

Contemporary Globalization in Terms of Socio-Technogenic Transformations

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Abstract. The development and interaction of current anthropogenic social systems result in new objective laws and trends in the processes of globalization. In most countries of the world there are interrelated socio-technological changes due to the market economy of mankind that cover all spheres of social life. However, the process of globalization is not limited to the spheres of social and economic life. This process includes not only society and people, but both natural and man-made environment within which peoples exist. The development of the society takes place in natural medium (the biosphere) and connected with it through different exchange processes both natural at the beginning and man-made then. Thus artificial environment (technosphere), being a product of society and existing within it and biosphere becomes prevalent in social and socio-natural development. Therefore, emphasizing the techno-sphere as being one of the main components in the processes of modern globalization, alongside with society and nature, makes good sense. The globalizing social medium by means of scientific achievements and due to expansion of a techno-sphere continuously changes in and of itself, also transforms the biosphere together with its major subsystems, with no exception of an individual. The expansion of the artificial objects in the world and the reduction of the natural world space have resulted in interaction of three main spheres of modern life: globalizing technological society technosphere and biosphere, both modified by this society. Such reciprocity produces the appearance of compound socio-techno-natural globalization as a unique process of integrated technology-related socio-natural development. All these and many other reasons determine deeper understanding of modern globalization phenomenon being interdisciplinary in its nature and broadening the insight of either processes or modern progress key problems.

1. Introduction

According to the most common view in the world, globalization is a process of social transformation caused by the liberal economic activities of the world's highly-developed countries together with active market players known as transnational corporations. Such activity of human society is responsible for relative unification of the way of life of all the population in cities around the world and at the same time goes hand in hand with aggravation of problems connected with socio-ecological development.

There were two main concepts of globalization formed on the basis of these and other ideas in the field of international globalism at the beginning of the XXI century that is socio-economic and socio-natural [2; 15; 16]. In these theories, the authors assume a narrow sociological understanding of globalization phenomenon as being the product of social processes and undergoing changes on the basis of market and economic relations. Theorists of social-nature globalism helping on better understanding of

globalization introduce the principle of co-evolution as well as stability in the development of society and natural environment which are put into effect by the system of world capitalism. At the same time, representatives of these concepts consider society a self-sufficient closed system that interacts with the environment such as habitat, but not as an integral part of a complex anthropogenic socio-natural world's progress.

Keeping in mind the insight of modern global processes, we can say that society is developing on the basis of social laws, while bio-environment is in progress due to natural and biological rules, which, in fact, does not imply the existence of more complex social laws of such development, including growing integrative relationship between man-made society and the biosphere with the social medium being upmost. Thus, in the theories of postindustrial (and information) society, the authors draw their conclusions concerning society progress trends taking into consideration all the peculiarities of socio-economic and technological modernization missing a key point of social and natural process synergy in terms of: technogenic complexity of life. That way, representatives of these concepts explore globalization from narrow, sociological points of view excluding deep interdependent transformations both in the society and nature caused by the latest productive forces employment as well as either the expansion of the techno-sphere or artificial world as a whole.

2. Methods

Such a limited interpretation of the world social processes without taking into account the dynamics of society, artificial world and biosphere interaction, is peculiar to sociology, because when using a systematic approach researchers miss the point of such relationship that is being formed between the subsystem (society) and the system of a higher level (biosphere nature). In fact, in keeping with the comprehensive approach, social philosophy is aimed at studying planetary social evolution in relation to natural, biological and anthropogenic changes both in the biosphere and a human being, though it matches criteria of sociological theories responsible for social development. Therefore, it is necessary to expand the narrow sociological contents of such approach owing to socio-philosophical interpretation, when society as a subsystem of the biosphere is strengthened in anthropogenic way and begins to re-subordinate and even destroy the biosphere nature.

The study and understanding of the social and natural anthropogenic processes, giving the chance of much better comprehensive knowledge of the contemporary globalization system phenomena are under the spotlight of various scientists [1; 3; 4; 5; 8; 9; 20]. Using socio-philosophical approach, the author investigates current global development and builds the concept of consistent integrated socio-techno-biological globalization. Such concept involves forming relationship among the man-made developing society created by them artificial world and technologically transformed biosphere nature world. Thus, the author renews and substitutes the narrow sociological understanding of globalization for more comprehensive interpretation [11; 12]. Such kind of planetary transformation intelligibility with the benefit that is much deeper imagination and realization of all the processes studied by special Sciences, both social and technical ones.

3. Results & discussion

Modern globalizing anthropogenic (industrial and post-industrial) society, developing in the biosphere, creates with the help of scientific and technical productive forces artificial inanimate nature known as techno-sphere [7; 18]. It consists of such elements as artificial objects (means of production, industrial complexes, cities, buildings), synthetic chemicals, artificial electromagnetic fields, etc. On the one hand, the expanding techno-sphere affects the social organism itself, which leads to the formation of anthropogenic habitat and lifestyle of the population in cities. On the other hand, it transforms the biosphere nature in the anthropogenic way, which contributes to its degradation, destruction and, as a consequence leads to the growth of the ecological crisis and even change the evolution of life on Earth [6]. It is worth saying that at the beginning of this century, the rate of natural ecosystem area reduction is about 1% per year, forests account more than 13 million hectares (with a ratio of one to ten indica-

tors of reforestation), while the reduction of biological species is hundreds and thousands of times higher than in past eras [4; 13].

Thus, the objects and elements of the techno-sphere cause system changes both in the society and nature that are responsible for anthropogenic phenomenon (i.e. incompatible with the biosphere biological artificiality) alongside with social and socio-natural development and its expansion in the world. Moreover, the techno-sphere gives a significant and increasing acceleration not only to social but also socio-natural processes, intensifying their related global challenges. The universalizing techno-sphere participates in the exchange processes taking a hand in both socio-sphere and biosphere, being part of these globalization processes. All this proves the fact that modern globalization serves as a process of social and technological world's development.

In modern globalization the important part is played by information system development, that ties the world up. Information system development reshapes the techno-sphere, providing a means of its growth acceleration due to the intensification of regional and international enterprises economic activity alongside with the creation of world's scientific and technical productive forces, and results in expansion of integration socio-technological processes which fall beyond the scope of national social organisms. As a result, in various cities of the world there is a planetary technical and technological unity of the both urbanization and technology-related sphere development meeting full transnational industrial, agricultural, service corporations' and markets' requirements with lots and lots focus on the repletion of their wants.

At the beginning of the XXI century active transformation of natural and biological systems can be observed, the development and subsequent distribution of transgenic living organisms is going on. Globally, transnational corporations (TNCs as their main developers) have started commercialization of bio-and nanotechnology. The scale of self-inflicted organisms' expansion on the planet is evidenced by the fact that 10 years ago more than 110 million hectares in the world were laid down with transgenic plants [21], transforming the biosphere and destroying it. Thus, the economic elite of the society begins the purposeful increase of anthropogenic nature inside the forms of biological life too. Globalizing technological social medium suck agrarian societies into technology-related management and techno-sphere formation for they are technologically dependent on the developed world. Remote from the "central" capitalism, such countries are forced to reproduce the industrially anthropogenic model of development imposed by global "players" of business, because their temporary socio-economic well-being is contingent on it. This is the example of how the basis of globalization is created, i.e. a technology-related economic organism that transforms nature radically [10; 14].

It should be added that in the process of global anthropogenic sphere development of the biosphere, caused by the development of society, by means of biotechnological methods and artificial chemistry thoroughly change products of vegetable and animal origin. And the of nutrient level in technogenic products differs from natural ones, which leads to far from unambiguous consequences for the human (in particular, the cancer tumor growth, allergic diseases [17]). And here we should not be misled by the improvement of dangerous diseases diagnosis methods, because in technogenically developed societies according to the American scientist D. Servan-Schreiber the cancer epidemic is still growing and is massively more than in the new industrialized countries. This concerns first of all and is proved by the catastrophic scale of the pediatric and teenage cancer incidence increase, young age population diseases (up to 35-40 years), which were extremely rare until the last third of the last century. Thus, in developed countries, the average incidence of cancer in this group increases by about 1.6–1.8% annually [19].

Modern globalization corresponds to both technological stage of society development and nature reclaiming. The globalizing technology-related social medium on the basis of purposeful expansion of various elements of artificial world ranging from synthesized substances, including food, to electromagnetic fields reorganizes the whole social organism (including an individual), as well as former system of nature development and its life which has been existing on the Earth for nearly four billion years. Included through the food chain in biosphere biotic cycles artificial substances (xenobiotics, contaminants, supertoxicants) chain transform, violate its true circle and overreach. As a result local

man-made biogeochemical processes become global. These techno-sphere objects are qualitatively different from the biosphere and they are integrated with natural organisms and humans, creating intermediate forms of life between the natural and artificial world known as techno-biosphere, including anthropogenic individual, transgenic plants, cloned animals, and on a global scale it is techno-bio-geochemical cycles of substances, energy and information.

But this is not the end of globalization. So, in 2010 an artificial cell was created under the leadership of genetics D. K. Venter and its genome was produced on the basis of IT. This new (in fact, post-biosphere) form of life, the DNA of which is obtained artificially, is able to reproduce itself and function in any cell while its original inherent specifications are intentionally defined by society. These and many other facts show that all totaled, namely planetary system interaction of social, techno-sphere and natural-biological processes determines the change in the evolution of nature including socio-natural Earth's life transformation from natural to man-made with tendency towards wholly artificial.

4. Conclusion

The global processes and problems that have been ensuing for the last two or three centuries in man-made social development have been thoroughly studied neither by philosophy nor science yet. This does not allow our minds either to span a new stage of evolution prospects in Earth's life or include all these issues in the scope of sustainable social and natural development theories. We should take into account that integrated socio-technological patterns of its development are being formed in the course of social, artificial and natural-biological components interaction in the modern world. Together they constitute the phenomenon of modern globalization as a process of socio-technological world's development. Such a view of globalization gives a chance of contemplating the laws of the interrelated and expanding modern society's development and created by it the artificial world with no exception of natural environment world that is fully transformed in anthropogenic way.

This concept expands the narrow sociological size of our understanding the phenomenon of globalization and opens the potential for modern processes investigation in a deeper and more thorough way concerning the interrelated development of society and nature [5, 6]. In the concepts of sustainable social and natural development, it is necessary to target both the entire world community and the scientific and economic potential of the planet seeking the solution of priority planetary problems that is preserving the integrity of the biosphere and humanity and ensuring their safe existence in man-made living conditions.

References

- [1] Gerasimov V (ed) 2014 Anthro-technogenic degradation of the biosphere: suggestions to overcome it *Works of Russian interdisciplinary scientific-practical conference INION RAS* (Moscow)
- [2] 2009 Atlas of Global Development (A Visual Guide to the World's Greatest Challenges) Collins The International Bank of Reconstruction and Development The World Bank (Washington, D C)
- [3] Baksanskij O E, Dergacheva E A 2016 Economic Man under Conditions of World Social-Technogenic Development The European Proceedings of Social & Behavioural Sciences *International Conference «Responsible Research and Innovation 2016»* 192-200 <http://www.futureacademy.org.uk/files/images/upload/icRRIF2016025.pdf>
- [4] <http://dx.doi.org/10.15405/epsbs.2017.07.02.25>
- [5] Danilov-Danilyan V I, Zalikhanov M C, Losev K S 2007 Environmental safety General principles and Russian aspect (Moscow)
- [6] Demidenko E S, Dergacheva E A, Popkova N V 2011 The philosophy of the world social and technogenic development: articles, concepts, terms The world inform-encyclopedia Moscow *BSTU publishing House* (Bryansk)
- [7] Demidenko E S, Dergacheva E A 2017 From the global degradation of the biosphere to the change of life evolution Russian Academy of Sciences (Moscow)

- [8] Demidenko E S, Dergacheva E A 2010 Technogenic development of society and transformation of biosphere (Krasand, Moscow)
- [9] Demidenko E S 2016 The Concept of Technogenic Social Development *SHS Web of Conferences RPTSS 2015 – International Conference on Research Paradigms Transformation in Social Sciences 2015 (28)* DOI: <http://dx.doi.org/10.1051/shsconf/20162801025>
- [10] Dergachev K V 2016 Man and his prospects under conditions of virtual reality development The European Proceedings of Social & Behavioural Sciences *International Conference «Responsible Research and Innovation 2016»* 209-216 <http://dx.doi.org/10.15405/epsbs.2017.07.02.27>
- [11] Dergacheva E 2016 Establishment of Multidisciplinary Methodology in the Modern Industrial Enterprise Management SHS Web of Conferences *RPTSS 2015 – International Conference on Research Paradigms Transformation in Social Sciences 2015 (28)* DOI: <http://dx.doi.org/10.1051/shsconf/20162801026>, last accessed 2019/03/10.
- [12] Dergacheva E A 2016 Socio-techno-natural globalization concept: Interdisciplinary analysis Lenand (Moscow)
- [13] Dergacheva E A 2009 Trends and prospects of socio-techno-natural globalization Librokom (Moscow)
- [14] 2006 Ecological Footprint and BioCapacity http://www.footprintnetwork.org/images/uploads/2009_Data_Tables_hectares.xls
- [15] 2016 2017 Economy in the conditions of social and technogenic development of the world 1st and 2nd International interdisciplinary scientific conference on fundamental and applied problems of modern socio-economic and economic-ecological development Bryansk State Technical University Russian Academy of Sciences (Bryansk) **1,2**
- [16] Scholte J A, Robertson R (ed) 2006 Encyclopedia of Globalization Routledge N Y (London)
- [17] Mazur I I, Chumakov A N (eds) 2006 International Interdisciplinary Encyclopedic Dictionary Moscow Saint Petersburg (New York)
- [18] Larionova I S, Alekseev A A 2008 System thinking in biologist and doctor's practice: philosophical analysis (Moscow) vol 2
- [19] Popkova N V 2008 Philosophy of the technosphere Librokom (Moscow)
- [20] Servan-Schreiber D 2013 Anticancer New lifestyle (Moscow)
- [21] 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 2015 (28)* <http://dx.doi.org/10.1051/shsconf/20162801151>
- [22] Walker S 2008 Biotechnology without secrets (Moscow)