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Aspects of Environmental Sustainability

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Abstract: In the context of the development of the economic complex of the region, its environmental aspects acquire special significance. The reasons for this are the growth of negative impact on the environment and the depletion of the natural potential of the territories. As a result, the issue of managing the environmental protection of the region within the framework of its sustainable development is becoming increasingly relevant. At the same time, one of the tools of this management is the assessment of the environmental sustainability of regional development.

Keywords: Ecology, development, region, aspects, environment, protection, management, regional development.

Introduction: Individual and collective human activity has a huge impact on our planet and all living organisms living on it. Given that this activity undoubtedly leads to environmental degradation, rapid loss of biodiversity and climate change, humanity needs to be offered ways to solve these problems.

Sustainable development – corresponding to the needs of human life and promoting the life and development of future generations, is an urgent need for every country, nation, and all of humanity. But there is doubt as to what extent this development is possible based on the concept of «ecological sustainability», which some authors consider an essential element of the sustainable development process. Wetlands and forests are typical examples of biologically sustainable systems. For people, environmental sustainability provides the potential to maintain quality of life and procreation,

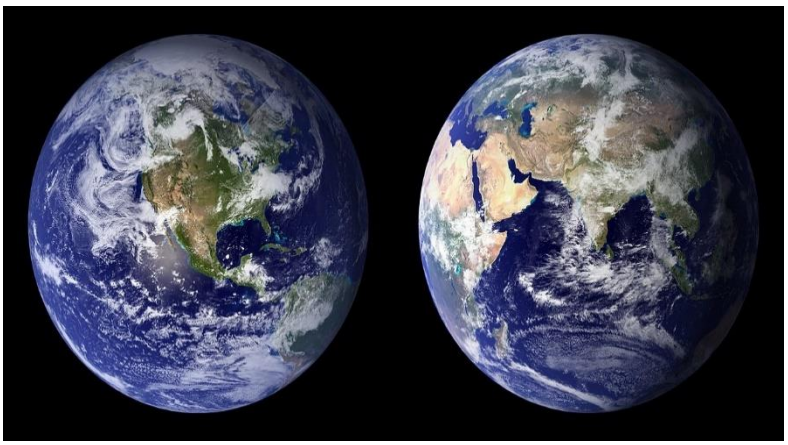

Fig. 1. Environmental sustainability will support human life in its current form.

Healthy ecosystems provide products that are necessary for the life of people and other organisms.

There are two main ways to reduce the negative impact of humanity and improve ecosystems. The first is environmental management. This approach is based on information collected through geosciences, applied ecology and conservation biology. The second approach is the management of human resource consumption, which is based on information collected through economic sciences.

Sustainable development economics, sensitive to ecology, also taking into account the social, cultural and financial aspects. Creating a sustainable economy is a modern challenge to the world, at the level of international and national legislation, consumption, urban planning, transport, and affects the lifestyle of each person.

The mission of the Earth Charter is to promote a transition to a sustainable way of life and the formation of a global community based on common ethical principles, including respect and care for the entire community of life, principles of ecological integrity, universal human rights, respect for cultural diversity, economic justice, democracy and a culture of peace. Ways to live more sustainably can be found by reorganizing the habitat (e.g. eco-villages, eco-cities and sustainable cities), restructuring economic sectors (permaculture, green building, sustainable agriculture and sustainable architecture), using new «green» technologies, renewable energy sources.

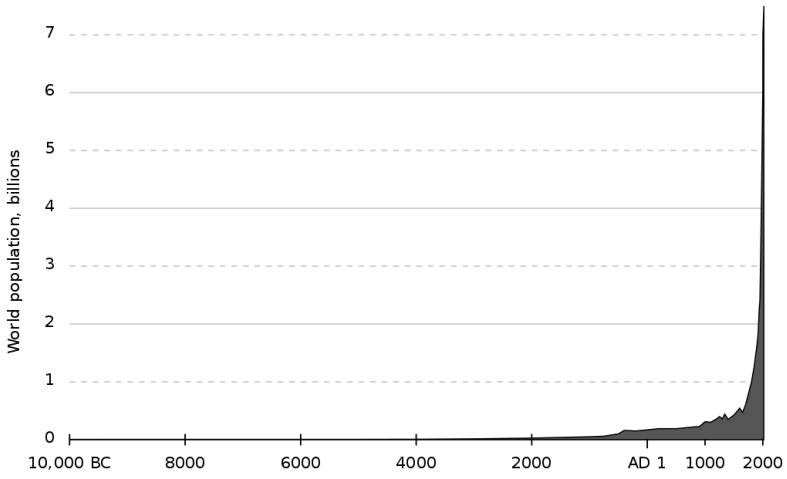

Fig. 2. Graph of world population growth.

The graph shows the growth of world population from 10,000 BC to 2024, depicting exponential growth.

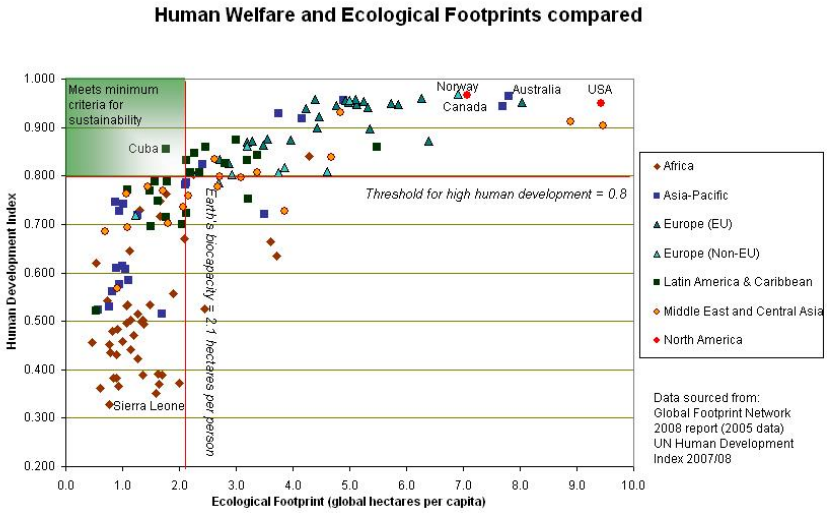

Fig. 3. Ecological Footprint by Human Development Index (HDI)

In Figure 2 you can see the ecological footprint of different countries compared to their Human Development Index (HDI).

The three most common reasons for human-induced environmental degradation are demographic growth, modern lifestyles, and human behavior. From a demographic perspective, this is because there are too many people on the planet: between 1950 and 2015, the world's population tripled, and by 2030, it is expected to grow by another billion people to reach 8.5 billion.

Current living standards methodology focuses primarily on high per capita consumption in urban areas and rich countries. In countries that have achieved significant improvements in living standards, the environmental burden has doubled over the past 20 years. In 2012, the human impact on the environment was not consistent with sustainable development in most high-income countries. The behavioural explanation sees humans as both a source of environmental problems and a potential solution, such as through policies that encourage recycling, cycling, and fuel-efficient cars.

Environmental sustainability is the ability of an ecological system to maintain its structure and functions under the influence of internal and external factors. A synonym for this concept is environmental stability. The level of environmental sustainability of countries is quantitatively assessed by the «environmental sustainability index» (ESI). The index is based on the calculation of 76 parameters, including indicators of the state of ecosystems, environmental aspects of public health, environmental stress, institutional and social capabilities and international activity of the state.

Sustainable development, i.e. environmental sustainability, is supposed to be achieved in the following ways:

- increasing the efficiency of resource use, through the introduction of environmentally friendly and advanced technologies, restructuring the structure of the economy, environmental management, scientifically substantiated, recycling and consumption of production waste;

- increasing the average life expectancy by improving its quality, environmental and social safety, improving the health of people and introducing the «idea of a healthy society» with a healthy lifestyle;

- reducing anthropogenic pressure on nature by reducing emissions, cleaning up territories from «historical pollution», waste management, preventing environmental emergencies and improving environmental protection activities based on the introduction of an effective economic mechanism («green investments» including) and the ecosystem transregional principle of implementing sustainable development programs;

- restoration and preservation of the natural environment, landscapes, ecosystems and biological diversity.

There is no doubt that this environmental program can be implemented in practice and in some time come to environmental sustainability equal to 88 IEU points and even exceed this level. But how will this contribute to the sustainable continuous development of society and the solution of its environmental problems?

Modern industrial production as a tool of man with its transformative action is oriented from man to nature.

All its key technologies (mining, energy, chemical, metallurgy, information, agriculture, transport, construction, electronics, mechanical engineering, food industry, etc.) are based on the exhaustible resources of natural ecosystems, which are exploited and not

developed by people at all. With the most efficient 100% use of gas, oil, coal, land, minerals, fresh water and air, they will begin to run out in the future, and with them the sustainable development of all mankind will slow down and then stop. Low-power «alternative energy sources» and renewable resources (with their natural rate of renewal) cannot compensate for this disastrous mass consumption of material means of existence and living space.

Absolutely everything that people scoop out of the environment with their machines, after a certain time turns into waste of consumption and production. Even these machines and technologies. EVERYTHING – 100%. For this reason, there is no waste-free technical form of production and technology, and it is fundamentally impossible to create them. Energy (even environmentally friendly) turns into heat, which irreversibly disrupts the thermal balance of the planet. Gas, oil and coal, burning, are converted into greenhouse CO2, burning up the oxygen reserves on the planet along the way. Metals and other elements end their useful life for man in the form of polluting emissions. «All is from dust, and all will return to dust,» Ecclesiastes once noted.

Due to the huge difference in the speed of natural and social processes, the earth does not have time to absorb and regenerate this waste. And all of today's environmental protection activities of man (including waste management, its purification, disposal and restoration of the environment) lead to the fact that this waste is transferred from one toxic form to the next, often much more dangerous, but for future generations. Cleaning technologies themselves are sources of pollution! Is it possible to talk about sustainable development, «disposing» of your waste with primitive methods? (For example, the well-known «breakthrough» project in Kazakhstan to clean the Nura River bed from mercury will make itself known when, after 100 years of «ecological sustainability», mercury burial sites begin to collapse and mercury begins to seep into groundwater…)

Environmental sustainability of the planet. Individual and collective human activities have a huge impact on our planet and all living organisms living on it. Given that these activities undoubtedly lead to environmental degradation, rapid loss of biodiversity and climate change, humanity needs to offer solutions to these problems. Along with initiatives offered by governments, civil society and the private sector, education can play a significant role in implementing the changes needed to build environmentally responsible societies. Education contributes to the formation of values, perceptions and approaches. It plays an important role in developing practical skills, methods and tools that can be used to reduce dependence on or completely abandon unsustainable economic practices.

The multifaceted role of education in sustainable development is not always positive. For example, knowledge can promote unsustainable practices, including overconsumption of resources, and accelerate the loss of relatively environmentally friendly indigenous knowledge and ways of life. Reorganization and reform of education systems may be needed to ensure that education has a positive impact.

CONCLUSION

Numerous studies have shown that humanity already consumes more resources than the planet can reproduce.

The ecological footprint measures human consumption in terms of biologically productive land that provides the resources humans need and consumes the waste of the average person on Earth.

And one of the most important incentives for achieving environmental sustainability is the fight against poverty. It is generally recognized that poverty is a consequence of environmental degradation. This result was announced in the Brundtland report[4] and the Millennium Development Goals report.[5]

According to the Brundtland report, “poverty is one of the effects of global environmental problems. In this regard, it is necessary to combat environmental problems, have an understanding of the causes of poverty and international inequality.”[6]

People living in poverty rely more on local ecosystems as a source of basic resources (food and medicine) and general well-being.[7]

As the world population grows, the pressure on local ecosystems increases. According to the United Nations Population Fund, high fertility and poverty are directly related, and the world's poorest countries also have high fertility and, accordingly, high population growth rates.[8]

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