



KAPITEL 6 / CHAPTER 6⁶

SOCIO-DEMOGRAPHIC FACTOR AND SOCIO-ECOLOGICAL ENVIRONMENT IN THE OLD INDUSTRIAL KRIVYI RIH REGION

DOI: 10.30890/2709-2313.2023-17-03-013

Introduction

The aim of the study is to identify geographical factors and trends that affect social processes in the old industrial Kryvyi Rih region in order to assess the possible consequences of ongoing changes on the development prospects of this territory. To achieve this goal, the following tasks were solved:

- a theoretical substantiation of the essence and structure of socio-geographical processes is given;

- the nature of the consequences of the impact of social processes on a transitional society is determined;

- analyzed the possibilities of the typological method for studying the consequences of the interaction of social processes in the old industrial regions;

- studied the evolution of industrial, demographic, environmental factors in the development of the old industrial Kryvyi Rih region;

- indicators of typification of the modern social development of the old industrial Kryvyi Rih region were identified;

- a typification of the modern social development of the old industrial Kryvyi Rih region was carried out;

- identified and described the priorities and risks of the future development of social processes in the old industrial Kryvyi Rih region.

The object of research is social processes in the old industrial region.

The subject of the study is the geographical structure of social processes in the old industrial Kryvyi Rih region.

The geographical study of society, which is going through the stage of transformation of all its constituent components, covers many aspects. For socio-economic geography, it is important to understand that modern Ukrainian society reproduces its structures and processes not only in time, but also in space - the second universal form of human existence.

The geographical space is specified by regions or territories that have boundaries, specific components of nature, people's livelihoods, economy and culture as a special sense of identity to the place where the process of regional development takes place. The knowledge of the connections and processes that unite regional components into a single, unique whole constitutes that "atomic" level of research of geographical space, at which it is most convenient to form scenarios for the development of the state. The uniqueness of the region as an objectified part of the geographical space endows the processes that develop within its borders with the same unique sociocultural content. In this inseparable connection of the territorial form and socio-cultural content lies the geography of social processes. In other words, each region has its own individualized

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set of not just social, but socio-geographical processes.

Since the early 1990s, the emphasis in the study of socio-geographical processes has become multidimensional. Researchers are trying to study the socio-geographical processes that are formed depending not only on the characteristics of the so-called economic space containing settlements, enterprises, engineering networks, etc., but also on the socio-cultural space.

The socio-cultural space of a society is understood as “a set of subjects of culture and sociality (population, ethnic groups, settlements, organizations, institutions, other cultural communities) that are steadily connected with a certain territory, influence its objects and interact with each other”. The interactions of "subjects of culture and sociality" form sociocultural fields in which one can distinguish between the center and the periphery, nodes and "diffuse friability", horizontal and vertical structures. Between these components of the socio-cultural space, various movements of the population living in a given territory are carried out, and a cultural landscape is formed in which the regional identity of the population or “sense of place” grows. According to sociologist Pierre Bourdieu, a sociocultural space is an “ensemble of invisible connections” that form a region as a special territorial community of people, and it is as real as geographic space.

In the socio-cultural space, researchers distinguish three sections on the scale of society: the symbolic space of spiritual culture, objectified in language, values and norms of behavior, creations of the human soul and mind; subject space of material culture, visually determined by various objects, structures and mechanisms created by man; institutional space of social relations, including economic, political, ideological ones.

The concept of the "demographic factor", "demographic processes" entered the research arsenal of geographers as early as the early 1970s. At that time, D. I. Valentei and N. T. Agafonov introduced the terms “demographic situation” and “demographic situation” into scientific circulation, which began to be used as synonyms, reflecting the complex demographic characteristics of the population of a certain territory and its conditionality by the nature of socio-economic development [17]. However, the definition of the concept of "demographic process" until the end of the 1990s in the geographical literature was rare. The exception was the works of I. M. Pribytkova [10, p. 28] and V. K. Ivenina births, deaths, marriages, termination of marriages, migrations, changes in the distribution and structure of the population.

In the late 1980s and then in the early 2000s, the works of A. G. Topchiev, S. B. Kudelina, A. I. Polosa, V. L. Smolsky [1], V. V. Yavorskaya [16] appeared, in which the definition of the concept of "geodemographic process" was given. These authors understood the geodemographic process as “the temporary development of the population in a certain territory, its quantitative and qualitative changes, the general direction and nature of such changes” [1, p.25].

The notion of the geodemographic process in the domestic geography of the population introduced "temporal trajectories" of the development of the population, which were perceived not statically, but dynamically, with tracking trends in changes not just indicators characterizing the population, but the processes of its development and distribution in space. Such trends are identified by comparing the geodemographic



situations of a certain territory on different dates. The main features of the geodemographic process, according to A. G. Topchiev and others, can be: the ratio of population movement indicators, which is considered sequentially over a certain period of time (approximately 10-12 years); as well as the general nature of the trajectory of temporary population changes.

Old industrial regions are of interest to geographers from the point of view of the general trajectory of socio-demographic processes that determine the modern structural characteristics of their population. The main characteristic of the trajectory of geodemographic processes is: their direction to increase, stabilize (stagnation) or decrease the population of the regions. The result of the study of geodemographic processes is their typology. According to A. G. Topchiev et al., geodemographic processes can be typologized as positive, stagnation and negative, with further clarification of the leading factors that determined such a typological characteristic.

6.1. Analysis of demographic processes in the old industrial Krivyi Rih region

Using the methodological approaches of A.G. Topchiev to the study of geodemographic processes, we analyzed the trends in their development in the Krivyi Rih region for the period 1998 - 2020. The choice of the indicated time period is due to the fact that by 1998 most of the regions of Ukraine entered the stage of stabilization of the trends in the development of transformation processes after their abrupt break in 1991-1993.

None of the main demographic processes that form the modern population of the Krivyi Rih region - birth rate, death rate, migration mobility - had stable positive dynamics during the indicated period. In the Krivyi Rih region, which for historical reasons was formed as a system of urban and rural territories, the population decline continues, which began in 1992 throughout the country as a depopulation process with a long-term development trend.

According to the statistics department of Krivyi Rih, from 1998 to 2020. the population of the Krivyi Rih region decreased by 134 thousand people, declining annually at a rather high rate of one and a half percent. In 1998 and 2020, neither in the urban nor in the rural parts of the Krivyi Rih region was there a natural increase in the population, and its mechanical movement practically froze over the entire designated territory.

The dynamics of the population of Kryvbas during the XX-beginning of the XXI centuries was characterized by an uneven character. The most active population of this region increased in the 1930-1940s (almost 10 times), which correlates with the active process of industrialization of Kryvbas. The second peak of population growth in the city of Krivyi Rih was observed in the 1960s-1970s, when the average annual increase was more than 18 thousand people. In the 1980s, the annual growth rate of the population of Krivyi Rih decreased by more than two times (from 18 to 7 thousand people). And in the 1990s, there is a sign change in the dynamics of the population of Krivyi Rih from positive to negative: for 1990-2020. the population of the city decreased by 46 thousand people.



It should be noted that for the retrospective of the change in the population of the city of Krivyi Rih, periods are typical when this process took place with indicators exceeding the national average. So in 1930-1980. the population growth rate of the urban part of the Krivyi Rih region was significantly higher than the average growth rate population in Ukraine. During 1930-1950. the population of the city of Krivyi Rih increased from 25 thousand to 300 thousand people, or 12 times, while the entire population of the former Soviet Union grew during this time by only 12.5% [6, p.13]. In the next 30 years from 1950 to 1980. the urban population of Krivyi Rih has grown from 300 to 711 thousand people, i.e. almost 2.4 times, while the entire population of Ukraine - only 40%. According to V. L. Mokryak, A. S. Lobanova and E. V. Mokryak, such shifts in the population of Kryvbas in the period indicated above are due to the fact that the overall population growth in this region occurred more due to high rates of positive migration balance than due to the natural movement of the population.

It seems to us that the above opinion is completely true for the period of the 1950s-1960s, when the indicators of the balance of migration in the Krivyi Rih region really exceeded the characteristics of the natural population movement. But subsequently, until the 1990s, the indicators of the natural increase in the population of Kryvbas either exceeded or approached parity with the characteristics of the migration mobility of the population of the region.

Consequently, over the past sixty years (1960-2020) in the Krivyi Rih region, there has been a transformation of the sources of population growth. During ten years (1960-1970) the total absolute increase in the population of Kryvbas (the difference between the population in 1970 and the population in 1960), which amounted to 187.0 thousand people, was provided by 55.7% for due to a positive balance of migration, and by 44.3% - due to natural increase. From 1970 to 1980s, when the absolute increase in the population of Kryvbas decreased to 138.0 thousand people, the share of net migration (the number of arrivals - the number of departures) in the total population of Kryvbas was already 46.7%. While maintaining the indicators of gross migration (the sum of arrivals and departures for a certain period) in 1960-1990, i.e. for thirty years at a relatively stably high level (about 50 thousand migrants in each decade), net migration rates decreased from 16.2 thousand people over the period from 1960-1970. up to 9.1 thousand people for the period from 1980 to 1990. In 1995-1997 the balance of migration in Krivyi Rih becomes negative, and from 2000-2020. fluctuates around zero.

Thus, the share of the positive balance of migration in the total increase in the population of Kryvbas decreased from 55.7% in the 1960s to almost zero in the 1990s, which confirms the trend of changing the migration source of replenishment of the population of Krivyi Rih. The dynamics of the urban population in the region is increasingly determined not by external factors (mechanical growth), but by internal factors (the balance between births and deaths). The rural population of the Krivyi Rih region is also subject to the trend of population decline. However, in the rural part of Kryvbas, the number of village councils has noticeably expanded, where the balance of migration is positive. These territories included Gruzskoy, Novopolsky, Chkalovsky, Lozovatsky village councils, which increased the indicators of positive migration balance.



This change indicates that the rural areas of Kryvbas have become a kind of transition area for a part of the urban population of Krivyi Rih to a different way of life and activity. As a result of such a transformation in this part of the Kryvyi Rih region, prerequisites for the formation of new socio-spatial forms of settlement may arise - rural-urban in terms of lifestyle, with a changed socio-professional structure of the rural population and a high degree of its territorial and social mobility. Consequently, the demographic and settlement autonomy of the urban environment of Krivyi Rih is undergoing transformational processes that form a “system of interconnected settlement” [11; 18].

We also note that the transformation of the source of replenishment of the population of Kryvyi Rih indicated above indirectly indicates a significant decrease in the attractiveness of life in Kryvbas for migrants in terms of working and living conditions, which partially explains the process of expanding rural areas with a positive migration balance. Considering that Krivyi Rih is leaving Krivyi Rih, first of all, young people, it can be assumed that the city has created prerequisites for consolidating the aging trend of the population and increasing its average age. The most intensive, in our opinion, the process of population aging in Kryvyi Rih will occur between 2010-2040, when post-war generations born during the “baby boom” will reach retirement age. Population aging in Krivyi Rih will have its own specifics. Its cause, on the one hand, will be associated with the process of reducing the birth rate, and, on the other hand, with an increase in mortality in working age. According to the State Statistics Committee of Ukraine, the probability of dying at working age for Ukrainian men is 1.5 times higher than for European men [3].

The absolute number of those born in Krivyi Rih for thirty years (from 1960 to 1990) remained practically stable at the level of 90-110 thousand people every ten years. But the birth rate fell during this period from 23 to 12.5 ‰ in 1990, that is, almost two times. It should be noted that in the 1990s, both relative and absolute birth rates in Krivyi Rih declined very sharply. There was a period of sharp socio-political breakdown in Ukraine, which provoked depopulation processes that are taking place throughout the country at the present time. Since 1995, the natural movement of the population of Krivyi Rih has been acquiring a steady trend of negative dynamics.

In 2010, there was an equalization of the Krivyi Rih and the average for the Dnipropetrovsk region, the birth rate of the population. Its level reached 11.0‰, that is, it almost returned to the same indicator in 1990, not equaling it by only 1.5‰. Among the reasons for the increase in the birth rate in Krivyi Rih, we should mention the fact that Krivyi Rih was the first city in Ukraine that began to pay material assistance at the birth of a child at its own expense. In addition, since 2001, a program of full financing of childbirth from the city budget has been operating in Krivyi Rih.

However, the above measures to stimulate the birth rate could not stop its decline in 2011. One of the reasons for the decline in the birth rate in the Krivyi Rih region is due to the marital status of young people. In the past five years, there have been 80 divorces per 100 marriages in the region, and there are periods when divorce rates exceed marriage rates.

Negative trends are also noted in the dynamics of mortality in Krivyi Rih. The absolute number of deaths increased in Krivyi Rih from 25 thousand in the period from



1960 to 1970. up to 62 thousand for the period from 1980 to 1990, that is, 2.5 times in 30 years [6, p.22]. In the 1990s, the number of deaths increased to 107.2 thousand, that is, it grew 1.7 times compared to the previous decade. The mortality rate of the population of Krivyi Rih increased from 4.6‰ in 1960 to 10.1‰ in 1990, to 15.7‰ in 2000, and also to 18.3‰ in 2010.

During the period called the Holodomor by historians, the death rate in the Dnipropetrovsk region, according to the State Statistics Committee of Ukraine, was 17.0‰ in 1932. (for 1931 - 13.9) [15].

In the same 2008, the mortality rate in the Dnipropetrovsk region was 17.7‰, and Krivyi Rih was by no means the leader at the regional level in this indicator [2]. The Krivyi Rih urban region ranked fourth after Zhovtiye Vody, Marganets, and Nikopol in terms of the death rate in the Dnipropetrovsk region. But in 2019, the mortality rate in Krivoy Rog unexpectedly dropped to 16.2‰ [1]. Perhaps the “accumulative” effect of the reduction in the birth rate in the region affected. The mortality rate in Ukraine in the same year was 14.5‰, and in the countries of the European Union - 6.7‰ [3]. The male part of the population of the Krivyi Rih region is declining at the highest rate. In 2008, according to the data of the Krivyi Rih Department of Statistics, there were slightly more than 80 men per 100 women within the city limits [13]. The same ratio in 1998 looked like 100 to 83, and the global indicators of the ratio of the female and male population are currently defined as 100 to 101. Consequently, with the industrial specialization of the economy remaining in the Krivyi Rih region, its urban core is gradually turning into a feminizing territory, which was reflected in the gender structure of those employed in the labor market of this city.

In the Krivyi Rih region, the number of people of children's age (up to 16 years) is decreasing. This trend will certainly affect the quantitative composition of the region's labor resources in the coming years. Note that a similar trend of reduction in both the absolute and relative number of children has been observed in the last three decades in all developed countries.

In 2011, a factor influencing child mortality appeared in the Krivyi Rih region. In Krivyi Rih, within the framework of the national program, the tendency to increase the proportion of older age groups and as a reduction in infant mortality, a modern perinatal center was opened, which allows to reduce the infant mortality rate due to the timely provision of medical care to pregnant women with fetal pathology, newborns with pathology or premature infants in accordance with with modern technologies and advanced achievements of science. The Krivyi Rih Perinatal Center will also serve nearby rural areas, reducing the need to send newborns to Dnipro for nursing. Currently, up to 8.5 thousand births per year are accepted in Krivyi Rih. The infant mortality rate for the city in 2020 was approximately 10 cases per 10,000 births [14]. After the creation of the perinatal center, this indicator is expected to decrease to 8-8.5 cases per 10 thousand newborns. This will amount to a 15-20% reduction in infant mortality in the Krivyi Rih region.

An analysis of the main demographic indicators of the Krivyi Rih region allows us to determine the type of geodemographic process in this territorial entity. In the 60 years under study, 1960-2020. in the Krivyi Rih region (in its urban and rural areas) there is not just a slowdown in population growth, but its negative reduction. Thus, the



type of geodemographic process for the region as a whole can be called stagnation-negative. It is not possible to single out any territorial subtypes of the geodemographic process in the Krivyi Rih region, since the region lacks spatial diversity in this respect.

At present, there are no serious grounds to hope for a change in the inertial nature of most demographic processes that affect the typological characteristics of the geodemographic component of life in the Krivyi Rih region. On the contrary, given the prospective trends in the development of the mining and metallurgical complex of Kryvbas (stabilization, re-equipment and optimization of production processes with a general reduction in industrial personnel), a pessimistic scenario for maintaining a negative migration balance in the region is quite likely, which will directly affect the process of reducing its population. According to experts, the number of urban residents of the region, who form the demographic foundation of the territory, will continue to rapidly decline over the next twenty years [4]. The decrease in the number will be almost 120,000 people, reaching 540,700 people. Such a reduction in the urban part of the inhabitants of Kryvbas can significantly affect the supply of labor force to all sectors of the economy of the city and the region.

Thus, the type of geodemographic process in the Krivyi Rih region indicates that the era of extensive quantitative growth of its demographic potential due to internal (natural population growth) and external sources (positive balance of migration) has ended. The development of the region's economy in the XXI century. will rely solely on improving the qualitative characteristics of the population and the effective use of its labor potential.

6.2. The material well-being of the population in the old industrial Krivyi Rih region

The study of the socio-ecological characteristics of the development of old industrial territories is directly related to the problem of diagnosing social tension in society. For regions of this type, the problem of social tension is understood by geographers S. V. Ryazantsev, E. A. Bazhenova and others as the lack of adaptation of the population to a changing lifestyle. The inability of a part of the population to quickly and adequately respond to the changes taking place in society leads to the growth of such a "complex socio-psychological phenomenon, which is based on dissatisfaction with the realization of various needs among the bulk of the population", as social tension. The need to find ways to manage this phenomenon in society requires a detailed study of the components of the phenomenon of social tension and the territorial aspects of its manifestation.

In a diverse array of statistical indicators that can reflect the state of social tension in the Krivyi Rih old industrial region, we have formed three blocks. The first block was called "Material well-being of the population" and is formed by indicators that determine the level of income of the population and the quality of life. The second block "Environmental comfort of life of the population" is represented by indicators of the state of health of the inhabitants of the region. The third block "Social behavior and participation of the population in the life of society" is formed by indicators that



characterize the spread of socially unapproved forms of behavior (crime, alcoholism, drug addiction), as well as options for behavioral characteristics that can reveal the degree of preservation of traditional values (confessional preferences) and the level of involvement of the population in political processes of national importance (electoral preferences).

When compiling the “Material well-being of the population” block, we paid attention to the characteristics that are directly dependent on the nature of demographic processes in the Krivyi Rih region. One of these characteristics is the poverty of the population. Poverty, according to E. M. Libanova, is a state of impossibility due to lack of funds to maintain a lifestyle inherent in a particular society in a particular period of time [5]. This understanding of poverty is most fully personified in relation to pensioners, whose number in the regions reflects the process of population aging and the possibility of being at or below the poverty line. These processes can become a serious accent in the formation of social tension in any region of Ukraine, since the regional authorities always have to solve the problem of “demographic load” in relation to pensioners.

We are talking about the “demographic load” on that part of the working-age population of working age that is employed in the sectors of the national economy and is forced to increase pension tax payments as the number of employees decreases and the number of pensioners grows. This situation is typical for the aging population of Ukraine. The share of Ukrainian pensioners in relation to those employed in the sectors of the national economy has consistently increased from 11.8% in 1940 to 48.6% in 1990, 80.1% in 2000, and 90% in 2020 [7, p.516]. And the number of employees who "support" one pensioner was reduced from 8.5 people. in 1940 to 1.8 in 1991, 1.25 in 2000 and 1.1 in 2020.

The problem of "demographic load" is typical for the urban part of the Krivyi Rih region. If in 1990 here, according to the data of the Main Department of Statistics in the Dnipropetrovsk region, there were approximately two people employed in the sectors of the national economy of working age per pensioner, then in 2000 there was already only one employed. And this ratio has been maintained to this day.

Experts have proven that in regions where the population is aging and shrinking, there is a sharp aggravation of the problem of social protection for both the elderly and those who are still working. While population aging is a global phenomenon, social protection options are often regional in nature.

In the urban core of the Krivyi Rih region, according to the Department of Labor and Social Protection of the City Executive Committee, in 2020 there were 211 thousand people. pensioners and 213.5 thousand people. employed in the national economy. This means that every third resident of the urban area creates for the regional authorities a potential problem of social protection against a possible slide into poverty.

Over the past decades, the number of pensioners (including those who received the minimum pension) in the Krivyi Rih region did not have a clear trend of change. The number of this contingent in the population of the region is characterized by situationality. So in the urban core of the Krivyi Rih region during the period of economic stabilization in 2001-2020. the number of persons of retirement age tended to increase. And in the rural part of the region, during the indicated period, there was a



vector for a decrease in the number of people of retirement age (the only exceptions were two village councils - Novopolsky and Shirokovsky, where a tendency to increase the number of pensioners was manifested). The different vectors in the process of changing the number of pensioners in Kryvbas can be explained by the fact that over the past decades in the urban core of the region there have been no mass layoffs of pensioners at the enterprises of the mining and metallurgical complexes. This is due to the export orientation, and, consequently, the special significance of the enterprises and labor resources of these complexes. The rural part of pensioners in Kryvbas, which in 2020, according to the Department of Labor and Social Protection of the Krivvi Rih City Executive Committee, was only 4% of the total number of pensioners in the region, is declining due to the natural decline in the population of older working ages.

The analysis of the dynamics of the number of pensioners in the Krivvi Rih region was supplemented by us with an indicator of the size of the average pension. Taking into account this aspect of potential poverty was necessary because the purchasing power of the average pension in Ukraine decreased by almost six times between 1991 and 2020. If in 1991 the average Ukrainian pensioner had a cash income from a pension, which ensured the satisfaction of vital needs at a level that was 12% higher than the subsistence minimum, then in 2000 it was more than four times lower than the subsistence minimum. This change could be due to a 1.5-fold increase in the "weight" of each year of the insurance period of employment of citizens.

In the Krivvi Rih region, the all-Ukrainian trend of exceeding the subsistence minimum over the size of the pension of citizens in the analyzed period of 1998-2020. was absent. The relatively favorable situation in the economic activity of the metallurgical enterprises of the region, the demand for their products in foreign markets, which contributed to the stability of deductions to the city's pension fund, had an effect. In the urban core of the Krivvi Rih region, the size of the average industrial enterprises (more than 50) in the region, among which there are pensions in 2010, was twice the all-Ukrainian subsistence level, reaching a maximum in the Inhulets district - the territory with the highest concentration of OAO Yuzhny Mining concentrating plant "- the first plant of the Krivvi Rih iron ore basin. This means that the average pension in the Krivvi Rih old industrial region has not lost, contrary to the national trend, the function of compensating the disabled population for the minimum income sufficient for subsistence, and has not turned into meager social assistance to pensioners' budgets, the bulk of which is income from subsidiary farming and assistance from relatives.

In the block of indicators of the material well-being of the inhabitants of the K Krivvi Rih region, we analyzed the indicators of the poverty of its able-bodied population. A low-income family is considered to be a family that, for valid reasons or reasons beyond its control, has an average monthly total income below the subsistence level. Such families are entitled to a monthly allowance, in accordance with the Law of Ukraine "On State Social Assistance to Low-Income Families".

The general regional trend of Kryvbas in the period 1998-2020. can be considered a reduction in the number of low-income families. This situation is associated with a more stringent categorization of families by the social protection authorities on the basis of low income, as well as a general change in the income level of the working



part of the population of the Krivyi Rih region and Ukraine as a whole after the “landslide” fall in family budget revenues from wages in the 1990s. In 2000, these receipts decreased by more than five times compared to 1990. The impoverishment of the main source of monetary income of the population of Ukraine was associated with a reduction in employment in the sectors of the national economy and an increase in “self-employment” in the informal sector of the economy, which could not but lead to a drop in the level of real wages of workers and the emergence of low-income people among them.

The Krivyi Rih region has a steady upward trend in real average wages in all sectors of the economy. At the same time, the region retains an excess of wages in the urban part of the region over the size of the all-Ukrainian average wage by almost 1.3 times. The average salary in the city of Krivyi Rih among women is less than that of men by an average of 1.5 times.

An analysis of the dynamics of the basic incomes of able-bodied and disabled residents of the Krivyi Rih region shows that poverty is not an acute social problem in this territory. The region has financial support from the metallurgical complex. As long as the products of this complex will be competitive in the world metallurgical market, poverty as a social characteristic of the region, will remain here in a latent state.

However, a real assessment of the material well-being of the inhabitants of any region is revealed with the help of sociological surveys. In 2017, on the eve of the election campaign for the election of the head of the administration of the city of Krivyi Rih, city sociological services conducted a survey of city residents. The survey results showed that, assessing the qualitative changes in their standard of living over the past year, almost half of the respondents (46.28%) out of 2,055 people surveyed believed that no significant changes had occurred. About a third of the respondents (28.76%) noted a decline in living standards. The number of those urban residents who noted positive changes was 19.85% [4]. The decline in the standard of living was most noticeable for pensioners, the unemployed, workers in the sphere of science, culture, medicine, and education. It is indicative that only 26.5% of workers in the manufacturing sector of Krivyi Rih noted a decline in living standards. Note that workers in the manufacturing sector in Krivyi Rih are a social cohort, which is almost ninety percent employed in metallurgical production. Consequently, the metallurgical industry of the Krivyi Rih region, its main budget-filling industry, already in 2017, according to the residents of Kryvbas, had signs of losing its function as a stimulator of material well-being, providing a decent standard of living for the population of the region, in general, and its workers, in particular.

An integral characteristic of the material well-being of the inhabitants of the Krivyi Rih region was the analysis of the nature of its socio-economic development. The clarification of this feature of the territory was carried out by us with the help of a number of indicators that give an idea of the quality (conditions) of life of the population of the region.

Modern researchers of the quality of life consider it necessary to consider this category as a systemic integrity, expressed through a complex structure of interrelations of its components: the quality of the natural environment, people's health, education, culture.



Taking into account the essential definition of the concept of "quality of life", noted above, we have compiled cartographic "quality profiles" or "living conditions" of the inhabitants of the Krivyi Rih region. The indicators of the provision of the population with infrastructure facilities (telephones, Internet connection points), personal transport, and living space were analyzed. We also studied indicators of mediated manifestation of the quality of life: neonatal mortality per 1000 people. population; the share of persons employed in the economy and receiving wages at the subsistence level; the value of per capita retail turnover and the volume of paid services, as well as per capita indicators of the volume of investment in the Krivyi Rih region. All of the listed indicators were analyzed as of 01/01/2020 and compared with analogue indicators for the Dnipropetrovsk region as a whole.

The results of the study allow us to conclude that the quality or living conditions of the population in the Krivyi Rih region are polarized into predominantly urban and rural. Indicators of the urban lifestyle (provision of the population with stationary communication sources from Ukrtelecom, Internet connections, personal transport, availability of paid services) within the urbanized territories of Kryvbas, unlike its rural periphery, are either at the level of average regional indicators or significantly exceed them. And such a vital indicator for any society as infant mortality, in almost all rural areas of Kryvbas is higher than the average regional value, which indicates a low degree of provision of rural areas with the necessary specialists with higher and secondary specialized medical education, as well as the means of medical response to the possibility of deaths. among the infant cohort in the population of the region.

Within certain rural areas of the Krivyi Rih region (Valovsky, Veselovsky, Volnyansky, Lozovatsky, Radusha village councils), peculiar "islands of relative prosperity" were formed. In these territories, indicators of the urban lifestyle have either an average regional or a higher level of manifestation. Perhaps, the transport proximity of these village councils to the urban areas of Kryvbas and the main railway and highways leading to the Krivyi Rih region affects. But from the point of view of the prospects for maintaining the relativity of well-being noted by us in the development of these territories of the village councils of the Krivyi Rih region, it can be noted that the investment indicators of these territories, with the exception of the Valovsky and Radusha village councils, are very low. This deprives the "islands of relative prosperity" in the Krivyi Rih region of the possibility of future sustainable access to the urban living standards typical of old industrial territories that were formed as a by-product of industrialization.

6.3. Ecological comfort of life in the old industrial Krivyi Rih region

One of the problems and at the same time characteristic features of the old industrial regions is their ecological trouble. The Krivyi Rih region is no exception to this trend. The ecological situation in this region is studied by such researchers as I. D. Bagriy, P. V. Blinov, N. A. Belokopytova, O. N. Petrenko, L. G. Rudenko, V. P. Palienko, M. E. Barshchevsky, are assessed as "crisis" in the current anthropogenic economic, industrial and demographic load. Considering the crisis nature of the



environmental situation in Kryvbas, we came to the conclusion that it is logical to analyze the block of indicators characterizing this type of environmental situation in the region in terms of the manifestation of the social consequences of this situation. We understand the social consequences of the ecological crisis in the Krivyi Rih region as a manifestation in the public system of discomfort in the state of individual elements of the natural environment and public health.

It is estimated that the Krivyi Rih region, administratively occupying an area of 1350 sq. km, spreads anthropogenic impact on natural complexes with an area of 1150 sq. km. At the beginning of the XXI century. In the study region, 29% of the territory was in the conditions of economically-urbanistically altered natural landscapes, 61% - within agrolandscape complexes, and approximately 10% was occupied by meadows, pastures, shrubs and park-tree vegetation [8, p.172].

Technogenic workload of Krivyi Rih is three times higher than in the Dnipropetrovsk region. Within the economic and urbanized territories of the Krivyi Rih region, there are 5 mining and processing plants, 11 large quarries with a total area of 50 sq. km and more than a hundred small quarries with a total area of 30 sq. km. The production potential of the city of Krivyi Rih is also formed by 14 mines, 87 industrial enterprises of mining and metallurgical, machine-building, chemical, printing, woodworking, light, food industries and building materials.

The urban landscapes of Krivyi Rih are complicated by multi-tiered ridges of rock heaps left after the extraction of iron ore. The area occupied by dumps in Krivyi Rih, according to O. M. Petrenko, is 68 square meters. km. Mines occupy about 2 thousand hectares, and underground mine workings reach 12 thousand km with a void volume of up to 30 million cubic meters. m, of which approximately 1 million cubic meters. m of unfilled voids form a zone of failures with a total area of 13 sq. km.

The collapsed terrain is one of the most dangerous components of environmental discomfort in the Krivyi Rih region, complicating the unpredictability of the appearance of the life of the production, infrastructure and settlement sectors of the region. An equally dangerous component of environmental discomfort in Krivyi Rih are sludge storages - flooded sandy-clay waste from iron ore dressing and mechanical treatment of saline mine waters, stored in reserve tanks or cyclically functioning storage ponds. These landforms occupy an area of about 8000 ha, contain up to 2.5 billion tons of sludge, and annually supply up to 100000 tons of iron-quartz dust to the atmosphere.

According to the Ministry of Ecology and Natural Resources of Ukraine, Krivyi Rih accounts for about 8% of the total emissions of substances polluting the atmospheric air of Ukraine [12]. This is the highest figure among the cities of the country. For this reason, the state of atmospheric air in the city of Krivyi Rih is estimated by experts as one of the most polluted in Ukraine. Every year, more than a third of the total amount of pollution from stationary and mobile sources located in the Dnipropetrovsk region enters the atmosphere of Krivyi Rih. Among the main air pollutants in Kryvbas are Krivorozhskaya TPP, Dneproenergo OJSC, HeidelbergCement Ukraine PJSC, ArcelorMittal Kryvyi Rih PJSC, Yuzhny MPP OJSC, Severny MPP OJSC, Central MPP OJSC. With the emissions of PJSC "ArcelorMittal Kryvyi Rih", thermal power plants, a coke plant, a large amount of soot,



oxides of sulfur, carbon and nitrogen enters the atmosphere of the city. The extraction of iron ore in quarries is carried out using drilling and blasting. At the same time, a large amount of dust and nitrogen compounds are emitted, which, as a result of photochemical reactions, turn into nitrites and nitrates. These nitrogen compounds pose a threat to human health, pollute surface and groundwater, soil cover.

In 2020, according to the State Department for Environmental Protection in the Dnipropetrovsk region, the total amount of air pollution in the city of Krivyi Rih and the Krivoy Rog administrative district from the enterprises listed above amounted to 363.9 thousand tons. This means that for every inhabitant of Krivyi Rih in 2020, there were 552 kg of atmospheric emissions. The density of harmful emissions into the atmosphere of Krivyi Rih per one square kilometer is 34 times higher than the average for the region.

The impact of atmospheric air pollution and other components of the landscape environment of the Krivyi Rih region on the health of the population was the subject of a special study by D. V. Shiyan [20]. These authors established a high degree of determinant dependence of certain groups of diseases on environmental factors in the Krivoy Rog region, in particular, on the state of its atmospheric air.

Comparing the results of our study of the general dynamics of the incidence of the population of the Krivyi Rih region for the period 1998-2010. with a similar study by S. P. Sonko and D. V. Shiyan for the period 2010-2020, we came to the conclusion that in the Krivyi Rih region, the trend towards an increase in the incidence of diseases that have a pronounced environmental causation (neoplasms, various allergic diseases, vegetative-vascular dystonia, bronchial asthma, bronchitis, various diseases of the upper respiratory tract).

This trend was especially clearly manifested for the territories of the Metalurgichesky, Dolgintsevsky, Pokrovsky, Saksagansky and Ternovsky urban areas. In the Metallurgical District, where the city's largest metallurgical enterprise PJSC "ArcelorMittal Kryvyi Rih" is located, as well as in the Dolgintsevsky district with its cement plant PJSC "HeidelbergCement Ukraine", against the background of a slight decrease in the overall morbidity rate, the number of people with pulmonary diseases has increased. It is this group of diseases that fixes the state of atmospheric air within the urban areas of the region.

The concentration of industrial enterprises of the Krivyi Rih region, mainly in the southern urban areas, has formed a stable area of incidence of oncopathologies within the Metallurgical, Dolgintsevsky, Inguletsky, Saksagansky districts. These diseases, along with cardiovascular diseases, are the main causes of death in Krivyi Rih, since 1996, the number of cases of cancer within the urban area of Krivyi Rih has a tendency to some reduction in the south-north direction (with distance from the southern region industrial concentration).

Elements of ecological discomfort territorially manifested themselves not only within the urban areas of the Krivyi Rih region. Our studies have shown that rural areas in 1998-2020. experienced a quantitative increase in environmentally dependent diseases, in particular, gastrointestinal diseases. This is especially true for such village councils as Geikovskyy, Lozovatsky, Khristoforovsky, Chkalovsky. Within the territories of the listed village councils, there is the water area of the Karachunovsky



reservoir, the largest natural and man-made object created for water supply to the city of Krivyi Rih in the Ingulets river valley. Currently, the bottom of the Karachunovskoye reservoir, which provides water to 70% of the inhabitants of the region, is polluted with technogenic silts. Therefore, in the city of Krivyi Rih, the hardness of tap water is 14 mg-eq/l, while according to GOST it should not exceed 7 mg-eq/l (and even then in exceptional cases). As a result, the rate of gastrointestinal diseases in the Krivyi Rih region is 10 times higher than the average for Ukraine. And this despite the fact that the water intake in the Karachunovsky reservoir is above the silt level, and once every 4 years the reservoir is partially cleaned. Water polluted in the Karachunovsky reservoir enters the Ingulets River, the only source for irrigation of agricultural land in the western part of the Krivyi Rih region. Here, conditions are created for the deterioration of the quality of soils and agricultural products.

We also note that in the above village councils of the Krivyi Rih region in the period 1998-2020. there was a tendency to increase the number of people who applied for the first time about environmentally dependent diseases. This proves a high degree of penetration of environmental discomfort factors into the life of not only the urban, but also the rural population of the Krivyi Rih region.

In the analyzed period 1998-2020. in the Krivyi Rih region, the dynamics of diseases that are not directly related to the quality of the environment, but are derived from the socio-economic problems of the old industrial territory, have worsened. The number of socially dangerous diseases studied by us in the Krivyi Rih region included tuberculosis, venereal diseases, alcoholism, drug addiction and AIDS. The spatial distribution of the indicated diseases revealed their ubiquitous manifestation within the Krivyi Rih region. At the same time, the spread of the above diseases has territorial features of manifestation.

If in 1998 tuberculosis was recorded mainly in the urban core of the Kryvyi Rih region, then in 2020 this disease is noted in all village councils of Kryvbas. The implementation of the activities of the State Program to Combat Tuberculosis only in 2010 made it possible to stabilize the level of morbidity and mortality from tuberculosis among the population of the Krivyi Rih region. However, the epidemic situation with tuberculosis, according to TB specialists, remains unfavorable in Kryvbas. Every day, 2 people are registered in the region who are diagnosed with tuberculosis for the first time, and annually this figure reaches 800 people. The region continues to face a dangerous upward trend in the incidence of tuberculosis in children. Tuberculosis occurs more often in dysfunctional families. However, among the reasons for the spread of tuberculosis in the Krivyi Rih region, experts are increasingly citing the environmental factor, migration processes, and most importantly, the combination of the tuberculosis epidemic with the spread of HIV infection.

Krivyi Rih in 2020 ranked first in the Dnipropetrovsk region in terms of the incidence of AIDS. In this city, for every 100 thousand people. population in 2020 accounted for 113 people. infected with the immunodeficiency virus. Geographically, AIDS in modern Kryvbas is widespread both in urban and rural parts of the region, correlating with the spatial pattern of the spread of drug addiction. Drugs used by injecting drug addicts (they make up the majority of drug addicts in Kryvbas) are toxic and destructive to immune cells. For this reason, a destroyed immune system is easily



exposed to any disease, including AIDS.

In the Krivyi Rih region, there were 56.7 drug addicts per 10 thousand people in 2020, in the Dnipropetrovsk region this figure reached 36, and in Ukraine - 28 people. Specialists note in Kryvbas a trend towards a decrease in the number of injection drug addicts over the past 2-3 years due to an increase in people who use psychostimulants or the so-called "disco" drugs. The situation with the spread of drug addiction in Kryvbas is complicated by the criminogenic component. Drugs in the region have become a lucrative business for organized crime groups. According to Krivyi Rih law enforcement officials for 2020, the daily income of producers and traders of opium extract in Krivyi Rih reached an average of 90,000-100,000 hryvnias. Drug dealers in Krivyi Rih, as a rule, have an established inter-regional network of drug sales, are armed, and successfully invest money from the drug business in legal shopping and entertainment establishments of the city.

Territorially, drug addiction and alcoholism in the Krivyi Rih region are combined with areas where there is an increased manifestation of cases of criminogenic behavior. In the general structure of Krivyi Rih crime in the period 1998-2020, about 60% were crimes committed under the influence of alcohol or drugs. The highest rates of the number of crimes registered in the region were noted by us in the above period in the urban areas of Kryvbas (Tsentralno-City, Saksagansky, Pokrovsky, Ternovsky). For the same districts, the incidence of drug addiction is typical, exceeding the regional average for the Dnipropetrovsk region.

6.4. Social behavior and participation in the life of society of the population of the old industrial Krivyi Rih region

The twenty years noted above became for Krivyi Rih the time of reduction of the total number of crimes. At the same time, we recorded an increase in such types of crime as robberies, fraud, crimes related to the manufacture and possession of drugs, economic crimes, including theft of state property on an especially large scale, bribery, etc.

In the period 1998-2020 crime in the Krivyi Rih region has changed the level of manifestation or criminogenic load (the number of crimes per 100 thousand people). If in the 1990s the level of crime load was the highest (300 crimes per 100 thousand people) in rural areas (especially in the Radusha and Chervonovsky village councils), then since the 2000s the crime rate in the rural areas of the Krivyi Rih region has been sharply declining, while in urban areas, on the contrary, it increases. In our opinion, this fact serves as indirect evidence of the existence of periodic migration mobility of rural residents, who change their living conditions in pre-crisis periods by returning to the countryside, thereby reducing the criminogenic pressure in the urban core of Kryvbas. However, the fact of the reduction of rural crime may be associated with an artificial overestimation in the statistical reporting of the law enforcement agencies of the Dnepropetrovsk region of the average regional rate of crime detection from 57.5 to 71.5%.

In the analyzed period 1998-2020 in the Krivyi Rih region, the number of crimes



against life and health, freedom and dignity of the individual has increased. According to the statistics of law enforcement agencies, crimes against a person made up the most significant part in the overall structure of Krivyi Rih crime - 44.1%. Among crimes against a person, robberies, robberies and theft account for the largest share. According to the report of the General Prosecutor's Office of Ukraine, the city of Krivyi Rih remained the country's leader in the number of burglaries in 2020, which was also noted by us for 2010.

According to Krivyi Rih sociologists, the specific structure of crime described by us is directly related to the large size of the urban area, where it is easy to get lost after committing a crime, as well as capital located in industrial centers like Krivyi Rih, in various turnover schemes. Large cities are always the focus of financial flows, in relation to which potential criminals have a desire to participate in their distribution. The second reason is the higher standard of living, the material condition of the inhabitants of large urban settlements. Low-income people in big cities like Krivyi Rih often have a sense of failure. They come to the conclusion that it is impossible to succeed legally in a big city. This feeling pushes on street crime. Thirdly, in a large city, a person feels the anonymity of his existence. The importance of public opinion is missing here. He does not care what a neighbor thinks, with whom a person has been living on the same landing for decades and does not communicate. In small towns, dependence on collective opinion is one of the main deterrents to crime, disappearing in the space of a large urban settlement.

The modern criminal situation in Krivyi Rih is historically predetermined. The mining and metallurgical complex of this region was created in the 1960s, mainly by the hands of the so-called "chemists" or prisoners, who were replaced by socially useful labor in hazardous industries. In addition, in Kryvyi Rih there was one of the largest in Ukraine and "tough" in terms of treatment of prisoners, correctional colony No. 80 - the famous "Krivyi Rih zone" of a reinforced regime. Few people in the past and present managed to get out of there without receiving an additional term, disability or tuberculosis. After the end of the term, many of the former prisoners of the "eighties" settled in Krivyi Rih, which, of course, did not contribute to the improvement in the indicators of crimes committed in the city. Every third crime in the Krivyi Rih region during the period we are analyzing was committed by previously convicted people, which once again confirms the idea that the prison and correctional institutions of Ukraine do not fulfill the function of educating law-abiding citizens in their stumble.

An additional factor in the criminalization of the Kryvyi Rih region in the mid-1990s was the transformation of the ferrous metallurgy of Kryvbas by representatives of the criminal world into an extremely profitable business. At that time in Krivyi Rih coexisted with a dozen and a half criminal gangs, "feeding" on the illegal trade in metal products near the metallurgical enterprises of the city [9]. However, the struggle for mining and processing plants and the former Kryvorizhstal still remains a hidden spring of many political processes not only in Krivyi Rih and the Dnipropetrovsk region, but throughout modern Ukraine.

Political processes in the Kryvyi Rih region are generally closed to regional problems. This is confirmed by the data of a sociological survey conducted in Krivyi Rih by the Center for Research on Civil Society Problems in October 2020. The sample



of the mentioned survey was 1,000 people interviewed in all urban areas of Krivvyi Rih. Assessing the general situation in the city and the problems that are relevant for its residents, 59.5% of Krivvyi Rih residents believed that the situation in the city is developing in a positive direction. Moreover, 7.5% believe that the situation has improved significantly, 18.3% - fix some improvement, and 33.7% tend to believe that the situation is positively stable. The proportion of citizens who believe that the situation is developing in a negative direction remained quite high - their number was estimated at 35.3%. Of these, a sharp deterioration in the situation was recorded by 9.1% of respondents, some deterioration - by 17.1%, and 9.1% were inclined to believe that the situation was stably negative. Among the most important problems for the townspeople were issues related to the poor environmental situation, the poor quality of medical care, the low standard of living in general, as well as the unsatisfactory work of the city's housing and communal services. Over 51% of citizens are concerned about the extremely high level of air pollution, another 20% - about the quality of drinking water. 46.7% are concerned about the low quality of medical care, which correlates with such a feature of the demographic situation in Krivoy Rog as a significantly larger number of pensioners than in the whole country.

Such a socio-ecological, rather than politicized, orientation of the consciousness of the inhabitants of the urban core of the Krivvyi Rih region in the period of 2010 can be explained by the presence in the region of a really acute environmental problem and a favorable one in the period 2000-2010. the conjuncture of world markets for Ukrainian raw material exports. A successful economic situation allowed the mining and metallurgical industry of Kryvbas, which by that time had become the sphere of economic interests of big capital in Ukraine, Russia, and far abroad, to ensure relative prosperity for the inhabitants of the region.

The noted tendency of the dependence of the problems of the social orientation of the inhabitants of Krivvyi Rih on the state of stability of the main city-forming industry of the region is indirectly reflected in the nature of the electoral activity of its inhabitants.

Elections of the President of Ukraine in 2004, 2010, 2014, 2019 showed that in the Krivvyi Rih region by 2010 there was a decrease in the electoral activity of its inhabitants (the proportion of those who voted from those who had the right to vote). Over a six-year period, the indicators of electoral activity of the inhabitants of Krivvyi Rih decreased in the urban part of the region from 80-90% to 63-80%. This situation is due to the fatigue of the electorate of the industrial region from the permanent political struggle in the highest echelons of power in the country, a certain stability that appeared with the coming to power of the president from the Party of Regions, whose business interests are widely represented in the metallurgy of Krivvyi Rih. Of course, not all voters of Krivvyi Rih are satisfied with the social reality that has developed in the region, however, any attempt to change it is regarded by the Krivvyi Rih electorate as an attempt to destabilize. One of the proofs of this is the protest electorate, which practically does not increase either in the urban or in the rural parts of the Krivvyi Rih region, and voted "against everyone" in the presidential elections.

Considering that prices for metal products on world markets have been falling since 2011, while prices for energy resources imported into Ukraine remain quite high,



we can assume that the protest electorate in Ukraine, in general, and in the Kryvyi Rih region, is becoming more active. in particular.

The decrease in electoral activity in the industrial regions of the East and the Dnieper region, which traditionally support the Party of Regions, was already demonstrated during the elections to the Verkhovna Rada of Ukraine in October 2012. Having given only 35.79% of the votes for candidates from the Party of Regions, the Dnipropetrovsk region was the only one of the old industrial territories of Ukraine that voted most actively (5% of votes) for the opponents of the Party of Regions - the right-wing radical party "Svoboda", whose value orientations are traditionally supported by the Galician region.

We investigated the presence of value orientations among the population of the Krivyi Rih region by identifying the features of the development of its confessional network.

The religious tradition of the population of Kryvbas as a whole remained in the period 1998-2020. traditional. Residents of the urban core of the region and rural areas are mostly adherents of the Ukrainian Orthodox Church of the Moscow Patriarchate (UOC). The dynamics of the growth of the communities of this church showed a steady progressive trend in all urban and rural areas of the Krivyi Rih region during the indicated period. Within its boundaries, over the past fifteen years, an average of 3-4 new Orthodox churches have been opened per year, and the number of parishes of this denomination from 1991 to 2007 increased almost 10 times. It is estimated that on average this amounted to 11 parishes per administrative units of urban and rural areas of the Krivyi Rih region. In the territorial distribution of the Orthodox parishes of the Krivyi Rih diocese of the UOC, which, in addition to the Krivoy Rog region, includes 5 right-bank districts of the Dnipropetrovsk region and the cities of regional subordination of Kryvyi Rih, Nikopol, Zhovti Vody, Pyatikhatki, Manganets and Pokrov, a clear disproportion is found. Against the background of the minimum indicators of the presence of Orthodox communities in the rural regions of Kryvbas, urban areas stand out sharply in quantitative terms. If in the urban core of the Krivyi Rih region in 2010 there were 30 Orthodox communities, then in rural areas there were an average of 2-3. This quantitative gap can be explained by a decrease in the demand for a religious cult in rural areas of the Krivyi Rih region, which, in our opinion, is associated with a deteriorating demographic situation (elderly people who had a high degree of churching or involvement in religious life are dying). In urban areas, on the contrary, the number of people who turned to religion is increasing due to the revived tradition of religious life, as well as as a result of the demonstration effect of the mass enthusiasm for religion. Religiosity is becoming an integral feature of the urban lifestyle on the territory of the Krivyi Rih diocese of the UOC [19].

The Krivyi Rih diocese of the UOC arose in 1996 as a result of the division of the Dnepropetrovsk diocese into two independent units. The center of the diocese is the city of Krivyi Rih. The Krivyi Rih diocese has 239 parishes (2020), 2 monasteries (in the city of Krivyi Rih), 212 priests in holy orders, Orthodox brotherhoods and Sunday schools have been established [12]. The formation of the Krivyi Rih diocese created a certain obstacle to the expansion of the schism in Orthodoxy, as evidenced by the relatively lower (almost three times) degree of prevalence in the region of the



communities of the Ukrainian Orthodox Church of the Kiev Patriarchate, as well as various sects and religious movements.

In the Krivyi Rih region, an all-Ukrainian trend of high growth rates of communities of Protestant churches was revealed, in comparison with Orthodox parishes. Since 2004, the number of registered Protestant communities in the urban part of the Krivyi Rih region has exceeded the similar process in Orthodoxy. As a result, all urban areas, except for Pokrovsky, have a quantitative predominance of Protestant communities over the number of Orthodox parishes. Given the fact that Protestant ethics is one of the markers of the penetration of Western identity into the cultural layer of any country, it can be stated that the ideals of individualism, the cult of work, success in life, adherence to rationalism have received the opportunity to take root in the urban core of the Krivyi Rih region. The rural part of the region remains traditionally Orthodox, although the village councils, which are geographically close to the urban area, since 1991 have included a Protestant element in the structure of the confessional network. In such rural councils as Gleyevatsky, Krasinsky, Shirokovsky, the number of Protestant communities in 2010, like urban areas, exceeded the number of Orthodox parishes.

Conclusions

1. The industrial function remains relevant for the modern economic development of Kryvbas. The region is still characterized by mono-industry specialization in mining and metallurgical production. This is confirmed by the cost indicators of industrial products sold by the region, in which the share of enterprises of the mining and metallurgical complex accounts for 89.2% of its annual volume. The leading role of mining and metallurgical production is also traced in the structure of employment of the population of the Krivyi Rih region. According to this indicator, the share of mining and metallurgical enterprises accounts for 67.5% of those employed in the sphere of material production.

2. Over the past twenty years, the contradictory nature of the incorporation of the Krivyi Rih region into the system of territorial division of labor in Ukraine, which was formed back in the Soviet period of development of this territory, has evolved. Kryvbas is in demand in the Ukrainian economy as a strategically important territory; since 16% of the world's proven iron ore reserves are concentrated within the Krivyi Rih iron ore basin. This resource, as well as ferrous metals and products made from them in Kryvbas, is the main export product of Ukraine, providing 50% of the country's foreign exchange earnings and 15% of jobs in Ukrainian industry. At the same time, Kryvbas is characterized by a predominantly extraterritorial orientation in the sale of metallurgical products, inherited from the Soviet industrial period. The products of its mining and metallurgical complex - long products, fittings, wire rod - are in demand mostly outside of Ukraine. But unlike the Soviet period of the country's development, this is not due to the fulfillment of the "international debt" to the countries of the socialist community, but to a reduction in metal consumption in the country's domestic market. The privatization and sale in 2005 of Ukraine's largest metallurgical plant



OJSC Kryvorizhstal to the steel corporation Mittal Steel only strengthened the predominantly foreign economic embeddedness of the metallurgy of Kryvbas.

3. The small incorporation of the mining and metallurgical production of Kryvbas into the space of the Ukrainian economy creates prerequisites for an increase in the dependence of this production on fluctuations in the world market for raw materials and finished products. Currently, the mining and metallurgical enterprises of the Krivyi Rih region have significantly changed the geography of their economic ties. If in the Soviet period of industrial development they provided not only the all-Union needs for metallurgical raw materials and products from it, but also supplied them to the countries of the so-called socialist bloc of Eastern Europe, then the modern geography of supplies of metallurgical products of Kryvbas is represented by the markets of the European Union. This market is densely developed, selective in terms of quality and price of products, which creates additional difficulties with its sale.

4. The weakness of the domestic market of metallurgical products in Ukraine, the high density of development of the Western European market, the effect of the global trend of decreasing demand for metal production are forcing the mining and metallurgical industry of Krivyi Rih to change the internal proportions of the production of metallurgical raw materials and finished products from it in favor of raw materials. The increase in the raw material component in the development of metallurgical production in Krivyi Rih reduces its competitive advantages. Metallurgists from Krivyi Rih are trying to win competition with world players in the market of finished metallurgical products mainly by maintaining relatively low wages and social protection costs for metallurgists, compared with the leading industrial countries of the world. Wages in the structure of the cost of industrial production of industrialized countries average 30-50%, and for metallurgists of Krivyi Rih - 15-16%. Such a gap in the cost indicators of payment for industrial labor can create a potential for social tension in the metallurgical industry of the Krivyi Rih region.

5. An analysis of the ten-year dynamics of the main technical and economic indicators of the economic potential of the Krivyi Rih region showed that Kryvbas continues to exploit the production potential that the region inherited from the Soviet period of its economic development. The basis of this potential is the production assets of various sectors of the economy. For the entire territory of Kryvbas, there is a preservation of the value of production assets, which is associated with the inertial nature of the development of the single-industry mining and smelting specialization of the territory. This trend is especially typical for the urban part of the Krivyi Rih region, where the production assets of mining and metallurgical enterprises are concentrated. Preservation of the value of production assets of various sectors of the economy of the Krivyi Rih region, as well as high rates of their physical and moral depreciation are the main markers of the exploitation of the Soviet industrial potential in the region. The depreciation of fixed assets at PJSC ArcelorMittal Krivyi Rih reached 82% in 2009, and the mining enterprises of the region had depreciation of production assets from 36% to 71%. A territorial shift of part of the production assets of Krivyi Rih to the countryside was noted. Such a shift is associated with the expansion of the repair and technical base of the mining enterprises of Krivyi Rih and the creation by these enterprises of entrepreneurial structures of a service nature that allow women to work.



By the nature of production assets and the conditions of their operation, the Krivyi Rih region can be attributed to the old industrial territories of Ukraine.

6. The dualistic territorial-administrative and economic structure remains in the Krivyi Rih region. The region is formed around an industrial-urban core, represented by 7 administrative urban districts (Metallurgicheskyy, Dolgintsevskyy, Pokrovskyy, Inguletskyy, Saksaganskyy, Ternovskyy, Central City districts) and agricultural territories of 2 settlement and 17 rural councils. The rural territories of the Krivyi Rih region are not functionally connected with the industrial-urban core of Kryvbas. At the same time, it is they who provide their territorial basis for the growth of iron ore quarries, the laying of roads, pipelines and other infrastructure facilities, repair bases for mines, places for storing overburden, etc., that is, everything that is directly related to the process of industrial development of Krivyi Rih old industrial region.

7. Socio-demographic processes in the Krivyi Rih region have historically evolved as a combination of urban and rural trends. The current content of these processes coincides with the all-Ukrainian trend of population depopulation. None of the main demographic indicators that form an idea of the modern population of the Krivyi Rih region - birth rate, death rate, migration mobility - has a stable positive trend in the region.

8. A retrospective of the change in the population of the city of Krivyi Rih shows that the region is characterized by periods when this process took place with indicators exceeding the national average. During the period of Soviet industrial development, the region experienced a stable external (due to migration) and internal (due to natural increase) expansion process of population growth. This was required by the extensive nature of the industrial production of Kryvbas. Since the 1990s, the balance of population migration has changed in the region - one of the main sources of its replenishment. The share of the positive balance of migration in the total population growth of Kryvbas decreased from 55.7% in the 1960s to almost zero in the 1990s. This change affected, first of all, the urban areas of Kryvbas. The dynamics of the urban population in the region is currently determined not by external factors (mechanical growth), but by internal factors (the balance between births and deaths).

9. In the Krivyi Rih region, the settlement and demographic autonomy of the urban environment is undergoing transformation. The countryside of Kryvbas has now become a kind of transition area for a part of the urban population of Krivyi Rih to a different way of life and activity. This process is found in rural councils spatially close to the urban areas of the region. Gleyevatsky, Kirovsky, Lozovsky, Novopolsky, Chkalovsky village councils can be attributed to the number of Kryvbas localities that are transforming in terms of lifestyle and demographic characteristics. In the above territories in the period from 1998 to 2020. the most intensive change in the migration growth of the population was noted. As a result, these territories received the prerequisites for the formation of new socio-spatial forms of settlement - rural-urban in terms of lifestyle, with a changed socio-professional structure of the rural population and a high degree of its territorial and social mobility.

10. The nature of the transformation of the main demographic indicators of the Krivyi Rih region allows us to determine the type of geodemographic process in this territorial entity. In the sixty years under study (1960-2020), in the Krivyi Rih region



(in its urban and rural areas), not only a stagnation slowdown in population growth, but its negative reduction was formed. The type of geodemographic process for the region as a whole is defined by us as stagnation-negative, since in Kryvbas there are no permanent, rather than situational, sources of stimulating the natural movement of the population, which allow changing the inertial nature of most socio-demographic transformations. It is not possible to single out any territorial subtypes of the geodemographic process in the Krivyi Rih region, since the region lacks spatial diversity in this regard.

11. Regions like Krivyi Rih should be studied from the standpoint of the state of social tension in them. To this end, we have proposed three blocks of indicators for analysis: “Material well-being of the population”, “Environmental comfort of life of the population”, “Social behavior and participation of the population in society”.

The material well-being of the population of the Krivyi Rih region largely depends on the severity of the problem of "demographic load". The meaning of this problem lies in the increased number of people of retirement age per one employed in the economy. In the Krivyi Rih region, there is approximately one employed in the sectors of the national economy per pensioner. The aging and shrinking of the population in the Krivyi Rih region leads to an aggravation of the problem of social protection not only for the elderly, but also for those who are still working. This is a problem through the prism of which the whole problem of social tension in the old industrial territories should be considered. In the Krivyi Rih region, the acuteness of the problem of "demographic load" has been removed in the last decade by two factors: the export orientation of the single-industry economic complex of Kryvbas and the favorable situation on the world markets for raw materials and metal. Both factors have allowed the administration of the region over the past ten years to refrain from mass layoffs of pensioners at the enterprises of the mining and metallurgical complexes.

12. Analysis of indicators of material well-being of the population of the Krivyi Rih region in the period 1998 - 2020 allows us to consider that this territory currently does not have prerequisites for social tension in the sphere of material support of the population. Here, there is no all-Ukrainian trend of exceeding the subsistence minimum over the size of the pension of citizens, contributions to the Pension Fund of the city of leading enterprises are stable, the size of the average pension in 2010 was twice the all-Ukrainian subsistence minimum, since 2010 the real average wages, having reduced the poverty rate, the amount of wages in the urban part of the region exceeds the size of the all-Ukrainian average wage by almost 1.3 times, the amount of wage arrears has decreased in the region, and the unemployment rate in the labor market has decreased (26.0 thousand people) people in 2008 - 15.9 thousand people in 2020). At the same time, the number of employed citizens in the region remains smaller than that of the unemployed. This ratio is especially noticeable in the rural areas of Kryvbas. In the region, wage inequality between men and women persists. The average salary in the city of Krivyi Rih among women is less than that of men by an average of 1.5 times. Sociological surveys of the population of the Krivyi Rih region point out the problem of significant differences in the assessment of the standard of living of workers in the manufacturing sector and those employed in the field of science, culture, medicine, and education. A decrease in the standard of living in 2020 was noted only by 26.5% of



workers in the manufacturing sector of Krivyi Rih. In the cohort of those employed in the non-productive sphere, this figure reaches almost one hundred percent. A study of the quality of life of the population of the Krivyi Rih region showed that this characteristic differs in the urban core of the region and its rural areas. Indicators of the urban lifestyle (provision of the population with stationary communication sources from Ukrtelecom, Internet connections, personal transport, availability of paid services) within the urbanized territories of Kryvbas, unlike its rural periphery, are either at the level of average regional indicators or significantly exceed them. At the same time, such a vital indicator for any society as infant mortality is higher than the regional average in almost all rural areas of Kryvbas, which indicates a low degree of provision of rural areas with the necessary specialists with higher and secondary specialized medical education.

13. A characteristic feature of the Krivyi Rih region is its ecological trouble, which can become a serious factor in the development of social tension. One of the options for studying environmental trouble in an old industrial region is to analyze the social consequences of such trouble, i.e. manifestations of elements of discomfort in terms of the state of health of the population.

Elements of ecological discomfort in the natural environment and the health of the population of Kryvbas were noted by us within both the urban and rural parts of the region. These territories are characterized by an increased degree of technogenic workload, which is three times higher than that in the Dnipropetrovsk region. The urban landscapes of Krivyi Rih are complicated by multi-tiered ridges of rock heaps left after the extraction of iron ore. The underground spaces of the city are replete with voids that provoke soil subsidence and flooding of residential buildings. The share of Kryvvi Rih accounts for about 8% of the total emissions of substances polluting the atmospheric air of Ukraine. This is the highest figure among the cities of the country. Every year, more than a third of the total amount of pollution from stationary and mobile sources located in the Dnipropetrovsk region enters the atmosphere of Krivyi Rih. In 2020, each inhabitant of Krivoy Rog accounted for 552 kg of atmospheric emissions.

In the Krivyi Rih region, the upward trend in the incidence of diseases with a pronounced environmental causality (neoplasms, various allergic diseases, vegetative-vascular dystonia, bronchial asthma, bronchitis, various diseases of the upper respiratory tract) has stabilized. This trend was especially clearly manifested for the territories of the Metallurgical, Dolgintsevsky, Pokrovsky, Saksagansky and Ternovsky urban areas. The concentration of industrial enterprises of the Krivyi Rih region, mainly in the southern urban areas, has formed a stable area of incidence of oncopathologies within the Metallurgical, Dolgintsevsky, Inguletsky, Saksagansky districts. These diseases, along with cardiovascular diseases, have been the main causes of death in Krivyi Rih since 1996.

Rural areas of Kryvbas in 1998-2020 also experienced a quantitative increase in environmentally dependent diseases, in particular gastrointestinal diseases. This is typical for such village councils as Geikovskiy, Lozovatsky, Khristoforovsky, Chkalovsky. Within the territories of the listed village councils, there is the water area of the Karachunovsky reservoir, the largest natural and man-made object created for



water supply to the city of Krivyi Rih in the Ingulets river valley. The bottom of this object is polluted with technogenic silts, which significantly worsens the quality of drinking water consumed by the population of rural regions. As a result, the rate of gastrointestinal diseases in the Krivyi Rih region is 10 times higher than the average for Ukraine.

In the analyzed period 1998-2020 in the Krivyi Rih region, the dynamics of diseases that are not directly related to the quality of the environment, but are derived from the socio-economic problems of the old industrial territory, have worsened. Tuberculosis, venereal diseases, alcoholism, drug addiction and AIDS are ubiquitous in the region. Every day, 2 people are registered in the region who are diagnosed with tuberculosis for the first time, and annually this figure reaches 800 people. The region continues to face a dangerous upward trend in the incidence of tuberculosis in children. Among the reasons for the spread of tuberculosis in the Krivyi Rih region, one can note the environmental factor, migration processes, and most importantly, the combination of the tuberculosis epidemic with the spread of HIV infection. Krivyi Rih in 2020 ranked first in the Dnipropetrovsk region in terms of the incidence of AIDS. Geographically, AIDS in modern Kryvbas is widespread both in urban and rural parts of the region, correlating with the spatial pattern of the spread of drug addiction.

14. The prevalence of drug addiction, alcoholism and crime in Kryvbas, along with the environmental discomfort of living in the region, is a factor in the growth of social tension. In the Krivyi Rih region, there were 56.7 drug addicts per 10 thousand people, in the Dnipropetrovsk region this figure reached 36, and in Ukraine - 28 people. The situation with the spread of drug addiction in Kryvbas is complicated by the criminogenic component. Drugs in the region have become a lucrative business for organized crime groups. Territorially, drug addiction and alcoholism in the Krivyi Rih region are combined with areas where there is an increased manifestation of cases of criminogenic behavior. The highest rates of the number of crimes registered in the region were noted by us in the above period in the urban areas of Kryvbas (Tsentralno-City, Saksagansky, Zhovtnev, Ternovsky). For the same districts, the incidence of drug addiction is typical, exceeding the regional average for the Dnipropetrovsk region.

15. The social activity of the inhabitants of the Krivyi Rih region is generally closed to regional problems. Social processes initiated by the politicization of consciousness are not manifested here. The mentality of the population of the region is ecologized more than politicized. Residents of Krivyi Rih, according to the results of sociological surveys in 2020, among the most important problems for citizens note issues related to the poor environmental situation, poor quality of medical care, low standard of living in general, as well as unsatisfactory work of the city's housing and communal services.

The weak politicization of the consciousness of the inhabitants of Kryvbas affected their electoral behavior. In the Kryvyi Rih region, there is a tendency to reduce the electoral activity of the population (the proportion of those who voted from those who had the right to vote). This was demonstrated by the presidential elections in Ukraine in 2004, 2010, 2014, 2019. Over a six-year period, the indicators of electoral activity of the inhabitants of Kryvyi Rih decreased in the urban part of the region from 80-90% to 63-80%. This situation is due to the fatigue of the electorate of the industrial



region from the translation into society of a permanent political struggle in the highest echelons of power in the country, a certain stability that appeared with the coming to power of the president from the Party of Regions, whose business interests are widely represented in the metallurgy of Kriviyi Rih. Any attempt to change social stability is regarded by the Kriviyi Rih electorate as an attempt to destabilize. One of the proofs of this is the practically non-increasing share of the protest electorate, which voted “against everyone” in the presidential elections, neither in the urban nor in the rural parts of the Kriviyi Rih region. The population of the Kriviyi Rih region is characterized by Orthodox identity, traditional for most territories of Ukraine. Residents of the urban core of the region and rural areas are mostly adherents of the Ukrainian Orthodox Church of the Moscow Patriarchate (UOC). At the same time, the population of the urban core of the Kriviyi Rih region over the past ten years has shown signs of a change in confessional identity. Here, the all-Ukrainian trend of high growth rates of communities of Protestant churches, in comparison with Orthodox parishes, is revealed. This is a potentially conflict situation that can change the social tension in the region towards a socio-cultural confrontation between the values of Orthodox and Protestant ethics.