

## EU HIGHER EDUCATION INSTITUTION TOWARD THE SUSTAINABLE DEVELOPMENT

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### Abstract

The relevance of the research topic lies in the need to stimulate the processes of sustainable development of higher education in developing countries. Ensuring such development requires careful study of advanced European experience, identification of best practices tested by EU universities. The purpose of the article is to study trends in stimulating the development of European higher education institutions based on the principles of sustainability in order to identify opportunities for implementing the experience of European universities and to identify potential obstacles that stand in the way of ensuring sustainable development in the higher education system at the current stage. To achieve the goal of the article, general scientific and specific methods of knowledge were used: the dialectical method (establishing the relationship between the improvement of university activities and sustainable development), comparative analysis (comparing the experience of EU universities in implementing the Sustainable Development Goals), synthesis and systematization (determining the prospects for using the experience of European higher education institutions by universities of developing countries), abstraction and generalization (justification of research results and identification of barriers to ensuring sustainable development of higher education). The article analyzes the activities of the member states of the European Union in achieving the Sustainable Development Goals with an emphasis on SDG 4 "Quality Education". The actors studied the European experience of the development of higher education institutions according to the principles of sustainability. On the basis of the conducted research, in the conclusions, the scientists formulated ways of further development of universities according to the concept of sustainable development in the EU countries.

**Keywords:** *sustainable development, sustainability, sustainable development goals, higher education, higher education institution, university.*

**JEL Codes:** *I 20, I 21, O 15.*

### Introduction

The basic postulates of the Concept of Sustainable Development for the period until 2030 (The 2030 Agenda for Sustainable Development), adopted by the UN member states in 2015, are aimed at a common plan of peace and prosperity for people and the planet now and in the future. The concept of sustainable development includes 17 main Sustainable

development goals (SDGs), the implementation of which requires the consolidation of countries' efforts and ensuring their effective partnership at the global level. In general, the concept of sustainable development involves the use of development models for the rational use of limited resources in such a way as to ensure the fairness of their distribution in society in order to ensure longevity.

In today's world, universities play a key role in preparing students for their future careers, providing opportunities for research and development, and contributing to the overall economic development of countries (Bocheliuk, et al., 2019; Shaposhnykova, et al., 2018). That is why the issue of university development in accordance with the principles of sustainable development is extremely important.

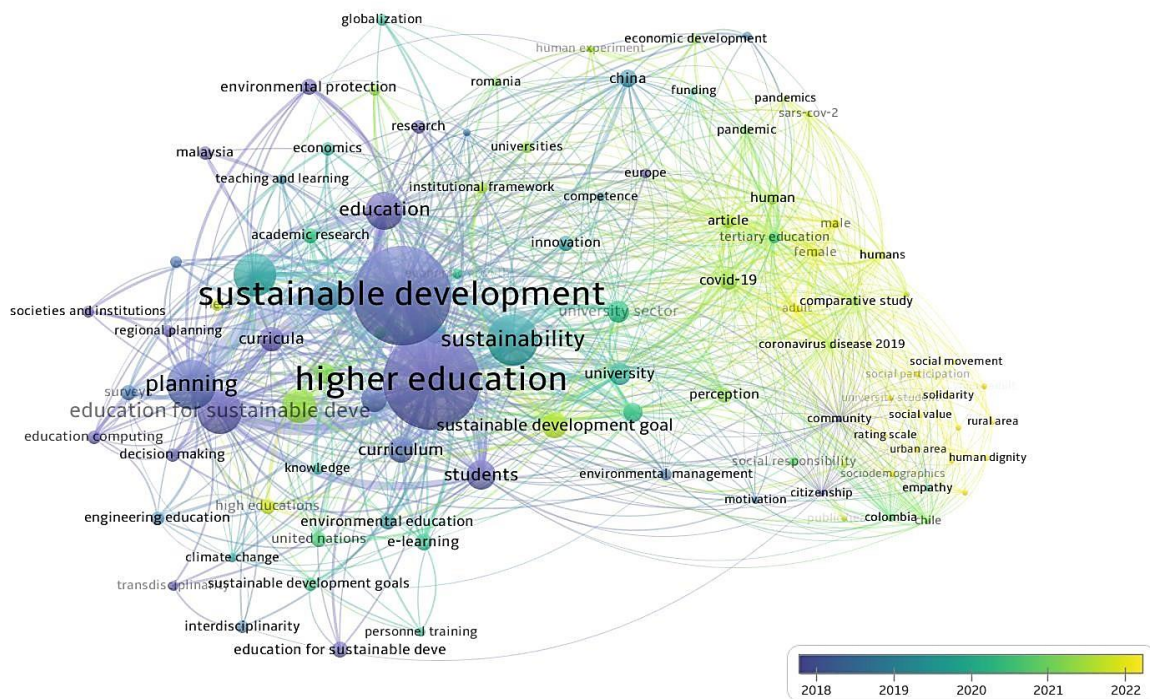
Considering the significant number of studies related to the development of higher education in the context of sustainable development (Salvia, et al., 2019, Dee Lawlor, 2023, Giesenbauer et al., 2020, Brundiens et al., 2021, Leal Filho et al., 2018) studies that would take into account the European experience of sustainable development among universities are characterized by fragmentation. The above determined the relevance of this study in the context of stimulating European universities to develop based on the principles of sustainability.

### Literature review

The modern development of the higher education system shows that it is currently

undergoing fundamental changes in terms of participation in the economy and society, principles and methods of work, organization and management (Giesenbauer et al., 2020, Brundiens et al., 2021, Leal Filho et al., 2018, Novomlynets et al., 2023). The world's leading HEIs are in search of new models, actively rethinking their missions, trying to go beyond traditional functions and institutional forms, developing and introducing new technologies (Kraus, et al., 2021, Salvia, et al., 2019, Dee Lawlor, 2023). Due to the fact that these changes concern the entire set of basic functions of modern universities in different countries, we can talk about the global transformation of universities.

In view of the existing scientific developments, we consider it expedient to analyze the publishing activity of scientists from all over the world who devoted scientific research to the issues of the development of the higher education system in the context of achieving the Sustainable development goals on the basis of bibliographic analysis of statistical information of published articles in the international scientometric database Scopus (Fig. 1).



**Figure 1. Visualization map of keywords in publications, in which titles the word “higher education” and “sustainable development” in Scopus database for 1999–2022**

\*Source: proposed by the authors.

The study of higher education and sustainable development according to the international scientometric database Scopus was first published in 2 articles in 1999. In the future, the dynamics of publication activity was as follows: 2002 – 5 articles, 2008 – 15 articles, 2017 – 32 articles, 2020 – 70 articles, 2021 – 82 articles and 2022 – 77 articles. According to Scopus data, the world centers for the activation of research by scientists in the field of higher education and sustainable development are currently: United Kingdom, Germany, China, Portugal, United States, Spain, Malaysia, Brazil, Sweden, and Ukraine.

The purpose of the article is to study trends in stimulating the development of European higher education institutions based on the principles of sustainability in order to identify opportunities for implementing the experience of European universities and to identify potential obstacles that stand in the way of ensuring sustainable development in the higher education system at the current stage.

### **Methodical approach**

The methodological basis of the research was the concept of sustainable development. To achieve the goal of the article, the following methods of scientific knowledge were used: *dialectical method* (to establish the relationship between improving the activities of higher education institutions and sustainable development of the country); *methods of synthesis and systematization* (to identify the possibilities of implementing the experience of European universities in the activities of higher education institutions of developing countries); *graphic method* (for visualization of research results to ensure their better structuring and perception by readers of the article); *methods of abstraction and generalization* (for formulating and justifying research results and identifying potential obstacles that stand in the way of ensuring sustainable development in the system of higher education at the current stage). The main research method was the *method of comparative analysis*, which made it possible to compare the experience of European universities in the processes of

achieving the Sustainable Development Goals. In particular, the main emphasis in the article is on Sustainable Development Goal 4 “Quality education”. In this context, a comparison of the EU countries was made based on the following indicators: Tertiary educational attainment, adult participation in learning, Variation in science performance explained by students' socio-economic status, Difference in success in natural sciences, explained by the socio-economic status of the student, etc.

In addition, a comparative analysis of sustainable development cases and the relevant regulatory framework of some European higher education institutions was carried out within the research.

### **Results**

Sustainable development is considered as a process of ensuring economic, ecological and social sustainability. SDG 4 “Quality Education” aims to ensure inclusive and equitable education and promote lifelong learning opportunities for all. This Goal unites the rest of the Goals into a single strategic goal. Modern higher education institutions create an environment with the conditions necessary for the development of an individual who is able to live and realize his own professional activity based on the principles of sustainable development. Thus, the study of trends in stimulating European universities to sustainable development will bring significant insights into the implementation of successful experience in the activities of higher education institutions in developing countries.

The member countries of the European Union, in achieving the Sustainable development goals, concentrate on SDGs 4, 9 and 12, which relate to quality education, industry, innovation and infrastructure, sustainable consumption and production, where education is the center of constant investment, because it contributes to economic growth, increases stability, equality and employment opportunities (Salvia, et al., 2019). The current state of achievement of indicators of SDG 4 “Quality Education” among the member states of the European Union for the period 2021-2022 is presented in Table 1.

**Table 1. Achievement of SDG 4 “Quality Education” indicators among the member states of the European Union for the period 2021-2022**

Member country of the European Union	2021			2022		
	SDG indicator 4 “Quality Education”			SDG indicator 4 “Quality Education”		
	Tertiary educational attainment (% of population aged 25 to 34)	Adult participation in learning (%)	Variation in science performance explained by students' socio-economic status (%)	Tertiary educational attainment (% of population aged 25 to 34)	Adult participation in learning (%)	Variation in science performance explained by students' socio-economic status (%)
Austria	41.4	11.7	14.8	42.4	14.6	14.8
Belgium	48.5	7.4	20.0	50.9	10.2	20.0
Bulgaria	33.0	1.6	16.1	33.6	1.8	16.1
Greece	43.7	4.1	10.9	44.2	3.5	10.9
Denmark	47.1	20.0	11.6	49.1	22.4	11.6
Estonia	43.1	17.1	7.2	43.2	18.4	7.2
Ireland	58.4	11.0	11.1	61.7	13.6	11.1
Spain	47.4	11.0	10.0	48.7	14.4	10.0
Italy	28.9	7.2	8.5	28.3	9.9	8.5
Cyprus	57.8	4.7	9.0	58.3	9.7	9.0
Latvia	44.2	6.6	8.4	45.5	8.6	8.4
Lithuania	56.2	7.2	12.5	57.5	8.5	12.5
Luxembourg	60.6	16.3	20.9	62.6	17.9	20.9
Malta	40.2	11.0	14.5	42.4	13.8	14.5
Netherlands	52.3	18.8	12.9	55.6	26.6	12.9
Germany	35.1	7.7	18.6	35.7	7.7	18.6
Poland	42.4	3.7	12.6	40.6	5.4	12.6
Portugal	41.9	10.0	15.9	47.5	12.9	15.9
Romania	24.9	1.0	13.8	23.3	4.9	13.8
Slovakia	39.0	2.8	18.5	39.5	4.8	18.5
Slovenia	45.4	8.4	13.0	47.9	18.9	13.0
Hungary	30.7	5.1	21.2	32.9	5.9	21.2
Finland	43.8	27.3	10.5	40.1	30.5	10.5
France	49.4	13.0	20.1	50.3	11.0	20.1
Croatia	36.6	3.2	8.5	35.7	5.1	8.5
Czech Republic	33.0	5.5	16.9	34.9	5.8	16.9
Sweden	49.2	28.6	12.7	49.3	34.7	12.9

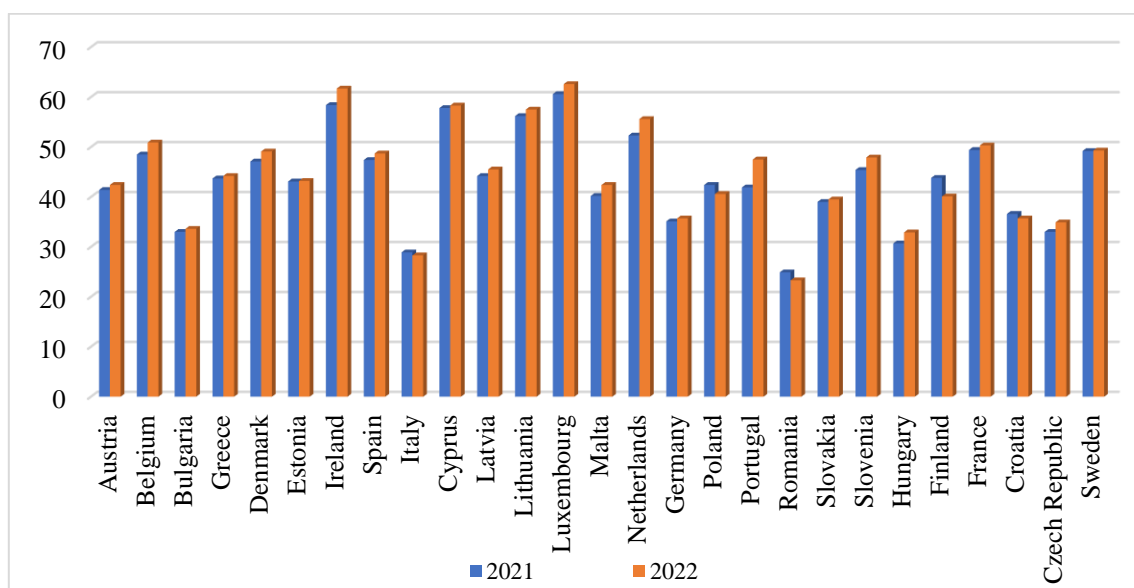
\*Source: compiled by the authors.

The indicators characterizing the achievement of SDG 4 “Quality Education” are characterized by the following indicators: “Tertiary educational attainment, % of population aged 25 to 34”, “Adult participation in learning, %”, as well as “Variation in science performance explained by students' socio-economic status, %”.

As can be seen from the data in the Table 1, in general, there is a slight but stable increase in the percentage value of the indicators of the member countries of the European Union. However, it is worth noting that the indicator “Difference in success in natural sciences, explained by the socio-economic status of the student” has not changed in general, which may indicate the neutral trend of this

indicator and the need for a response from the member states of the European Union to find ways to improve of this indicator.

In our opinion, the dynamics of the indicator of the contribution of higher education to achieving SDG 4 requires special attention – Fig. 2. As can be seen from the data, most EU countries demonstrate positive dynamics of the indicated indicator, although growth rates differ significantly. The top five are Luxembourg (62.6%), Ireland (61.7%), Lithuania (57.5%), the Netherlands (55.6%), Belgium (50.9% in 2022). Exceptions are only some countries of the European Union, where a decrease in the analyzed parameter was observed, namely: Italy, Poland, Romania, Finland, Croatia.



**Figure 2. Dynamics of the indicator “Tertiary educational attainment of population aged 25 to 34, %” in achieving SDG 4**

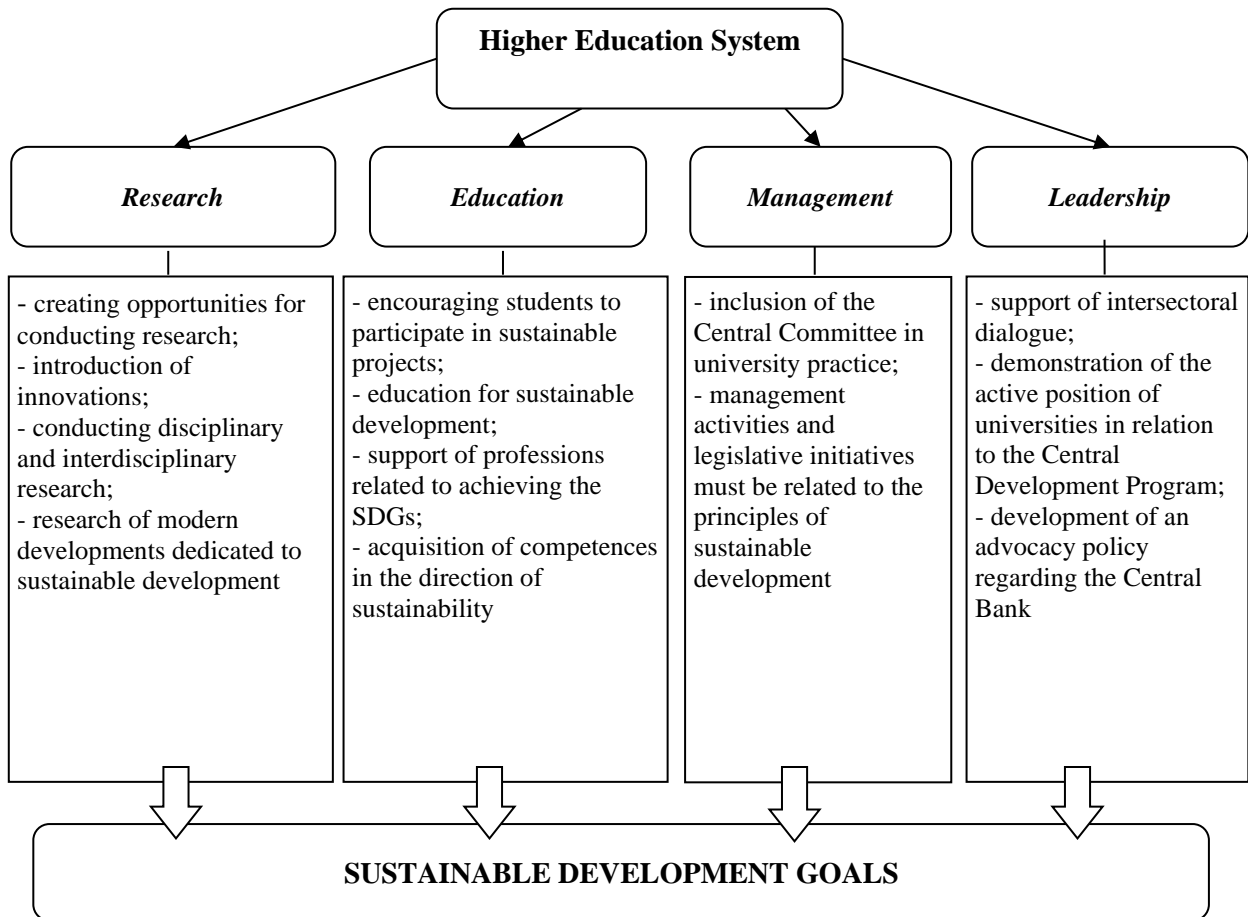
*\*Source: constructed by the authors.*

Understanding how the higher education system contributes to achieving the Sustainable development goals provides an opportunity to better understand how it is possible to achieve the desired state of the system and what tools should be used for this. Figure 3 shows the directions of influence exerted by the higher education system to achieve the Sustainable development goals.

Currently, higher education institutions pay significant attention to stimulating the development of leadership in sustainable development. Educators and business leaders are able to influence the mentality and actions of future leaders; thus, the development of leaders through education is characterized as a path that should be based on the Sustainable development goals (Salvia, et al., 2019). Students develop the ability to take responsibility for the consequences of their own actions and choices, which ensures the formation of the foundation for building a responsible society. In the educational space, the tendency to launch programs on sustainable development, as well as the trend to increase the number of specialists competent in sustainability issues, is clearly visible.

Let's analyze several cases. Nottingham Trent University has incorporated the Sustainable

development goals into its undergraduate and postgraduate curricula (Dee Lawlor, 2023). The University of Groningen (Netherlands) has launched courses on sustainable development, including the specialized courses "Leadership" and "Global Responsibility". The world-famous University of Bologna (Italy) has a wide range of bachelor's and master's courses on sustainable development, and also actively implements projects for environmental protection. Similar programs are also available in universities in Austria, Finland, France, Germany, Sweden and other EU countries. The above-mentioned programs are aimed at the development of future professionals in sustainable development competencies, which include "the knowledge, skills, motivations and attitudes necessary to solve the problems of sustainable development and promote sustainable development in various contexts, including private, social and institutional" (Brundiens et al., 2021). These programs contribute to increasing students' awareness of the relevance of the Sustainable development goals, as well as the development of their own ethical position regarding various aspects of sustainability.



**Figure 3. The influence of the higher education system on achieving the Sustainable development goals**

\*Source: constructed by the authors.

Programs for the support and development of higher education are being actively developed and implemented at the pan-European level. The European educational space contributes to strengthening the sustainability and inclusiveness of education, increasing its quality, developing the digital skills of the population and spreading the principles of lifelong learning. It is important to note that the development of an integrated system for evaluating the quality of education based on the postulates of SDG 4 is able to ensure that participants in the educational process understand the key competencies that future specialists will possess. For example, Spain's Recovery and Resilience Plan directed €750 million to combat youth unemployment through a series of programs that include innovative training adapted to a sustainable economy, as well as policies aimed at developing a dynamic, sustainable and inclusive labor market, where a place for young

people with different levels of education (Europe Sustainable Development Report 2022).

The universities of the leading European countries are actively implementing sustainable development programs, laying down Sustainable development goals in their own strategic documents, integrating them into their activities. For example, the University of Southern Denmark has developed a plan for sustainable development, the target audience of which is defined as both students and teachers, as well as partners who ensure the supply and disposal of equipment and materials. At Leiden University, the program “Vision of Sustainable Development until 2030” is implemented, in which pillars are announced to reduce the impact on the environment, improve environmental policy and sustainable development policy, and reduce the university's carbon footprint by 50% (Dee Lawlor, 2023).

The improvement of university collaboration is becoming more widespread among European universities. Thus, the concept of “sister projects” laid down in the Horizon 2020 program is aimed at large, complex research and innovation projects carried out by consortia of research institutions, state institutions, civil society and the private sector, which share knowledge with other sister projects (Europe Sustainable Development Report 2022). Cooperation between universities is aimed at exchange programs, joint diplomas from several universities, conducting joint research, as well as collaboration with external agents, for example, government structures and business organizations, as well as conducting educational work among society. The development of the university's sustainability policy is aimed, first of all, at coordinating efforts to ensure sustainable development. For example, the “Climate Education” coalition, consisting of students, teachers and organizations, aims to implement initiatives on climate change and sustainable development. The creation of an international interdisciplinary center ECSDEV, dealing with the problems of environmental impact and socio-economic development, aimed at finding ways and means to achieve the Sustainable development goals, and the research carried out in ECSDEV is integrated with scientists in cooperation with the faculties of European and Mediterranean universities (ECSDEV, 2023). Moreover, the development of the Horizon Europe research funding program is aimed at solving innovative problems, encouraging enterprises to develop digital technologies, as well as improving research and development systems among the member states of the European Union.

A typical trend in the development of European universities is the spread of the “green universities” policy, the spread of international scientific and educational cooperation in the direction of the implementation of the Sustainable development goals. European higher education institutions have a number of environmental initiatives related to the design of green buildings, related to the recycling and reuse of raw materials, the introduction of energy-efficient lighting, water-saving devices, as well as the stimulation of the use of public transport (Leal Filho et al., 2018).

Regarding the integration of the concept of sustainable development into the structure of the educational process, the following should be noted. A study (Leal Filho et al., 2018) shows that the development of an official policy of an educational institution is a prerequisite for ensuring successful sustainability efforts, but different higher education institutions are at different stages of implementing such policies, while simultaneously ensuring participation in sustainable development programs. Moreover, the inclusion of goals in educational plans increases the human potential of future specialists, as well as increases the number of people interested in positive changes. At the same time, interaction between students, teachers and staff in the context of sustainable development is coordinated and integrated by specialized departments, thereby providing feedback and stimulating cooperation. Here are the cases of several European universities in this context:

- The University of Groningen, located in the Netherlands, founded the "Green Office", whose activities are aimed at implementing environmental initiatives and promoting the sustainable development of the university community;

- Green Campus Committee and a Green Campus Forum at the University College Cork, located in Ireland, whose activities are inextricably linked to the achievement of the Sustainable development goals and the management of their implementation processes;

- Uppsala University in Sweden and the Swedish University of Agricultural Sciences have an interdisciplinary Center for Sustainable Development, whose activities are implemented in the direction of research of higher education influence on sustainable development within a single geographical area (Leal Filho et al., 2018). Regional cooperation brings a significant synergistic effect, as it involves combining the potential of several higher education institutions and allows covering a wide range of sustainability issues;

- Carbon-neutral laboratory was created at the University of Nottingham as an element of the research infrastructure, the activities of which are coordinated taking into account the principles of avoiding negative consequences for the environment;

- Birkenfeld Ecological Campus at the Trier University of Applied Sciences in Germany, which implements projects in the spheres of environment, biology, and ecology. This university was one of the first to receive the title “University with zero emissions” (Dee Lawlor, 2023).

Among the priority areas of stimulating European universities to sustainable development, it is worth noting the actualization of the Sustainable development goals in all educational programs of all specializations. The use of renewable energy sources and energy conservation, as well as the spread of digital technologies and the use of digital solutions as an alternative to paper documents, forms and forms will allow to reduce dependence on fossil fuels and reduce the negative impact on the environment. At the same time, the strengthening of cooperation between universities and interested parties, the development of initiatives aimed at achieving the Sustainable development goals should be relevant at the local, regional, state and international levels.

### Conclusions

The main task of higher education institutions for the implementation of the Sustainable development goals is to meet the needs of the present without harming future generations, which means that any decisions made by universities must take into account both short-term and long-term consequences for society and the environment. Higher education institutions must provide quality education and research opportunities while protecting the

environment for future generations.

According to the analysis of the dynamics of the contribution of higher education indicator to the achievement of SDG 4, most EU countries show a positive trend, although the growth rates differ. The first five are Luxembourg (62.6%), Ireland (61.7%), Lithuania (57.5%), the Netherlands (55.6%), Belgium (50.9% in 2022). Among the countries of the European Union, where a decrease in the analyzed indicator was observed, the following should be noted: Italy, Poland, Romania, Finland, Croatia.

The modern European system of higher education responds to the challenges and needs of society, ensuring sustainable development with the help of developed educational programs, the definition and formation of competencies, as well as the institutionalization of the Sustainable development goals in the higher education system. Higher education institutions need to contribute to the achievement of the Sustainable development goals by introducing the concept of sustainable development into educational programs, creating appropriate centers, hubs of sustainable development. The conducted analysis of modern successful practices in promoting the development of universities according to the principles of sustainability of the EU member states will be useful for the further implementation of the mentioned experience for developing countries and countries that are just starting their way in achieving the Sustainable development goals.

The perspective of further research is the analysis of the world experience of stimulating the development of universities according to the principles of sustainability.

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