Social and Technogenic Development of the World and its Problems

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Abstract. The concept of social and technogenic development was proposed by the Doctor of Philosophy Professor Eduard Semyonovich Demidenko in the department of Bryansk State Technical University exactly called Scientific and Philosophic Research School of Social, Technogenic and Natural Processes and Social and Technogenic Development of the World in 2002, which became quite well-known in the Russian Federation and is recognized by RAS, RAO, RAE, MAI, Moscow Society of Nature Employers, established in Moscow State University named after M.V. Lomonosov in 1805. On the basis of this school the scientific and philosophical field-philosophy of social and technological development of the terrestrial world is developing. In recent years, E.S. Demidenko has paid special attention to various aspects of the life evolution on Earth and the need to form a long-term strategy for the development of Russia. He proposes the most likely, in his opinion, safe and promising scenario of escape from the deadly danger to humans and the biosphere, which (danger) comes from spontaneously chosen by mankind social and technogenic development of the world. He is talking about strategic, fundamental and generalized ideas, on the basis of which the social, technogenic and biosphere model of life will be consciously built.

1. Introduction
The redundancy of technocratic development has long been written about, but on the one hand, they do not give any reasonable facts, and on the other hand, they do not give an answer what people need to do. If the biosphere has been self-developing for about 4 billion years according to the principles and laws of self-organization of biological life, now it is changing on the basis of science (i.e. man’s reason) and scientific and technical productive forces of the social organism [2]. Post-agricultural societies: industrial and even post-industrial are a guiding force of all changes. According to E.S. Demidenko, these social organisms create a very technogenic world, killing biosphere and the man himself in the end, which is proved in his articles [3]. Post-agricultural social systems are not only responsible for the functions of biosphere self-development, but also create a different, socially technogenic world at the expense of the resources of the biosphere, moreover, its most valuable, life-creating components, which include biospheric living matter and biogenic substance in the soil cover [4; 12]. As he notes, the mankind forms a contradictory technosphere on the Earth, comparable already in mass with the living matter of the planet [9; 10]. The urban population of the planet occupies 4% of the land, which is equal to roads covered with asphalt or other technical materials. And all anthropogenic and technogenic soils cover about 50-55% of the land, where there is practically no biosphere biological substance. According to the forecast, by the end of the XXI century 13% of the land will have been
covered with buildings, or 20% of its livable space. Besides, it is also predicted that 70% soil will become technogenic, based on the current rate of technosphere growth and the reduction of wildlife.

2. Methods
The concept proposed by E.S. Demidenko comes from philosophical and scientific studies of the biosphere by V.I. Vernadskiy, French scientists Édouard Louis Emmanuel Julien Le Roy and Pierre Teilhard de Chardin, who proved the leading role of man in the development of the biosphere at present. E. Le Roy, who got to know the ideas of V.I. Vernadskiy, identified two major events in the history of the Earth: 1) vitalization of inanimate nature and 2) life hominization (i.e., socialization) by mankind. Based on this, E. Le Roy introduces the concept of noosphere into scientific vocabulary in 1927, which is considered as a phenomenon of the cumulative impact of humanity on the entire biosphere, according to the researcher of this concept F.T. Yanshina [20, p. 73]. V.I. Vernadskiy does not only accept this concept, but also makes a number of detailed remarks without changing its true meaning.

At the same time, it cannot be said that they revealed all the secrets of the further development of human society and the biosphere to us. Based on the experience of farmers who transformed both the human and biosphere-natural world, especially in the field of cultivating plants and animals, they assumed that humanity would continue to follow the path of creating a renewed biosphere—that is called noosphere. Unfortunately, this is not happening at all at the present time due not only to the rapid growth of the population on our planet during the period of 1800-2015 the population grew by eight and eighty times, reaching, respectively, 7.3 billion people in general and 3.7 billion of citizens, which is now 51% against 5.1% back in 1800 [4, p.104]. As we can see, the urban population is increasing extremely rapidly, enriching the excessively industrial world with its technological and artificial life through the use of biosphere nature. Without industrialization and urbanization, the world's population can neither be fed nor equipped, but the limit makes sense here.

The second technocratic reason for the exorbitant growth of industry and artificial life is the strengthening of the capitalist system with its market relations, generating fierce competition for both natural resources and family and individual wealth of everyone living on the planet. Competition for creating ‘individual home fortress’ has reached unprecedented proportions on Earth, especially the exorbitant enrichment of the economic and political elite of the world [2, p. 70]. This does not certainly explain everything, but the bourgeois system generates the death of the biosphere on the planet with its extremely selfish way of life, and its death leads to the death of biosphere life, populations of its organisms, not excluding, as we guess, the man himself, tolerant of such a reality. On the basis of the study of the global life transformation and the works of V.I. Vernadskiy, E.S. Demidenko comes to the conclusion that the main threat to biosphere life is its excessive social and technological development, although the society is called post-industrial [7, p. 37-40].

3. Results&discussion
As E. S. Demidenko says, technosphere plays a dual role-both positive and negative. Without the developed technosphere there would not be any good material and spiritual culture, a high level of education or normal life conditions. But at the same time, excessive and often poor-quality technosphere displaces biosphere, killing it [1, p. 25]. Besides, V.V. Dokuchaev, his student V.I. Vernadskiy, and then soil biologists V.A. Kovda, G.V. Dobrovolskiy and many others have changed our ideas not only about the world of soils, but also about biosphere life in general. And E.S. Demidenko dwells on the arguments of Bryansk soil scientist G.T. Vorobyov, who raises the problem of developing a soil philosophy that goes beyond the boundaries of the narrow science of soils, since soils are the basis of the lithosphere part of the biosphere. He himself in his article on the scientific work of G.T. Vorobyov develops a new vision of the earth's soil cover. ‘But if in the early stages of life on the Earth, its surface lithosphere environment was mainly non-biosphere, consisting of inert substance and water, the natural environment has become a very complex and important part of the biosphere created by living organisms. Moreover, living matter formed the soil, laying in reserve huge resources in the form of life-giving biosphere substance. All living things, dying, went into the soil to be renewed there and
then to build as new microorganism plant and animal worlds as a single system. The endless process of complicated and evolution of life is accompanied by accumulating of hundred million of years in the soil of many trillion tons of biogenic substance of a special property-biosphere-biological substance, which is absorbed by plants in the process of autotrophic nutrition. This amount of this substance would be enough for many millions of years of human life, if people had at least some elementary ideas of its value for life and its exhaustibility. But in the system of man-society there is a firm belief that the God created the world for him for once and for ever that all living nature is therefore eternal and will always give birth and bloom. And even now, when the mankind has already accumulated considerable knowledge about wildlife, about the role of soil in it, few scientists realize this unique inseparable connection of the biosphere formation and the soil [4, p. 103].

Then, E.S. Demidenko on the basis of statistical data shows how over the past 10 thousand years, the humanity has not just eaten, and destroyed both wildlife and soil cover, which remains only for two centuries. ‘After that-the end of biosphere life will come on the whole planet. If, of course, life is not be ruined by us even earlier, in the coming decades, by the harsh social and technological development of the world’ [4, p. 104]. Although it does not exclude the most difficult and forced transition to post-biosphere life, when products will have to be created with the help of biotechnology.

Although it sounds strange, but despite the fact that now it is a tough destruction of the biosphere life, biologists and ecologists give lectures to students of biology about harmonic biosphere cycles of substance on our planet, as if there is not a huge city technosphere or anthropogenic and technogenic barren soil that occupies half of the Earth's territory, or man-made agricultural land where it is impossible to harvest without mineral fertilizers and synthetic chemistry to feed the population and animals. In this regard, it should be noted that E.S. Demidenko analyzes agricultural issues which lead to destruction of our planet according to his analysis. It is possible to give brief calculations based on statistical data available in different fields of science. Thus, according to the data of V.A. Kovda, more than 3 billion tons of soil humus was washed into the seas and oceans annually in 1920th, and about 24 billion - in the 1970ties-, which allows us to say that century annually more than 30 billion tons are dumped at the beginning of the XXI. These dumps are connected, according to E.S. Demidenko, with the introduction of one–year crops in agriculture, and with multiple soil treatment, resulting in wearing soil humus. The second reason is associated with the rapid growth of the urban population, which has reached 51% of all people on Earth. As a result, half of the crop grown in the village goes to cities, and there food waste is dumped into seas and oceans, burned, or sent to dumps, but not to the soil for reproduction of life. Finally, the world's population annually eats about 1.5 billion tons of food, and the annual humus dumping into seas and oceans is about 30 billion tons, that is 20 times higher. This fact suggests that the problem of soil destruction is connected not only with the nutrition of the population but with the fact that people being the soil owners do not save it. Harvesting the crop, villagers hope that their descendants will be fed by the citizens, as it feeds a huge mass of citizens now [1; 4; 7; 9; 14].

Social and technological development of the world and life has a significant negative impact on people and their bodies transforming them and deteriorating their immune system, especially on children. Between the end of 20th and the beginning of 21st centuries the world faced a very complicated problem: on the one hand, the average life expectancy is growing, but on the other hand, so-called civilized diseases such as cardiovascular, allergic, oncologic, genetic, asthmatic and others-appear and spread rapidly, and these diseases are becoming younger [14; 15; 16]. These processes are vividly discussed in the article by E.S. Demidenko and S.N. Chuvin "Dangerous transformation of human biological qualities in the conditions of technogenetic development of the world" [16, p. 19]. It would seem that the incredibly economic, scientific and technical power of the modern civilization is growing and everything in the world should improve. Indeed, the number of literate people has increased during the past two centuries from about 3-5% to 85%, and scientists and researchers - from 1 thousand to 5 million. The humanity has created cities never seen before; they have many facilities, but technocratic civilization meets the man not just with troubles, and increasing disasters from day to day. Cancer, for example, in the twentieth century rose in developed countries from almost zero to
20% among diseases, which confirms its technogenic origin that is characteristic of the world. We can cite other data taken from the paper and which are evident of the negative impact of the world technological development on genetic diseases, which authors compare the highly developed industrial and medical United States and more natural Russia. If there are all 30 genetic diseases in the United States among the stated, Russia has only 4 [16, p. 44].

"The impact of the urban environment, and its core-the technosphere," as the authors of the article note, "especially their synthesized chemical components, on the health of people is largely destructive, that is proved by steadily decreasing level of the physical condition of man in general, his health in the largest cities and urban countries. This is connected, firstly, with the sedentary lifestyle of the urban population, which does not require large amounts of physical labor: comfortable work in many respects, public transport, lack of time for sports, etc. According to sociologists, physical activity per person over the past two centuries has decreased by about 10-15 times on average. Secondly, technogenic burden shows itself not only in the urban technosphere, but also in the spreading technogenic soils in the agriculture, saturated with already dangerous chemical components and impoverished by the very process of soil exploitation; accordingly, this also leads to the impoverishing of food items. The whole chain of technogenic formation in the modern world is very complex, but a rather limited number of people both in Russia and abroad are engaged in studying it" [16, p.41]. As the research of the paper authors shows, these complex issues are left to environmentalists, although the technogenic social development and the socio-technogenic state of the world are the concern of philosophy together with sciences.

Analyzing in his works the evolutionary development of life on the planet, E.S. Demidenko comes to the conclusion: with the transition from the collective economy, with which Cro-Magnon dealt for about 200 thousand years since his origin on Earth and becoming a new biological species, to manufacturing-based economy about 10 thousand years ago the humanity entered the anthropogenic-technogenic stage of destroying biosphere life on Earth [16]. Some scientists refer to the problem of technogenic burden to the phenomena that are characteristic of technical and technological objects and processes, especially the so-called "man-made disasters". The members of Bryansk scientific school realize that the problems of technogenic burden have its roots in the artificial world created by people, which is built in a biosphere world not only by using equipment and technologies, but also through other human efforts, disrupting the harmony created by the biosphere for many hundreds of millions of years. This does not mean that the biosphere was a kind of perfect harmony of all types of organisms, and that all its competing organisms behaved loyally. After all, about 500 million species of evolved living organisms during the whole history of the Earth's development has left now a little more than 2 million, or 0.4 %. The harmony of the biosphere was in its historical self-development for almost 4 billion years, and now we are just killing it.

E.S. Demidenko also answers the question why the biosphere will not be able to regenerate itself, while Nobel prize laureates often write about the spontaneous self-revival of the biosphere. The matter is that at all crises of biosphere its basis – a soil cover has always remained, which is the keeper of the saved up former biogenic soil substance for hundreds of millions of years under the layer of perennial plants; thanks to what life at return to favorable conditions on the Earth did not only revive, but also rose remained on Earth. Now the situation is different, the soil is dying; its stock is rapidly decreasing. And with their complete destruction within two centuries, reviving of the biosphere will not take place. Thus, in the United States in the twentieth century about two-thirds, if not more, nutrients were spent in agricultural soils. Their losses ranged from 60 to 99.5% in different regions, which makes it even more to technify and chemicalize soils and develop genetically modified food items [4, p. 20].

In recent years, E.S. Demidenko has paid special attention to various aspects of the life evolution on Earth and the need to form a long-term strategy for the development of Russia [6]. He proposes the most likely, in his opinion, safe and promising scenario of escape from the deadly danger to humans and the biosphere, which (danger) comes from spontaneously chosen by mankind social and technological development of the world. His opinion is based on the following ideas: 1) to arrange the conservation of the world biosphere-biological substance left on Earth, which was created by self-
development for about 400 million years, due to global restructuring of technogenic biological cycle of matter created by the mankind and life-threatening; 2) partial restoration of biosphere spaces, especially in the regions with favorable climate conditions and active processes for self-development; 3) creating biological substances in the technosphere full of value and favourable to people’s life and development; 4) development of large-scale recycling of agricultural industrial and other industries and human activities; 5) elimination of any other hazardous contaminants to the biosphere organisms: human, plant, animal and microorganisms; 6) optimization of all types of life activities based on social equality, humanism, labour contribution of the person and family into the production of life benefits, preservation and development of life; 7) the appropriate rationalization of the political system and the life activity of peoples. Actually, we are talking here about strategic, fundamental and generalized ideas, on the basis of which the social, technological and biosphere model of life will be consciously built, that is, with the preservation of the self-developing biosphere nature and its compatibility with the world artificially and rationally built on the biosphere foundation.

4. Conclusion
In the conclusion, it should be stressed that now the problems of social and technological development of the world and life are actually ignored by science, which formally recognizes this fact hidden from the public, but allegedly directs all its research and efforts to meet the needs of the population. At the same time forgetting that the most important need of the population is sparing application of biosphere vital resources for the purpose of preserving and prolonging biological and human life on Earth. The authors hope that the governments and authorities all over the world, and local economic bodies will take into account the current situation on the planet, and will seek and use all the possibilities of restructuring the biosphere deeply transformed by man-made society and, accordingly, the biosphere of human life [18, 19].

References
[1] Demidenko E S 2014 Anthropo-technogenic stage of destruction of biosphere life on Earth. Anthropo-technogenic degradation of the biosphere: suggestions to overcome it In: Gerasimov V (ed.) Works of Russian interdisciplinary scientific-practical conference INION RAS, (Moscow) pp 19-29
[2] Demidenko E S 2015 Megatrends in the socio-natural development of the world and in the transformation of biosphere life Bulletin of the Baltic Federal University named by I. Kant. Humanities vol 6 pp 69-78
[3] Demidenko E S 2014 The World "postindustrial" - the world savagely technogenic Youth in postindustrial society (Saratov, MAOR-Germany) pp 7-22
[4] Demidenko E S 2014 On the philosophy of soil cover and socio-biotic cycle of substances Use and protection of natural resources in Russia vol 135 3 pp 102-109
[5] Demidenko E S 2015 System understanding of scientific and philosophical modeling of safe development of life System researches in science, management and education Ed. by L.M. Lukyanova (Kaliningrad) KSTU publishing House pp 42-61
[6] Demidenko E S 2014 Change of evolution of life on Earth and necessity of formation of perspective strategy of development of Russia Russia: tendencies and prospects of development Yearbook vol 9 (Part 1) (Moscow) Russian Academy of Sciences INION pp 43-48
[7] Demidenko E S 2013bModern society as postindustrial-technogenic Bulletin of the Baltic Federal University named by I. Kant. Humanities vol 6 pp 37-43
[8] Demidenko E S 2015 Social pedagogy in the conditions of socio-technogenic transformation of the world Modern problems of science and education vol 2 http://www.science-education.ru/12922314
[9] Demidenko E S 2015 Technogenic social development and its problems National Association of scientists Monthly report 2 7 pp 90-93
[10] Demidenko E S 2015 Technogenic reality - under the close attention of science of the XXI
century New science: strategies and vector of development: international periodical (Sterlitamak, The Ritz) pp 104-109

[11] Demidenko E S 2014 Philosophy in the conditions of social and technogenic development of life on Earth Actual problems of social and humanitarian research in Economics and management (Bryansk) Bstu pp 243-249

[12] Demidenko E S 2015 Philosophy of life and life of soils in the modern technogenic epoch Problems of modern anthroposocial cognition (Bryansk) Bstu vol 12 pp 19-29

[13] Demidenko E S, Dergacheva E A 2015 Socio-philosophical analysis of the formation and development of the concept of technogenic society Modern problems of science and education 2 http://www.science-education.ru/131 / 23481

[14] Demidenko E S, Dergacheva E A 2015 Technical and technogenic reality of modern socio-natural development in the transformation of biosphere life Bulletin of the Bryansk state technical University 4 pp 140-147

[15] Demidenko E S, Chuvin S N 2014 Dangerous transformation of biological qualities of the person in the conditions of technogenic development of the world Problems of modern anthroposocial cognition (Bryansk) Bstu vol 11 pp 39-55

[16] Demidenko E S, Shatalov A T 2008 Philosophical orientation in the problems of human health Philosophy of science vol 13 1 pp 15-31

[17] Popkova N V, Dergacheva E A 2008 Philosophical socio-natural studies in BSTU Bulletin of the Bryansk state technical University 1(17) pp 121-129

[18] Trifankov Y, Dergachev K A 2016 Brief Review of the Modern Development of the World and Life in the Works of Scientists of Bryansk Philosophical School of Social-Technogenic World Development SHS Web of Conferences. RPTSS 2015 – International Conference on Research Paradigms Transformation in Social Sciences 28 http://dx.doi.org/10.1051/shsconf/20162801151

[19] Trifankov Yu T, Dergachev K V 2019 Modern Philosophy in the Context of Interdisciplinary Studies of Human and Nature Smart Technologies and Innovations in Design for Control of Technological Processes and Objects: Economy and Production 139 pp 228-233 https://link.springer.com/chapter/10.1007/978-3-030-18553-4_29

[20] Yanshina F T, Evolution of V I 1996 Vernadsky's views on the biosphere and the development of the noosphere doctrine (Moscow) Nauka