

SUSTAINABLE DEVELOPMENT SYSTEM – REALITY OR NECESSITY

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ABSTRACT: Existing consumption patterns of goods and services and declining resilience of natural resources greatly reduce the ability of future generations to meet their needs. The relevance of the concept of sustainable development is established. However, its diverse interpretations depend on the parties involved in the process, which has to some extent contributed to the transformation of the meaning of the concept of sustainable development into a concept that many talk about, but only a few understand its importance for the survival of civilization in the face of the impending natural and social disasters that future generations will face. The paper uses a systemic approach to identify critical points in the concept of sustainable development, such as current consumption patterns, resilience of natural resources, market participants' behaviour, satisfactory groups current needs, disposable income levels, different levels of governance and planning documents, the number of future consumers, their habits and various uncertainties. Based on the shortcomings of the concept of sustainable development, the authors present their model of sustainable development system, which complements the idealized three- (economic, social and environmental) dimension model with technical and governance dimensions and takes into account the factors influencing sustainable development of the country.

KEYWORDS: consumption, future generations, sustainability, sustainable development, sustainable development system, systemic approach.

I. INTRODUCTION

The introduction of the concept of sustainable development into society and the scientific environment is one of the most important aspects in the development of civilization in the past 50 years. Nowadays, it is difficult to find someone who questions the essence of conditions included in the content of sustainable development – the current consumption habits of goods and services and the declining ability to reproduce natural resources greatly reduce the ability to meet the needs of our children and grandchildren. The time since the world has been introduced to the Brundtland Commission report [1] can be measured in four decades, which could be enough to see positive changes in biodiversity conservation and natural resource growth in the second decade of the 21st century. Critically evaluating the changes that have taken place during this time, it should be acknowledged that the major changes have occurred in the content of the concept itself – the concept “sustainable development”, which is important for the protection of the environment and the reduction of overconsumption, has turned into the concept “sustain-a-babble” [2], about which many people talk, but only some understand the importance of sustainable development for the survival of civilization in the face of impending natural and social disasters that future generations will face.

The present study reveals the main causes of failure to integrate and use the concept of sustainable development and its basic principle in everyday life – in the consumption of goods and services, as well as their production on a local and global scale. Much attention is paid to the discovery of contradictions in the concept of sustainable development and its inconsistency with the behaviour of market participants and aspects of resource market globalization. The methodology of the systemic approach is applied in the research, revealing the most important dimensions of development in the country. Existing consumption patterns, climate change and depletion of natural resources, as well as existing political frameworks and open efforts by some politicians to purposefully slow down the transition to sustainable development, while preserving natural resources and their resilience, determine the necessity to make quantitative and qualitative changes in national subsystems to recover the original meaning of the concept of sustainable development – to provide the right conditions for the ability of future generations to meet their needs – and to fill it with the content relevant for development threats. The results of the research would be useful for the development of sustainable development criteria and the

planning of transition measures, as well as for the evaluation of the achieved results in relation to their compliance with the sustainable development guidelines and the developed criteria.

II. METHODOLOGY

The research uses the methodology of a systemic approach to identify the critical points of the concept of sustainable development and to offer a comprehensive solution to the improvement of the concept of sustainable development.

The methodology of a systemic approach, first introduced in the 1950s, is successfully applied in psychology, sociology, political science, ecology, and legal science. The systemic approach studies the techniques of organization of system elements as a unified whole, as well as the interrelation of the system and its element functioning processes. The systemic approach takes into account all the elements of the system to achieve the goal of the system – to solve the problem. The systemic approach makes it possible to manage and predict the behaviour of elements of the complex system, taking into account their interaction and the influence of external factors. The systems approach applies to both open and closed systems [3]. The aim of the paper is to study the sustainable development system, providing suggestions for its improvement.

III. THE CONCEPT OF SUSTAINABLE DEVELOPMENT

As early as 1972, a group of researchers led by Donella Meadows pointed to the limits of growth beyond which the humanity might face existential dilemmas [4]. The United Nations (UN) Environmental Programme Governing Council and the United Nations General Assembly recognized in 1983 that an overall assessment of environmental problems should be carried out and new guidelines provided for environmental governance and sustainable development. In 1983, the UN General Assembly adopted a resolution for the environmental perspectives to the year 2000 and beyond [5]. Environmental policy makers and scientists had to wait until 1987 when the global society was introduced to the report of the UN World Commission on Environment and Development, the so-called Brundtland Commission, which developed and updated the concept of sustainable development as follows: “meeting the needs of the present without compromising the ability of future generations to meet their own needs” [1]. Moreover, the UN Development Programme recognizes that action in one area will have an impact on results in other areas, and that development must balance social, economic and environmental sustainability [6].

Sustainable development essentially combines and takes into account the totality of resources consumed by households, companies, governmental institutions and public organizations, which should not jeopardize the ability of future generations to meet their own needs, and indicates forecasts for future actions, as well as expected qualitative and quantitative indicators.

The concept of sustainable development has been approbated in the scientific environment in various Latvian, Baltic, European and world-level studies related to circular economy [7; 8], blue growth [9; 10], real estate [11; 12] and other fields.

IV. ANALYTICAL EVALUATION OF THE CONCEPT OF SUSTAINABLE DEVELOPMENT

The concept of sustainable development has been criticized by the scientific community in the past. As early as 1991, Lele pointed out in a critical review that the concept of sustainable development was similar to the slogan and that it meant different things to different people. The concept is sometimes used as a marketing tool to satisfy the interests of different groups [13]. To date, there are still uncertainties regarding the interpretation and use of the concept of sustainable development. Therefore, the authors of the paper, using a systemic approach, have identified the critical points of the concept of sustainable development.

The Brundtland Report and the Limits of Growth

The concept of sustainable development emerged at a time when the countries of the world were forced to recognize that a mixed economy, more precisely, the decisions taken by the regulators of this economic system did not correspond to the development threats of the world countries. Observations in practice show that richer, economically and militarily stronger countries are gaining the resources they need for their development at the expense of less developed countries [14]. This finding is omitted in relevant UN documents and the Brundtland Commission report, as well as in many other studies on sustainable development in a global sense.

Decades before the Brundtland report, world scientists warned politicians that the resilience of resources in the world was lower than the number of resources needed to meet the needs of the world population. In 1972, a team of researchers led by Donella Meadows concluded that if the present growth trends in world population (the world population could exceed 9.7 billion in 2050 [15]), food production and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in population and industry capacity [16].

Satisfactory Groups of Current Needs

The definition of sustainable development does not specify the satisfactory groups of current needs – whether it refers to overconsuming social groups or to disadvantaged groups forced to accept material and/or mental discrimination. Comparing the average national income of the richest country Qatar's GDP per capita, i.e., 117k USD per capita in Qatar, with the Central African Republic, where the GDP per capita is 661 USD, it is found out that the richest country is 177 times superior. In addition, the Swiss can afford to spend as many resources in one month as the people of the Central African Republic in 7 years [17]. Even though progress has been made in reducing extreme poverty (number of people living on less than 1.90 USD a day), 736 million people were still in this unwanted category in 2018 [18], while a third of food intended for human consumption in the most economically developed countries is thrown away [19]. The authors' research, which is presented in Figure 1, reveals the relationship between the Gini index and GDP per capita according to the data of 2019. It illustrates a weak correlation ($r = -0.35$) between these indicators, indicating the existing relationship between them. It means that there is a greater tendency for the poorest countries to have a more unequal income distribution than rich countries, which places even greater burdens on the lower layers of society to meet their basic needs.

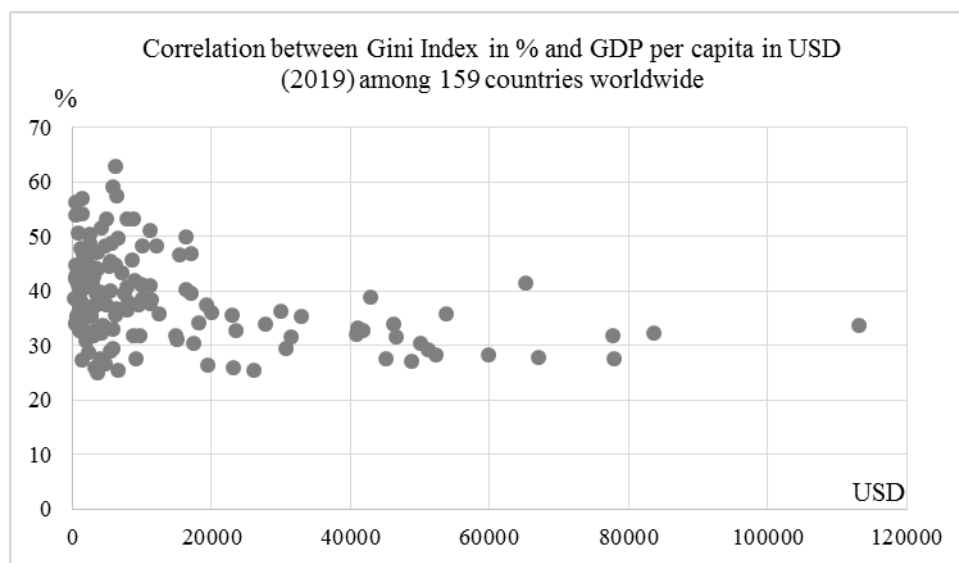


Figure 1. Correlation between Gini Index in % and GDP per capita in USD (2019) among 159 countries worldwide (developed by authors from [20; 21]).

The concept of sustainable development leaves open the question of needs met and their distribution by groups of needs, social groups, as well as countries.

In many countries with different levels of development, individuals in society have a poor understanding of the concepts of sufficiency in consumption and consumption adequacy. In most African countries, such as Niger, the Central African Republic, Madagascar, Mozambique, Togo, Liberia, Sierra Leone, Sudan, Burkina Faso, Gambia, Uganda, Guinea-Bissau, Rwanda, Zimbabwe, Chad, Mali, Ethiopia and Guinea, where GDP per capita (according to the data of 2019) is below 1000 USD [20], the issue of meeting physiological needs is still relevant, where the major challenges are related to the provision of quality drinking water, food and housing.

Trends in overconsumption of resources and finished products in the developed countries indicate an increase in the cult of consumption in society. American proponent of sustainability and a critic of consumerism Annie Leonard points out that stuff and consumption does not make people any happier. She indicates that society's obsessive desire for material values is jeopardizing mental relationships, which is proven to be the greatest determining factor in people's happiness when the basic needs are met [22]. American psychologist Tim Kasser identified a link between an excessive desire for material values and increased levels of anxiety and depression [23]. In addition, American political scientist Robert Putnam claims that humanity is paying the highest price for its consumeristic tendencies with the loss of friendships, neighbourly support and strong communities [24].

The poor understanding of proportionality of consumption and its importance in life satisfaction by individuals in the society of some countries is one of the most significant causes of overconsumption, which is still not taken into account in relation to the transition to a sustainable national development model.

The concept of sustainable development and its application in practice ignore the relation between the ability to meet needs and the disposable income of individuals and social groups in society. In practice it has been revealed that financial illiteracy is on the rise in many countries (especially in Yemen, Albania, Afghanistan, Somalia, Angola, Tajikistan, Haiti, and Armenia [25]) and, at the same time, in less developed countries (such as Niger, the Central African Republic and Togo) the disposable income as well as the subsistence minimum are below the amount needed to meet basic needs.

As the intensity of economic globalization increases, there is an increase in the financial and economic dependence of the population of less developed countries on developed countries. Study by Inmee Baek and Qichao Shi shows that, as a result of globalization, by opening up new markets by developed countries and putting pressure on developing countries, there is an increase in income inequality in developing countries, which reduces their social well-being. In addition, it is becoming more difficult for developing countries to enter international markets [26].

Uncertainties and Other Aspects Not Covered by the Concept of Sustainable Development

The definition of sustainable development ignores other aspects, such as education, occupation, household size, psychosocial characteristics and marketing [27], which determine the quantitative and qualitative composition of goods and services consumed by society to meet the needs placed in the different stages of the Maslow's pyramid.

The definition of sustainable development does not include the need to see sustainable development as a global need, rather than a local opportunity of individual national development, as has been the case so far and largely continues to be today. Many planning documents relate to specific areas and are philosophical and immeasurable in essence, which at times block links to global context and are limited to the slogan: "Think globally, act locally!"

In an attempt to link the needs of today's society with the needs of the society of the future, there is still an open question regarding the restructuring of needs by groups – mental and material needs –, as well as restructuring within one group. Educating the society, increasing knowledge and understanding about the necessity of resources to meet the needs, at least at the level of basic needs, can be a decisive factor for every inhabitant of the planet in reducing overconsumption and decreasing the amount of food waste.

Applying the content of the concept of sustainable development to the near and distant future, a number of uncertainties emerge. One of them is related to the consumption behaviour of future generations, its quantitative and qualitative aspects. At the moment, no one will dare to say what a basket of goods and services will look like for the consumption of future generations, nor is it known what resources will be needed to meet these needs. Research conducted in 2010 on the priorities of generations W, X, Y regarding tourism services showed significant differences in consumption among the W, X and Y generations. Generation W's traditional sources of information (travel counsellors, travel packages, price discounts and coupons, calendar of events, information from friends and relatives) have lost their relevance for generations X and Y. In addition, the desire to visit amusement parks and spend free time fishing or hunting has diminished over the generations. Instead, generations X and Y prefer to visit art galleries and museums, play golf and tennis, enjoy city tours, and visit historical places. Generation W prefers destination features such as shopping opportunities, weather, beautiful beaches, big cities, basketball, baseball and football watching opportunities, while highways, pretty scenery and historic sites are important to generations X and Y. Authors propose a variety of marketing strategies to reach target groups of different generations [28]. The above-mentioned example illustrates significant differences in consumption among three generations. The appearance of the internet and the rapid development of technology are creating greater uncertainty of the basket of future consumer goods and services.

Despite population projections by the UN and other transnational organizations, including a population of 9.7 billion in 2050 [15], in the context of sustainable development there is an open issue with regard to the number of future consumers and the resources needed to meet their needs in terms of the resilience of natural resources and its changes. Growing natural disasters – storms, floods, earthquakes, fires, as well as diseases – can make significant adjustments in the population forecast and, consequently, in resource consumption. Taking into account not only the increasing frequency of cataclysms, but also the severity, which is characterized by such examples as the Amazon rainforest fires in 2019, Australian bushfires in 2019-2020 and COVID-19, there is a reason to believe that population projections are subject to great uncertainty.

The Concept of Sustainable Development in Different Level Planning Documents

In the context of uncertainty about the content of the concept of sustainable development, its interpretation and the revelation of its interpretation in planning documents drawn up by various countries and also by the UN, assumptions and limitations are scientifically and practically important aspects, including also forecasts of the

most important quantitative aspects. Unfortunately, many planners see this as an unnecessary luxury. As a result, the plans become a formal document that has no scientific or practical significance.

Many countries in the European Union have sustainable development plans that are essentially idealized: we do not live in a socio-economic system that is in line with the basic principle of sustainable development. At best, these plans could be linked to the transition to sustainable development after a period of time unknown to the planners themselves. In addition, many sustainable development plans reveal plans that do not specify specific quantitative and qualitative indicators that can be achieved after a certain period of time. Instead of specific indicators that would be fixed over time, subjective statements appear – to increase employment; to reduce poverty; to improve the health care system; to improve the quality of education; to develop enterprises, to ensure social equality in the availability of services, to improve the social protection system, to preserve and restore ecosystems, to promote scientific research, etc., which will be valid for unlimited period of time. A good example in this case is the Latvian National Report “Rio +10” to the World Summit on Sustainable Development in Johannesburg (2002), which was approved by the Cabinet of Ministers of the Republic of Latvia in 2002 [29].

The concept of sustainable development is also misled by the UN, whose sustainable development goals [6] mislead society into believing that we live in a conditions of sustainable development. But if the world does not currently operate in the conditions of economic activities and consumption which are in line with the basic principles of sustainable development, then the UN’s sustainable development goals do not fit in this world as well.

The Political Context of the Concept of Sustainable Development

The definition of sustainable development reveals a typically mechanical approach to tackling a global problem: rescuing the Earth and the ecosystem from destruction requires reducing the consumption of resources to meet needs. The “hungry” ones will say that this is not fair, but the “rich” ones will argue for restrictions on their rights and freedom of behaviour. In the context of sustainable development, it is firstly important to identify the scientific rather than the political causes of resource overconsumption. Secondly, in the transition to sustainable development, it is important to study the existing system, where is a need for sustainable development in order to identify sufficiently effective measures to improve the whole system. In this case, the greatest attention should be paid to the restructuring of needs that do not relate to basic needs, as well as to the global scale management of resources, their availability and the resilience of natural resources.

Up to this moment the economic system has been divided by countries, and each country, in its development under the guidance of its political leaders, has sought to maximize the benefits of natural competitiveness and “produce new” – the obtained competitiveness advantages – which could provide what today’s politicians tend to refer to as pleasant, beautiful and strategically “important” concepts for citizens: energy security; food security; resource security; national development security, etc. The fact that the concepts of resource security are topical in the public space and in certain scientific papers testifies to the incompetence of the respective politicians and other entities. Civilization as a product of the development of the Earth’s biological system has constantly been in a globalized world. As the flow of resources, people and goods increases, so do the positive and negative effects of globalization – some become richer, but others – less prosperous with the additional burden arising from exacerbating global challenges.

The most important positive aspects of the concept of sustainable development are related to the global context and simplicity of the content of the concept presented in few words, which could be aimed at the people of countries around the world who are still unable to meet their basic needs. The formal simplicity of the concept of sustainable development also contains its weaknesses, which many politicians and journalists, as well as individual scientists use out of context, ignoring the root causes of the concept of sustainable development and despite the fact that in the last century such warnings were repeated by scientists at a sufficiently high level [30; 16] for politicians to use them. And politicians should use them to make appropriate management decisions.

The Necessity of Global Economic Theory

Taking into account the above-mentioned theoretical as well as practical aspects of the content and necessity of sustainable development, nowadays the issue of achieving new milestone in economic theory is becoming topical. Several scientific studies [31; 32] and observations reveal the increasing irrational behaviour of market participants with regard to the resources used to meet the needs in comparison with the quantitative and qualitative aspects of the obtained benefits. It once again proves the need for global economic theory, within which the previously known and practically tested economic theories would be adjusted.

V. SUSTAINABLE DEVELOPMENT MODEL

The most common schematic model of sustainable development is shown in Figure 2, which is essentially an idealized model. It identifies the interaction among economic, environmental and social aspects.

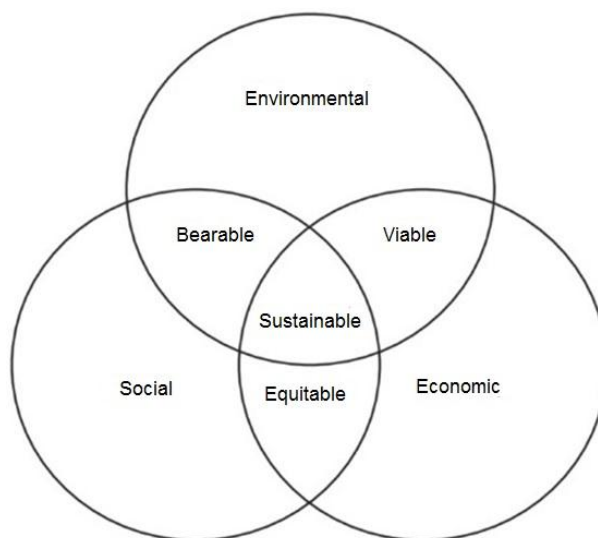


Figure 2. Dimensions of sustainable development (adapted from [33]).

The authors have identified a number of shortcomings in the current and most popular model of sustainable development. The model does not correspond to the systemic understanding of the causes of sustainable development and to possible solutions for the transition to sustainable development. The elements included in Figure 2 do not correspond to the structure of social macro systems. In addition, the statements included in the model are idealized and inconsistent with practice, e.g., viable development is emerging through the interaction of the economy and the environment; the interaction of economic and social aspects leads to equitable development; the interaction of social aspects and the environment leads to bearable development; the interaction of social, economic and environmental aspects leads to sustainable development. The most important national elements included in the model – the social, economic and environmental aspects – in the history of civilization are considered to be the necessary preconditions for the development of civilization and the formation of the country as a system. Moreover, these elements have evolved and interacted for several thousand years, influencing the performance of the system of country. But the result is overconsumption of resources, reduction in the resilience of natural resources and the emergence of the concept of sustainable development. This is largely due to the rapid depletion of natural resources over the last 50 years and 700 million people [34; 35; 36] who are unable to meet their basic needs on various continents of the world.

This model of sustainable development does not include the most important element in the development of mixed economy – governance, which is the dominant element in all social systems. In practice, it has been proven many times that it is the element of governance that is decisive in determining the goal of the system and is responsible for the compliance of the functioning effects of the respective system with the set goal, which coincides with theoretical research. The model also does not include feedback, in which the included data are essential for making management decisions in accordance with the goal of the system and changes in the external environment. In addition, the lack of sufficiently effective feedback does not encourage cooperation with stakeholders on the necessity for sustainable development, its causes and possible solutions to improve the situation.

Taking into account the previously mentioned shortcomings, the model of sustainable development (see Figure 2) is perceived as scientifically insignificant, and some of its elements and content are generally related to pseudoscience. Such and similar models contribute to the development of an inaccurate and misleading picture of the actual situation with regard to the availability of resources to meet the needs of different countries of the world, as well as to the preservation and restoration of the resilience of natural resources. When making management decisions regarding the reorganization of socio-economic systems to sustainable development guidelines, it is important for politicians and country leaders to take into account that globalization has broken down national borders for resource and good markets. Globalization has made significant changes in the

resource and/or good markets – higher availability for countries and individuals with higher solvency, and declining access to resources in proportion to declining disposable income.

Taking into account the shortcomings revealed in the model illustrated in Figure 2, the authors have developed a model of sustainable development system (see Figure 3).

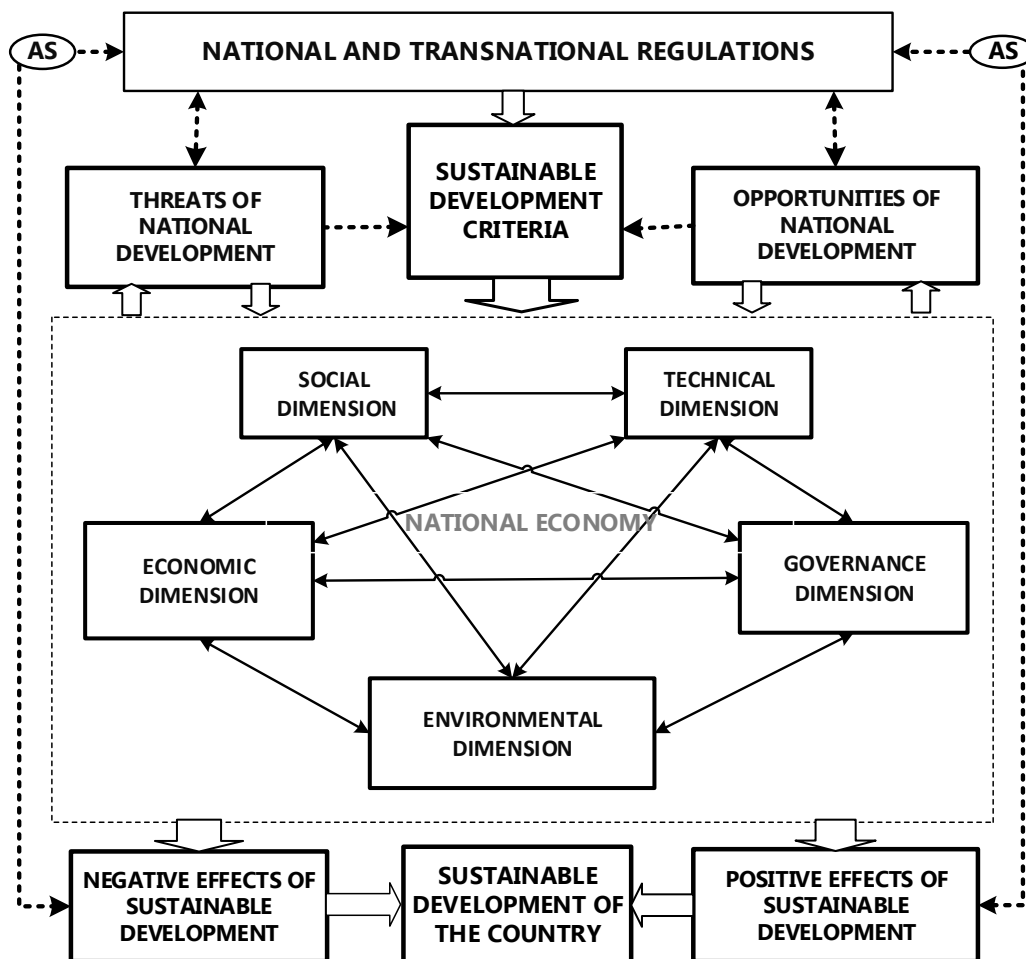


Figure 3. The model of sustainable development system (developed by authors)

The model of sustainable development system is based on the evidence from many scientific studies on the mismatch between consumption and resources [37; 38; 39], and the findings of the Brundtland report on the necessity for radical change to reduce the consumption of resources and/or the benefits obtained from processing of resources.

The model shown in Figure 3 is developed in accordance with the basic principles of the systemic approach and knowledge of the structure of socio-economic systems, their interaction and the dominant elements of the system under the influence of threats and opportunities in the external and internal environment. The dimensions included in the model – economic, social, environmental, technical, governance – are analogous to the subsystems of larger systems; they are quantitatively and qualitatively appropriate to the goal of the system.

For the system to exist and develop in the long term, the available resources must be appropriate to the goal of the system. Thus, a logical conclusion derives that the goal of the operation of a social system corresponds to the available resources of the system, as well as to the quantitative and qualitative aspects of the elements and their mutual conformity. The most important aspect for the successful operation of social macro systems is the governance subsystem, which, at its disposal, has all the resources of the system, as well as the duties, rights and responsibilities for the compliance of the system operation with the goal. The regulatory enactments issued by the governance element included in the model must be in accordance with the threats and opportunities prevailing in the external and internal environment, as well as their changes. When using the model of sustainable development system in management decision-making, the positive effects of the system's

functioning must be taken into account – achievements in the availability of resources and an increase in the number of people who are able to meet their needs without reducing the resilience of natural resources.

Being aware of the positive and negative effects of globalization processes, as well as the side effects, it should be acknowledged that sustainable development in one country is not possible. It may be a continent, but then many restrictions are needed that will be against the free movement of goods and services and other freedoms that are typical to the processes of globalization. However, given the hidden changes in the behaviour of market participants with regard to the basic principles of sustainable development, the transition to sustainable development should begin in the world's developed countries, as it can be seen in many European Union and non-European countries (such as South Korea, New Zealand and Canada [40]). But that may not be enough. Countries that are the largest consumers of resources and the benefits of their production must purposefully – with their experience and resources – support the efforts of other countries to restructure their economies in accordance with the guidelines of sustainable development. The transition to a socio-economic and political system of sustainable development is directly linked to the development of sustainable development criteria for each of the subsystems and for the system – country – as a whole. Therefore, the criteria are the first step towards implementing the model of sustainable development system in practice.

VI. CONCLUSION

The concept of sustainable development, which brings with it very important knowledge to all the people of the planet, is too broad and too narrow at the same time. Its findings are too subjective and do not focus on the need for the countries of the world to unite in common efforts to protect the world from the impending catastrophe as a result of a rapid decline in the resilience of natural resources.

The condition of the necessity to meet current needs included in the definition of sustainable development contradicts the prevailing level of consumption in countries with different development levels and the negative effects of this consumption, its impact on the global balance of natural resources and the resilience of natural resources.

The global COVID-19 pandemic is one of the threats following globalization and it is clear evidence that the global governance system is not in line with current and expected global threats.

The content of sustainable development includes an obvious conflict between the developed and developing countries, as well as between today's consumers and consumers in future generations.

Countries still have not agreed on the use of natural resources according to their resilience, and there is no indication that it will happen in the next 10 to 20 years. Therefore, the richest market participants buy as many resources and the benefits produced from resources as they seem to need, while the rest of the market participants are left with what is left.

A number of uncertainties, such as the qualitative and quantitative aspects of the consumption of future generations, the increase in the frequency of potential natural disasters and the spread of viruses, create new challenges to the concept of sustainable development, increasing the amount of questions.

One of the main reasons for the emergence of the concept of sustainable development is the shortcomings of mixed economy. This makes it necessary to involve scientists more intensively in the national governance system and decision-making at the transnational level and to raise the responsibility of leaders of national and transnational organizations for the adequacy of decisions made and their consequences.

The sustainable development dimensions of the classical approach (economic, social and environmental) do not reflect a systemic view on the essence of the concept of sustainable development.

The developed model of sustainable development system complements the classical dimensions of sustainable development with the technical and governance dimensions, the latter of which is responsible for the efficiency of the system's operation and the compliance of the results with the goal of system. It contributes to the development of a comprehensive understanding of the essence of the concept of sustainable development in the management decisions taken by each country and transnational organizations aimed at reducing the probability of occurrence of existing and expected threats.

The present paper is the first step in the improvement of the concept of sustainable development. The further research direction of the authors is related to the development of criteria for the improvement of the concept of sustainable development.

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