

# The concept of sustainable development as the foundation for changing education in the North

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**Abstract.** The article reveals the experience of the implementation of the Sustainable Development Goals in Russian universities based on the case study of North-Eastern Federal University (NEFU). The article presents a comparative analysis of strategic programs to manage the development of universities in the North of Russia and the northern countries of Europe and America in the context of global changes and growing uncertainty of the environment. It shows NEFU's groundwork for the implementation of the sustainable development model of the northern territories and justifies the key principles and the directions of change in the academic and innovative activities of the university related to the implementation of the UN Sustainable Development Goals.

## 1 Introduction

During the intensive development of the northern territories, primarily hydrocarbon production and the Northern Sea Route development, the issues of anthropogenic impact on northern ecosystems, ensuring the protection of population and the northern territories from natural and non-natural emergencies, and protecting indigenous peoples' living environment and traditional lifestyle are of particular relevance.

The studies of current modernization of local and foreign universities' academic activities show that sustainable development concept is becoming one of the most popular methodological foundations for the management of education development. It is also mentioned that "universities have an integral role in the development of communities and they possess a social responsibility to be agents of change in relation to society's socio-economic, political, and environmental issues" [1].

The article discusses main methodological approaches to the formulation of the development priorities of the North-Eastern Federal University (NEFU), reveals the principles, priorities, key focuses, and management mechanisms that ensure NEFU's dynamic development based on the implementation of sustainable development concept.

## 2 Results and Discussion

Currently, a number of factors have a limiting influence on the development of the northern territories and the arrangement of human life in the North:

- extreme climate and the intensity of climate change;

- strong disconnection in the vast territory of isolated settlements, their low transport accessibility and connectivity in the North and Far East;
- population decline, skilled workforce outflow;
- compared to the Russian average, low living standards limiting new workforce influx and, on the contrary, generating population outflow from the macroregion;
- main production orientation on the development of extractive industries and low availability of infrastructure;
- general instability of the socio-economic situation makes the North of Russia and the Far East geopolitically vulnerable [2, p. 29-30].

Due to the growing human impact on northern ecosystems, global climate change, the intensive development of natural resources, and the increasing military and economic presence of foreign states in the macroregion, the issue of ensuring the sustainability of the northern territories becomes acute.

NEFU's unique geopolitical position determines the priorities of its long-term development – the implementation of projects for the advanced development of the Far East and the North of Russia. NEFU's territory in accordance with the Spatial Development Strategy of the Russian Federation for the period up to 2025 covers two major priority geostrategic macroregions of the country – the Far East and the Arctic Zone of the Russian Federation.

The features of this stage of the university's development are determined, on the one hand, by the need to train competitive staff for the reclamation of the macroregion's significant natural resource potential, the modernization of transport and energy infrastructure, and the formation of highly efficient non-resource industries. On the other hand they are determined by the aims of

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youth retention. The living standards of the population of remote and secluded localities are not comparable to the national average. Continuing decline in population, general instability of the socio-economic situation make this part of Russia geopolitically vulnerable. Vast territory alongside low population density, as well as the availability of ample mineral resources that can become the basis for the implementation of highly profitable projects, create systemic tension, especially from the point of view of international competition for untapped space [3; 3].

North-Eastern Federal University bases its' activities on *sustainable development ideology* proclaimed by the United Nations reflected in the 17 Sustainable Development Goals [4]. The choice of the mission, the formulation of the goals and key principles of the university's development are based on the comparative analysis of international and Russian higher education practices, the assessment of the environmental factors' impact, and team potential.

During the elaboration of the North-Eastern Federal University's development program for 2021-2030, emerging global trends in higher education development were taken into account. The analysis shows that the implementation of sustainable development principles and goals in universities' activities is becoming one of the most pronounced global trends in higher education development. University community started implementing sustainable development principles almost immediately after the publication of the Brundtland Report. As it is known, the first attempt to transition universities to these principles is the Talloires Declaration (1990) [5, p. 58]. Hilligje van't Land, Secretary General of the International Association of Universities (IAU) and Executive Director of the International Universities Bureau, notes that "sustainable development has been on the agenda of universities since the Brundtland Report [published by the World Commission on Environment and Development in 1987], so universities have been asked to embark on the whole agenda and ensure that the hundreds and thousands of graduates they produce have a good understanding of sustainable development and their role in society, especially when they take up leadership roles." [6]

The study of the experience of universities in northern countries and regions of Europe and America and the Far North of Russia, conducted in 2020-2021, shows that most of the northern universities focus on increasing their influence on the sustainable development of the northern territories. The mission of the University of Eastern Finland has the following statement "the high standard of research and education of our university builds a global future and strengthens the vitality" [7] of the region. Arctic University of Norway defines its' mission as "to protect the Arctic and its invaluable terrain. For this reason, the universities main teaching expertise lies in scientific fields such as polar environment, climate research, telemedicine, medical biology and fishery science." [8]

Russian universities' policy papers present a similar vision of strategic development prospects in the context

of intensive natural and social changes. Thus, Pitirim Sorokin Syktyvkar State University aims to promote "sustainable innovative and advanced socio-economic development of the Komi Republic and the European North of Russia based on the internationalization and integration of education, science, and production." [9, p. 13] Vitus Bering Kamchatka State University's mission is "to promote sustainable socio-economic development of the Kamchatka Territory and Russia as a whole through the formation of human and intellectual capital." [10, p. 3]

Currently, there is a significant amount of research on the implementation of the sustainable development concept in higher education organizations. In particular, O.V. Saginova, Y.L. Saginov, and A.I. Grishin distinguish the following interrelated concepts of a sustainable university based on comparative analysis:

1. The concept of a green university implementing the principles of environmental safety and protection.
2. The concept of a smart university implementing modern technologies for managing main processes.
3. The concept of a healthy lifestyle aimed at creating conditions for harmonious and comprehensive development, healthy eating, sports, etc.
4. The concept of managing social and cultural diversity focused on the education of national, racial, and religious tolerance, on the interaction and mutual enrichment of cultures.
5. The concept of historical and cultural heritage management based on the use of historical and cultural values of the country, region, city, industry, university as intangible assets of development [11, p. 217].

Since 2017, North-Eastern Federal University has been publishing reports on the achievement of the Sustainable Development Goals on its' official website [12]. Their analysis shows that the university has groundwork for the implementation of a university model – a platform for sustainable development of the North:

- in 2019 and 2020, NEFU was ranked within the top 400 worldwide and for the second year was 15th in Russia in the *University Impact Rankings* which assesses the universities of the world by the level of their impact on the sustainable development of society.

The university implements *educational programs focused on training staff considering the values and goals of the sustainable development of the northern territories* (geographical foundations of the sustainable development of recreation and tourism; the sustainable development of the Arctic; environmental protection and rational use of natural resources; industrial ecology; permafrost forestry; rational use of land in northern and Arctic territories, etc.)

Since 2014, NEFU has been participating in the implementation of the joint program for training experts that play leading roles in ecology, culture, and sustainable development in the regions of the Far East and the Arctic - RJE3 [13]. The program is implemented jointly with University of Hokkaido (Japan) and Far Eastern universities in such areas as environmental assessment, cultural diversity, soil and production,

regional resources development, and disaster management.

Research is also based on the Sustainable Development Goals. Since the first stages of NEFU's development program realization, longitudinal studies of the peoples' of the North languages dynamics, the adaptation of the indigenous peoples' of the North culture to global natural and social changes have been organized. Major ethnographic expeditions are conducted in the places of compact residence of the indigenous minorities of the North. Since 2011, an Arctic multilingual portal is being developed – arctic-megapedia.ru, which presents the indigenous minorities of the Far East: Yukagirs, Evens, Evenks, Dolgans, Chukchi, Nanai, Negitals, Udege, Koryaks, etc.

There are annual scientific expeditions for studying the dynamic of changes in northern ecosystems influenced by anthropogenic processes, the evolution of permafrost landscapes influenced by globalization. There is also an operating system of educational and research polygons and stations for monitoring natural processes. NEFU participates in the international scientific project COPERA — C budget of ecosystems and cities and villages on permafrost in eastern Russian Arctic [14]. The project involves the University of Hokkaido, Japan Agency for Marine-Earth Science and Technology, and the University of Alaska Fairbanks. The aim is to study the “carbon dioxide budget” in the Arctic zone of Yakutia by combining the results of monitoring permafrost and carbon dioxide emissions into the atmosphere with the dynamics of socio-economic indicators.

A comprehensive assessment of North-Eastern Federal University's role and potential in regional development according to the OECD methodology showed that a significant direction of the university's development is the preservation and development of the languages and culture of the peoples of the North. It includes not only academic, but also outreach activities in history and culture, multilingual multicultural education, social engineering, and cultural policy.

NEFU is one of the organizers of the *Northern Sustainable Development Forum* – an annual international meeting of experts to discuss problems and prospects for the implementation of sustainable development goals and values in northern countries and regions, directions of international and interregional cooperation for the balanced development of the North.

NEFU implements outreach and social initiatives aimed to promote sustainable development values and goals (“Waste to Income” project, which is a platform for the exchange of experience for schoolchildren, students, postgraduates, young researchers and various specialists on the issues of waste disposal and recycling; “Open. Lectures” project, summer lectures in the park of Yakutsk; “Our University\_Lectures” series of popular science lectures; volunteer clean-ups and environmental task forces, etc.) [15]

As it is mentioned at the beginning, the strategic goal of NEFU's development was concretized considering sustainable development ideology. The university's mission is to form the new generation of professionals

who realize the values and goals of sustainable development of the North and the Far East, influencing the solution of global issues.

The university's development program forms the model of the sustainable development of the northern territories from three components of sustainability:

- **Sustainable society**, as a combination of different social groups with a variety of values and traditions, interests and needs, history and culture, living together in extreme climate of the North;
- **Sustainable environment**, as a natural space of conflict-free, non-destructive coexistence of animate and inanimate nature representatives;
- **Sustainable economy of the North**, as a condition to create a living space for a human in extreme conditions, the basis of his material well-being, comfort of living, and high living standards.

These areas are independent areas of knowledge, but at the intersection of these areas, the spheres of interaction “human and nature”, “nature and economy”, “economy and human” arise. The imbalance in any of these subsystems disrupts the stability of the system as a whole.

NEFU's development program is based on the following **academic areas** corresponding to the priority development areas of science and technology of the Russian Federation, meeting the objectives of socio-economic development of northern territories and the Far East, which comply with the UN Sustainable Development Goals and the objectives of national projects:

1. Sustainable economy: economic development and well-being;
2. High living standards;
3. Sustainable society: social justice;
4. Favourable environment;
5. Sustainable nature: environmental well-being;
6. Lean environmental management;
7. Digital technologies.

The comparative analysis of the priority areas of the universities of the Far North of Russia and the northern countries of Europe and America shows the relevance of the selected priorities to the global research agenda and the conceptual foundations of higher education development in increasing uncertainty in the environment.

The transition to a new development model is based on the following **key principles of the development of the university**:

1. *Social responsibility* – the university's responsibility for the results of the impact of its decisions and activities on society and nature, considering ethical standards and possible social, economic, and environmental consequences.
2. *The priority of human interests* – creating a comfortable space for the full realization of students and employees' potential.
3. *The integration of education, science, applied research and production.*
4. *Digital transformation of the university.*
5. *The concentration of resources on the result* – focusing resources on promising areas of development.

### 3 Conclusion

Due to the growing human impact on northern ecosystems, global climate changes, and the increasing military and economic presence of foreign states in the macroregion, the issue of ensuring the northern territories' sustainability becomes pressing. In these circumstances, universities base their activities on sustainable development values and goals.

A brief analysis of the activities of universities in the North of Russia and northern countries of Europe and America, the results of modelling NEFU's development program show the demand for new strategic initiatives to respond flexibly to the growing unpredictability of global processes. The comparative analysis allows concluding that the necessary institutional and infrastructural conditions have been created for the further progressive development of the North-Eastern Federal University and the implementation of large-scale research, educational, and innovative projects aimed at the sustainable development of the Far East and the North of Russia.

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