.)* - Online courses, platforms for educational service providers - Support and development for initiatives to introduce innovations in teaching - Motivational programs for the professional development of educational service providers - Monitoring and evaluation of the quality of educational services - Improving pedagogical and managerial activities. Academic integrity of educational service providers
2.2.5. Facilitating economic activity and creating new opportunities for development and self-realization of the regional population regardless of gender, age and place of residence	- Development of lifelong learning - Development and support of non-formal adult education - Popularization of working professions - Training programs for vulnerable groups *(IDPs, ATO / OUF veterans, people with disabilities)* - Development and support of social entrepreneurship - Social advertising and information campaigns on economic and financial literacy, digital literacy of the adult population

OPERATIONAL GOAL 2.3. Effective health care system

The healthcare system of Cherkasy region is characterized by active introduction of modern medical equipment and innovative methods of treatment. The region has innovative health care facilities, including the Cherkasy Regional Cardiology Center, screening centres "Woman's Health", Cherkasy Regional Perinatal Center, hemoblastosis intensive care units and autologous bone marrow transplantation at the Cherkasy Regional Cancer Dispensary; outpatient hemodialysis is also performed in medical institutions of the region.

Thus, the region has a strong base for the development of health care, which plays an important role in maintaining and increasing the activity of human potential.

At the same time, the problem is the lack of staffing of medical institutions. In particular, in 2019, the shortage of medical staff amounted to 1.510 people. The staffing of all full-time doctors in 2019 was 72.62%, which is insufficient for the quality of medical services.

This operational goal will be aimed at improving the skills of medical staff, promoting a healthy lifestyle, the introduction of new practices and technologies for the prevention of civilization diseases.

Expected results:

- advanced training of medical workers;
- introducing and developing scientific and applied research in the medical field *(in particular based on Cherkasy Medical Academy)*;
- carrying out activities to promote a healthy lifestyle *(information materials, regional social advertising)*;
- establishing cooperation between the authorities, public, youth, sports organizations, doctors and educators in the direction of creating economic, material and technical preconditions for maintaining and strengthening the health of the population and promoting physical culture, sports and healthy lifestyles;
- introducing innovative methods and practices of disease treatment.

Indicators:

- the number of primary care doctors who have been trained in methods of prevention, treatment and suspension of civilization diseases based on the Cherkasy Medical Academy;
- the number of specialty doctors who have been trained in methods of prevention, treatment and suspension of civilization diseases based on the Cherkasy Medical Academy;
- the number of information materials published in the regional mass media *(newspapers, radio, television)*, online-publications of information messages on the promotion of a healthy lifestyle;
- the number of measures taken to promote a healthy and safe lifestyle;
- reduction of the total number of illness cases per 10 thousand population;
- the number of medical institutions where modern medical equipment was purchased and installed.

OBJECTIVES	Possible areas of implementation of projects and programs
2.3.1. Advanced training of medical staff	- Medical staff training - Modern communications in the medical field - Applied research in the medical field - Formation of professional competencies in the medical field, including those based on specialized educational and training centers or departments - Burnout prevention - Guarantees and motivational programs to improve the skills of health care providers
2.3.2. Promotion of a healthy lifestyle	- Production and distribution of information materials - Regional social advertising to promote a healthy lifestyle - Support and stimulation of information campaigns to promote a healthy lifestyle
2.3.3. Introduction of the newest practices and technologies to prevent civilization diseases	- Prevention of cardiovascular, infectious, non-infectious and other diseases of civilization - Intensive care of hemoblastosis - Modernization and renewal of material and technical support of medical institutions

OPERATIONAL GOAL 2.4. Strengthening of regional cohesion and interaction

In the current conditions of power decentralization, an increasing emphasis is made on public involvement into the process of territorial development, as well as on intensifying the efforts of local authorities made in addressing their issues of local development. After all, the cohesion of the community and representatives of local governments gives the effect of synergy, improving the speed and quality in addressing pressing issues of community development.

Recently, projects and activities involving interregional cooperation have become increasingly popular. Besides, the current trend is inter-municipal cooperation, that is, concluding agreements between local communities, aimed at joint accumulation of resources to implement common projects *(including in the areas of administrative services, infrastructure, housing, education, culture, security, etc.)*. Currently, 35 agreements of inter-municipal cooperation of territorial communities have been concluded in the region, which are endorsed by the Ministry for Communities and Territories Development of Ukraine.

Public organizations, in particular youth ones, are important subjects of implementation of local development initiatives. In 2019, the number of youth public organizations in the field of youth policy development in the region was 59.

To form the unity of Ukraine and implement national priorities, it is important to develop and finance national development programs aimed at strengthening interregional cooperation and ties between regions.

Areas of implementation of this operational goal are: creating opportunities for cooperation in the fields of education, culture, historical and cultural studies; stimulating inter-municipal cooperation; encouraging community residents to participate in addressing local development issues; strengthening the capacity of public institutions; development and support of youth development, sports initiatives; integration of internally displaced persons.

Expected results:

- strengthening interregional cooperation in the fields of education, culture, historical and cultural studies;
- introducing students and scientists` exchange between the universities in different regions of Ukraine;
- creating joint interregional research groups to conduct historical and cultural studies;
- further disseminating the practice of inter-municipal cooperation, implementing joint projects by communities;
- expanding the range of areas for concluding inter-municipal cooperation agreements;
- conducting seminars and competitions in communities aimed at involving community residents in the implementation of local initiatives;
- introducing competitions for project development in communities;
- strengthening the motivation of community residents to participate in the development of their community;
- strengthening cooperation between public institutions and authorities;
- creating conditions and opportunities for more active participation of public organizations in the implementation of local development initiatives;
- strengthening the involvement of young people in the implementation of local development initiatives;
- growing interest of citizens in participating in sports events.

Indicators:

- number of students and scientists who take part in the exchange between universities;
- increasing the number of agreements on the cooperation of territorial communities, in particular, those registered on the website of the Ministry for Communities and Territories Development of Ukraine;
- the number of joint projects implemented by communities through the conclusion of cooperation agreements;
- increase in the number of communities *(including UTCs)* that have concluded inter-municipal cooperation agreements;
- number of implemented local initiatives in communities;
- increasing the number of community residents involved in the implementation of local initiatives;
- increasing the number of communities in which development project competitions have been introduced;
- number of forums held by public institutions;
- number of forum participants, in particular from public organizations;
- number of fairs of public initiatives;
- number of projects implemented on the initiative or with the participation of public organizations;
- increasing the number of youth public organizations;
- number of conducted physical culture, health and sports events;
- number of youth events held;
- number of cultural events held;
- number of national and patriotic events;
- number of participants in physical culture and health and sports events;
- number of participants in youth events;
- number of participants in national-patriotic events.

OBJECTIVES	Possible areas of implementation of projects and programs
2.4.1. Creating opportunities for cooperation in the fields of education, culture, historical and cultural research	- Introducing exchange programs for scientists *(graduate students, doctoral students)* among universities of different regions of Ukraine - Establishing joint interregional research groups to conduct historical and cultural studies - Strengthening the capacity and cooperation of cultural communities - Introducing student exchange
2.4.2. Stimulating the co-working of territorial communities	- Concluding agreements on inter-municipal cooperation *(in particular in the areas of administrative services, infrastructure, housing, education, culture, innovation)* - Designing and implementation of community development projects based on territorial cooperation of territorial communities
2.4.3. Encouraging community residents to participate in addressing local development issues	- Conducting training on the implementation of local community initiatives - Introducing competitions of public initiatives or public budget in communities - Supporting and enhancing self-organization of the population, including Housing Cooperatives and their initiatives
2.4.4. Strengthening the capacity of non-governmental institutions	- Organizing and holding annual thematic forums of non-governmental institutions - Fairs of public initiatives *(cluster ones)* - Improving the organizational capacity of public associations through the development and implementation of local development projects
2.4.5. Development and support of youth development, sports and cultural initiatives	- Contests of youth projects - Organizing physical culture and sports events - Organizing national-patriotic events - Organizing youth and cultural events - Holding annual thematic festivals *(Summer Challenge, Book Festival)* - Research and analysis of youth needs
2.4.6. Integration of internally displaced persons	- Focusing on those projects and programs that educate all-Ukrainian patriotism - Increasing the employment level of internally displaced persons in new places of residence

6.5. STRATEGIC GOAL 3. HIGH QUALITY OF LIFE: ECOLOGY, SAFETY, INFRASTRUCTURE

Despite the fact that economic development *(in parallel with the development of human capital)* plays a crucial role in socio-economic progress, it is still extremely important to create a comfortable and safe living environment. If not enough attention is paid to this aspect, the population will not be fully provided with the necessary goods and will not have decent living conditions, and thus people won`t be satisfied with life in the region.

The main areas that will be covered by the strategic goal "HIGH QUALITY OF LIFE: ecology, safety, infrastructure" are environmental security and environmental protection, security of population and territories, infrastructure development, spatial development and digital transformation of the region.

Achieving the strategic goal is expected through the implementation of 4 operational goals:

Operational goal 3.1	Operational goal 3.2	Operational goal 3.3	Operational goal 3.4
Ecological safety and environmental protection	Safety of the population and territories	Development and modernization of infrastructure	Spatial development and digital transformation of the region

It is expected that the implementation of strategic goal 3 in the near future will lead to the following results:

- reduction of air pollution;
- improvement of the waste management system;
- preservation and expansion of the network of objects of the nature reserve fund;
- improving the condition of water bodies in the region;
- development of the network of Citizens' Safety Centers *(including installation of video surveillance systems)*;
- avoiding fire and man-caused danger;
- creating maintenance of centralized notification systems;
- making full use of the region's logistics potential;
- improving the transport accessibility of the region;
- coverage of as much of the territory of the region as possible with high-quality cellular communication and Internet coverage;
- expansion and modernization of the network of institutions and objects of the social field;
- increase of energy efficiency in buildings of the budget field;
- increasing the number of the population provided with quality heat and water supply and drainage services;
- ensuring the appropriate level of drinking water treatment;
- ensuring the formation of an inclusive-oriented space;
- development of the region's tourist infrastructure;
- development of the system of providing administrative services in the region.

OPERATIONAL GOAL 3.1. Ecological safety and environmental protection

The ecological security of the region is considered as a state of the environment in which preventing deterioration of the ecological situation and human health is guaranteed. This is achieved through a set of processes and measures to create favorable conditions for the

reproduction of natural resources, human life and health as one of the categories of sustainable development of the region.

Socio-economic development of the region is closely and inextricably linked with the state of the environment, evidence of environmental problems and risks in the region. Assessment of the region's environment shows that the components of the ecosystem are negatively anthropogenic, and among the environmental problems of the region that need to be addressed, the most important ones are accumulation of large amounts of industrial and household waste, as well as pesticide waste storage *(unidentified, ineligible and uncertified chemical plant protection products)*, deterioration of the hydrological regime and sanitary condition of water bodies, air pollution, lack of a unified regional system for monitoring the environment. In addition, there is a need to expand the network of nature reserves.

The key areas of implementing this operational goal are introducing comprehensive environmental monitoring systems, introducing modern mechanisms for waste management, and improving the condition of nature reserves and water bodies.

Expected results:

- introducing a modern regional system of state monitoring in the field of air protection;
- reducing air pollution;
- creating the foundation of a circular economy, the purpose of which is to reuse waste;
- introducing a sustainable waste management system;
- reducing the load on landfills;
- creating economic opportunities for the development of waste processing facilities and attracting investments in the field of waste management;
- making the territory of the region free of pesticide waste *(unidentified, ineligible and uncertified chemical plant protection products)*;
- preserving and increasing bio- and landscape diversity, forming an integrated ecological network;
- ensuring the integrity of territories and objects of the nature reserve fund and preventing their illegal appropriation;
- improving the condition of water bodies in the region: reducing the amount of wastewater discharged, restoring and maintaining a favourable hydrological regime and sanitary condition of rivers;
- involving public in solving environmental problems.

Indicators:

- number of automated atmospheric air monitoring stations;
- air pollution index;
- volume of utilized waste *(percentage of the total amount of generated waste)*;
- volume of buried waste *(percentage of total waste generated)*;
- number of liquidated landfills;
- number of constructed and reconstructed landfills that meet the requirements of environmental safety;
- the amount of pesticide waste *(unidentified, ineligible and uncertified chemical plant protection products)* intended for discarding, destruction and disposal;
- the percentage of settlements in the region where separate solid waste collection has been introduced;
- number and area of territories and objects of the nature reserve fund;
- the number of territories and objects of the nature reserve fund, the boundaries of which are identified;
- number of measures to improve the hydrological regime and sanitary condition of water bodies, reconstruction of facilities for wastewater treatment;
- number of implemented projects submitted by the public.

OBJECTIVES	Possible areas of implementation of projects and programs
3.1.1. Introduction of complex environmental monitoring systems	- Installation of automated stations for monitoring the state of atmospheric air in the region, where the largest emissions are observed *(Cherkasy district, Cherkasy, Uman cities)* - Implementation of measures to reduce emissions of pollutants into the atmosphere by economic entities of the region - Introduction of ecological project competitions among public organizations
3.1.2. Introduction of modern waste management	- Development and modernization of waste management infrastructure *(creating centers for sorting and integrated processing and disposal of solid waste, transhipment points)* - Removal, utilization, destruction and neutralization of pesticide waste - Establishment of a separate waste collection system for maximum use of secondary resources
3.1.3. Development of nature reserve fund, preservation of biological and landscape diversity	- Creating new and expansion of the boundaries of existing territories and objects of the nature reserve fund; - Development of land management projects for the organization and establishment of boundaries of territories and objects of nature reserves
3.1.4. Improving the condition of water bodies	- Development of project documentation and implementation of projects to restore and maintain a favorable hydrological regime and sanitary condition of water bodies, reconstruction *(construction)* of facilities for wastewater treatment

OPERATIONAL GOAL 3.2. Safety of the population and territories

Considering today`s challenges, the topical issue is to increase the security level of the population and territories in case of emergencies.

This operational goal is aimed at increasing the region's ability to prevent, respond to and eliminate the consequences of emergencies, as well as the introduction of modern warning systems and public safety systems.

Expected results:

- creating local and voluntary fire and rescue units, development of infrastructure to ensure their functioning;
- creating Citizens' Safety Centers *(including installation of video surveillance systems)*;
- technical re-equipment of civil defense forces, including emergency services;
- organization of humanitarian demining on the territories and water areas of the region, including objects of the nature reserve fund;
- avoiding fire and man-caused danger for objects and territories of the region;
- ensuring the safety of people on water bodies;
- creating, use, maintenance, and reconstruction of the civil fund of protective structures

taking into account the needs of persons with disabilities and other low-mobility groups;
- creating and maintenance in constant readiness the territorial and local systems of the centralized notification, implementation of their modernization and maintenance of functioning;
- training the population of different categories in emergency situations;
- ensuring radiation and chemical protection of the population and territories;
- ensuring engineering protection of territories;
- life support of victims affected by emergencies, as well as during the military *(combat)* operations or because of these operations;
- creating conditions for ensuring the sustainable functioning of economic entities and territories in a special period.

Indicators:

- number of created local and voluntary fire and rescue units;
- number of created Citizen Safety Centers *(including installed video surveillance systems)*;
- number of created centralized alert systems;
- number of conducted emergency trainings;
- the state of providing personal protective equipment *(as well as devices of dosimetric and chemical control and research)* to the population living in the projected areas of chemical pollution and surveillance zones of business entities of radiation danger, and formations of civil protection;
- development and inclusion the requirements of engineering and technical measures of civil protection to the corresponding types of urban-planning and design documentation and their realization during construction and operation.

OBJECTIVES	Possible areas of implementation of projects and programs
3.2.1. Increasing capacity of a region to prevent, respond to and address the consequences of emergencies	- Creating the Citizen Safety Centers in territorial communities - Introduction of video surveillance systems
3.2.2. Introduction the modern alert systems and the systems of security the population	- Implementation the citizen alert system - Carrying out trainings in emergency situations for different categories of population.

OPERATIONAL GOAL 3.3. Development and modernization of infrastructure

Social and economic development of the region is impossible without the development of infrastructure, as it ensures the functioning of the material production branches and the social field, forms the proper living conditions of society.

Unfortunately, the infrastructure of the Cherkasy region is mostly in unsatisfactory condition. Its current state in many aspects is characterized by obsolescence and shabbiness. Therefore, the infrastructure of the region is currently not able to fully meet the needs of citizens and provide comfortable living conditions.

One of the key problems is the unsatisfactory state of transport infrastructure and insufficient use of the region's logistics potential. Thus, on 01.01.2020 the total state importance roads length (1 750.2 km): lost bearing capacity - 187 km; roads of innormative indicators of smoothness - 421.5 km; lost modern regulatory requirements to ensure traffic

safety and comfort of transportation and have deformation of the coating - 877 km. Road infrastructure is also insufficiently equipped *(lighting, signs, markings)*.

Only 145 km *(22.3%)* of the total operational length of public railways *(649.5 km)* are electrified; in particular, railway entrances to Cherkasy and Uman cities are not electrified.

Having river ports, regular passenger river transportation has been suspended since 1996. In addition, also having the airport, air transportation in the area is also virtually non-existing *(the last time the airport took up passengers according to the scheduled flights in 1995; it took only charter flights and was used for small aviation festivals, various car shows and exhibitions)* during the last years.

The low level of Internet and mobile coverage in rural areas of the region is the problem.

A significant problem is the deterioration of social infrastructure, including housing and communal services. Thus, on 01.01.2020 losses in the mains of heating networks amounted to 13%; the total shabbiness of heating networks in the region was 32%. From the total length of water supply networks in the region,which are serviced by municipal enterprises, 29% were in a state of emergency; from the total length of sewerage networks - 32%. A significant number of institutions in the social field *(institutions of education, health care, culture, sports)* need to update their physical ifrastructure *(equipment of new ones, repair and reconstruction of existing buildings and structures, purchase of equipment)*. Another important issue is the implementation of energy monitoring and energy saving measures *(energy audit, warming of buildings, replacement of boilers)*.

In order to take into account the needs of citizens with disabilities, in modern conditions, the formation of a barrier-free environment and inclusive-oriented space is relevant.

Cherkasy region has significant potential for tourism development: natural, climatic, historical and cultural potential, picturesque landscapes, attractive tourist routes, architectural monuments, a network of territories and objects of nature reserves, recreational opportunities. But the imbalance level of the tourism industry development which doesn`t correspond to the available potential is the problem. The number of modern tourist facilities adjusted to meet a full range of tourist needs is small today in the region; in addition, tourist sites are not focused on an inclusive environment.

Creating administrative service centers *(ASCs)* at local governments is one of the directions of the service provision system modernization. 42 ASCs are established and function in the region at present, including: 18 at the district state administrations, 6 at the city councils of regional significance, and 18 at the territorial communities. ASCs provide the most requested services in the areas of state registration of real estate, business, place of residence / stay of a person, land issues, permit system , and social services are also provided in the territorial communities. However, there is still a need to expand and to improve the ASC network.

The key areas of implementing this operational goal are the following: increasing transport accessibility and developing the logistics potential of the region; improving the condition of territorial state importance roads; digital infrastructure development; social infrastructure development and modernization; water supply of the localities; formation of inclusive-oriented space and equal opportunities; development of tourist infrastructure *(including inclusive-oriented)*, revitalization of castles in Cherkasy region; improving the network of administrative service centers.

Expected results:

- usage of the region's logistics potential in full;
- improving the transport accessibility of the region;
- improving the condition of the road surface on public roads *(including improving the condition of territorial roads of state importance)*;
- equipped road infrastructure according to modern standards;
- reconstruction of Cherkasy airport in full operation;
- restarting of direct international air lines;
- providing the rural areas with high-quality cellular communication and Internet coverage;
- expansion and modernization of the network of institutions and objects of the social field;
- introduction the energy monitoring in the budget buildings;
- increasing the energy efficiency in buildings of the budget field;
- increasing the number of the population provided with quality heat and water supply services;
- modernization of heat and water supply networks;
- ensuring the appropriate level of drinking water purification;
- increasing the number of people who are provided with quality drainage services;
- modernization of sewerage systems and treatment plants;
- ensuring the formation of an inclusive-oriented space;
- construction, arrangement, reconstruction and restoration of tourist facilities;
- development of an infrastructure and services around tourist sites and attractions;
- renewing of tourist activity, interconnection of tourism infrastructure with other fields of socio-economic and cultural development of the region;
- preservation and multiplication of historical, cultural and natural heritage;
- certification of tourist infrastructure facilities;
- creating informing tourists system;
- improving the condition of recreational areas;
- creating administrative service centers at local self- government bodies;
- modernization of the existing network of administrative service centers;
- organizing the provision of services from executive bodies *(including district state administrations)* through the administrative service centers;
- improving a number of administrative services accessibility for community residents, simplifying the system of providing administrative services.

Indicators:

- the length of public roads on which capital and current repairs of the road surface have been carried out *(including the length of territorial roadways of state importance, on which capital and current repairs of the road surface have been carried out)*;
- the number of equipped points of dimensional and weight control;
- the length of public roads on which the road infrastructure has been modernized *(lighting, signs, marking)*;
- the number of domestic and international flights per week;
- the passenger traffic of domestic and international flights;
- the number of charter flights per week;
- the increasing number of rural areas covered by high-quality mobile communication;
- the increasing number of rural areas covered by Internet coverage;
- the number of constructed buildings and objects of the social field;
- the number of institutions and objects of the social field in which the modernization of the material infrastructure has been carried out;
- the number of budget institutions covered by energy monitoring;
- the number of budget institutions where thermal modernization and energy efficiency measures have been carried out *(including replacement of windows and doors, warming*

of facades and roofs, replacement of boilers and heating systems, other measures);

- increasing the length of heating networks;
- the percentage reduction of losses in the mains of heating networks;
- the percentage reduction of shabbiness in heating networks;
- increasing the length of water supply networks;
- the percentage reduction of water supply networks that are in a state of disrepair;
- increasing the number of localities in the region equipped with modern drinking water purification systems;
- increasing the length of sewerage networks;
- the percentage reduction of sewerage networks which are in emergency condition;
- increasing the capacity of treatment facilities;
- the number of installed Braille plates;
- installation of sound equipment at traffic lights;
- the number of newly created, equipped and reconstructed tourist infrastructure facilities;
- the number of excursion routes;
- dynamics of tourists and excursionists numbers;
- volume of provided tourist services;
- number of newly created administrative service centers;
- number of modernized administrative service centers;
- the number of administrative services provided through the administrative service centers' network.

OBJECTIVES	**Possible areas of implementation of projects and programs**
3.3.1. Improving transport accessibility, developing the logistics potential of the region	- Repair and reconstruction of the road surface *(including current, middle and capital repair of territorial roadways of state importance)* - Arrangement of road infrastructure *(lighting, signs,marking)* - The reconstruction of the main activity and further development of international airport in Cherkasy city
3.3.2. Development of digital infrastructure	- Trackers for municipal vehicles - Informatization of rural areas
3.3.3. Development and modernization of social infrastructure	- Introduction of energy monitoring and energy saving measures *(energy audit, warming of buildings, boilers replacement, etc.)* - Construction, repair, reconstruction of sewage systems and treatment plants - Construction, reconstruction, and repair of educational institutions - Construction, reconstruction, repair of health care facilities - Construction, reconstruction, repair of youth institutions, cultural and sport institutions
3.3.4. Formation of inclusive-oriented space and equal opportunities	- Installation the Braille plates - Installation of sound equipment at traffic lights
3.3.5. Development of tourist infrastructure, including inclusive-oriented	- The development of Butsky canyon - Formation of the tourist attractiveness of Shuvalov castle in Talne, Dakhovskyh palace in the village of Leskove, palace of princes Lopuhin-Demydov in Korsun-Shevchenkivsky
3.3.6. Improving the network of	- Creating administrative services centers at local self-

administrative service centers at local governments	government bodies - Organizing of the providing services of executive bodies, in particular services of district state administrations, through administrative services centers of local self-government bodies

OPERATIONAL GOAL 3.4. Spatial development and digital transformation of the region

The introduction of digital technologies and information systems into the process of regional development management and spatial planning correlates with modern world trends. This process allows to: simplify access to services and the procedure for obtaining them; measure, collect, analyze and process data *(including geospatial)* more quickly, accurately and thoroughly; optimize and increase the efficiency of authority institutions; create more opportunities for interaction between government and the public.

This operational goal is aimed at the introduction of modern standards for managing development of communities, the introduction of electronic tools for open government and transparency of community resources, the introduction of digital technologies.

Expected results:

- providing consumers with relevant and objective geospatial information;
- receiving a wide range of geoinformation services by consumers;
- updating *(adjustment)* the topographic basis for the formation of urban cadaster databases of different levels and development *(update)* of urban planning documentation;
- assistance to potential investors in better understanding of business opportunities of territories through updating of urban-planning documentation;
- ensuring transparency of government activities, in particular the use of resources;
- automation of management processes;
- transfering the provision of services into electronic form.

Indicators:

- the number of developed, updated and approved general plans of the localities;
- updated topographic basis of the region;
- the urban cadaster databases of different levels are formed;
- introduced public budget;
- increasing the number of public authorities and local self- government bodies that use the tool for submitting electronic petitions;
- increasing the number of public authorities and local self- government bodies that provide services to the population in electronic form;
- increasing the number of public authorities and local governments that have introduced an electronic document management system.

OBJECTIVES	Possible areas of implementation of projects and programs
3.4.1. Introduction of modern standards of community development management	- The general plans - Geolocational social networks - Geoinformation systems
3.4.2. Introduction of electronic tools for open	- Electronic petitions

authority and transparency of community resources use	- Budget for citizens
3.4.3. Introduction of digital technologies	- Automation of management processes - Transferring the services into electronic form - Open data geoportal

7. STRATEGY IMPLEMENTATION AND MONITORING

The Strategy was developed by a steering committee, the expert group and the subgroup working on SMART-specialization, with the involvement of regional and Ukrainian experts into the process. The Strategy development process was coordinated by the Cherkasy Regional Development Agency. Representatives of business, executive authorities and local governments, educational institutions, non-governmental and other organizations took part in the development, which ensures the realism of its implementation and the trust of the community.

The Strategy is the basis for the preparation of operational plans for its implementation and project ideas that comply with this Strategy and plans. Each project idea should contain indicators for its assessment and verification of the impact on indicators within the operational goal for the implementation of which it is prepared.

The regional state administration monitors and evaluates the effectiveness of the implementation of the regional Strategy and its implementation plans in two ways:

1. Based on the reports of those responsible for the implementation of project ideas identified by the Implementation Plan.

Monitoring and evaluating the effectiveness of the implementation of regional strategies and their implementation plans includes the preparation of:

● quarterly - a report on the results of the implementation of project ideas defined by the Implementation Plan *(for the relevant period);*

● annually - the final report on the results of monitoring the Implementation Plan for the relevant period and the report on the evaluation of the effectiveness of the implementation of the regional Strategy and its Implementation Plan.

2. By means of the received values of indicators which is carried out at the end of term of Strategy implementation.

Based on the collected data, a report on the implementation of the seven-year planning period is prepared.

The report consists of a list of key indicators:
- Gross regional product *(in actual prices),* UAH billion
- Income of the population, UAH billion
- Volume of sold industrial products *(goods, services),* UAH million
- Volume of capital investment, UAH million
- Volume of capital investment per capita, UAH
- The volume of foreign investment cumulatively, USD million
- The amount of attracted foreign investment per capita, USD
- Export of goods, USD million
- The number of small enterprises per 10 thousand of the population, units
- The number of medium-sized enterprises per 10 thousand of the population, units
- Number of innovatively active higher education institutions, units
- Density of public roads of state importance with a hard surface in the region, km of roads per 1 thousand sq. km of territory
- Average monthly salary *(nominal),* UAH
- The number of the population on January 1, thousand people
- Infant mortality *(per 1.000 live births)*
- Maternal mortality *(per 100 thousand live births)*
- Coverage of children by preschool educational institutions *(urban area),%*

- Coverage of children by preschool educational institutions *(rural areas)*,%
- Volume of emissions of harmful substances per capita, kg
- Unemployment rate aged 15-70 years according to the methodology of the International Labor Organization,%
- Area of lands of the nature reserve fund, thousand hectares
- The share of the area of the nature reserve fund to the area of the administrative-territorial unit,%
- Growth *(decrease)* rate of the volume of houses put into operation,% to the previous year
- The share of thermal energy produced in the region from alternative fuels or renewable energy sources,%
- The level of social services coverage for persons in difficult life circumstances,% of the total number of such persons
- Share of urban households with Internet access,%
- Share of rural households with Internet access,%

8. CONSISTENCY OF THE STRATEGY WITH POLICY AND STRATEGIC DOCUMENTS

The national system of strategic planning should be based on the coordinated system of adjustment of strategic planning processes at the national, regional and local levels.

Cherkasy Region Development Strategy 2021-2027 is consistent with:
- the National Strategy of Regional Development of Ukraine 2021-2027;
- the Sustainable Development Goals *(SDG)* by 2030, approved at the UN Summit on Sustainable Development in 2015.

The National Strategy of Regional Development of Ukraine 2021-2027 includes three strategic goals:

1. Forming a united state in terms of social, humanitarian, economic, environmental, security and spatial dimensions.
2. Enhance the regions' competitiveness.
3. Build an effective multilevel governance.

The Cherkasy Region Development Strategy 2021-2027 is designed in compliance with the National Strategy of Regional Development of Ukraine 2021-2027 as well as with the strategic planning process of certain fields of the country's and the regions' economies, taking into account the needs of their development, and the need to improve their competitiveness.

Table 3. Consistency of the strategic goals of the Cherkasy Region Development Strategy 2021-2027 with the strategic goals of the National Strategy of Regional Development of Ukraine 2021-2027

Strategic goals (Ukraine)	**Strategic goals (Cherkasy region)**				
	1. Economy: high-tech, productive, export-oriented	2. People: professional, adaptive, cohesive	3. High quality of life: ecology, safety, infrastructure	Smart specialisation of the region S.1 Innovative agricultural technologies, deep processing of agricultural products, high quality food	Smart specialisation of the region S.2 Development of IT industry and information and communication technologies
1. Forming a united state in terms of social, humanitarian, economic, environmental, security and spatial dimensions.	X	X	X	X	X
2. Enhancing the regions' competitiveness	X	X	X	X	X

3. Building an effective multilevel governance	X	X	X	x	x

Note: Capitalized "X" stands for higher degree of consistency as compared with lowercase "x".

Table 4. Consistency of the operational goals of the Cherkasy Region Development Strategy 2021-2027 with the operational goals of the National Strategy of Regional Development of Ukraine 2021-2027

Operational goals of the National Strategy of Regional Development of Ukraine 2021-2027	Operational goals of the Cherkasy Region Development Strategy 2021-2027															
	1.1. Developmebt of entrepreneurial initiatives and business ecosystems	1.2. Internationalization of business	1.3. Marketing and branding of territories	1.4. Development of the innovation sector in the regional economy	2.1. High quality of the management staff	2.2. Effective education system	2.3. Effective health care system	2.4. Strengthening of regional cohesion and interaction	3.1. Ecological safety and environmental protection	3.2. Safety of the population and territories	3.3. Development and modernization of infrastructure	3.4. Spatial development and digital transformation of the region	S.1.1. Technologies of agricultural products processing	S. 1. 2. Technologies of agricultural products promotion	S.1.3. Food quality and safety	S.2.1. Innovations of information and communication technologies in regional economy
1.1. Stimulation of economic development centers (agglomerations, cities)	++	+ + +	+ + +	++	+	++	+	—	—	—	++	—	++	—	—	+
1.2. Preserving environment and sustainable use of natural resources, strengthening the opportunities for development of territories that need the state support (macro- and micro-level)	++	+ +	+	+	+	+	++	++	++	+	++	+	++	++	+	+
1.3. Creating conditions for the reintegration the temporarily occupied territory of the Autonomous Republic of Crimea and the city of Sevastopol, the temporarily occupied territories in Donetsk and	+	—	—	—	—	—	—	+	—	+	+	—	—	—	—	—

Luhansk regions into the Ukrainian space															
1.4. Infrastructure development and digital regions transformation	++	++	++	++	++	++	++	+	—	++	++	++	++	+	—	++
2.1. Human capital development	++	++	++	++	++	++	++	++	—	—	+	++	++	++	++	++
2.2. Promoting the entrepreneurship development, supporting the internationalization of business in the small and medium business sector	++	++	++	++	++	+	—	++	—	—	++	++	++	++	++	++
2.3. Increasing the investment attractiveness of territories, supporting investment attraction	++	++	++	++	++	+	—	+	++	—	++	++	++	++	++	++
2.4. Promoting innovation and technological growth of the regional economy, support for innovative enterprises and start-ups	++	++	++	++	+	++	+	+	—	—	+	++	++	++	++	++
2.5. Sustainable development of industry	+	++	++	++	—	++	—	—	—	+	++	+	++	+	++	++
3.1. Forming effective local self-government and public authorities on a new territorial basis	+	+	+	—	++	+	+	++	+	+	+	+	—	—	—	—
3.2. Forming horizontal and vertical coordination of state sectoral policies and state regional policy	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++

3.3. Building up the system of public investment on every government level	++	++	++	++	++	++	+	++	—	—	++	++	++	++	++	++
3.4. Enhancing the national regional policy subjects' potential	—	—	—	+	++	+	—	++	—	—	—	++	+	+	+	+
3.5. Ensuring equal rights and opportunities for women and men, preventing and combating domestic violence and discrimination	++	+	—	—	++	++	+	—	—	++	—	—	—	—	—	—
3.6. Development the system of information and analytical support and development of management skills to make decisions based on objective data and spatial planning	—	—	—	—	++	+	—	—	—	—	—	++	—	—	—	++

Note: ++ high consistency, + low consistency, - absent consistency

Consistency with the Sustainable Development Goals *(SDG)* - 2030 set by the United Nations

In September 2015, as part of the 70th session of the UN General Assembly in New York, the UN Summit on Sustainable Development and Adoption of the Agenda for Development after 2015 was held, which approved new development guidelines. The final document of the Summit, "Transforming our world: the agenda for sustainable development until 2030", approved 17 Sustainable Development Goals.

Ukraine has joined the global process of sustainable development. To establish a strategic framework for Ukraine's national development for the period up to 2030, an inclusive process of adapting the Sustainable Development Goals was launched on the basis of the principle of "Leave no one behind". Each global goal has been studied keeping in view the specifics of the national development. During 2016, a number of national and regional consultations were held in Ukraine. Using a wide range of information, statistical and analytical materials, the National System of Sustainable Development Goals was developed *(86 national development objectives and 172 indicators for their monitoring)*. The Sustainable Development Goals have been integrated into the strategic development goals of Cherkasy Region for years 2021-2027.

The Sustainable Development Goals have been integrated into the strategic development goals of Cherkasy Region for the years of 2021-2027.

Table 5. Consistency of the strategic goals of the Cherkasy Region Development Strategy 2021-2027 with the 2030 Sustainable Development Goals, defined by the UN

United Nations Sustainable Development Goals by 2030	Strategic goals (Cherkasy region)				
	1. Economy: high-tech, productive, export-oriented	2. People: professional, adaptive, cohesive	3. High quality of life: ecology, safety, infrastructure	Smart specialisation of the region S.1 Innovative agricultural technologies, deep processing of agricultural products, high quality food	Smart specialisation of the region S.2 Development of IT industry and information and communication technologies
Goal 1. No poverty	**X**	**X**	**X**	**X**	**X**
Goal 2. Zero hunger	**X**	**X**	**X**	**X**	**-**
Goal 3. Good health and well-being	**X**	**X**	**X**	**X**	**X**
Goal 4. Quality education	**X**	**X**	**X**	**-**	**X**
Goal 5. Gender equality	**X**	**X**	**-**	**-**	**X**
Goal 6. Clean water and sanitation	**X**	**X**	**X**	**X**	**-**
Goal 7. Affordable and clean energy	**X**	**-**	**X**	**X**	**-**
Goal 8. Decent work and economic growth	**X**	**X**	**X**	**X**	**X**
Goal 9. Industry, innovation and infrastructure	**X**	**X**	**X**	**X**	**X**
Goal 10. Reduced inequalities	**X**	**X**	**X**	**X**	**X**
Goal 11. Sustainable cities and communities	**X**	**X**	**X**	**X**	**X**

Goal 12. Responsible consumption and production	**X**	**-**	**X**	**X**	**-**
Goal 13. Climate action	**X**	**-**	**X**	**X**	**-**
Goal 14. Life below water	**-**	**-**	**-**	**-**	**-**
Goal 15. Life on land	**X**	**-**	**X**	**X**	**-**
Goal 16. Peace, justice and strong institutions	**-**	**X**	**X**	**-**	**-**
Goal 17. Partnerships for the goals	**X**	**X**	**X**	**X**	**X**

Note: Capitalized "X"stands for higher degree of consistency as compared with lowercase "x", "-" means absence of consistency