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SUSTAINABLE DEVELOPMENT OF THE SOCIAL REGULATION SYSTEM OF THE RURAL REGION

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Abstract

The article deals with the issues of sustainable development of modern rural areas in the system of security and complex interrelation and ensuring the social regulation of human and social life. It is aimed at interacting with the surrounding material world to meet the necessary needs. At the initial stage, this interaction is directed towards the natural environment, which represents the biosphere as a natural component of life on Earth, consisting of lower and upper layers of the atmosphere inhabited by living organisms. In the process of influencing the natural and biological environment, the technosphere was created as a cultural and technological formation, including the transformed biosphere, as well as infrastructure: housing, roads, buildings, structures, cities, settlements, industrial enterprises, cultivated fields, agro-industrial complexes, gardens, farms, all types of transport and communication systems. When ensuring technospheric, environmental and demographic security and solving its problems, they must be taken into account when working out the development strategies for both regions and the country as a whole. A comprehensive approach is needed to assess the safe condition of technospheric objects and structures, their impact on the surrounding ecological environment, so that, its recreational impact would have a beneficial effect on health, quality and life expectancy of the population. The systematic analysis and assessment of the technospheric security state at the regional and general social levels make it possible to identify the relevant risks and threats and develop preventive measures promptly to ensure the security of the country as a whole.

Keywords: Rural areas, sustainable development, technospheric security

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1. Introduction

The life activity of a person and society is primarily aimed at interacting with surrounding material world to meet the necessary needs. At the initial stage, this interaction is directed towards the natural environment, represented by the biosphere as a natural component of life on Earth, consisting of the lower layer of the atmosphere and the upper layer of the atmosphere, inhabited by living organisms. In the process of influencing the natural and biological environment, the technosphere was created as a cultural and technological formation, including the transformed biosphere, as well as infrastructure: housing, roads, buildings, structures, cities, settlements, industrial enterprises, cultivated fields, agro-industrial complexes, gardens, farms, all types of transport, communication systems (Alferova & Tretiakova, 2015).

At the same time, the life activity of people has not only an anthropogenic impact on environment in general and biosphere in particular, but also experiences an objectively regulating impact of environment and technosphere. There are various kinds of dangers, associated with the properties of living and non-living material matter, causing harm to the existence of people in the case of ignorance of laws of physical, biological and social worlds and neglecting the conditions of their existence and development. In this context, the risks of the safe life of people are associated with hazards of various nature and origin. According to the sources of origin and development, there are natural and anthropogenic hazards. Natural hazards are associated with climatic and natural changes that occur during weather anomalies and natural disasters in the biosphere. For example, Rostov Region produced more than 12 million tons of grain in 2020. But in the summer and autumn of the same year there was dry weather for more than 3 months on the Don. There were no autumn rains necessary for sowing winter wheat, the harvest of which is expected in 2021, so, agrarians are afraid of negative impact of the weather on grain crop, which is the basis of agricultural grain production in many areas of Rostov Region. There is a risk situation for the 2021 harvest in the region, grain producers associate all hopes for their harvest not only with agro-technological works carried out, but also with natural and climatic conditions of the spring of 2021 (Lysenko et al., 2014).

2. Problem Statement

The problem of a comprehensive solution of the social regulation of rural areas is very urgent. There are dangers and risks of technogenic and anthropogenic origin. Technogenic hazards arise during the operation and functioning of the technosphere and its components: machines, apparatuses, structures, roads, transport, the use of toxic and harmful substances, as well as the use of outdated and worn out equipment and technologies. Anthropogenic hazards and risks are the result of incompetent actions of people in the process of using substances and forces of nature in the technosphere and social life, making wrong decisions, performing prohibited actions and violating the common sense activities. The example of today life is the fact of digitalization of modern society and economy. The digital society is rapidly developing the wireless communication in 3D mode, and not far off is the day when 5D communication towers will begin to appear in cities and towns of Russia and this problem causes concern and questions of people about increased electromagnetic radiation of these structures and their impact on health. In this example, we can see the interweaving of technogenic and anthropogenic hazards. The technogenic danger

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of this type of communication is created by the very objective fact of its presence in humanity. Its logic led to its existence and impact on the environment. And the anthropogenic component of the possible negative impact on residents of a particular house, street, block will depend on activities of officials, managers, IT specialists, who choose the location of a particular telephone tower, which affects the health and well-being of people, the quality of their life and the possible life duration.

3. Research Questions

The object of the study is rural areas, the sustainable development of which involves a rationally verified application of the technosphere, correlated with the ecological basis of the existence of humanity, which uses natural resources with regard to needs not only of current, but also of future generations. It requires a new concept of the technosphere, the environmental and demographic security of society, the state, groups of people and an individual, and the introduction of a comprehensive and systematic approach to the problem of safe existence in minds of everyone. The change in human behavior in general terms, the transfer of the emphasis of activities from purely consumer practices to universal practices of common sense are important in this situation. We must realize the need to behave with nature in such a way that natural resources are sufficient for present and future people. It is the main regulatory meaning of environmental protection and sustainable development behavior. People see themselves in relations with nature as diligent reproducing masters, and not as temporary workers who have used its riches, acting on the principle. Let everything disappear after us, there will be enough for our age.

4. Purpose of the Study

The aim of the work is to increase the technospheric, environmental and demographic security in the system of complex interconnection, ensuring social regulation. Thus, large cities and regions are saturated with elements of the technosphere, depending on their political, economic, administrative, scientific, and cultural significance. The labor force is concentrated in large cities; the population grows and requires solving demographic security issues, because there is a kind of population imbalance: an outflow of population to nearby cities from districts surrounding large cities which turn into agglomerations. There are problems associated with the oversaturation of technological systems, roads, pipelines, cars, overpasses, factories, plants, as well as with the increasing risks of anthropogenic accidents, catastrophes, an increase in the volume of garbage and contamination of reservoirs with sewage, the appearance of garbage dumps. It is also necessary to solve the problem of urban expansion, which creates restrictions for the production of living space.

In this regard, the experience of China is exemplary, where the expansion of cities meets the limitations of the production of space from the environment. The true purpose of space production is to increase capital. But the pursuit for profit has led to a sharp confrontation between capital and the environment. In modern China, these restrictions are not only manifested in the lack of material resources for production, but also in various types of pollution of the environment itself – air, water, soil. And, of course, this state of affairs in the production of living space due to the inclusion of more and more land, turning it into a commodity, leads to a reduction in the resources of space, serious restrictions on its

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production. It also results in reproduction, the loss of its unity with the social environment, the growth of contradictions between different segments of the population that inhabit the best and worst areas of urban space. This leads to an increase in tension in society, where there is a contradiction based on the overproduction of housing and infrastructure in urban areas intended for the rich and its under-consumption in the space of existence of low-income citizens, the poor and the marginalized. Accordingly, the current situation creates technospheric, environmental and demographic risks to the safety of human life.

5. Research Methods

Improving the technospheric base of their existence, people are gradually moving away from the scheme of personal-material relationship with the environment, moving biological interactions to the background, replacing them with processes of a physical and chemical nature, which has not slowed down to affect human health and the state of nature. At the same time, there are threats and security risks of a technospheric, ecological, and demographic nature for the existence of a person and society. It is even possible to conclude with confidence that there is a socio-cultural matrix of security, the safe existence of a person and society in the form of the triangle, the main faces or turning corners of which are technospheric, ecological, and demographic components (Borkovskaya, 2014). They act together, mutually determining their influence on each other. And where the action of one ends, the other begins to influence and act, thereby preparing the space of social action for the third component. Without stopping, they work constantly, accumulating social changes in society and its technosphere, nature, ecology, demography. Therefore, the issues of technospheric, environmental and demographic security should be considered comprehensively, analyzing their impact on the overall security of the processes occurring within each of the components of this interconnected socio-cultural matrix. The following idea confirms this necessity:

> *The anthropogenic activity which failed to create a technosphere of the necessary quality both in relation to a man and in relation to nature was the root cause of many negative processes in nature and society. Currently, in order to solve the problems that arise, a person must improve the technosphere, reducing its negative impact on humans and nature to acceptable levels. The achievement of these goals is interrelated and possible because of solving the problems of ensuring human safety in the technosphere, at the same time solving the problems of protecting nature from the destructive influence of the technosphere*. (Yurchenko, 2018, p. 3)

In this regard, it should be noted that the large cities and agglomerations have become the centers of development of the modern technological civilization (Zhuravleva, 2018). The majority of the population lives in the cities, a huge scientific, technical and technological potential has been accumulated. There powerful material and economic means of producing goods appeared including services that made people's lives comfortable (Kail et al., 2019).

There are also convenient means of communication, a powerful infrastructure ensures production and consumption. But, nevertheless, the giant technosphere creates new risks and threats of technospheric

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and environmental security of mankind, raising the question of the limits of its growth and sustainable socio-economic development of society. In this context, sustainable development is understood as a process of social change that links together the rational exploitation of natural resources, the expansion of the technosphere, as a result of progress and the investment's direction. This involves the use of scientific and technological development, coordinated with the development of individual and institutional changes that strengthen the current and future potential to meet human needs and ambitions (Bandurin et al., 2018a).

We agree with the opinion that "the riskological nature of modern society is largely due to environmental issues" and "scenarios of environmental behavior that do not meet the requirements of social security and can be quite strongly rooted in habits and practices of social actors. Sometimes this situation requires quite serious correction, and even the direct state intervention, the better regulation of this area of social relations" (Bandurin et al., 2018b, p. 1). There are more than enough negative examples of such, if we may say so, ecological (quasi-ecological) behavior in modern post-Soviet Russia. They are rooted in the "habits" and "practices" of various semi-criminal communities and individuals due to the lack of state and public control, or even direct connivance and participation in dubious, from the law point of view, affairs of responsible officials. This social action was expressed in the practices of continuous, rather than selective logging in Siberia, planned arson of the taiga, in order to write off the forest areas affected by the fire, and subsequent cutting down, and then transporting untreated wood in the form of logs ("roundwood") for export at a low bargain price. In 2020 the intervention and the corresponding Decree of the President of the Russian Federation, V.V. Putin, have been required. It prohibited such practices and the export of untreated wood. Many residents not only of Siberia, but also of many other regions have also preserved anti-natural "habits" of burning dry grass near houses, settlements, and woodlands, which becomes an anthropogenic factor of large fires that destroy flora and fauna on hundreds of thousands of hectares of certain regions of Russia and they become disaster zones. The population of cities and settlements is negatively affected by the smoke of fires; it suffers from disasters due to fires in the form of property losses. This immediately affects the decline in agricultural production, the deterioration of human health, the increase in mortality, the decline in the birth rate and migration of the population to other places of residence, the deterioration of already difficult demographic indicators in a particular region. This situation is particularly painful for the demographics of Siberia, the Far East, and Kamchatka Territory (Kapitonov et al., 2019).

6. Findings

Considering the technospheric, environmental, and demographic components of social security of rural areas in Russia in a complex and systemic interaction, it is necessary to note the ubiquity of their manifestation and the coherence of social interaction in time and space. So, starting in one place, security problems escalate in another (Levi, 2019). Therefore, for example, a gas pipeline expanded for thousands of kilometers, can leak gas and cause material and moral damage, provokes human casualties. The traffic flow on the M4 Don road caused the need to build a transport crossing bypassing the city of Aksai, Rostov region, as part of the transport ring around Rostov-on-Don. This situation affected the interests of residents of the village Bolshoy Log, other settlements and the ecological state of the floodplain of the

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Don River and Lake Monastyrskoye, where waterfowl (Savina, 2018): wild geese, swans, cranes, etc. nest and rest, when flying from the north to the south and back. Of course, we are not talking about the closing of an important technospheric project, it is necessary as air, otherwise the traffic flow will choke and the entire lower reaches of Don Region will experience collapse with it. It is also clear that we are not talking about the need to curtail the project, and even more so, the construction of the long-awaited road section, bypassing a large settlement. Most likely, when designing such technospheric structures, it is necessary to take into account not only the kilometers of road surface and its cost, but also environmental safety in relation to its demographic component. It is represented by the need given to the high degree of population density, the water saturation, railways and highways, the close location of several large cities that make up a large agglomeration, etc. (Kuzovkova et al., 2019).

As we can see, it is necessary to take into account all the complex components of social security when designing and implementing the construction of such large technospheric projects and structures as well as to conduct a comprehensive rational modeling of the future object with regard to all its interactions in the ecological and demographic space. It is necessary to find out whether its technological values and parameters will be compatible with the environmental-spatial and demographic-settlement environment in terms of security. And in this regard, it should be noted the social regulation and risk management of the life of regions, cities, rural settlements, enterprises and agricultural facilities, the importance of the time factor associated with the preventive recognition of possible risks of the future existence and functioning of the object of the technosphere. Everything that exists on Earth is born and created, has a vital cycle of existence, and then grows old, dies, is destroyed. This process is influenced by man who often forgets about the eternity of movement and change, including technology, technical systems, the technosphere as a whole as an object world created by man. But if at the first stage of the development of the objective world (when relations to the world of things are direct), the component of protecting a person from the natural forces of nature, strengthening and expanding human capabilities prevails, then at the stage of the indirect relationship of a person to the world of things, the component of risks, threats, and not only physical destruction of a person, but moral and value destructions, dominates.

The regional-urban aspect of the problem of social regulation of risk management of technospheric security and its impact on the state of environmental and demographic components are also important. Do not forget that an important part of the technosphere is the agro-industrial complex of the country, on which depends not only the development of rural areas, but, perhaps, the entire country (Yurchenko, 2018). Today, 26 % of Russian population lives in rural areas, while at the beginning of the XX century, rural residents of the country made up 87 %. However, the appearance and structure of the village have changed significantly. There is an intensive outflow of villagers; their aging is taking place against the background of miscalculations in the socio-cultural sphere and a lag in the development of housing and communal infrastructure, and road construction. Thus, only 42 % of rural residential premises are equipped with water supply, 44 % - central heating, 32 % - sewerage, 20 % - hot water supply. Of course, you can argue with these figures, because the Russian village has its own specifics, associated with the sprawl of rural settlements in spatial terms. It is difficult to make central heating and water supply available there, especially today, because every owner of an apartment or house, not only in the village, but also in the city, seeks to arrange individually isolated economical heating. And hot water with its

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summer repairs is not always convenient, so that, life develops, individualizes, elements of the technosphere are improved everywhere, including in the countryside. Here, the solution of the technospheric security of the villagers depends, most likely, on financial opportunities. But, nevertheless, we agree that these conditions create unfavorable environment for daily life of rural people and contribute to the outflow of the population to the cities (Gulamov & Shermukhamedov, 2018).

The state of the country's overall security depends on the state of the agro-industrial complex and its security in various spheres. And in this regard, the indicators of economic, environmental, technical and technological security, which ultimately ensure the food security of the country, are important. If we consider economic security as one of the main system-forming elements of our country's security, then its main criteria in the agro-industrial complex include production security; indicators of solvency with the determination of potential; indicators of reproduction with regard to the activities of environmental and social factors. Without detracting from the value of the first two criteria as a resulting process of agricultural production, it is necessary to emphasize the importance of the third indicator, which includes technospheric and environmental components. In agricultural production, it is necessary to take into account the risks of harm to the environment, which can negatively affect natural, material, and human resources, lead to deterioration of the field condition, yield reduction, and, as a result, negatively affect the habitat of agricultural workers, but also residents of nearby rural settlements. Examples of such influence "are created by the practice of large complexes for breeding of pigs and poultry, when the air surrounding these industries is heavily polluted". Ensuring an integrated approach as a unity of technospheric, environmental, and demographic components to the problem of the security of rural areas of a particular region within the framework of the general security of Russia is associated with their sustainable development. As part of implementation of this direction, there was the adopted "Concept of sustainable development of rural territories of the Russian Federation for the period up to 2020" and the "Strategy for sustainable development of rural territories of the Russian Federation for the period up to 2030" (Shkarlet et al., 2020, p. 1). They identify the main problems of sustainable development and establish the main directions and principles of their solution.

The conducted studies of the implementation of these documents in rural territories in various regions of the Russian Federation indicate the remaining main problems on the way to implementing the parameters of sustainable rural development. The interaction of three spheres: social, environmental and economic, is in their focus, the existence and development of which is associated with the provision of technospheric, environmental and demographic security in a single complex of its provision. It is assumed that the economy in the concept of sustainable development implies the optimal use of limited resources for future generations. The social component is aimed at the development of human capital, the preservation of social stability and cultural diversity. Environmental safety is ensured by the stability of natural systems and their ability to self-repair and adaption to changing external conditions.

One of the obstacles in achieving the parameters of sustainable development is ensuring the demographic security of the regions and the country as a whole. As for internal migration as a way to ensure the demographic security of rural areas in certain regions, experts predict that a significant part of the urban population will return to the villages after the decline of the epidemiological and economic crisis. Most likely, they believe that it is easier to survive the lack of money and secure self-employment

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in rural areas. But, at the same time, although many citizens are from rural areas, they will need to return to comfortable living conditions to which they are accustomed in the city, as well as a secure opportunity to earn living, and, consequently, jobs or self-employment. In this regard, regional programs, for example, “Far East hectare”, “Far East Mortgage”, thanks to which in recent years the migration of the population from the Far East to the European part of Russia has decreased 4.5 times, are an important help. The desire of people with financial opportunities to live in suburban cottage settlements and to work in the city will be further developed. The Ministry of Agriculture and the leadership of the regions apply various state and regional programs to attract young doctors, teachers, and young specialists for the development of the social sphere of the village and the agricultural sector.

However, the central problem of demographic security both of the regions and the country as a whole remains unsolved. The difficult demographic situation associates with the lack of quantitative population growth, the decline in the number of births, the predominance of the number of deaths over the newly born, and the qualitative reproduction of human capital. Russia is experiencing a severe demographic crisis, which is associated, on the one hand, with a quantitative decline in population in the form of its natural decline, and, on the other hand, with negative qualitative changes of a medical, psychological, and spiritual nature in the structure of population. And we agree with the opinion that the demographic crisis has provoked the problem of demographic security of the state. In our opinion, the problem of demographic security is closely related to other complex components of the general problem of social security and the state. Present risks and threats to the safe existence of society and the state in one of its segments – the technosphere, find their continuation in another one – the environmental, which is reflected in the third one – the demographic, and vice versa, demographic security problems provoke its technospheric and environmental aspects. Therefore, the implementation of recommendations on demographic reproduction of population and socio-cultural acquisition of human capital on the way to solving current demographic problems and achieving demographic security are associated with the technospheric and environmental security of human existence. In this context, it is important to strengthen the family and prevent its destruction as the main condition of demographic growth and the birth rate of children. That cannot be solved without taking into account the problems of the technosphere – the construction of housing, the creation of economic conditions of the existence of a young family on the basis of housing construction, the emergence of opportunities and the creation of conditions of the professional and career growth of a husband and wife. In turn, the growth of demography due to the rapid increase in the number of cities with millions of inhabitants requires an inevitable correction of a human "interference" in nature, an intervention in a good sense. It is necessary to change the attitude of man to nature, to not only take clean air and water from nature, use its mineral resources and arable land, leaving it dead, destroyed, abandoned and not needed until its next use. On the contrary, it needs human participation in the renewal of its reproduction through reclamation, so nature needs the help of man with his greatly increased technospheric power. And such assistance is required, for example, by small rivers of Russia, which are the basis of ecological systems of human existence, but due to technospheric transformations, the construction of closed farms, poultry farms, pig farms and human migration to large cities, as well as due to climatic changes. They have turned into zones of ecological disaster and they need technospheric and environmental assistance to clear the channels from tree sprouts, silt deposits, and

the renewal of springs, otherwise the large rivers will be low-water. In this respect, the oppressed rivers Glubokaya, Kalitva, Olkhovaya and others that flow into the Seversky Donets are especially significant examples. The Seversky Donets is an important tributary of the Don, which feeds the cities of Rostov-on-Don, Novocherkassk and Shakhty with water.

7. Conclusion

Thus, it is necessary to take into account the development strategies both for regions and the country as a whole, when ensuring technospheric, environmental and demographic security and solving their problems. The peculiarities of regional development in combination with the national objectives of social changes should be taken into account as well. A comprehensive approach is needed to assess the safe condition of technospheric objects and structures, their impact on the surrounding ecological environment, so that, their recreational impact has a beneficial effect on health, quality and life expectancy of the population. Systematic analysis and assessment of the state of technospheric security at the regional and general social level makes it possible to identify relevant risks and threats, and develop preventive measures promptly to ensure the security of the country as a whole.

References

Alferova, T. V., & Tretiakova, E. A. (2015). Quality assessment of reporting on sustainable development of industrial enterprises. *Perm University Herald. Economy, 1*(24), 97-102.

Bandurin, M. A. Volosukhin, V. A., Mikheev, A. V., Volosukhin, Y. V., & Vanzha, V. V. (2018a). Finite-element simulation of possible natural disasters on landfall dams with changes in climate and seismic conditions taken into account. *Journal of Physics Conference Series, 1015,* 032011.

Bandurin, M. A., Volosukhin, V. A., Mikheev, A. V., Volosukhin, Ya. V., & Bandurina, I. P. (2018b). Finite element simulation of cracks formation in parabolic flume above fixed service live. *IOP Conference Series-Materials Science and Engineering, 327,* 022010.

Borkovskaya, V. G. (2014). The concept of innovation for sustainable development in the construction business and education. *Applied Mechanics and Materials, 475-476,* 1703-1706.

Gulamov, S. S., & Shermukhamedov, A. T. (2018). Digital economy in the republic of Uzbekistan: development of the electronic government. *Theoretical & Applied Science, 10*(66), 347-354.

Kail, Y. Y., Shokhnekh, A. V., Samsonova, M. V., Lamzin, R. M., & Elsukova, Y. Y. (2019). Prospects of gr management development in the context of forming a digital economy. *Espacios. 40*(22), 30.

Kapitonov, I. A., Filosofova, T. G., & Korolev, V. G. (2019). Development of digital economy in the energy industry-specific modernization. *International Journal of Energy Economics and Policy, 9*(4), 273-282.

Kuzovkova, T., Kuzovkov, D., & Sharavova, O. (2019). Transformation of criteria and indicators of digital development of economy and information society. *Conference of Open Innovations Association, FRUCT, 24,* 682-687.

Levi, D. A. (2019). The typology problem of digital currencies and their role in global digital economy development. *Espacios, 40*(16), 9.

Lysenko, I., Esaulko, A., Serikov, S., Okrut, S., & Mandra, Yu. (2014). Methodology of forecasting and planning of environmental activities in rural areas. *Agricultural Bulletin of Stavropol Region, S1,* 112-115.

Savina, T. N. (2018). Digital economy as a new paradigm for development. *Astra Salvensis, 6,* 825-833.

Shkarlet, S., Dubyna, M., Shtyrkhun, K., & Verbivska, L. (2020). Transformation of the paradigm of the economic entities development in digital economy. *WSEAS Transactions on Environment and Development, 16,* 413-422.

Yurchenko, I. F. (2018). Information support for decision making on dispatching control of water distribution in irrigation. *Journal of Physics: Conference Series, 1015,* 042063.

Yurchenko, I. F. (2018). Information support system designed for technical operation planning of reclamative facilities. *Journal of Theoretical and Applied Information Technology, 96*(5), 1253-1265.

Zhuravleva, I. A. (2018). The development of taxation of small business in Russia in the conditions of the digital economy. *Journal of Reviews on Global Economics, 7,* 797-803.