



EXPECTED ECOLOGICAL FORECASTS IN THE ERA OF GLOBALIZATION

Nasiba Normuminova

A Lecturer at Angren University

Abstract:

In the era of globalization, ecological issues are becoming increasingly serious. This research examines problems such as global climate change, resource scarcity, and the decline of biodiversity. Expected ecological forecasts and their threats and opportunities for humanity are analyzed. This article provides recommendations to aid in the development of sustainable development strategies and emphasizes the importance of global cooperation.

Keywords: Climate change, global warming, environmental crisis, ecological ethics, sustainable development, Paris Agreement, ecological disasters, technological impact, greenhouse effect, migration flows, natural resources, renewable energy, international cooperation, Swiss Re Institute, environmental responsibility.

Аннотация :

В эпоху глобализации экологические проблемы становятся все более серьезными. В данном исследовании рассматриваются такие вопросы, как глобальное изменение климата, нехватка ресурсов и снижение биоразнообразия. Анализируются ожидаемые экологические прогнозы, а также их угрозы и возможности для человечества. Эта статья предлагает рекомендации для разработки стратегий устойчивого развития и подчеркивает важность глобального сотрудничества.

Ключевое слово: Изменение климата, глобальное потепление, экологический кризис, экологическая этика, устойчивое развитие, Парижское соглашение, экологические катастрофы, технологическое воздействие, парниковый эффект, миграционные потоки, природные ресурсы,



возобновляемая энергия, международное сотрудничество, Институт Swiss Re, ЭКОЛОГИЧЕСКАЯ ОТВЕТСТВЕННОСТЬ.

Introduction

With the beginning of the 21st century, the global community has been confronted with a new crisis—climate change. This phenomenon is viewed as a consequence of the rapid industrial and economic growth that started with the Industrial Revolution in the 18th century. Rapid development and production across all sectors have placed excessive pressure on the environment. These processes, particularly since the late 20th century, coincide with the period of globalization, during which states, societies, cultures, and economies have become increasingly integrated¹. During this time, some countries began to experience environmental consequences that were beyond their control, marking the global emergence of the climate crisis.

Currently, the planet's environmental challenges can be categorized into nine major issues that illustrate the scale of the problem:

- Climate change (global warming)
- Loss of biodiversity
- Overuse of agricultural land
- Water consumption
- Ocean acidification and pollution
- Excessive use of phosphorus
- Depletion of the ozone layer
- Excessive nitrogen usage
- Aerosol concentration and chemical pollution²

Among these factors, climate change is the most alarming, as the other eight factors—whose indicators continue to rise—also contribute to it. According to the European Commission, the main causes of climate change include the burning of fossil fuels, deforestation of rainforests, and the increase in livestock farming³. The

¹ Strum, D. (2020). The Origins of Globalization: World Trade and the Making of the Global Economy. *Journal of Interdisciplinary History*, 50 (3), 438-440

² Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S., Lambin, E., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., Foley J. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society*, 14(2), Article Number 32.

³ European Commission. Retrieved from: https://ec.europa.eu/clima/change/causes_en.



excessive consumption of both renewable and non-renewable resources, as well as their continuous depletion, raises serious concerns on a global scale.

According to modern philosophers, forecasting continues to be a relevant topic year after year. Its significance is expanding from a local to a global scale. In today's world, technological forecasts are increasingly gaining global importance, particularly in ecological aspects. William Ogburn noted that "while the significance of technological inventions is increasing in the modern world, delays are being observed in social forecasting"⁴.

In the modern era, global environmental forecasts serve as warnings to society, encouraging proactive efforts to prevent potential ecological crises and to shape environmental ethics through continuous public dissemination.

To better understand the present era, it is important to recall that until the early 20th century, world history was primarily composed of independently developing civilizations that were not strongly interconnected.

However, over the past century, due to the deep integration of all aspects of social life, the world has undergone significant transformations, manifesting as a unified system. As a deterministic consequence, profound changes have occurred in the social consciousness of individual nations and humanity as a whole, marked by the recognition of global processes and the worldwide challenges they bring.

It has become evident that the global community has entered a new stage of development, distinguished from previous ones not only by the scale of changes but also by its intensity and universal nature. This entire set of changes, along with their causes, was termed "globalization" (from the Latin *globus*, meaning "planet") in the 1990s. Globalization is the process of forming structures, connections, and relationships that are unified across the entire planet in various aspects of human society. It is also characterized by the interconnection of global spaces, a unified world economy, shared dependencies, global communications, and similar factors. Numerous efforts to identify the latest trends and directions of global development have led to the emergence of *Globalistics*—an interdisciplinary scientific field dedicated to understanding the essence, trends, and causes of globalization, as well as the global challenges arising from these processes and their consequences.

⁴ <https://bluebox.creighton.edu/demo/modules/en-boundless-old/www.boundless.com/sociology/textbooks/boundless-sociology-textbook/social-change-21/sources-of-social-change-139/ogburn-s-theory-766-7484/index.html>



In a broader sense, the term *Globalistics* is used to describe scientific, philosophical, cultural, and practical research on various aspects of globalization and global challenges, as well as the implementation of these findings at both national and international levels in economic and political spheres. Influenced by futurology, *Globalistics* began to emerge as an independent scientific discipline and a field of social practice in the late 1960s. However, the objective prerequisites for its formation had appeared much earlier.

The formation of modern global processes has its own historical background. The first signs of globalization can be traced back to the late 15th century, while by the early 19th century, it had taken a concrete form. Ultimately, this process led to the creation of a single geographical, economic, and political space. Globalization has shaped not only the global economy and universal values but also global ecological dynamics. The events of the late 20th and early 21st centuries have fundamentally transformed humanity's ability to alter nature and reshaped its relationship with the environment.

Fundamental globalization is a progressive process associated with the emergence of global-scale interactions, structures, and relationships. As a result of these processes, the world has undergone significant transformation, consolidating into an integrated system with a unified identity. The first signs of what is now termed *fundamental globalization* appeared in the second half of the 19th century, and by the mid-20th century, it had become an established reality.

Since global challenges do not only affect the world as a whole but also manifest at regional and national levels, scientific literature not only acknowledges their universal significance but also classifies them based on their nature and scope, distinguishing them from local and regional problems. Scholars categorize problems according to the philosophical concepts of “universality,” “particularity,” and “singularity.” In this classification, specific issues are considered individual problems, local and regional challenges fall under general problems, while global problems are treated as universal concerns. This classification is based on a key criterion—geographical factors, as it reflects the spatial dimension of each issue.

Regional problems encompass major socio-economic challenges that arise within specific continents, large regions of the world, or significant individual countries. Notable examples include the Chernobyl disaster, which led to the contamination of multiple areas in Eastern Europe in the late 20th century, and large-scale climate



changes affecting multiple nations. One such case was the severe drought in the Sahel region in 1968, which was later labeled the “disaster of the century” in the history of ecological crises. This environmental catastrophe affected 18 African countries, leading to the deaths of over 250,000 people and approximately 18 million livestock. The drought also triggered highly infectious epidemics and caused vast areas of Africa to turn into deserts.

Global problems, on the other hand, impact the entire planet—not only the land where humans reside but also Earth’s surface, underground spaces, the atmosphere, hydrosphere, and even outer space within the scope of human activity. Today, one of the most critical issues is making global forecasts regarding humanity’s future, with increasing efforts to predict and assess its ecological trajectory. The development of global-scale ecological forecasting is becoming an independent scientific trend. As humanity directly experiences the effects of the global environmental crisis, concerns over future ecological conditions are growing. Therefore, scientific and philosophical tools are being actively used to foster a global ecological ethic and a more responsible attitude toward nature.

The pursuit of solutions to complex and intricate global challenges has always been aided by science. Many once-unattainable goals and seemingly impossible achievements have been realized through scientific advancements, and this process continues to evolve today. This very reality, along with the initial warnings about the dangers posed by global environmental issues, has drawn humanity’s attention toward science and urged scholars to seek solutions to these problems.

The uniqueness of the current situation lies in the fact that while specific problems can be studied within the framework of individual disciplines or interdisciplinary approaches, global challenges—comprising the intricate and interconnected relationships between humans, society, and nature—cannot be adequately analyzed by any single scientific field. The scope of particular disciplines is often too narrow to interpret a given issue within the broader context of other global challenges. Therefore, regardless of the specific tasks being addressed, a philosophical approach is always a necessary prerequisite for research. Any scientific field, at some stage, inevitably requires a philosophical understanding of its subject matter and the challenges facing humanity. Without such a broad approach to scientific inquiry, fundamental predictions and the advancement of knowledge would be impossible.



In this context, two key aspects emerge: first, the philosophical resolution of issues, and second, the encouragement of interdisciplinary collaboration among various scientific fields. The integration of disciplines plays a crucial role in developing comprehensive solutions to global challenges.

Despite the common perception that philosophy is an abstract discipline, detached from daily life and practical concerns, it plays a vital role in addressing global issues. It is well known that broad theoretical frameworks often prove more effective than narrowly specialized knowledge. Even futurological predictions are developed in accordance with the principles of philosophical thought.

The global challenges of today exist within a dynamic, evolving, and open system. New problems of universal significance emerge, while older ones may disappear as they are resolved. Aurelio Peccei, founder and first president of the Club of Rome, highlighted this phenomenon, stating that “the majority of problems confronting humanity are tightly interwoven, gripping the entire planet like the talons of a mighty eagle... The number of unresolved issues continues to grow daily, becoming ever more serious and complex, further entangling their interconnectedness, and tightening their grip on the world”⁵.

However, no matter how tangled the web of global contradictions may seem, it is possible to untangle it with the help of science and philosophy. This requires a theoretical understanding that differentiates causes from consequences, essential details from secondary ones, and objects from subjects. Given the limitations of human resources and institutional capacities to influence global processes, it is crucial to identify which issues demand immediate resolution and which are of secondary importance.

Globalization affects people and societies worldwide. The rapid advancement of technology, along with the increasing mobility of goods, services, capital, and labor, has profoundly transformed economies, communities, and the environment over recent decades. This interconnectedness has made our world more interdependent than ever before.

These trends, in turn, present numerous opportunities. The intensification of globalization and economic interdependence has been accompanied by rapid economic growth in many countries and regions. This has contributed to an increase in global GDP from \$50 trillion to \$75 trillion by 2016. However,

⁵ А.Реччеи. Человеческие качества – М.: 1980. – с.7



globalization is not without its challenges—one of the most pressing issues is the unequal distribution of its benefits and costs.

“To ensure that globalization can be leveraged for inclusive economic growth and sustainable development, it is crucial to analyze emerging trends and develop appropriate policy solutions,” says Liu Zhenmin, UN DESA Under-Secretary-General.

In his speech before the Second Committee of the UN General Assembly on October 13, 2017, Mr. Liu highlighted three megatrends associated with globalization: “Shifts in production and labor markets, the rapid advancement of technology, and climate change.” These trends are expected to play a key role in shaping our future.

The first megatrend refers to changes in production and their impact on labor markets, including outsourcing and mechanization, which have led to job losses, particularly in manufacturing industries. These labor market shifts have been linked to rising income inequality in many countries worldwide⁶.

The second megatrend is closely connected to the first, as it pertains to the impact of new technologies—such as information and communication technologies and artificial intelligence—on labor markets. While these innovations can serve as catalysts for sustainable development, countries lacking access to them risk falling behind.

The third emerging megatrend is the impact of globalization on climate change. Reports indicate that many globalization-related factors, including economic activity, lifestyle changes, and urbanization, significantly affect the environment and contribute to climate change.

“The United Nations is committed to supporting member states in developing country-specific policy approaches to managing globalization in line with the 2030 Agenda for Sustainable Development”⁷.

Global environmental forecasts on climate issues indicate that if temperatures rise by 3.2°C, the world economy could lose 18% of its GDP by 2050, warns the Swiss Re Institute.

This temperature-based projection remains within the current trajectory and the framework of the Paris Agreement, but no definitive progress has yet been

⁶ <https://www.un.org/fr/desa/new-globalization-report-three-mega-trends-expected-impact-our-future>

⁷ <https://www.un.org/fr/desa/new-globalization-report-three-mega-trends-expected-impact-our-future>



achieved. In the worst-case scenario, where temperatures rise by 3.2°C, global GDP could decline by as much as 18%.

Swiss Re University warns that climate change will continue to pose a global threat in the future, urging immediate action to address this challenge⁸. According to new futurological studies, by 2050, the global economy could lose 10% of its total value due to climate and environmental challenges⁹.

The Global Risks Report of the World Economic Forum for 2021 highlights the failure to address climate issues as the most serious and long-term threat facing the world¹⁰. This comes at a time when countries continue their efforts to mitigate the effects of the COVID-19 pandemic. The report warns that billions of people around the world are at risk of losing future economic opportunities, a sustainable way of life, and the benefits of a stable global community¹¹.

One of the global environmental forecasts is reflected in the Swiss Re Institute report: "Climate risk affects every society, every company, and every individual." This conclusion was made by Thierry Léger, CEO of the futurology research group and rector of the Swiss Re University. Global environmental forecasts indicate that by 2050, the world's population—especially in impoverished and climate-vulnerable regions—could increase to 10 billion people. Such predictions call for large-scale cooperation and immediate decisive actions.

International studies conclude that if stricter measures are taken to achieve the goals of the Paris Agreement, the impact of climate change can be reduced¹². This, of course, requires strong integration between public and private sectors.

Global environmental issues are among the most serious challenges that humanity faces in this new era. These problems have arisen directly as a result of human technological activity, and now, to solve and mitigate them, humanity must develop new innovative, environmentally friendly methods and technologies. The consequences of environmental problems are already evident today—we see it in global warming, the rapid melting of glaciers, ecological disasters, and the emergence of new migration flows caused by environmental crises.

⁸ <https://www.swissre.com/institute/>

⁹ <https://www.weforum.org/agenda/2021/06/impact-climate-change-global-gdp/>

¹⁰ Chief Economists Outlook Centre for the New Economy and Society November 2021

¹¹ <https://www.weforum.org/reports/globalrisks-report-2023/>.

¹² <https://www.weforum.org/reports/globalrisks-report-2023/>.



Environmental forecasts serve as a warning and a "red line" for humanity, as we have already reached a critical point. Given this, overcoming the environmental crisis will require an ecological ethic formed through these warnings. This ethic will ensure that humanity makes the right philosophical decisions when faced with ecological dilemmas.

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