

ТЕОРІЯ І ПРАКТИКА СУЧАСНОЇ ЖУРНАЛІСТИКИ

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ENVIRONMENTAL THREATS AND NATIONAL SECURITY OF UKRAINE

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Today, we are more likely to speak and write about the more progressive destruction of land biosphere as a result of irrational economic activities of mankind – the replacement of traditional natural ecosystems by anthropogenic systems (techno-, urban- and agro-systems), discuss the harmonization of the interaction of society and nature, talk about growing socio-political tension and instability on the planet.

However, it is not just about understanding the effects of environmental civilization, but also awareness of the psychological and socioeconomic consequences of the brutal destruction of the biosphere, finding ways and means of solving the tasks associated with the ecological crisis, which has already entered the geopolitical level – during the last years there is carried out an intensive research on the effects of the crisis in the biosphere on the system of national interests and state security.

The war waged by the Russian Federation against Ukraine is causing serious environmental damage to the Ukrainian state. Combat operations spoil the air, pollute water bodies, destroy forests and unique ecosystems, destroy crops and, in the long run, can cause colossal damage to the ecosystem of the whole Eastern Europe, and shorten the lives of Ukrainians.

Key words: biosphere, ecosystem, evolution, ecology, civilization, the Russian-Ukrainian war, safety, problem, ecology.

Introduction

Everything is said that humanity has approached its development to a critical boundary. Before it is a rather high threshold that it should be crossed and turned into a qualitatively new society, or perish. We have a bouquet of options: to discharge in a nuclear disaster, to become a victim of exhaustion and poisoning of the environment, in particular from the expansion of the ozone hole, and from the new world flood – the result of the melting

of polar glaciers as a result of global warming on the planet. Most likely, humanity will destroy the nature itself, turning on full power of its mechanism of regulation – the micro world of bacteria and viruses, preparing civilization of the conglomerate of the epidemics with which modern medicine does not handle.

If we take into account that the biosphere is a complex self-organizing system with the mechanisms of maintaining homeostases and the recognition apparatus of the «harmful» agent – the sources of an exewing effect, which, undoubtedly, is a human, then such a sad consequence is quite logical: the mechanisms of perimity of the micro world (pesticides, which inherent mutagenic character, increased radiation, etc.) has long been turned on.

«Therefore, the ecological factor intensively enters the political sphere, significantly affects the functioning of basic socio-political institutions of global, regional, local levels, has a significant impact on national security in general and geopolitical security in particular. The ecological problem becomes a catalyst for the socio-political activity of people that manifests itself in the pursuit of society to find a comprehensive situation in the initiation of the transformations of the political system, in revision of the regime of national security»¹.

Director of the British Center for Climate and Security Mrs. Erin Sikorsky emphasizes that governments are increasingly recognizing that climatic changes form national security as never before².

The purpose of the study primarily due to the need for deeper awareness of the possible consequences of the environmental catastrophe for civilization and the separation of priority tasks that humanity should be solved in the field of environmental protection and which mechanisms for this should be used first.

This problem is devoted to a number of original works etc.

The thorough concepts of understanding the exclusively important role of biosphere in the history of mankind and in the history of Ukraine in particular were proposed by well-known Ukrainian scientists – V. Vernadsky³, S. Bachynsky⁴, A. Svidzynsky⁵ etc.

In 1996, Doctor of Geographical Sciences G. Bachynsky said that mathematical modeling of global socio-systems conducted by American scientists of the Roman club – Forrester, Meddes, Mesarovich, Pestel and others showed that in case of the basic principles of economic activity would be radically changed in the nearest future, then in 2030 (+5) years will begin a mass extinction of people on our planet as a result of a catastrophic deterioration of the quality of the life environment⁶.

Helen Briggs, Becky Dale, Nassos Stylianu indicate that the degradation of land due to human activity negatively affects the welfare of at least 3.2 billion people and pushes the

¹ Загорський, В., Ліпенцев, А. і Борщук, Є. (2011), «Глобальна екологічна проблема в системі національної безпеки», *Вісник Національної академії державного управління при Президентові України*, вип. 1, Київ, с. 78-87. URL: http://nbuv.gov.ua/UJRN/Vnadu_2011_1_12

² Корера, Гордон (2021), «Хто і з ким може воювати через зміни клімату – доповідь розвідки США», *BBC News*, 23 жовт. URL: <https://www.bbc.com/ukrainian/news-59009523> (дата останнього перегляду: 16.11.2022).

³ Вернадский, В.И. (2012), «Биосфера», у кн.: *Вибрані наукові праці академіка В. І. Вернадського*, т. 4, кн. 1, Київ, с. 220—321.

⁴ Бачинський, Г.О. (1996), «Український шлях у майбутнє», *Універсум*, № 3-4, с. 18.

⁵ Свідзинський, А.В. (2013), *Синергетична концепція культури, 2-е вид., випр. і доп.*, Афіша, Львів, 744 с.

⁶ Бачинський, Г.О. (1996), «Український шлях у майбутнє», *Універсум*, № 3-4, с. 18.

planet to the sixth mass extinction in the last half a billion years⁷. According to the authors, the main factors are inappropriate agriculture and forestry, climate change, and in some areas – expansion of cities, roads and minerals extraction,

Although climate change is an increasing threat, according to research⁸ the main reason for the reduction of biodiversity is the destruction of the natural environment due to uncontrolled operation of land – growing food, extraction of fuel and wood, excessive hunting and predatory fishing.

In the UNO Report (May 2019) developed by the intergovernmental scientific and political platform for biodiversity and ecosystems (IPBES), it is about the losses that the planet experienced during the last 50 years, and a rather gloomy future for tens and hundreds of thousands of species – one million species animals and plants now threatens extinction⁹.

On November 1, 2021, at the opening of the UNO Climate Conference (COP26) in the Glasgow, the UNO Secretary-General Antonio Guterresh called for its participants to an immediate action for the «salvation of mankind». According to Guterresh, over the past 30 years, the speed of lifting the level of the World Ocean has doubled, about four billion people in the last decade faced with natural disasters associated with climate change. The UNO Secretary General placed the largest responsibility for that on the countries of G20, which accounts for 80 percent of harmful emissions into the atmosphere. Guterresh also reminded the liabilities of the countries which signed the Paris Climate Agreement in 2015 to allocate \$ 100 billion a year in support of developing countries in combating climate changes¹⁰.

According to the Message of the Radio Freedom¹¹, the France-Press Agency (AFP) has access to a report prepared by the UNO on the threat to humanity due to the climate changes. Scientists have analyzed the situation and trends and made a detailed description of what is waiting for humanity at present rates. In just thirty years – until 2050 – if the situation does not change the coastal zones will be flooded; flowering lands slowly turn in the desert; the inhabitants of the metropolis will suffer from the lack of water and clean air; more than 130 million people will be behind poverty; the number of people suffering from hunger will increase by tens of millions.

Gordon Corraera, the BBC correspondent on security issues, reports that according to the report prepared in the fall of 2021 by several U.S. security organizations, the climate change will increase stress on the international arena. A 27-page report reflects a joint

⁷ Бріггс, Гелен, Бекі, Дейл Бекі та Стиліану, Нассос (2019), «Екологічна катастрофа: головні загрози нашій планеті у п'яти графіках», *BBC News*, 8 трав. URL: <https://www.bbc.com/ukrainian/features-48169628> (дата останнього перегляду: 16.11.2022).

⁸ Maxwell, Sean L., Fuller, Richard A., Brooks, Thomas M. & Watson, James E. M. (2016), «Biodiversity: The ravages of guns, nets and bulldozers», *Nature*, volume 536, p. 143–145. URL: <https://www.nature.com/articles/536143a> (дата останнього перегляду: 17.11.2022).

⁹ Макрат, Метт (2019), «Мільйон видів тварин та рослин на межі вимирання через людей. Шокуючий звіт ООН», *BBC News*, 6 трав. URL: <https://www.bbc.com/ukrainian/features-48174673> May 6, 2019 (дата останнього перегляду: 16.11.2022).

¹⁰ Філь, Анна (2021), «Гутерріш на кліматичній конференції: “Ми риемо собі могилу”», *DW*, 11 лист. URL: <https://www.dw.com/uk/my-Ryemo-sobi-mohylu-hensek-oon-na-klimatychnii-konferentsii-v-hlazgho/a-59686949> (дата останнього перегляду: 16.11.2022).

¹¹ «ООН готує доповідь про зміни клімату: прогнози невтішні» (2021), *Радіо Свобода*, 26 черв. URL: <https://www.radiosvoboda.org/a/oon-proekt-dopovidi-zminy-klimatu/31327488.html> (дата останнього перегляду: 17.11.2022).

position of 18 consonance of the United States. In their opinion, the countries fierce will argue about overcoming the climatic crisis. The risk group includes Colombia and Iraq, a number of states in Central Africa and island states in the Pacific Ocean. From these countries, instability with migrant streams will be shifted by the world, causing new humanitarian challenges¹².

The Academician of the Academy of Sciences of Ukraine Hrodzynskyy cites several prominent examples: «When human activity leads to the disappearance of absolute consumers, all unnecessary things begin to develop, the amount of which they controlled. <...> There occurred in Kyiv approximately 600 new plants which came here from the American continents and from Africa <...> There occur numerous types of «strangers» in the Black Sea, which suppress its fauna and flora. <...> The problem of oxygen is already gaining a lot of importance. By cutting off the forests, we destroy the range of the oxygen generation in the atmosphere. The ocean accumulates oxygen and in the event of its lack in the atmosphere, it gives it back. But we spoil this compensatory oxygen mechanism, polluting the ocean with all sorts of waste and emissions. According to scientists, in 15-20 years will there will be a lack of 1-2% oxygen on the planet. And this is precisely the threshold when a human acutely hears its shortage and can already faint away»¹³.

During the last century, the human activity has radically changed the structure of the global ecological system – the biosphere. «Biosphere is a much more complicated system than a set of all living things, since it covers not only alive, but also the oblique elements needed to maintain life»¹⁴.

The biosphere is intensively polluted by the chemical and physical waste of industry, crafting products of uranium nucleus as a result of the tests of the latest weapons, as well as radioactive emissions of the nuclear power plants.

The uncontrolled increase of the harmful substances in the environment was to increase the frequency of genetic mutations in living organisms – the animal and vegetation world began to accumulate the dangerous materials which are critical for its existence, that cause damage to the genetic apparatus and hereditary mutation. Besides, the insecticides and pesticides are massively used in the agriculture, which is harmful for the population of homo sapiens.

A human-made violence against the nature accelerated the processes of the variability of the microcosm (the world of microbes) and led to the weakening of human immunity (defeat of T-lymphocytes) before attacks by microorganisms. Therefore, one of the variants of the ecological catastrophe can be global epidemics, which from the position of system analysis can be regarded as to turn on the mechanisms of reactivity of the biosphere, directed against the agent that violates its internal compatibility. This agent is homo sapiens. The reaction of the biosphere is quite natural – e.g., the appearance of the COVID-19 virus can

¹² Корера, Гордон (2021), «Хто і з ким може воювати через зміни клімату – доповідь розвідки США», *BBC News*, 23 жовт. URL: <https://www.bbc.com/ukrainian/news-59009523> (дата останнього перегляду: 16.11.2022).

¹³ Гродзинський, Д. (2003), «Людству загрожують не стільки військові конфлікти, скільки екологічні небезпеки», *Універсум*, № 7-10.

¹⁴ Протасов, О.О. (2016), «Системна концепція еволюції біосфери і сучасна екологічна криза», *Вісник Національної академії наук України*, № 4, с. 53-64. URL: http://nbuv.gov.ua/UJRN/vna-nu_2016_4_10.

be considered as the first (but not the only one and not the latest) a consequence of brutal perturbations of the nature.

Theory

According to Vernadsky [20], the biosphere is the Earth's shell, in which solar and space radiation penetrate – they actually bring energy to Earth. In the biosphere there is an organization and development of living matter.

I. Shmalhausen created a system-informational concept of the evolution according to which «all living systems – organisms, populations, types, biocenoses – have the ability to automatic control over their structures or maintaining homeostasis»¹⁵. According to this scientist, the self-organization takes place due to the cybernetic properties of systems – presence and functioning of the direct and feedback between elements of systems and between systems.

A. Svidzynsky draws attention to the interweaving of the processes of self-organization of various hierarchical levels of the biosphere in the process of its evolution¹⁶.

G. Bachynsky submits a clear definition of the concept of socioecosystem: «A dynamic socio-natural and self-regulated system, should be regulated by its social component – the human society»¹⁷. The scientist notes: «In all complex dynamic systems, the elements of the lower order systems must be strictly subordinated to it to ensure the stability (dynamic equilibrium) of the system in which they are included. <...> Social systems, which are subsystems of the socio-systems of the relevant hierarchical level, should also meet this basic requirement of the vertical subordination»¹⁸.

Each social environmental system consists of two subsystems: socio-economic (population, infrastructure, industry, transport, energy, agriculture) and natural (relief of the planet, near-surface part of the crust, flora and fauna, air pool, underground and surface water). The well-being of any sociosystem is the preservation of the dynamic equilibrium (compatibility) between its natural and socio-economic components.

It should be noted that the conditions of compatibility and incompatibility are the initial property of the biosphere as a self-organizing system. These states are already observed at the level of the atom. E.g., the stability of the atom nucleus depends on the ratio of spin numbers of electrons on a valence orbit. The compatibility of the nuclear system can be recovered either by eliminating an electron from the atom system (the conversion of an hydrogen atom into hydrogen ion) or the addition of one electron with the opposite spin and the formation of a stable molecule of hydrogen H₂.

Compatibility and incompatibility may have the energetic, structural and informational character. Obviously, the energetic and structural incompatibilities contain (obviously or hidden) the informational incompatibility. An example of such a structural incompatibility may be the appearance of the excess chromosome in 21 pairs of chromosomes, which leads

¹⁵ Шмальгаузен, И.И. (1968), *Кибернетические вопросы биологии*, Наука, Новосибирск, с. 141.

¹⁶ Свідзинський, А.В. (2013), *Синергетична концепція культури, 2-е вид., випр. і доп., Афіша*, Львів, 744 с.

¹⁷ Бачинський, Г.О. (1996), «Український шлях у майбутнє», *Універсум*, № 3-4, с. 18.

¹⁸ «ООН готує доповідь про зміни клімату: прогнози невтішні» (2021), *Радіо Свобода*, 26 черв. URL: <https://www.radiosvoboda.org/a/oon-proekt-dopovidi-zminy-klimatu/31327488.html> (дата останнього перегляду: 17.11.2022).

to a sharp violation of the human intelligence – a well known Down disease. The shortening of the same «shoulder» of the one of chromosomes of this couple causes leukemia.

For the normal functioning of the system contained within another, two conditions are needed: the external compatibility, that is, the compatibility of the system investigated with a higher level of hierarchy and internal compatibility, that is, compatibility of subsystems that form the investigated system.

If an alien element that threatens a violation of the internal compatibility of the system appears in the dynamic nonlinear self-organization system, then it is subject to be destroyed by the reactivity mechanisms.

The oldest and simplest mechanism of the reactivity observed at the level of unicellular organisms is the mechanism that encompasses the isolation and destruction of all foreign introduced into the body. So, Ameba forms a digestive vacuole (isolation), and therefore secretes its enzymes that destroy the structures of the alien one's. For the unicellular organisms, it became simultaneously the protection and consumption (digestion).

The mechanism of reactivity is just to overcome incompatibility in all systems, and it would be incorrect to deny its presence only because they are not sufficiently studied, since the mechanism of reactivity is one of the two systemic compatibility recovery mechanisms.

The existence of one dynamic self-organization systems among others or one system within another inevitably leads to the development of adaptation mechanisms that are found predominantly in three moments: change themselves, change the spatial position in the environment, change the environment.

Adaptation and reactivity are processes that are aimed at restoring the impaired compatibility of the system. Only adaptation is a subsystem reaction to the changed conditions for its existence within the system, and reactivity is a system response to changes in its internal state.

Obviously, the adaptation is achieved through a structural or informational complication of partial to general. That means, it is about the reaction of partial to change in general. It is unlikely that the biosphere adapts to the effects of the aggressive human activity, which is capable of «adapting» the environment of existence to their needs. The biosphere adapts to the conditions of the spacecraft of our planet – the periods of warming are changed by icing, in accordance with these alternations, the world of animals and plants of the biosphere changes, looking for the new forms of organization in new conditions.

If a new system is introduced, which includes some unresolved contradictions, then to maintain the integrity and internal compatibility, the system must destroy the source of this contradiction. In the biosphere, there should be mechanisms for recognizing an element that causes incompatibility, and the mechanisms of its suppression.

The whole biosphere is an extremely complex homeostasis of the interconnected elements. And suppression, and even, the destruction of these elements of a particular element of the biosphere, inevitably leads to a violation of equilibrium.

Socio-systems are systems of information. In conditions of the information noise and purposeful disinformation on the state of systems, a purposeful regulation of the interaction of the socio-economic components and natural components becomes impossible.

Based on the general laws of the development of self-organization systems, it is impossible not to think that the ecological system does not possess the well developed image recognition mechanisms. The behavior of the plant world that varies according to climatic oscillations, not only coincides with these fluctuations, but is often preceded by a

temperature burst, indicating not only the existence of recognition mechanisms, but also mechanisms for an accurate analysis and decision-making. It would be very surprising if such a powerful factor of the influence on nature, as an economic (anti-ecological) human activity, would have not been recognized by the environment, which would not «adopt» a proper decision.

It can be assumed that the environment is saturated with super-power transmission channels through which the messages are distributed, about the content of which the humanity does not even guess.

«When we are talking about the harmful effects of the environment, it usually comes to the fact that it has radiation, heavy metals, toxins in water. And we do not take into account the information field. And its influence can lead to more terrible consequences than the material factors that are so frightening»¹⁹.

Methodology

The social form of movement of the mankind is associated with its organizational activities. For its survival it is forced to enter the environment of chaos, which is an entropy. This is inherent in all heterotropic systems. The difference is only that when other heterotropic systems can enter the balance with the biosphere and their contribution in the growth of entropy is compensated by the influx of nongentropia (measures of orderliness) in the form of solar energy, which is assimilated by plants, then for the human activity it is fundamentally impossible.

The only source of environmentally friendly energy, which reduces the artificially generated chaos, is a solar energy. All other energy sources, except that wind power, are environmentally harmful. Equilibrium in nature can only be stored when the biosphere using the free energy of the Sun compensates for the growth of entropy. Unfortunately, this equilibrium has long been violated and continues to collapse with a catastrophic acceleration.

«The energy that the Earth receives from the Sun has a higher quality than the energy that the Earth emits into the space, although the values of both energies are the same (because otherwise the land would be warmed up, or would be frozen). Due to the difference in these qualities the being on Earth is improved. The quality of the energy flow is determined by information. Consequently, the flow of energy coming from the Sun to Earth carries more information than the flow of energy that the land emits into the space. A certain amount of the solar radiation information is digested. This is a universal source of improvement, source of value added on Earth. The assimilation of solar radiation information begins with the reaction of photosynthesis. When using a catalyst, which is a chlorophyll green sheet, from molecules of carbon dioxide and water and two types of light, oxygen and glucose molecule are formed, this is a source of primary information for all living on Earth, the source of value added. The primary information undergoes a huge number of secondary transformations, creating more or less developed chains of processes in everything alive. The human society is characterized by its ability to assimilate and transform information. Each separate tree, animal, human is characterized by their perfection in their assimilation and transformation of information they receive from the outside, from the environment. <...>

¹⁹ Гродзинський, Д. (2003), «Людству загрожують не стільки військові конфлікти, скільки екологічні небезпеки», *Універсум*, № 7-10.

The green leaf becomes a dominant problem. It is advisable to deal with the environment, which has a larger specific information, with a more perfect environment»²⁰.

As already noted, the main source of all processes occurring in the biosphere is the solar energy. It is accumulated in oil, coal, natural gas. And this energy of the «past biosphere», a human spends thoughtlessly. The human should think about all possible consequences of his behavior and activities. However, the humanity continues to brutally change the environment. And thus the environment affects everything alive on the planet, including the human. Despite the catastrophic deterioration of the environment, a human does not want to radically change his environmental behavior.

«Why does a human do it all? A greed for a faster movement and comfort. The energy intensity of human life is increasing. If you take an annual cost per person in the XVII century, now they are on average for all humanity grew 600 times. The costs necessary for the metal due to the human life increased. And for the death too. The calculations show that for the one soldier killed in the Second World War there were spent 5.5 tons of ammunition. And how much paper is consumed in the world, for which production the “lungs of our planet” – forests – are used!»²¹.

The same thought follows G. Bachynskyy: «Unfortunately, the desire of the fast enrichment, unbridled gate of things and pleasures, vanity, envy, aggressiveness, desire to dominate the others, wastefulness and other negative features of the human nature became the cause of the predatory exploitation of the natural riches of our planet. The economic activity is aimed on the consumer and consumption. It has many times been enhanced by achievements of the scientific and technological progress and thus violated the dynamic equilibrium of the Earth's socio-ecosystems and caused its progressing destruction. Between the human society (in Latin – *societas*) and the environment of its existence (in Ancient Greek – *oikos*) arose an acute contradiction – a global socioecological crisis that has threatened the further existence of the humanity on Earth»²².

A human satiates the environment of his existence by chemically active substances, a significant part of which causes the genetic damage (mutations). Moreover, it weakens itself genetically and reduces its immune protection (T-lymphocytes) and seems to prepare itself to self-destruction as a result of the attack of microorganisms. *Homo Sapiens* promotes mutability and creating virulent strains of bacteria and other microorganisms.

Despite the fact that the rivers, lakes, swamps are an extremely complex system, no less important than the blood circulation system in the human body, *Homo Sapiens* «shaded» the water arteries with artificial rubles, caused salinity of soils, drained marshes – as if it has removed peculiar kidneys from the body of water exchange.

The human accelerated the circulation of many chemical elements, which the Nature accumulated millions of years, brutally interferes the circulation of water on the Planet. The human has polluted the world ocean so much that it occurred in front of the threat of the gradual extinction. And this is due to the fact that it gives the atmosphere of the planet up to 80 percent of oxygen.

One of the signs of life is the confrontation to the entropy processes. Thanks to the mind, *Homo Sapiens* assimilates the nongentropy. That is, the entropy decreases. The

²⁰ Там само.

²¹ Там само.

²² Бачинський, Г.О. (1996), «Український шлях у майбутнє», *Універсум*, № 3-4, с. 18.

correct solution of the one or another task means the creation of an additional nongentropia. Instead, mistakes, admitted by a human, mean an increase in uncertainty, disorders, that is, an increase in entropy. From the point of view of physics in every isolated system – this is the second law of thermodynamics – the entire entropy and chaos increase.

Today, the Planet has already raised a problem of the social entropy, political entropy, entropy of thinking. By analogy to the physical extent of uncertainty there was a concept of the information entropy – the measures of uncertainty or unpredictability of information, lack of its reliability and completeness.

According to the second law of thermodynamics and thermal scattering of energy, the further increase of the industrial capacities (even preservation of production at the current level of operation of enterprises) will lead to the melting of glaciers and raising water levels in the oceans, already so polluted that it is before the threat of gradual extinction – it is primarily about the threat of destruction of plankton, the death of oxygen algae, which give the atmosphere of the Planet about 80 percent of oxygen.

The group of specialists revealed that the Atlantic Ocean flow almost completely lost its stability. Thus, the Gulf Stream reached a minimum speed over the past 1600 years. In the significance, Amazon tropical forests and Antarctica glaciers can suffer seriously.

A human led to the formation of the so called «ozone holes» – defects of the ionic shell on the poles of the globe. This jeopardizes the ecosystem that Nature created during millions of years – this ecosystem is biosphere.

A human contributes to the mutability and creating virulent strains of bacteria and viruses for his body, it satiates the environment with chemically active substances, a significant part of which causes genetic damage (mutations).

The worst thing is that the human leads this war not because of some congenital train to «villain», but due to the capacity to influence the environment and adapting it in accordance with his needs.

Such an amount of pollution and damaged ecosystems has not been seen since the Second World War. The system analyst Nataliya Globa states: «Snowless winters are coming to Ukraine, the dry land becomes mobile and, in the absence of obstacles, is easily blown away by the wind. Uncontrolled land use, lack of forest belts, perennial plantations on huge territories turn Ukraine into a desert. No financial power of agricultural holdings will help them cope with such a disaster»²³.

In the war against Ukraine, Russia not only kills people, destroys settlements and infrastructure. Explosions and fires lead to the air and water pollution, destruction of forests and unique ecosystems. As of the end of June, the Ukrainian Center for Environmental Initiatives «Ekodiya» recorded almost 340 cases of the negative impact of war on the environment²⁴. The head of the climate department of this public organization, Yevgenia Zasyadko, says that as a result of the destruction by Russian missiles of treatment facilities and sewers, the polluted water enters rivers. For example, in April, in Ternopil region, fragments of a downed Russian rocket fell into a mineral fertilizer warehouse located quite close to the Ikva river. As a result, fertilizers got into the reservoir. A few days after that,

²³ Globa N. Hirshe za koronavirus: yak Ukrayina peretvoryuyetsya na pustelyu. URL: <https://glavred.net/opinions/girshe-za-koronavirus-yak-ukrajina-peretvoryuyetsya-na-pustelyu-10166258.html>

²⁴ Нинько, Дар'я (2022), «Викиди, брукт і пожежі: як війна нищить довкілля України», *DW*, 1 лип. URL: <https://www.dw.com/uk/vykydy-brukht-i-pozhezhi-yak-viina-nyshchyt-dovkillia-ukrainy/a-62323748> (дата останнього перегляду: 17.11.2022).

fish plague was recorded in the Rivne region. Reservoirs in the south and east of Ukraine are most negatively affected. There is a risk of accidents at nuclear power plants. Damage of the Zaporizhzhya nuclear power plant – the largest one in Europe – would lead to a catastrophe, it would be the second Chernobyl.

The Operational Headquarters of the State Environmental Inspection, where more than 70 scientists from all over the world work, deals with recording the consequences of bombing, destruction of industrial facilities and service systems. The inspectorate has already processed about 300 environmental crimes and calculated more than UAH 200 billion in damages for just a few of them. Oleksiy Obrizan, head of the Working Group of International Experts of the State Environmental Inspection, talks about the ecological consequences of the war: «In the first place are fires on fields, forests and in unique ecosystems such as the Kinburn Spit. This is accompanied by emissions of combustion products into the atmosphere, which are quite harmful. The second place is the burning of oil depots, commercial and industrial facilities. In third place there are emissions into the atmosphere from the movement of military equipment²⁵.

The war waged by the Russian Federation against Ukraine is causing serious environmental damage to the Ukrainian state. Combat operations spoil the air, pollute water bodies, destroy forests and unique ecosystems, destroy crops and, in the long run, can cause colossal damage to the ecosystem of the whole Eastern Europe, and shorten the lives of Ukrainians.

Evaluation and analysis of results

The enhanced use of the nuclear energy is an increase in radioactive substances emissions and an increase in genetic mutations in living organisms on Earth. Together with chemistry emissions, this is the beginning of the self-genocide of mankind, and today it is extremely difficult to stop this process. It should be kept in mind: a bacteriological catastrophe will inevitably be accompanied by epidemics; nuclear power plants will remain unattended; a bacteriological catastrophe will become nuclear.

Currently, an environmental catastrophe has survived over the Ukrainian Polissya as a result of the mindless activity of «amber mines», there is a threat to an ecological catastrophe in the Crimea, annexed Russia, and in a part of the territory of Donetsk and Lugansk regions occupied by terrorists. And there are still consequences remaining after the Chernobyl catastrophe...

Negative chain reactions associated with monopoly of the state property

Sophisticated biochemical processes have inertia. It is impossible to remove mutagens from water and soils, which humanity for decades thoughtlessly, simultaneously. Beginning the correct environmental policy, you can only reduce the likelihood of a disaster. The biosphere is a much more complicated than just a system of the internal social structure of human society. If compared with the degree of complexity of solving environmental and social problems, then the first is comparable with the integral numerical, and the second

²⁵ Крикуненко, Ірина (2022), «Після війни стане коротшим життя. Еколог розповідає, як обстріли впливають на воду, повітря й ґрунти в Україні», *НВ*, 22 трав. URL: <https://nv.ua/ukr/ukraine/events/yak-viy-na-vplivaye-na-vodu-povitrya-ta-zemlyu-ukrajini-ekspert-novini-ukrajini-50243604.html> (дата останнього перегляду: 16.11.2022).

with four elementary arithmetic actions. And in the same way as it is impossible to learn the elements of higher mathematics, not significant arithmetic, it is impossible to approach environmental problems without solving the pre-social ones.

According to G. Bachynskyu, «The state should not serve the selfish aspirations of individuals who often build their welfare at the expense of other members of society and harm to society as a whole, but, on the contrary, every person for the sake of their own survival and future children deliberately subordinates his personal interests to the nationwide interests»²⁶. And yet: «The most organically and so the easiest process of the socio-ecologization of social consciousness will be held in national states with indigenous ethnos. After all, ethnos is historically formed in a certain territory with more or less identical physical and geographical conditions of the community of people, which has a common pedigree, genetic roots, language, culture and traditions and is marked by close anatomical and physiological and mental properties»²⁷.

Leading to the symbiosis of the ecosystem and state, we operate not an abstract concept. Humanity as a nonlinear dynamic self-organizing system is within another one, much larger, – biosphere. The first system (humanity) as a result of the ability to adapt the environment to their needs acquires the ability to change the reality. Peculiar intellectual impulses, which once decided to experience the environment, have become the consequences of the opening of the properties of the lever and the transition from hunting to agriculture and cattle, the results of the use of fire (wind, pair, electricity, nuclear energy) and the creation of computer systems.

Each such intellectual impulse changes the reality not only in the relationship between systems, but also within each particular, causing a cascade of new impulses. Thus, the transition to agriculture and cattle breeding caused some profound changes in the environment, that is, not only brought the perturbation in the biosphere, but also led to the deep changes in the human society. In the environment, this led to a gradual reduction in the diversity of species of plants and animals (up to the disappearance of some of them), the emergence of deserts, violations in the water building of the planet. In the internal structure of mankind, it caused the emergence of a family, private property, state and slavery, in turn, causing a cascade of a variety of contradictions, to overcome the same intelligent system. It must solve them, aware of the threat to its existence. Moreover, with each stage of development of civilization, the power of these intellectual impulses increases, contradictions are increasing too. It is already impossible to stop this process, it is accelerated. The world is globalizing too fast.

Conclusions

Today, humanity exists in an extremely difficult period of its existence – it is in a critical condition with two probable scenarios of development: either it or will go to a qualitatively new stage of evolution and will become a successful civilization, or will perish. The crisis primarily lies in the fact that humanity as a dynamic nonlinear self-organizing system was in a state of internal and external incompatibility – incompatibility of political and economic state structures and incompatibility of the very civilization with the environment. There are a lot of reasons for political and economic incompatibility between the states. In particular, in

²⁶ Бачинський, Г.О. (1996), «Український шлях у майбутнє», *Універсум*, № 3-4, с. 21.

²⁷ Там само, с. 22.

the XX century there were formed totalitarian systems, which, seeking to achieve the world domination, created various types of violence: political, economic, ideological, physical. The destructive role in the interstate confrontation also played powerful multinational monopolies and corporations, pushing the world to the arms race and thus accelerating the growth of incompatibility of a human population with the biosphere.

The creation of tools and systems of mass lesions is an accompanying and inevitable consequence of the development of mankind and cognition of the secrets of reality by the mankind. No prohibitions, arrangements, restrictions and reservations will help. The only one thing would help – to put the end of science in general. To do this, it would be possible to close universities, burn libraries, destroy the entire system of education and return to the classic Middle Ages. And since to stop the development of science is impossible, then it should be remembered that gene engineering can create not only new types of super-productive plants, but also new viruses more terrible than the AIDS virus, new bacteria more terrible than bacillus with plague. Besides, it should be taken into account that further penetration by physicists and chemists deep matter will allow weapons to invent a weapon stronger than the nuclear one, and the disclosure of the secrets of the brain will help create psychogenic weapons, etc.

To stop the process of knowing is impossible. But when to the inquisitiveness of the scientist, populism and ambitions of some politicians are added, then such a mix can break our Planet into the pieces or can turn it into a desert.

The essential cause of the self-destruction of the humanity can become its unprotected reproduction. The excess population can lead to ethnic, and subsequently to political self-destruction. Already now in Western European countries, which has been covered by a wave of the economic emigration, there is a tendency to extend the euphoria of «universal human brotherhood». The Western Europe will have either to enroll in the «peaceful» conquest of its countries, primarily immigrants from Africa and Asia, or to adopt rigid laws that will limit immigration.

No new approaches and methods of preserving the environmental environment can be effective, since the main source of pollution and exhaustion of the environment is the production of products per capita of the planet. It is very doubtful that humanity is able to stop the growth of the industrial potential.

For its survival, humanity is forced to increase the entropy of the environment. This is a law for all heterotropic systems. The difference only lies in the fact that if other heterotropic systems can enter the balance with the biosphere and their contribution to the growth of entropy is compensated by the influx of non-thermal energy in the form of solar energy, which in relation to human activity is fundamentally impossible. E.g., for each tonne of the useful products accommodate tens of tons of waste.

Reducing the intensity of entropy to the environment can be deteriorated by the occurrence of a possible thermodynamic catastrophe. Conditions here are dictated by the second law of thermodynamics, a peculiar «constitutional» law of the Universe. In contrast to human constitutional laws, it will never be able to get around it.

But the humanity has to do not so only with the military conflicts, but also with the environmental hazards. Further pollution of the environment increases the likelihood of a bacteriological catastrophe, which will inevitably be accompanied by a social shock – disorganization of the established life of society with waves of violence, mass fires, destruction of industrial and public objects.

Logic suggests that it is necessary to have a plan for special measures that, in case of the first symptoms of bacteriologically and viral threat, should be used to make it possible or at least to reduce and locate the effects of the expected disaster. It is necessary to take care of the quarantine isolation of regions, minimize the effects of the social shock. It should also be predicted to preserve sources of the scientific and technical information, the most valuable works of art, literature.

In order to survive, the humanity has to implement the lost compatibility with the biosphere – first of all, it should develop the optimal environmental and demographic policies. To do this, it is necessary to enter the phase of the non-conflict development: without wars, without revolutions, and, most importantly, without state advance.

At the global level, the path to the socio-political compatibility of countries and people, the integration of states into a single democratic community consists in the general humanization of societies and restriction of state control over the personality, adopting a general provision for the Planet on human rights and its steady compliance.

Due to a long time, the concept of the national security of most countries was focused, first of all, on the problems of military danger or threats associated with the concept of the external enemy, and determined the degree of success of the state in the structure of the regional or global military confrontation. But in the early 80's of the twentieth century. It became apparent that the most fundamental threats to security of the social development are in a non-military sphere.

Summarizing the above, it can be argued that the modern environmental problem, as well as other global problems, reflects the crisis of the modern social development. Therefore, it seems an urgent need to form an effective system of the national security, which main task should be provision of both social and environmental order.

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ЕКОЛОГІЧНІ ЗАГРОЗИ І НАЦІОНАЛЬНА БЕЗПЕКА УКРАЇНИ

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Сьогодні ми щораз частіше говоримо й пишемо про дедалі прогресуюче руйнування біосфери Землі внаслідок нераціональної господарської діяльності людства – заміну традиційних природних екосистем антропогенними системами (техно-, урбо- та агро-системами), дискутуємо про гармонізацію взаємодії суспільства і природи, ведемо мову про зростаючу соціально-політичну напруженість та нестабільність на планеті.

Разом з тим йдеться не лише про розуміння наслідків впливу цивілізації на довкілля, але й усвідомлення психологічних та соціально-економічних наслідків брутальної руйнації біосфери, знаходження шляхів і засобів розв'язання посталих завдань, пов'язаних з екологічною кризою, яка вже вийшла на геополітичний рівень – останнім часом інтенсивно досліджують вплив кризи в біосфері на систему національних інтересів і державної безпеки.

Війна, яку Російська Федерація розв'язала проти України, завдає серйозних екологічних збитків Українській державі. Внаслідок бойових дій занечищується повітря, забруднюються водойми, страждають ліси та унікальні екосистеми. Бойові дії на території України знищують врожаї і в довгостроковій перспективі завдадуть колосальних збитків екосистемі всієї Східної Європи, а українцям скоротять життя.

Ключові слова: біосфера, екосистема, еволюція, екологія, цивілізація, російсько-українська війна, безпека, проблема.