

**Acta Scientifica Naturalis**

Former Annual of Konstantin Preslavsky University of Shumen: Chemistry, Physics, Biology, Geography

Journal homepage: [asn.shu.bg](http://asn.shu.bg)

**The Demographic Problem - one of the Main Problems of Contemporary**

**Ivaylo Vladev, Rositsa Vladeva**

*Konstantin Preslavsky University of Shumen, Faculty of Natural Sciences, Shumen, 115 Universitetska Str.,  
Shumen, Bulgaria*

**Abstract:** *The present study attempts to analyze the essential characteristics of the global problems in the development of human society at the present stage and to highlight the place of the demographic problem as an objective factor for the existence of modern civilization. It clarifies the criteria for determining a problem as a global one and makes classification from a geographic point of view. It identifies the causes for the demographic problem, analyses and specifies its different dimensions at the global, regional and national levels.*

**Keywords:** global geographic problems, demographic problem

**Introduction**

For the modern human civilization, the 20s of the 21st century are characterized by an increasing role and importance of world politics and international relations. The peculiarities of today's social life on the planet cause unprecedented changes to the world and regional economics, politics, culture, social sphere, education and people's lives. The interdependence and the scale of the ongoing processes engage ever larger populations in the international life and communications. All this proves the existence of objective prerequisites for the emergence of problems with a global nature in the modern world. They affect the vital interests of every inhabitant of our planet and of all mankind.

*The aim of the present study is to analyze the essential features of the global problems of the contemporary stage in the development of human society and to highlight the place of the demographic problem as an objective factor for the existence of modern civilization.*

To realize the goal it clarifies the criteria for determining a problem as a global one and makes classification of the global problems from a geographic point of view. It identifies the causes for the demographic problem, analyses and specifies its different dimensions at the global, regional and national levels.

## Materials and Methods

In order to study the processes of globalization and the specific features of the demographic problem, comparative analysis, content analysis and quantitative methods are applied. In order to clarify the criteria for determining a given problem as a global one, methods of systematization and classification from a geographic point of view are applied.

## Results and Discussion

One of the essential characteristics of the modern development of the society is its *globalization*. It is known as international integration on a large scale in all areas of economics, culture and society. The processes of globalization should be explored in the context of the relationship of the planetary problems with some aspects of economic and social life on a global, regional and national level [2].

Globalization is a complex process that provokes many controversies, but also determines the overarching changes in our times. According to U. Bek, „globalization is certainly the most commonly used - the wrongly used - and the most rarely defined, probably the most vague, the most fuzzy and the most politically influential word in the last but also in the coming years“ [1, p. 42]. Most researchers regard globalization as an inevitable process of forming common principles of current civilization development and common criteria for the qualitative assessment of the development.

We can therefore accept globalization as a complex integrative process, characterized by the following main features:

- universality - a tendency towards integration of all economic, social, political, cultural, environmental and demographic processes in their entirety and interdependence;
- democracy - engaging and actively participating in the process of globalization of all social strata;
- spontaneity - absence of an external source as a special moderator;
- chaoticity - inconsistency of the ongoing integration processes and presence of random fluctuations.

Globalization is a phenomenon, but it is not an ideal process as well as its results and it affects differently individuals, social communities, countries, regions, and the planet as a whole. It has its positive and negative consequences, encompassing socio-economic, demographic, natural-geographic processes, transforming human relationships into a state of globality.

Globality as a problem is also associated with *the global problems* of civilization. During its development the human society frequently encounters complex problems originating from its local nature and cover significant parts of the globe. According to P. Lakov, „the global problems are provoked by the chronological unity and the rapid rate of destruction of the balance between nature and society and should therefore be considered as an undivided system of dynamically changing interdependent phenomena in the space“ [3, p. 24].

The global problems of the contemporary stage of the development of the world civilization are already fully manifested in the second half of the 20th century, but from the end of the 1990s to the present day as a result of the introduction of the new information and communication technologies and the enhanced processes of economic and political integration a kind of „globalization boom“ is observed. Therefore, the studying of the global problems is necessary to take into account both the general patterns and trends in the development of the world economy, as well as the action of the social factors of development, including the rapid growth of the population of the planet, the strengthening of interaction and interdependence between states.

According to their origin, the global problems are the result of the processes of globalization that are taking place in today's world and play the role of drivers for the development of the world system. Because they arise from the functioning of the global systems and their interaction, they can not be considered in isolation, but their unity and interrelation must be taken into account.

The global problems are wide ranging and continually create hazards for the existence and development of human society. The world of the 21st century inherited from the 20th century poverty, economic problems, resource shortages, mass diseases and nationalism and religious fanaticism, dozens of „hot spots“ and international terrorism. The old dangers in the form of weapons of mass destruction are complemented by new ones.

Though diverse in nature, the global problems have a common specificity that separates them from the other processes and phenomena in world development and they are distinguished by certain features:

- they endanger the future of all human civilization;
- they are an objective factor for the world development;
- targeted and coordinated actions of much of humanity are needed to overcome them;
- failure to resolve them can lead to serious and irreversible consequences for the whole of humanity.

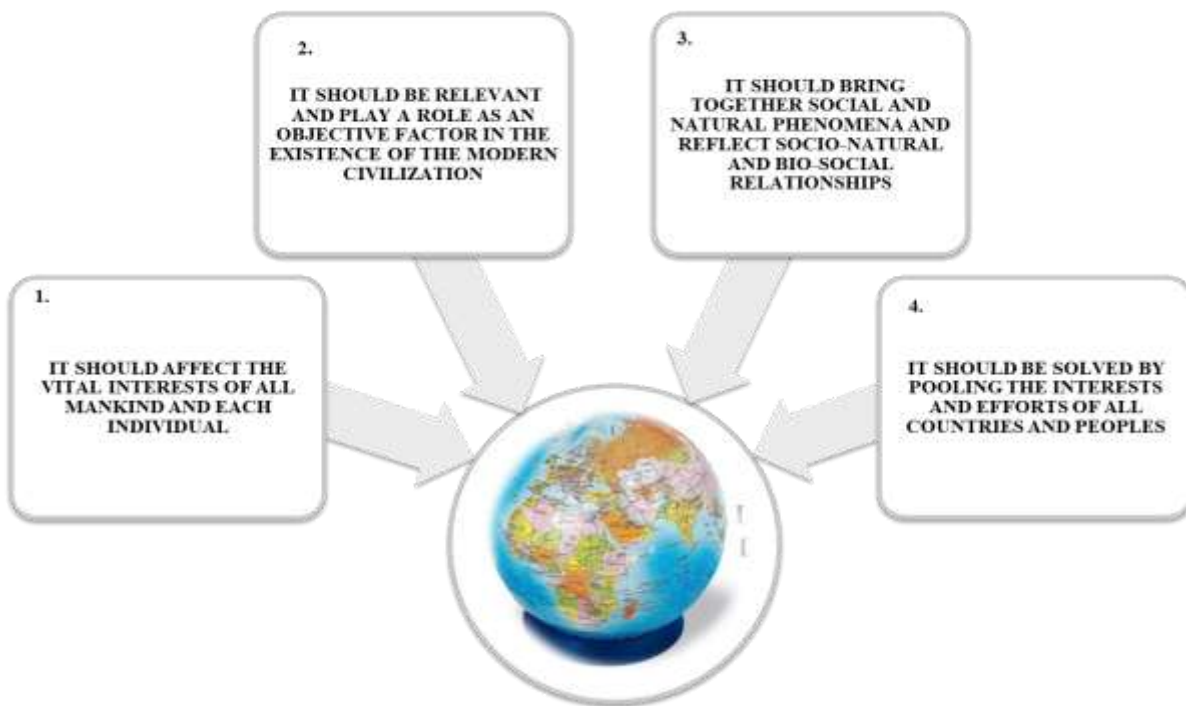
Some authors believe that the global problems are the result of the following inconsistencies:

- between the unlimited production factors entering the system „technically“ and the limited reproduction capabilities of the system of nature;

- between the „industrial“ system widely used in the technics and the other „small craft“ and „partly craft“ system under the name „human“;
- between the unique products of the „classical culture“ and the unrestricted circulation of „mass culture“ products;
- between the global balances according to which the stability of processes in nature and society depends on the degree of their balance [4, p. 280-281].

The territorial character of the global problems could be pointed out as their specific feature. Geographically they cover the whole of the world, but at the same time they are manifested at the regional level as well, with local indications in different countries. This proves the relationship between the categories: „common“(global) – „special“(regional) – „individual“(local).

In order not to identify the public, regional and local problems with global ones, it is necessary to specify criteria that can define a given problem as a global one (Figure 1).



**Figure 1.** Criteria for a global problem

It should be noted that these criteria together can only establish the global nature of a given problem, because each of them can not be a decisive factor. At the same time, we must emphasize the high dynamism

of every global problem caused by the combination of many different factors and their state in specific historical conditions and geographic regions.

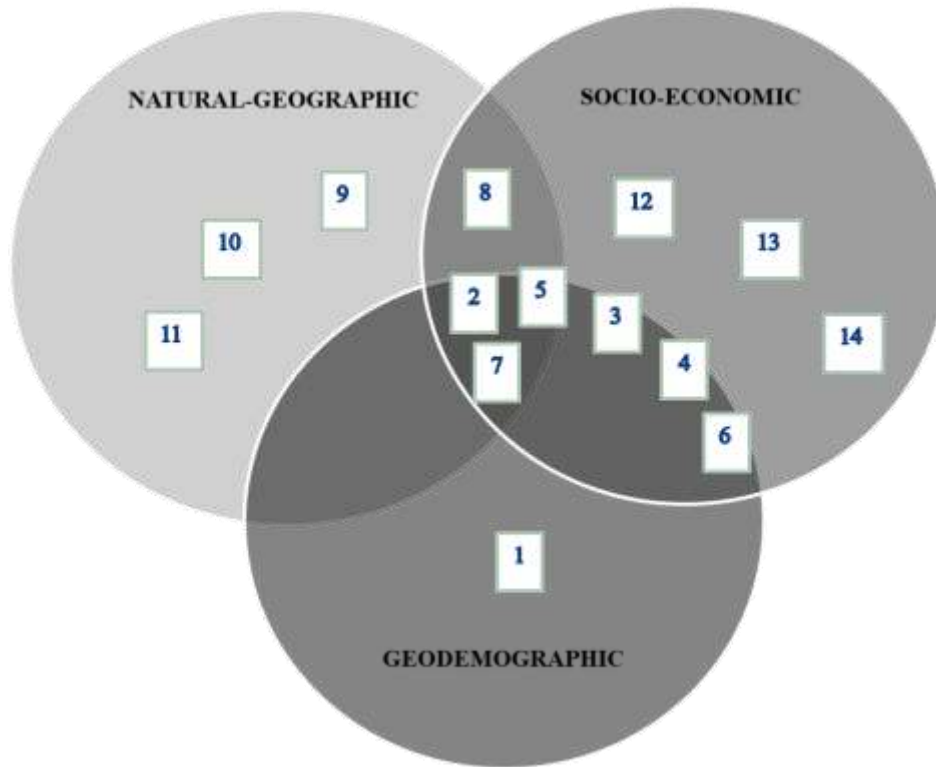
There is a wide variety of views regarding the classification of global problems: depending on their severity, the time of their emergence, their nature, the actual real dependencies between them, the sequence of decision-making to overcome them, etc. Their grouping according to certain attributes helps to identify the existing links, to specify the priorities, to determine the degree of exacerbation of objectively existing global problems and to rank the sequence of the actions for their solution.

In order to realize the purpose of the study and to clarify the essence of the global problems, an attempt was made to create a geographical classification. Without claiming to be exhaustive, we formulate fourteen global problems on the basis of their relevance, severity and importance. They are grouped into three large groups depending on the spheres in which they appear and prove the trinity of nature – man – society. Accordingly, the groups are geodemographic, population-related; natural-geographic, arising from the components of the natural environment and socio-economic, related to the economy, the social sphere, the culture, the social development (Figure 2).

Based on the classification, the following conclusions can be made:

- Global problems increase their number and sphere of manifestation;
- The greatest number of global problems (1/2 of all classified) occurs in the contact areas of interaction;
- Regardless of the conditional and relative nature of the proposed classification, the occurrence of the global problems is in close interdependence and interrelation;
- Most of the global problems has a complex nature because they occur under the influence of two (3, 4, 6, 8) or three main groups (2, 5, 7);
- Due to their complex nature the global problems require a system of comprehensive measures to resolve them.

From these examples it can be summarized that the assignment of one or another problem to a given group is conditional and depends on the criteria of partitioning, the degree of relevance of the individual problems and the regional view of the authors on them. Therefore, the proposed classification should be seen not as a definitive solution to the issue but as a possible way of reconstructing the complex system, helping to better understand the essence of the interrelations between the global problems.



**Figure 2.** Geographical classification of global problems

1. Demographic
2. Food-related
3. Healthcare problems
4. Educational problems
5. Preservation of world peace
6. Problems of international security
7. Ecological
8. Depletion of natural resources
9. Global warming
10. Water-related
11. Global catastrophes and natural disasters
12. Socio-economic conflict between poor and rich countries
13. Social inequality
14. Spiritual and moral crisis of humanity

Every global problem should be seen from three main points: what is the present situation, where, how and why the situation has become dangerous and how we can try to change it for the better by applying different strategies. The choice and the decision depend to a great extent on the social-ethical and moral-humanistic norms created in society, which is also the goal of its development [5, p. 12].

It is known that the problem is a scientific or public issue that has to be investigated and solved. It is caused by a certain inconsistency in the course of a natural, social or demographic process, the carrying out of some human activity and the lack of the expected result.

The demographic problem is a leading among the global problems of our time, because its emergence and solving influence the solution of food problems, the environmental problem, the preservation of the world peace, the problems of the international security, the health care and the education.

Demographic problems arise in the reproduction of the population and the level of compliance of resources for the development of humanity and of individual peoples and societies. The main criterion for assessing the course of demographic processes is the ability to carry out normal and appropriate reproduction of the population according to the conditions and resources. Demographic development is not limited only to the process of increasing the number of inhabitants of the planet, but also includes the problems of increasing population in relation to the natural resource potential of the territory, the condition and quality of the environment, hindering the food supply of the population, urbanization, inter-ethnic relations, refugees, lack of employment. All this proves that the interrelations between demography, economy and politics are complex and multilayered.

Therefore, *the demographic problem* is the mismatch between the level of socio-economic development, the resource availability for the economy, food and commodity production and population growth. Generally speaking, the demographic problem is that the population is rapidly growing due to the high fertility rate and life expectancy, the shortage of natural resources and production capacities for food and consumer goods.

Today, the effects of relative and absolute population growth become so topical that they are becoming a global problem. The dynamics of population growth in the world, presented in Table 1, is very distinctive.

The point of 1 billion is exceeded at the beginning of the 19 century. While the first doubling after 1810 required 110 years, the second one was in 40 years (1920 – 1960), the third one in 14 years (1960 – 1974) and the last one in 12 years (1999 – 2011). For the last 18 years, the population has increased by more than 1.5 billion and 94.5% of the growth is in the developing countries and only 5.5% of the developed ones. At the end of 2017, the world population reached 7.5 billion.

**Table 1.** Changes in population in the world

Year	Population (in billion)	Period of doubling	Growth Rate (in %)
1810	1	-	0,5
1920	2	after 110 years	0,9
1960	3	after 40 years	1,9
1974	4	after 14 years	2,0
1987	5	after 13 years	2,1
1999	6	after 12 years	1,3
2011	7	after 12 years	1,2
2017	7,5	-	1,2
Forecast for: 2020	7,8	-	2,9
2025	8,2	after 14 years	5,0
2040	9,2	after 15 years	3,6
2050	9,7	-	2,8
2055	10	after 15 years	2,4

The rate of population growth is the rate at which demographic indicators change. The highest rates of population growth in the world occurred in the 1970s and 1980s – about 2% average annual growths. Then they began to decline and in the first decades of the 21st century they were set at 1.2%. It is expected that in the middle of the 21st century they will increase again to 2.8%.

According to estimates of UN experts, the world population by 2025 will reach 8.2 billion, by 2040 – 9.2 billion, by 2050 – 9.7 billion and by 2055 – almost 10 billion. Population growth, according to the expected trends for this period, will be formed by developing countries in a ratio of 97: 3.

Much or little is the present world population of 7.5 billion people? The world population itself, however significant, can not be considered as large or little, isolated from the natural and human resources and the established political and socio-economic conditions.

Scientists maintain two different opinions and carry on intensive discussions. Some of them believe that the Earth is still far from absolute overpopulation and unlikely to reach it. Another part of them believe that the Earth is already overpopulated. Reason for this opinion is the misery, malnutrition and hunger, avalanche escalation of environmental problems in overpopulated areas.



Very often, population growth is seen as one of the factors not only hindering the fulfilment of life needs, but also threatening the viability of human civilization. Together with the increased consumption of natural resources, technical and energy equipment, the amount of waste resulting from human life and production activity is constantly increasing. Moreover, the socio-demographic situation in developed and developing countries is diametrically opposed, denoted by the term „demographic division of the world“.

In different countries and regions, the demographic problem has different dimensions. In developed countries, the demographic problem is mainly reflected in the aging of the population and the reduction of human resources for the economic development of the countries. In developing countries, the demographic problem is reflected in a predominant increase of the population to the basic necessities of life and the occurrence of significant difficulties in feeding the population, its health care and the development of education. The extent and the nature of the demographic problem in individual countries depend to a large extent on their socio-economic development and the stage of the demographic transition they are on.

At a regional and national level, demographic problems, depending on the type of reproduction of the population, have different dimensions – demographic explosion, demographic stagnation and demographic crisis. Human development across individual regions and countries is assessed through the two problems – *a demographic explosion and a demographic crisis*.

The rapid increase in population in the world, in a particular geographic region or in a particular country is defined as *a demographic explosion*. It is characterized by a high birth rate, a sharp drop in mortality, and especially child mortality and increased life expectancy. This is an unfavourable demographic situation because it reduces the opportunities for most people to feed, the opportunities for health care, education, jobs, etc.

The accelerated growth of the world population is now predominantly determined by the developing countries. Due to the high relative share of the population at sub-working age (1/4 of the population up to 16 years old) these countries will preserve the high growth rate of their population. Demographic explosion has a restraining effect on the country and region's development prospects. It is characteristic for the most countries in Africa, some countries in Asia and Latin America. At present the epicentre of the demographic explosion is in Africa.

High birth rate is the main prerequisite for triggering the demographic explosion. It, under the conditions of decreasing mortality, ensures the large population growth. The most significant birth rates occur in the continent of Africa and mostly in the West, Central, East and partially in South Africa.

In 2017, 43 African countries had birth rates above 30‰. The highest figures are in Niger (50‰), Chad (48‰), Angola (46‰), Democratic Republic of Congo (46‰), Central African Republic (45‰), Mozambique (45‰), Mali (44‰), Somalia (44‰), Burkina Faso (44‰), Burundi (43‰), Zambia (43‰) and

others. The countries in Asia are with high birth rates too. 5 of them have a birth rate above 30‰: the Democratic Republic of Timor – Leste (36‰), Afghanistan (34‰), Yemen (33‰), Tajikistan (33‰), Iraq (31‰); and in 34 of them the birth rate is between 20 and 30‰. Haiti, Bolivia, Guyana and Guatemala in Latin America have a birth rate of between 25 and 30‰.

The decreasing overall mortality is the second most important prerequisite for the demographic explosion. It is mainly due to the development of healthcare and medicine and to the raising living standards of the population. Under this influence is the mortality rate in most European countries, East Asia, North America, the Gulf region (Oman, UAE, Qatar, Bahrain, Kuwait, Saudi Arabia). Decreasing mortality rate in these countries leads to an increased average life expectancy and aging of the population. The lower mortality rate in a number of countries is due to the age structure of the population with a strong predominance of younger generations (25-30% of the population up to 16 years old) and is denoted by the term „demographic spring“. This applies to most African countries.

The mortality rate is in close relation with the average life expectancy. The latter grows almost continuously. This is due to the increased living standards, the way of life and the improvement of health care.

According to UN data in 2017, the expected average life expectancy in the world is 69 years, for men 67 years and for women 71 years [6]. The highest average life expectancy is in the developed countries: Monaco (89.4 years), Japan (85.5 years), Singapore (85.5 years), Iceland (83.1 years), Israel (82.7), Switzerland (82.7), Malta (82.7 years), the Republic of Korea (82.5 years), the Australian Union (82.4 years), Italy (82.4 years), Luxembourg (82.4 years) and others.

Geographical regions with the highest average life expectancy are Western Europe and North America. For men, life expectancy is the highest in Monaco (85.5 years), Singapore (82.8 years), Japan (82.2 years) and Iceland (80.9 years). Women have the highest life expectancy in Monaco (93.4 years), Japan (89 years), Singapore (88.3 years) and Republic of Korea (85.8 years). The lowest life expectancy is in the poor African and Asian developing countries, such as Mozambique (54.1 years), the Central African Republic (53.3 years), Somalia (53.2 years), Zambia (53 years), Lesotho (53 years) and Afghanistan (52.1 years).

Decreasing child mortality in developing countries and the high birth rates have an impact on the population growth and hence on the demographic explosion. At the end of the 20th century, child mortality in the world was about 54‰ and in 2017 it declined to 32.9‰. Thus, while in 2000 the continent with the highest child mortality rate in the world, Africa, it ranged from 87‰ (West Africa) to 140‰ (Central and Eastern Africa), in 2017 there was no African country with child mortality over 100‰.

Today, it varies in a wide range from 20 to 93‰ and decreases as a result of measures to combat diseases, hunger and malnutrition and to improve healthcare. Over the last decades, the child mortality rates in

Arab countries rapidly decrease, especially in the Persian Gulf region (below 8‰), where it has reached the level of the most developed countries.

Analyzing the demographic situation in the world in the context of the demographic explosion, we should note that the larger population has a stronger impact on the environment and increases the „demographic burden“ on the territory.

It is simultaneously influenced by several factors: the absolute population growth, the extent of consumption (lifestyle, income, and infrastructure development), the social inequality of the population, and the level of technology used. The development of the modern economy requires the use of an increasing amount of natural resources. The acuteness of the problem is related not only to the depletion of the limited resources, but also with the nature of their impact on the environment during use. The increase of the population in the world and its migration intensify this impact by preventing the stabilization of the unemployment problem; make it difficult to solve the problems of education, healthcare and social welfare. Consequently, any socio-economic problem includes a demographic problem as well.

Decreasing the population in a particular geographic region or country forms the situation of a *demographic crisis*. It is due to low birth rates, average mortality rates, aging of the population, negative or zero natural growth and shortage of labour resources.

As a global problem it is still considered the demographic explosion, not paying due attention to the upcoming demographic problems as depopulation, narrowed reproduction of the population and its aging, which will cause irreversible negative social and economical problems and demographic crises, especially among the small nations.

The aging of the population forms an unfavourable demographic situation, consisting in increasing the number and relative share of people in over-working age, reducing the number of people in sub-working age and limiting the labour resources. It is especially distinctive for most countries in Europe, Japan and others.

The aging of the population is characterized by the average age of the population (a characteristic of the age structure of the population, which is calculated as a weighted average value of the population in all age groups). It reveals the level reached in the process of population aging in the world and countries.

In 2017, the average age of the population in the world is 30.6 years. It ranges from a low age of 15.5 to 16 years in the African countries of Niger, Mali, Chad, Uganda and Angola up to 43 years or more in some European countries and Japan. The countries with high living standards and high life expectancy have the highest average age like Monaco (53.8 years), Japan (47.7 years), Germany (47.4 years) and Italy (45.8 years). The high average age is a feature of countries with a very high level of emigration of young people, such as Slovenia (44.2 years), Lithuania (44), Latvia (43.9 years), Croatia (43.3 years), Bulgaria (43 years), Estonia (43 years) and others [6].

Thus, the relative share of the population in over-working age in 2025 in these countries will account for over 1/4 of the total population, which will cause significant losses for health care and social security. At the same time, the birth rate in most economically developed countries can no longer provide for simple reproduction of the population. This process is called „demographic winter“.

The phenomenon of the demographic crisis is primarily centred on the countries of Eastern Europe and is not yet typical for the developed countries. It becomes topical to the researchers of the population from the mid-1990s when the most unfavourable parameters of the demographic situation are reached – very low birth rates, high total mortality and high mortality in the individual age groups, old age structure, emigration, high unemployment, etc. About 80% of the natural population growth of the EU member states since 1994 is due to emigrants. According to demographic projections, almost all countries in Europe are expected to be covered by a demographic crisis in 2025.

The demographic crisis has its strongest manifestations in countries like Bulgaria, Latvia, Lithuania, Estonia, Hungary, Romania, Croatia and others. It is due to the negative natural growth and mass emigration of young population to Western Europe and North America. The term „demographic crisis“ can be interpreted as a profound violation of reproduction of the population. In 2017, Lithuania (14.8‰), Bulgaria (14.5‰) and Latvia (14.5‰) are at the top of the world's highest mortality rates, followed by Ukraine (14.3‰), Serbia (13.6‰), Belarus (13.2‰) and others. The lowest birth rates are in Japan (7.5‰), Puerto Rico (8‰), Portugal (8.2‰), Greece (8.3‰), Bulgaria (8.5‰), Germany (8.6‰).

Since the beginning of the 21st century, the continent of Europe has a negative natural growth, with the highest negative figures being in Bulgaria (-6‰), Lithuania (-5‰), Latvia (-4.9‰), Serbia (-4.7‰), Ukraine (-4.2‰), Hungary (-3.9‰), Croatia (-3.6‰). Thus, due to the low birth rates and high mortality, there is a disruption of the normal reproduction of human generations. The demographic crisis naturally reduces the population of a given country or region to a different extent, with a severe disruption of the basic demographic structures.

The demographic crisis is characterized by the fact that the real growth (the total value of the natural and mechanical growth) of the population in these countries is negative and forms a reduction of the population. In 2017, the reduction of the population is most pronounced in Lithuania (-11.1‰), Latvia (-11‰), Moldova (-10.8‰), Bulgaria (-6.3‰), Estonia (-6‰), Croatia (-5.3‰), Serbia (-4.7‰), Ukraine (-4.2‰), Romania (-3.5‰), Montenegro (-3.4‰), Hungary (-2.6‰), Belarus (-2.5‰) and others. The reduction of the population in each of these countries is not only related to higher mortality rates and lower birth rates but also to the significant emigration rates. The demographic crisis exists in Puerto Rico (-16‰) and Lebanon (-11.3‰) and the European countries Germany, Poland, Italy, Portugal, Greece are entering the crisis as well as Japan in Asia.

Many countries in the world are characterized by *demographic stagnation*. Its typical feature is maintaining the constant population. The actual growth is zero or around zero. This demographic situation is formed at and is characteristic for countries on different stages of demographic transition and different levels of socio-economic development. This group includes mainly developed countries with almost zero natural growth and a positive mechanical population growth, such as Austria, the Czech Republic, Slovakia, Slovenia, Finland, Spain and others.

The indicated negative trends in population development cover all developed and highly developed countries. The consequences for the society and the demographic systems in the developed countries are similar, but they vary in intensity over time. As the demographic crisis in these countries is largely blunted by immigration and increasing the average life expectancy.

## Conclusions

Based on the report we can formulate the following *results*:

- The processes in the globalizing world are generating the global problems of today. They act as driving forces in the development of the world system.
- On the basis of their relevance and significance, in order to prove the trinity of nature – man – society, fourteen global problems are formulated in three large groups, depending on the spheres in which they manifest.
- Problems related to the dynamics of the human population affect the whole world and in some parts of the planet there is overpopulation, which can lead to depletion of natural resources as well as poverty and malnutrition.
- Global efforts to resolve the global demographic problem are contrary to the interest of countries that have unfavourable demographics including Bulgaria.
- There are countries with decreasing birth rates and increasing life expectancy everywhere in the world. The aging population leads to higher healthcare and pensions costs, and the number of workers and tax payers is steadily decreasing. As a result, these countries are at risk to become „demographic bombs“ which means a crisis due to too few people working.
- The demographic picture of the world is highly contrasting and moves between the two extremes - a demographic explosion and a demographic crisis. The factors that determine it affect the socio-economic development, income distribution, employment, unemployment, social security, health care, education, housing and the sources of water, food, energy, raw materials as well as environmental conditions and climate change.

- Stabilizing the population of our planet and resolving the demographic problem in the future is not an end in itself but a means of improving the lives of the present and future generations.

### Acknowledgements

The present article is the result of the work on a project No.RD-08-118/03.02.2020 of the Konstantin Preslavsky University of Shumen.

### References

- [1]. Bek, U., Shto e globalizatsiya?, S., **2003**.
- [2]. Kazakov, A., Choveshkiyat capital v usloviyata na globalizatsiya, *Ikonomicheski alternativi*, **2009**, 4, 53-65.
- [3]. Lakov, P., Regionalna iekonomika, Pleven, **2015**.
- [4]. Panarin, A., Iskushenie globalizom, M., **2003**.
- [5]. Rodionova, I., Ekonomicheskaya I sotsialnaya geografiya mira, M., **2017**.
- [6]. The World Factbook, **2018**, <https://www.cia.gov/library> (17.11.2018).