PART 1.
THEORETICAL FRAMEWORK

Chapter 1.
Key concepts of resilience and ESG principles within the context of higher education

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Introduction

Nowadays, finding anyone who has not heard of ESG and SDGs is hard. Typically, these concepts are associated with businesses and large corporations, which is understandable given that their initial implementation was focused on the corporate environment. However, the importance of these concepts extends far beyond the business world. Increasing attention is now being paid to the contribution of higher education institutions (HEIs) to achieving Sustainable Development Goals (SDGs) and to considering HEIs through the lens of Environmental, Social, and Governance (ESG) principles. HEIs play a key role in shaping new generations who will not only understand sustainable development principles but also actively implement them

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in their future endeavors. Therefore, their impact on achieving the SDGs and aligning with ESG principles is increasingly vital in today's world.

ESG Principles

The term "ESG" first came into use within the finance industry, primarily focusing on business investors. It was introduced in the "Who Cares Wins: Connecting Financial Markets to a Changing World" report in December 2004. This report was a collaborative project spearheaded by former UN Secretary-General Kofi Annan, the Swiss Government, the International Finance Corporation (IFC), and twenty financial institutions across nine countries. These institutions formulated guidelines and recommendations for more effectively incorporating ESG issues into asset management, securities brokerage, and related research functions (Table 1.1, Box 1) (World Bank, 2004).

Table 1.1. ESG issues relevant to investment decisions

Environmental issues	Social issues	Corporate governance issues
– Climate change and related risks – The need to reduce toxic releases and waste – New regulation expanding the boundaries of environmental liability with regard to products and services – Increasing pressure by civil society to improve performance, transparency and accountability, leading to reputational risks if not managed properly – Emerging markets for environmental services and environment-friendly products	– Workplace health and safety – Community relations – Human rights issues at company and suppliers'/contractors' premises – Government and community relations in the context of operations in developing countries – Increasing pressure by civil society to improve performance, transparency and accountability, leading to reputational risks if not managed properly	– Board structure and accountability – Accounting and disclosure practices – Audit committee structure and independence of auditors – Executive compensation – Management of corruption and bribery issues

Source: World Bank, 2004

Box 1:

ESG principles are actually based on the Global Compact, which was launched in 2000 at the initiative of United Nations Secretary-General Kofi Annan. This initiative brought together companies, UN agencies, labor organizations, and civil society to support ten principles:

- **"Human Rights:**
  - Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights within their sphere of influence;
  - Principle 2: Make sure that they are not complicit in human rights abuses.
- **Labour:**
  - Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
  - Principle 4: The elimination of all forms of forced and compulsory labour;
  - Principle 5: The effective abolition of child labour;
  - Principle 6: Eliminate discrimination in respect of employment and occupation.
- **Environment**
  - Principle 7: Businesses should support a precautionary approach to environmental challenges;
  - Principle 8: Undertake initiatives to promote greater environmental responsibility;
  - Principle 9: Encourage the development and diffusion of environmentally friendly technologies.
- **Anti-Corruption:**
  - Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery (The Secretary-General introduced this principle at the Global Compact Leaders Summit on 24 June 2004)".

Source: World Bank, 2004, p. IX

In 2005, the release of the "Freshfields Report" by the United Nations Environmental Programme Finance Initiative (UNEP-FI, 2005) represented a significant milestone in the broader acceptance and implementation of ESG criteria within the financial sector. This report provided a legal framework for integrating ESG considerations into institutional investments and was crucial in offering the first substantial evidence of the financial relevance of ESG factors (Delgado-Ceballos et al., 2023).

So, the rise of ESG was driven by increasing awareness of companies' and institutions' impact on the environment and society. Growing concerns over climate change, social inequalities, and corporate governance scandals highlighted the need for a more sustainable and ethical approach to business and investment.

Today, ESG has become a mainstream concept, not only in the corporate world but also in HEIs, governments, and non-profits. Many organizations now view ESG as a compliance requirement and a strategic imperative that can drive long-term value and resilience.

However, there is also considerable criticism of ESG principles today, as "Sadly those three letters have morphed shorthand for hype and controversy" (The Economist, 2022). Adhering to these principles can be very costly and does not always result in direct benefits for companies, which can push engaging in greenwashing – "Symbolic information emanating from an organization without substantive action" (Walker & Wan, 2012, p. 231). Despite these drawbacks, the concept of ESG principles remains groundbreaking. It is important to recognize that there should not be a rush to comply with them simply to gain the favor of stakeholders. Because detecting greenwashing will have a reverse effect–consumers boycott companies that do not adhere to their promised commitments. According to a survey among UK consumers, when asked, "If you thought a company was not living up to their sustainable claims, how would you react?" 48 % of respondents answered, "I would buy their product/service as little as possible" (Lauchlan & Roberts, 2020, p. 2). Additionally, respondents indicated that they would not recommend the products of such companies to their friends, even if they like those products (Lauchlan & Roberts, 2020, p. 3). Thus, greenwashing harms the brand and leads to declining consumer loyalty.

Sustainable Development Goals

Today, we also use another acronym in this context – SDGs. A decade later, in September 2015 at the UN Sustainable Development Summit in New York, the United Nations introduced an updated approach to the Millennium Development Goals (MDGs) that were established in 2000 and primarily focused on developing countries (Box 2). SDGs were created in response to the complex and interconnected challenges facing the world, including poverty, inequality, climate change, environmental degradation, peace, and justice. All countries are invited to join the 2030 Agenda for Sustainable Development, which establishes 17 goals. SDGs were developed through an inclusive process that involved governments, civil society, and other stakeholders globally. This broad participation ensured that the goals accurately reflect the needs and aspirations of people worldwide.

Box 2:
Overview of the Millennium Development Goals
Established: 2000

Purpose: To address various global challenges through a series of targeted objectives aimed primarily at developing countries.

Goals:

1. Eradicate Extreme Poverty and Hunger
2. Achieve Universal Primary Education
3. Promote Gender Equality and Empower Women
4. Reduce Child Mortality
5. Improve Maternal Health
6. Combat HIV/AIDS, Malaria, and Other Diseases
7. Ensure Environmental Sustainability
8. Develop a Global Partnership for Development

Legacy: The MDGs laid the groundwork for the SDGs, which expanded the agenda to include a broader range of objectives and a global scope.

Source: United Nations, 2015

Progress towards SDGs is monitored through a set of indicators. The United Nations publishes regular reports to assess the world's progress in achieving these goals and to identify areas requiring increased effort. In summary, SDGs were designed to provide a comprehensive framework that integrates the social, economic, and environmental dimensions of sustainable development.

ESG/SDGs Correspondence

This brief overview helps us understand that the acronyms ESG and SDGs are related. There is currently considerable debate about the correspondence and interrelationship between them. SDGs encompass both macro and micro levels, but how they are implemented and their impact can vary significantly depending on the context. At the macro level, SDGs address global issues such as climate change, poverty, inequality, peace, and justice. These goals require extensive coordination and interaction at the national, regional, and global levels, involving governments, international organizations, and major corporations to change policies and create structures that support a sustainable future. At the same time, despite the global scale of SDGs, many goals can be implemented at the local level or even at the level of individual organizations and individuals. For example, schools and universities can integrate education for sustainable development into their curricula, and businesses can implement policies that reduce their environmental footprint and support local communities.

Thus, while the SDGs' overall framework is at the macro level, their implementation and impact are vividly manifested at the micro level, where every individual, community, or organization can contribute.

In turn, ESG principles are indeed more often associated with the micro level, especially in the context of individual organizations or companies. For example, environmental initiatives include measures to reduce an organization's impact on the environment, such as emissions reduction, waste management, water and energy conservation, and using renewable energy sources. Social aspects focus on the company's relationships with its employees, suppliers, customers, and local communities. This includes ensuring fair working conditions, supporting communities, and promoting equality and diversity. Governance relates to the company's management and includes

aspects such as transparency in decision-making, combating corruption, ethical leadership, and ensuring the healthy functioning of corporate bodies.

ESG, unlike SDGs, is more focused on how organizations can implement sustainable practices that positively impact their operations, social environment, and management. Although ESG is more related to the micro level, actions at this level also contribute to the achievement of global sustainable development goals through the integration of sustainable practices into the economy and society. For example, SDG 5: Gender Equality. Accordingly, achieving this goal at the university level means adhering to the S – Social principle by promoting gender balance among students, introducing gender studies and researching gender issues. In turn, the G – Governance principle at the university level means involving women in leadership positions. The broad context of ESG and SDGs correspondence is presented in Figure 1.1.

	Environmental	Social	Governance
1. No poverty		●	
2. Zero hunger		●	
3. Good health and well-being	●	●	
4. Quality Education		●	●
5. Gender equality		●	●
6. Clean water and sanitation	●	●	
7. Affordable and clean energy	●	●	
8. Decent work and economic growth	●	●	●
9. Industry, innovation and infrastructure	●	●	
10. Reduced inequalities		●	●
11. Sustainable cities and economies	●	●	
12. Responsible consumption and production	●	●	●
13. Climate action	●		●
14. Life below water	●		
15. Life on land	●		
16. Peace, justice and strong institutions		●	●
17. Partnership for the goals			●

Fig. 1.1. Correspondence between ESG principles and SDGs

Source: Berenberg, 2018

Development of ESG/SDGs Correspondence Approach in HEIs

Higher education institutions have a crucial role in promoting and implementing ESG principles and achieving SDGs. This monograph will focus on three critically different areas: teaching and curriculum development, research and innovation, and sustainable campus and institutional practices (Fig. 1.2), driven by the recognition that universities and colleges are central to shaping future leaders and advancing societal goals.

Fig. 1.2. Integrating ESG and SDGs across critical areas of HEI operations: teaching, research, and campus practices

Teaching and Curricula Development

Development and implementation of ***ESG/SDGs Programmes*** dedicated entirely to ESG and SDGs themes, which aim to foster a deep understanding of sustainability issues across various sectors (Box 3).

Box 3:

MASUDEM

The MASUDEM project stands as an example of integrating sustainable development into education, demonstrating how strategic collaboration can drive meaningful change across regions. “Master Studies in Sustainable Development and Management” is a project that unites ten universities from Europe and Southeast Asia in a concerted effort

to enhance educational and administrative capacities while fostering sustainable economic practices (MASUDEM, 2023). This initiative is designed to create Master's programs and concentrations focused on sustainable development and management, tailored to the needs of Thailand and Indonesia.

The project involves a diverse consortium of universities, each contributing its unique expertise to enrich the curriculum. European universities like the University of Economics in Bratislava (Slovakia), Pablo de Olavide University (Spain), Eötvös Loránd University (Hungary), and Mendel University in Brno (the Czech Republic), bring a knowledge in sustainability, economics, and management. These institutions are known for their strong focus on innovative research and international collaborations, which play a crucial role in shaping the educational programs under MASUDEM.

On the Southeast Asian side, universities like the National Institute of Development Administration (NIDA), Srinakharinwirot University, Naresuan University in Thailand, Universitas Trisakti, Universitas Gadjah Mada, and Universitas Islam Indonesia, all contribute to the project by integrating sustainable practices into their curricula and research initiatives. These institutions are particularly focused on addressing regional challenges related to sustainable development, which makes their involvement in MASUDEM critical for ensuring that the programs are both locally relevant and globally informed.

A key component of the MASUDEM project is the development of 13 new courses, specifically designed to address the contemporary needs of Indonesia and Thailand in the realm of sustainable business and economic development. These courses cover a broad spectrum of topics, including sustainable leadership, environmental impact assessment, corporate social responsibility, and technology management for sustainability. The courses are designed to align with the United Nations Sustainable Development Goals, ensuring that they promote a holistic approach to sustainability.

The development of these courses was a collaborative effort involving academic staff from the European and Southeast Asian partner universities.

This collaboration ensured that the courses are enriched by the diverse expertise of the participating institutions and are well-suited to address the specific sustainability challenges faced by Southeast Asia. The content was also informed by an analysis of leading global and European Master's programs in sustainable management, ensuring that the courses meet high academic standards and are relevant in both global and local contexts.

To support the implementation of these courses, the project also included a comprehensive training program for academic and administrative staff from the participating Southeast Asian universities. This training was conducted in two main formats: a 5-day mobility program where staff from Asian universities traveled to the European partner universities and a 30-hour online and onsite training conducted directly at the Southeast Asian universities. The training covered innovative teaching methods, principles of sustainable development, and advanced administrative practices, ensuring that the staff are well-equipped to manage and deliver the new programs effectively.

One of the distinguishing features of MASUDEM is its emphasis on collaboration and shared learning. Representatives from various Asian universities were invited to European partner institutions, fostering an environment of collaboration and exchanging ideas. This approach enhanced the educational programs' quality and strengthened international cooperation, which is essential for addressing global sustainability challenges. The project also placed a strong focus on continuous improvement. Feedback from the training participants, along with input from internal and external reviewers, was systematically incorporated into the development and refinement of the courses. This iterative process ensures that the educational materials remain relevant, effective, and aligned with the evolving needs of both regions.

The MASUDEM project is a powerful example of how international collaboration can effectively integrate sustainable development into higher education. By bringing together diverse expertise from ten universities across Europe and Southeast Asia, the project has not only

created high-quality educational programs but has also fostered a network of institutions dedicated to promoting sustainability. The project's comprehensive approach, from course development to staff training, ensures that the programs will have a lasting impact, equipping graduates with the knowledge and skills needed to address the pressing sustainability challenges of our time.

Source: MASUDEM, 2023

The introduction of standalone ***courses focused explicitly on ESG and SDGs*** topics is needed to provide detailed insights and educational opportunities centered around global sustainability challenges.

For example, at the V. N. Karazin Kharkiv National University, the course "Management in Conditions of Sustainable Development" explores a broad range of themes crucial for integrating sustainability into business practices. Key topics include an introduction to sustainable development in business, ecological challenges and opportunities, business models for sustainable development, corporate social responsibility (CSR), and strategic management of sustainable development. Additional subjects cover the management of environmental and social risks, corporate governance of sustainable development, financial tools and investments for sustainable business, innovations for sustainable development in business, marketing and consumer behavior in sustainability contexts, measurement and reporting of sustainable development, collaboration between business and governmental or non-governmental organizations, and ethics and leadership in sustainable business management. Each theme is designed to provide students with comprehensive insights into the implementation of sustainable practices that align with global sustainability goals (SEI "Karazin Business School", 2024).

At the Taras Shevchenko National University of Kyiv (TSNUK), the Educational-professional Program for bachelor's degrees in "Trade, Logistics and Ecological Entrepreneurship" integrates a strong focus on environmental sustainability through a series of specialized courses. These courses are designed to equip students with the knowledge and skills necessary to drive eco-friendly initiatives in various business sectors. Courses within this program include "Foundations of the Green Economy", which examines the

characteristics of the eco-economic system, the principles of sustainable development, the formation of a model of sustainable consumption and environmentally responsible business; “Ecological Marketing”, where students learn to promote environmentally sustainable products and services; and “Ecological Entrepreneurship”, which focuses on starting and managing businesses that make a positive contribution to the environment. To deepen the environmental focus, the program offers “Environmental Auditing and Controlling” and “Environmental Accounting, Taxation and Reporting”, which provide skills in monitoring and managing environmental compliance; “Product Management in Ecological Entrepreneurship”, which teaches product life cycle management under sustainability protocols; and “Ecological Management”, which covers strategic oversight of a company's environmental strategies. In addition, “Training in Green Development Strategy for Enterprises” plays a crucial role in the curriculum, focusing on the specifics of green development in enterprises. This training addresses the creation of green development strategies as active business programs and provides students with methodological foundations for diagnosing business activities in terms of environmental protection and resource use. It equips them with the necessary tools to assess green development opportunities. The course also covers environmental auditing and the analysis of business activities in environmental protection and natural resource management, ensuring that students can effectively contribute to and lead sustainability initiatives in their future workplaces. This hands-on approach to training enables students to apply theoretical knowledge to practical situations, fostering a deep understanding of sustainable business practices and strategies (TSNUK, 2024a).

At the Educational and Rehabilitation Institution of Higher Education “Kamianets-Podilskyi State Institute”, master's students in the Educational and Professional Program “Economics And Social Psychology” study the course “Inclusive Economy”. This course covers various topics including the essence of the inclusive economy and the specifics of its definition (sustainable development paradigm, inclusive growth concept, goals of inclusive development in the EU, inclusive development index); conceptual aspects of inclusive economy development (poverty as a socio-economic phenomenon, concept of inclusive strategic innovative development

of a region); organizational-economic mechanisms for developing an inclusive economy; modeling the development of an inclusive economy; characteristics of forming the structure of institutional sectors of Ukraine's economy aimed at inclusive development; restructuring of the industrial sector in the context of inclusivity: challenges, objectives, and policy principles; overcoming regional structural inertia as a precondition for inclusive development; technological changes: impact on the economic structure and the level of inclusivity of its development (features of ensuring inclusive technological development in Ukraine through a gender lens, formation of a technological ecosystem in Ukraine); directions of state structural policy in Ukraine to achieve inclusive development goals (KPDI, 2024).

Integration of ***ESG and SDGs-related topics into existing courses*** across different disciplines, ensuring that all students receive a well-rounded education that includes awareness of sustainability issues.

Within the Educational and Scientific Program "Management of Organizations and Administration" at the Taras Shevchenko National University of Kyiv, master's students are offered the course "Current Issues in Economic Theory and Economic Policy". This course covers the topic "Theoretical Understanding of Eco-economic Issues, the Concept of Sustainable Development, and Ecological Problems in Ukraine". It provides students with an in-depth examination of contemporary ecology-economic challenges, integrating theoretical frameworks with the practical realities of Ukraine's environmental issues (TSNUK, 2024b).

For the master's students in the Educational and Professional Program "Public Management and Administration" at the Educational and Rehabilitation Institution of Higher Education "Kamianets-Podilskyi State Institute", a "Municipal Management" course is offered. This course includes the topic "The Use of Innovative Technologies in Various Sectors of Local Economy. Information Technologies in Municipal Management", which explores the application of energy-saving technologies and the main requirements of the European Union regarding energy efficiency (KPDI, 2024).

Incorporating case studies and practical learning to enhance learning and enable students to engage directly with ESG and SDGs challenges and solutions in practical settings. So, for instance, as part of

the "UniCities" project, a summer school was organized for students to address the restoration of the Chernihiv Polytechnic National University campus following the destruction caused by missile attacks. The students developed solutions aligned with SDGs and ESG principles. Six projects were presented: "EcoVance – A New Type of Shelter", "M&H – Mental Health Zone in Front of the Dormitory", "BarHaus – VertiGreen", "Seventeen – Designing a Passive, Partially Autonomous Dormitory", "Green Future – Eco Area in Front of the 1st Campus Building at CPNU", and "A1 – Redevelopment Dormitory". Importantly, even amidst the war, it is possible to implement solutions based on sustainable practices, and it is crucial for students to be involved in these processes. A unique aspect of this summer school was its location at the "smart shelter" of the G.I. Denysenko Scientific and Technical Library of the Igor Sikorsky Kyiv Polytechnic Institute (Voloschuk, 2024).

Establishment of ***interdisciplinary programs with ESG/SDGs focus*** that merge insights from various fields, fostering an integrated understanding of how different disciplines contribute to achieving sustainability goals. The "Circular Economy" program for Master students at Mendel University in Brno, Czech Republic, emphasizes practical strategies for evaluating, planning, managing, and controlling circular economy processes within businesses and service sectors. It caters to the growing need for ESG reporting and prepares graduates with the skills to develop sustainable business practices and make informed decisions. This interdisciplinary program is tailored to meet the complex challenges of sustainable development. This program includes disciplines across various domains, enhancing its comprehensive approach to sustainable development. These domains encompass: Environmental and Resource Management (Bioeconomy, Circular Financing, Ecosystem Services, Environmentalistics, Alternative Energy Sources, Energy Plants and Biomass Utilization); Agriculture and Sustainable Practices (Principles of Farming System, Smart Farming and Sustainable Agriculture, Forest Production, Processing of Local Food Sources, Urban Farming); Business and Economics (Business Economics, Economics of Wood Commercialization and Wood Products, Managerial Accounting, Enterprise Internationalization Process, Business ICT Management); Project and Leadership Development (Project Management,

Sustainable Leadership), Technology and Innovation (Decision Support Systems, Wood and Wood-based Materials); Media and Social Studies (Promotion and Media, Social Analysis). Each course within the program is strategically designed to integrate sustainability principles with practical skills and theoretical knowledge. The comprehensive curriculum ensures that graduates are well-prepared to implement and lead sustainable practices across various sectors, making significant contributions to the global circular economy (MENDELU, 2024).

Research and Innovation

Through their research and innovation efforts, HEIs have a key role in pursuing sustainability, effectively implementing ESG principles, and achieving the SDGs. These institutions should be centers of innovation, where new ideas are born and tested. The focus on research and innovation covers two key areas: sustainability research and the creation of innovation hubs and incubators focusing on implementing ESG principles or achieving SDGs.

First, higher education institutions conduct ***targeted research on sustainability*** to address pressing sustainability issues. Recognizing the complex and interconnected nature of global challenges, universities promote *interdisciplinary collaboration*. By bringing together experts from diverse fields such as environmental sciences, economics, technology and social sciences, these collaborations aim to create holistic and robust solutions to sustainability challenges.

Statistics indicate that developed countries place greater emphasis on scientific investment compared to developing countries. Since 2010, Korea has maintained its leadership, with its Gross domestic expenditure on research and development (R&D) – GERD at 3.3 % of GDP in 2010, according to OECD data, rising to 5.2 % of GDP in 2022. In the same year, the United States allocated 3.6 % of GDP to R&D. The average GERD as a percentage of GDP ratio in the EU in 2022 is 2.1 %, with the highest indicator in Sweden (3.4 %), and the lowest – in Romania (0.46 %). Notably, in 2022, the R&D intensity in the Czech Republic is 1.96 %, indicating a promising potential for growth (OECD, 2024).

In 2021, more than half (57.7 %) of total R&D expenditure in the EU was financed by business enterprises. The government funded nearly a third

(30.3 %), while 9.7 % came from foreign sources. The higher education sector provided a relatively small share of funding (1.2 %) (Eurostat, 2024).

In absolute terms, total gross domestic expenditure on R&D in the EU in 2022 was EUR 363 billion, or EUR 813 per inhabitant. Compared to 2021, R&D expenditure per inhabitant in the EU increased by almost 10 %; compared to 2012, the increase was 51.3 % (Eurostat, 2024). These figures align with the strategy outlined in the official document "Political guidelines for the next European Commission 2024-2029", which places "research and innovation at the heart of … economy" to boost the EU's competitiveness (Von der Leyen, 2024, p.10). This idea "will be part of a broader Strategy for European Life Sciences" to support EU countries' green and digital transitions (Von der Leyen, 2024, p.11). It aims to increase investment through new public-private partnerships and improve their efficiency through greater collaboration between research, academia, and business (Von der Leyen, 2024). These steps are expected to increase the EU's resilience and prosperity by providing "green and digital solutions in line with the sustainable development goals" (Eurostat, 2024).

In Ukraine, the GERD as a percentage of GDP ratio was 0.33 % in 2022, with the highest level being reached in 2010 with 0.75 % of GDP. Although gross domestic expenditure on R&D in 2023 increased by 24.7 % in absolute terms compared to 2022, GERD as a percentage of GDP remained at the same level of 0.33 % (Ukrstat, 2024). According to the announced data, the Ukrainian state budget of 2024 will allocate 20 % more to scientific research than in 2023 (Ministry of Finance of Ukraine, 2023).

Funding from government organizations is the primary source of R&D funding in Ukraine. In 2022, this source accounted for 66.6 % of the total R&D expenditure, but in 2023 it decreased to 43.1 % (Ukrstat, 2024). Ukraine has a legal requirement for budget funding for scientific and technical activities to be no less than 1.7 % of GDP (according to Article 48 of the Law of Ukraine "On Scientific and Technical Activities") (Verkhovna Rada of Ukraine, 2024). However, this standard has never been met since the law was passed in 2015. As a result of this underfunding, research has been concentrated in research institutes (e.g. the National Academy of Sciences of Ukraine), while universities have focused more on educational activities. This has led to limited scientific development, insufficient

research, and a lack of opportunities for talented scientists to carry out their projects in Ukraine.

Ukrainian universities have only recently started actively integrating scientific work into their activities, establishing research units, involving students in research projects, and strengthening cooperation with international partners. Nevertheless, the share of funding from higher education sector organizations in total R&D expenditure remains critically low, not exceeding 0.1 % for several consecutive years. At the same time, a significant share of total R&D expenditure is consistently covered by funds from the business enterprise sector (11.8 % in 2022 and 11.5 % in 2023) and foreign sources (10.8 % in 2022 and 16.4 % in 2023). In 2023, the share of own funds of organisations performing R&D rose sharply to 27.8 % of total R&D expenditure, compared with only 9.8 % in 2022(Ukrstat, 2024). It is clear that the war significantly shifted the focus from R&D to other areas.

Despite the challenges faced by science and research in HEIs, research in the field of ESG/SDGs is very active. Thus, the National Research Foundation of Ukraine provides funding not only to scientists from research institutes but also from HEIs. For example, in 2021, a number of projects were funded in the area of "Science for Security and Sustainable Development of Ukraine", including "Implementation of climate-neutral innovations in the management of agrarian nature use in the context of ecological and energy security of Ukraine" (West Ukrainian National University), "Modelling and foresight of environmental, behavioural and institutional patterns of carbon-neutral development to ensure energy security of Ukraine" (Sumy State University), "Development of economic mechanisms for improving energy efficiency and sustainable development of renewable energy in Ukrainian households" (Sumy State University), "Restructuring of the national economy in the direction of digital transformations for sustainable development" (Sumy State University) (NRFU, 2024).

A number of research projects focusing on the implementation of sustainable practices are carried out within the Jean Monnet module. Thanks to the support of the EU Erasmus+ program under the Jean Monnet Module, a number of studies have been carried out. So, within the project "Transparency. Accountability. Responsibility. Governance. Europe. Trust. Sustainability"

(101085395 – TARGETS–ERASMUS-JMO-2022-HEI-TCH-RSCH), that is conducted at Sumy State University, a monograph entitled "Sustainability Benchmarks and Progress: EU-Ukraine Experience" will be prepared. It will explore the integration and evaluation of sustainable development within the EU and Ukraine, focusing on the forthcoming adoption of EU sustainability values at multiple levels, from individual companies to national policies. It will examine EU regulations on labeling and benchmarking in responsible investment markets, alongside ratings and rankings to assess corporate sustainability within the EU. The work will also explore the development of sustainability indices by major European stock exchanges and will share insights on the mutual lessons to be learned from implementing and regulating these benchmarks in an EU-Ukraine context. This comprehensive study provides a broad perspective on the anticipated challenges and strategies for advancing sustainable practices across different governance and economic frameworks (SumDU, 2024b).

Also, in 2024, the Lutsk National Technical University will begin implementing the Erasmus+ Jean Monnet Module project "European Values and Best Practices of the Development of Cities and Territories Towards Sustainable Development" 101174676 – EVDOC– ERASMUS-JMO-2024-HEI-TCH-RSCH. The project focuses on researching best practices for developing sustainable cities and territories in Europe. Considering the activities planned within the project, it can be said that this initiative will promote dialogue between researchers and society, particularly local and regional policymakers, civil servants, civil society representatives, and individuals from various levels of education (LNTU, 2024).

The project "EU for People's Digital, Eco, and Financial Awareness (EU4DEFA)" is being implemented by the Department of Insurance, Banking, and Risk Management at Taras Shevchenko National University of Kyiv (Ukraine) as part of the European Union's Erasmus+ program, Jean Monnet Module "EU for People's Digital, Eco, and Financial Awareness" (Jean Monnet Module 101174694 – EU4DEFA – ERASMUS-JMO-2024-HEI-TCH-RSCH). The main objective of the project is to contribute to filling critical gaps in the understanding and implementation of EU policies in Ukraine, focusing on the pillars of digitalization, Green Deal and financial awareness. By focusing on the aspects of digitalization, the Green Deal,

and financial awareness in EU policy and its implementation in Ukraine, EU4DEFA promotes sustainability across multiple dimensions (Table 1.2).

Table 1.2. EU4DEFA through the ESG perspective

EU4DEFA from	Environmental perspective (E)	One of the three key pillars of the project is the Green Deal, which is inherently linked to environmental sustainability. The project promotes knowledge about economic methods of environmental protection in the EU through schools and workshops. EU4DEFA raises awareness among pupils, students, teachers and lecturers of Ukrainian HEIs about climate change, sustainable resource use and reducing carbon footprints in the EU. The project promotes dialogue in Ukrainian society on EU environmental policies and practices and the prospects for their implementation in Ukraine.
	Social perspective (S)	The target audience of the project is very diverse and includes pupils, students, school teachers and university lecturers. Their participation in the schools or workshops does not require any payment or additional effort, as the events are conducted online with no entry barriers. EU4DEFA contributes to economic inclusion by fostering a deeper understanding of financial systems, economic policies and their role in promoting sustainable economic growth.
	Governance perspective (G)	The promotion of scientific research through open-access publications within the project aims to facilitate discussions among policymakers, academics and the wider public about existing EU policies in the three key pillars of digitalisation, Green Deal and financial awareness, as well as the potential for implementing similar experiences in the Ukrainian context. EU4DEFA provides transparent and accessible research for informed and more resilient governance at all levels.

Source: EU4DEFA, 2024

EU4DEFA strongly contributes to Sustainable Development Goals (SDGs). Free participation in online schools and workshops meets SDG 4: Quality Education. This ensures that participants from different educational levels will be equipped with the necessary knowledge and skills to develop relevant policies in Ukraine. Through the financial awareness pillar the project supports SDG 8: Decent Work and Economic Growth by promoting sustainable economic growth and improving financial literacy. By focusing

on digitalization, the project contributes to SDG 9: Industry, Innovation, and Infrastructure, and promotes digital transformation that supports economic and societal development. Through EU4DEFA`s Green Deal pillar, EU4DEFA directly addresses SDG 13: Climate Action by raising awareness of climate change mitigation strategies. The project uniquely combines public engagement, policy discussions, and scientific research to bridge existing gaps in understanding and implementing EU policies in Ukraine. EU4DEFA leads to more informed citizens and professionals, ultimately fostering an environment for Ukraine's economic development.

Second, HEIs can establish ***hubs and incubators*** specifically designed to nurture and develop new enterprises and innovations that adhere to ESG principles and contribute towards SDGs. These hubs provide the resources, mentorship, and networks necessary to translate innovative ideas into practical solutions and successful business ventures.

In cooperation with the Ministry of Education and Science of Ukraine, a program was developed to commercialize research developments from Ukrainian universities. This initiative aims to overcome the barriers preventing Ukrainian innovations from entering global technology markets, promoting the country’s success in this field. The program's main goal is to create innovative businesses based on domestic scientific achievements, ensuring that both the technologies and their value remain in Ukraine. One of the leading tools in this direction is eō Business Incubators–the first and currently the only American technology incubator in Ukraine. Founded in 2019, it quickly became the country's top business incubator and accelerator. Over 140 startups have completed the eō program, achieving an overall internal rate of return of over 40 %. This unprecedented achievement in Ukraine demonstrates outstanding global results, even considering only direct investments without grant funding. The combined valuation of the twelve most successful startups to graduate from the program has exceeded USD 100 million, as assessed by external investors. eō graduates have also excelled at over 20 prestigious global technology exhibitions and investment forums. Much of this success is attributed to the support of a team of more than 50 highly skilled mentors from around the world and a unique business incubation program rooted in the best American practices. An important aspect of this program’s implementation is overcoming the misconceptions

prevalent in Ukraine's academic and research communities, which view business incubators as being solely for young creative entrepreneurs. In reality, the eō business incubator model is based on American practices, particularly those of universities like MIT and Stanford, where the primary focus is on commercializing the research of not only students but also faculty members and researchers (RMN, 2024).

Sustainable Campus and Institutional Practices

HEIs play a significant role in promoting sustainability not only through their educational and research efforts but also by implementing sustainable practices within their campuses. The following initiatives contribute to creating a more sustainable and responsible campus environment.

Implementing green campus initiatives by HEIs can be realized through their environmental impact by initiating green campus projects. These include increasing energy efficiency, reducing waste through recycling programs, promoting biodiversity by maintaining green spaces and transitioning to renewable energy sources. Implementing systems for monitoring resource consumption helps HEIs minimize their environmental impact and promotes sustainability in day-to-day campus operations.

For example, Taras Shevchenko National University of Kyiv is participating in the Erasmus+ KA2 project "Green Roofs in Higher Education Institutions as Sustainable Centers for Research, Participation, Environmental Consciousness, and O2 Generation" (GREENO2). Project objectives are: promoting green roofs as the academic community's response to environmental protection, active participation, and well-being in higher education; providing environmental education through the use of green roofs; encouraging the implementation of green roofs as centers for research and fostering environmental awareness, as well as spaces for learning and/or relaxation (TSNUK, 2023, p. 212).

The project "Higher Education. Energy Efficiency and Sustainable Development" is being implemented under the Energy Efficiency and Sustainable Development of Ukraine Grant Agreement with the European Investment Bank and the Nordic Environment Finance Corporation. The Ministry of Education and Science of Ukraine and the European Investment Bank initiated and developed the project to support Ukrainian universities in

energy efficiency, signed on 19 December 2016. The total cost of the project is EUR 160 million. The participating universities are Vinnytsia National Technical University, National Technical University "Kharkiv Polytechnic Institute", Lviv Polytechnic National University, National University "Yuri Kondratyuk Poltava Polytechnic", Chernihiv Polytechnic National University, and Sumy State University. The National University "Yuri Kondratyuk Poltava Polytechnic" will receive EUR 7.5 million. The project includes all possible measures for thermal modernization, insulation, replacement of windows with energy-efficient ones with higher energy efficiency factor, replacement of water supply and sewage systems, installation of solar panels, replacement of ventilation system, replacement of lighting system with energy-saving elements, replacement of heating system, installation of automatic energy consumption and management systems, installation of heat pumps and other measures (Doroshenko, 2023; VNTU, 2024).

A sustainable campus requires ***ethical and inclusive governance*** structures that ensure all voices are heard and considered in decision-making processes. This involves promoting diversity and inclusion at all levels of university administration, ensuring transparency, and upholding ethical standards in all institutional practices. Inclusive governance allows HEIs to be responsive to the needs of their diverse student and staff population. Taras Shevchenko National University of Kyiv has developed the Strategy for Ensuring Gender Equality, which states that as of the beginning of 2023, there will be 5 women among 9 vice-rectors at TSNUK, 7 deans of faculties/directors of institutes are women, and 50 % of department heads are women. Women are also in charge of other university departments, including accounting, planning and finance, legal, campus and canteens (TSNUK, 2024c, p. 1).

The Gender Resource Centre at Sumy State University also plays a pivotal role in raising awareness within the university community. With the active involvement of university staff and members of the Centre, numerous educational events on gender equality have been organized for both the academic community at Sumy State University and other higher education institutions across Ukraine. Key initiatives carried out in 2022-2023 include hosting a webinar on gender aspects in the educational process for the Alliance of Ukrainian Universities and implementing a project supported

by the Ukrainian Women's Fund to strengthen a network of gender think tanks. This project focuses on jointly developing tools to promote gender equality, enhancing the professional development of gender specialists, and organizing study visits (SumDU, 2024a, p. 21).

HEIs have the opportunity to engage not only their internal community but also the wider public in sustainability initiatives. ***Community engagement*** efforts can include partnerships with local organizations, sustainability awareness campaigns, and outreach programs to share best practices for sustainable living. By involving the broader community, universities contribute to a culture of sustainability that extends beyond the campus.

This is a relatively new area for HEIs. At the Taras Shevchenko Luhansk National University, strong collaboration has been established with local communities across several key areas. In particular, efforts are focused on public education aimed at promoting and protecting human and civil rights and freedoms. This includes organizing joint events to raise public awareness about the mechanisms available for defending these rights, such as conferences, seminars, round tables, and meetings. Additionally, joint projects and programs are being developed and implemented to enhance the legal consciousness of young people and instill respect for human rights and fundamental civil liberties (Kravchenko et al., 2023).

For example, the Department of Insurance, Banking, and Risk Management of TSNUK has launched a program called FinEd. In 2019, the department launched a series of financial literacy lectures during the spring and autumn school breaks, and faculty members held financial literacy seminars for 10th and 11th graders. This led to involving university students and expanding the initiative beyond the standard lecture series, which evolved into creating a financial literacy hub and organizing competitions. This expanded format was successfully implemented in 2022 and 2023 with the support of Genesis, the National Bank of Ukraine, the Deposit Guarantee Fund and Iplan (Faculty of Economics of TSNUK, 2024).

One more successful example is the Diia.Business project operating as an independent initiative within the broader framework of the digital state brand “Diia”, with the overarching objective of promoting the growth of entrepreneurship in Ukraine. In December 2020, a “Diia.Business” center

was established at the Faculty of Economics of Taras Shevchenko National University of Kyiv, providing a dedicated space for students and aspiring entrepreneurs. This initiative was spearheaded by the Ministry of Digital Transformation of Ukraine in collaboration with the national "Diia.Business" entrepreneurship development project, with technical support provided by HUAWEI Ukraine. "Diia.Business" center plays a pivotal role in fostering entrepreneurship among students and young people through a variety of educational programs and initiatives. These efforts are designed to support the realization of business ideas, enhance entrepreneurial competencies, and facilitate professional development and networking within the entrepreneurial ecosystem. Key educational activities include workshops, webinars, lectures, and training sessions led by industry professionals aimed at fostering entrepreneurial culture and skills among students; film seminars in foreign languages, alongside educational games and interactive practices. Through these offerings, the "Diia.Business" center serves as a vital hub for nurturing the next generation of Ukrainian entrepreneurs, providing them with the tools, knowledge, and support necessary to succeed in a competitive global market (Faculty of Economics of TSNUK, 2024).

Cooperation between local communities and universities has become increasingly important during the war. Among the key areas where universities can provide significant support are psychological assistance, social adaptation, educational activities and project preparation. Universities have the potential to stimulate local economic development by organizing training for internally displaced persons (IDPs) and other affected populations, focusing on building entrepreneurial skills and securing resources for individual projects. One notable example of such cooperation is a project organized by Kyiv National Economic University named after Vadym Hetman in collaboration with the Starobilsk District State Administration. A training session on "How to write a project and secure funding for your own business or initiative" was held for IDPs from Luhansk and other occupied regions of Ukraine. Participants were inspired and given practical tools to implement their business ideas. With the trainer's support and assistance in writing grant applications, one of the participants successfully started his own business – an important step in supporting IDPs and facilitating their adaptation to new circumstances.

This collaboration is continuing, with work underway to develop a website for a humanitarian hub that will improve communication with IDPs and enhance the coordination of assistance efforts (KNEU, 2024).

Conclusions

The human capital within Ukrainian HEIs is exceptionally strong, characterized by a high level of expertise, creativity, and potential. Nonetheless, to maximize the impact of this intellectual resource, it is crucial that it be complemented with adequate financial support. Sustainable development in higher education cannot rely solely on human capital; it requires consistent investments in infrastructure, research, and innovative programs that will enable universities to address the complex challenges associated with ESG and SDGs effectively. Therefore, securing financial resources remains a critical factor in empowering HEIs to leverage their intellectual capacities fully and to drive meaningful, long-term contributions to sustainable development both locally and globally.

In addition to financial support, fostering a culture of cooperation and partnership is equally important. Ukrainian universities should strengthen their links with local and international stakeholders. Cooperation between Ukrainian HEIs, national government agencies, and the private sector has developed actively in recent years, with positive results in integrating ESG principles in the university environment and the real economy. However, expanding cooperation to the international level remains a significant challenge for Ukrainian higher education. The war has acted as a catalyst, accelerating the integration of the Ukrainian academic community with foreign partners. By actively participating in global networks and partnerships, universities can access best practices, innovative solutions, and additional funding opportunities.

A promising area for education should be the creation of sustainable research ecosystems that foster interdisciplinary collaboration. Partnerships between universities and collaboration across sectors and disciplines are crucial to addressing the complex challenges of sustainable development. Creating international research consortia based on an interdisciplinary approach will enable innovative contributions to address the pressing environmental, social, and economic challenges outlined in the ESG and the SDGs.

More generally, the success of implementing the ESG and SDGs in higher education depends on a holistic approach that encompasses all levels of university activity – from teaching and research to management practices and the campus. Universities should see themselves as catalysts for change, with a responsibility to lead by example. This means integrating sustainability into every aspect of their operations and ensuring their policies and practices align with global sustainability goals. In doing so, higher education institutions can contribute to national and global efforts to achieve sustainable development and prepare future generations of leaders to meet the evolving challenges of a rapidly changing world.

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Chapter 2.
Assessement of ESG/SDGs introduction in HEIs

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Introduction

Higher Education Institutions (HEIs) in Ukraine are actively engaged in a wide range of initiatives aimed at upholding the Environmental, Social, and Governance (ESG) principles and contributing to achieving Sustainable Development Goals (SDGs). However, to establish a more comprehensive and coherent understanding of these efforts, there is a need for a systematic evaluation of the initiatives being implemented across individual universities. Such an evaluation would help identify existing gaps or underdeveloped areas–so-called "blind spots"–that require additional attention and resources to ensure more balanced progress.

Given the importance of adhering to ESG principles and achieving SDGs, the Times Higher Education (THE) Impact Rankings have been developed to assess universities based on their contribution to the SDGs. These rankings use a carefully developed set of indicators to enable detailed and fair comparisons across four key areas: research, stewardship, outreach and teaching.

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Mapping the Sustainable Development Goals to HEIs' Indicators and ESG Principles

In Chapter 1 have been already discussed the characteristics of the three areas: (i) teaching and curricula development; (ii) research and innovation; (iii) sustainable campus and institutional practices This ranking additionally includes stewardship because, as custodians of vast resources – both physical assets and human capital, including faculty, staff, and students – HEIs play a critical role in sustainable resource management, which is essential to advancing the SDGs. Table 2.1 presents a detailed framework that integrates the implementation of ESG principles with SDGs within HEIs. We will use for ESG the abbreviations: *E-principle, S-principle and G-principle*. This framework outlines key indicators used to measure university performance in relation to each SDG and demonstrates the alignment between these indicators and ESG principles. By mapping these elements, the table highlights how HEIs contribute to sustainable development. It is important to note that it can be challenging to clearly delineate each Sustainable Development Goal and its corresponding ESG principles. Often a single goal may align equally with multiple principles (such cases are marked as "◐"), but sometimes there is a dominant principle (marked as "●") and a supplementary principle (marked as "O").

Table 2.1. Mapping the Sustainable Development Goals to HEIs' Indicators and ESG Principles

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
SDG 1: No Poverty	Research on poverty (27.0 %)		●	
	Proportion of students receiving financial aid (27.0 %)		●	
	Community anti-poverty programmes (23.0 %)		●	
	University anti-poverty programmes (23.0 %)		●	
SDG 2: Zero Hunger	Research related to hunger (27.0 %)		●	
	Campus food waste (15.4 %)		●	
	Student hunger (19.2 %)		●	

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
	Proportion of graduates in agriculture and aquaculture, including sustainability aspects (19.2 %)		●	
	National hunger (19.2 %)		●	
SDG 3: Good Health and Well-Being	Research on health and well-being (27.0 %)		●	
	Proportion of health graduates (34.6 %)		●	
	Collaborations and health services (38.4 %)	○	●	
SDG 4: Quality Education	Research on early years and lifelong learning education (27.0 %)		●	
	Proportion of graduates with a teaching qualification (15.4 %)		●	
	Lifelong learning measures (26.8 %)		●	○
	Proportion of first-generation students (30.8 %)		●	
SDG 5: Gender Equality	Research (27.0 %)		●	
	Proportion of first-generation female students (15.4 %)		●	
	Student access measures (15.4 %)		●	
	Proportion of senior female academics (15.4 %)		●	○
	Proportion of women receiving degrees (11.5 %)		●	○
	Women's progress measures (15.3 %)			○
SDG 6: Clean Water and Sanitation	Research on clean water and sanitation (27.0 %)	●	○	
	Water consumption (19.0 %)	●		
	Water usage and care (23.0 %)	●	○	
	Water reuse (12.0 %)	●		
	Water in the community (19.0 %)	●	○	
SDG 7: Affordable and Clean Energy	Research on affordable and clean energy (27.0 %)	●	○	
	University measures towards affordable and clean energy (23.0 %)		○	
	Energy use (27.0 %)		○	
	Energy and the community (23.0 %)		○	

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
SDG 8: Decent Work and Economic Growth	Research on economic growth and employment (27.0 %)	○	●	
	Employment practices (19.6 %)		●	○
	Expenditure per employee (15.4 %)		●	○
	Proportion of students taking work placements (19.0 %)		●	
	Proportion of employees on secure contracts (19 %)			○
SDG 9: Industry, Innovation and Infrastructure	Research on industry, innovation and infrastructure (11.6 %)	●	○	
	Patents citing university research (15.4 %)	●	○	
	University spin-offs (34.6 %)	●	○	
	Research income from industry (38.4 %)	●	○	
SDG 10: Reduced Inequalities	Research on reduced inequalities (27.0 %)		●	
	First-generation students (15.5 %)		●	
	Students from developing countries (15.5 %)		●	
	Students and staff with disabilities (23.0 %)		●	○
	Measures against discrimination (19.0 %)		●	○
SDG 11: Sustainable Cities and Communities	Research on sustainable cities and communities (27.0 %)	◐	◐	
	Support of arts and heritage (22.6 %)		◐	
	Expenditure on arts and heritage (15.3 %)		◐	
	Sustainable practices (35.1 %)	◐	◐	
SDG 12: Responsible Consumption and Production	Research on responsible consumption and production (27.0 %)	◐	◐	
	Operational measures (26.7 %)	◐	◐	◐
	Proportion of recycled waste (27.0 %)	◐		
	Publication of a sustainability report (19.3 %)	◐		◐
SDG 13: Climate Action	Research on climate action (27.0 %)	●		
	Low-carbon energy use (27.0 %)	◐		◐
	Environmental education measures (23.0 %)	◐		
	Commitment to carbon-neutral university (23.0 %)	◐		◐

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
SDG 14: Life Below Water	Research on life below water (27.0 %)	●		
	Supporting aquatic ecosystems through education (15.3 %)	●		
	Supporting aquatic ecosystems through action (19.4 %)	●		
	Water-sensitive waste disposal (19.3 %)	●		
	Maintaining a local ecosystem (19.0 %)	●		
SDG 15: Life on Land	Research on land ecosystems (27.0 %)	●		
	Supporting land ecosystems through education (23.0 %)	●		
	Supporting land ecosystems through action (27.0 %)	●	○	○
	Land-sensitive waste disposal (23.0 %)	●		
SDG 16: Peace, Justice and Strong Institutions	Research on peace and justice (27.0 %)		◐	
	University governance measures (26.6 %)			◐
	Working with government (23.2 %)			◐
	Proportion of graduates in law and civil enforcement (23.2 %)		◐	
SDG 17: Partnerships for the Goals	Research (27.1 %)			●
	Relationships to support the goals (18.5 %)			●
	Publication of SDG reports (27.2 %)			●
	Education on the SDGs (27.2 %)			●

Source: THE (2024)

We will analyse the indicators associated with each SDG and review the performance of the top three universities ranked in 2024, in order to identify best practices. In addition, the comparison will include universities from Ukraine and the Czech Republic, focusing on data from 2022 and 2024 to show tendencies, as these rankings were first introduced in 2020. The maximum achievable score for each SDG is 100 points.

SDG 1: No Poverty

HEIs can contribute to poverty alleviation in a number of ways. Primarily, their efforts should focus on ***Research on poverty***, as it is essential to understand the causes of poverty, the methods used to measure it, its

consequences, and the steps needed to address it. Research on poverty includes key indicators such as *the Field-weighted citation index of papers related to poverty, the Number of publications related to poverty, and the Proportion of all research papers co-authored with low or lower-middle-income countries* (THE, 2024). The latter indicator is particularly important as it not only provides a better understanding of the challenges faced by these countries but also supports researchers from these countries in their efforts to produce high-quality, high-impact research.

Secondly, it is the ***Proportion of students receiving financial aid***. This indicator demonstrates the accessibility of education for all social groups, regardless of their financial situation. In this ranking, only the criterion of "significant financial aid" is considered (THE, 2024), but in reality, this support can take other forms, as it does in Ukraine (Box 4).

Box 4:

Preferential Admission Conditions and Beneficiary Categories for Applicants to HEIs in 2024

"Beneficiary Categories for Applicants in 2024

The following groups have the right to participate in the competitive selection process based on the results of an interview and/or creative competition, with admission based on a positive assessment:

- Persons with disabilities as a result of war;
- Individuals affected by the Chornobyl disaster;
- Persons with disabilities who are unable to attend an HEIs.

The following groups can participate in the competitive selection process based on the results of an interview instead of the National Multidisciplinary Test (NMT) and creative competition, with admission granted if they achieve sufficient scores:

- Participants affected by the Revolution of Dignity and combatants, including those serving mandatory military service;
- Persons with specific physical needs who were unable to take the NMT;

- Persons with disabilities who cannot take the NMT in 2024 due to illness or pathological conditions;
- Military personnel, police officers, rescuers, members of the State Criminal-Executive Service applying for contract-based master's degree programs at military higher education institutions and their branches, or institutions with specific conditions of study (except for the Law and International Law specializations);
- Persons residing in or registered in temporarily occupied territories, settlements along the contact line, or administrative boundaries, or those who relocated from these areas after January 1, 2024. Applicants who relocated from these territories before January 1, 2024, may apply for quota-2 for budget-funded programs (but must take the NMT).

Special Conditions for Admission to Budget-Funded Places (Quota 1)

The following groups may use special conditions for admission to allocated budget-funded places (quota 1):

- Participants affected by the Revolution of Dignity and combatants, including those serving mandatory military service;
- Persons with specific physical needs who were unable to take the NMT;
- Persons with disabilities who cannot take the NMT in 2024 due to illness or pathological conditions, and those participating in the main and additional NMT sessions in 2024;
- Persons who have been detained as a result of armed aggression against Ukraine (including those who were held captive);
- Orphans and children deprived of parental care.

Mandatory Transfer to Vacant Budget-Funded Places

The following groups are entitled to mandatory transfer to vacant budget-funded places:

- Children of deceased (or missing) individuals, as specified in the Law of Ukraine “On the Status of War Veterans, Guarantees of Their Social Protection”;
- Children whose parent died in captivity (if the fact of deprivation of personal freedom has been established);

- Children whose parent died from injuries sustained during the Revolution of Dignity;
- Children whose parent was a combatant in other countries and who died or went missing during those military operations;
- Children whose parent (adoptive parent) was a servicemember who died or went missing while performing military duties;
- Children whose parent (adoptive parent) was a police officer who died or went missing while performing official duties.

Additionally, subject to the availability of vacant budget-funded places, the following groups are eligible for transfer:

- Persons with disabilities of groups I and II, and children with disabilities under the age of 18 who are not prohibited from studying in their chosen field;
- Persons with disabilities who are participants in the liquidation of the Chornobyl nuclear disaster or who were affected by the Chornobyl disaster;
- Children of participants affected by the Revolution of Dignity, combatants, and persons with war-related disabilities who are applying in the year they complete their previous educational level (e.g., applying for a bachelor's degree after completing high school);
- Miners with more than three years of underground work experience and children of miners with over 15 years of service, or those who became disabled or died as a result of workplace accidents;
- Persons with disabilities due to illness or pathological conditions;
- Orphans and children deprived of parental care;
- Persons registered or residing in areas of potential combat operations as of July 1, 2024;
- Internally displaced persons (IDPs);
- Children from large families".

Source: https://www.education.ua/news/2024/01/30/pilhovi-umovy-vstupu-ta-pilhovi-katehorii-vstupnykiv-2024/

Thirdly, ***University anti-poverty programs*** aim to ensure that students from low-income families or low-income countries have access to education and are supported in completing their studies.

Fourthly, ***Community anti-poverty programs*** encompass a broader context, extending beyond the university itself. These programs leverage resources, particularly human capital, to support initiatives that foster the creation and promotion of sustainable businesses within local communities. This may also include financial assistance for such businesses in more developed countries. Additionally, active participation in developing and promoting policy decisions aimed at poverty reduction is a crucial component of these efforts (THE, 2024).

The S-principle is the dominant principle for SDG 1, as efforts to alleviate poverty directly impact the well-being of individuals and communities.

For example, Universitas Airlangga (UNAIR) (Indonesia) achieved the top global ranking for SDG 1: No Poverty, in 2024 due to its dedicated focus on poverty eradication initiatives, particularly those aimed at benefiting local communities. These initiatives include implementing community-oriented entrepreneurship development programs. They offer participants comprehensive training in startup development, networking, and financial support, all intending to benefit community members directly. Collaboration is central to UNAIR's approach. The university works with a wide range of partners, including villages, business communities, and small and medium enterprises (SMEs), ensuring that its initiatives have a tangible impact on the communities it serves (UNAIR, 2024).

York University (Canada), which placed second on SDG 1, stressed that "Eradicating poverty is not a task of charity. It is an act of justice and the key to unlocking enormous human potential" (York University, 2024). Osgoode Hall Law School, as part of York University, offers students to support low-income communities in Toronto through two legal clinics: Parkdale Community Legal Services (PCLS) and the Community & Legal Aid Services Program (CLASP). Each year, 40 senior students take a poverty law seminar and serve as caseworkers at the clinic for one term, working four days per week under the supervision of lawyers to provide legal services to the Parkdale-Swansea community (York University, 2024). Also ranked third, University of Johannesburg focuses on supporting students

in need and fostering start-ups within local communities (University of Johannesburg, 2024).

Box 5:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 1: No Poverty

Year	2022				2024				
Score	4.4–33.9	34.1–47.4	53.9–60.8	***HEIs in ranking***	4.8–22.3	22.4–34.6	34.7–43.5	43.6–52.7	***HEIs in ranking***
Ukraine	11	2	1	***14***	11	7	2	2	***22***
Czechia	2	–	–	***2***	2	–	1	–	***3***

Source: THE (2024)

SDG 2: Zero Hunger

This ranking emphasizes universities' efforts in hunger-related research, their educational programs on food sustainability, and their dedication to reducing food waste and combating hunger within students and communities (THE, 2024).

Research on hunger includes indicators such as *the Proportion of research papers in the top 10 percent of journals as defined by Citescore, the Field-weighted citation index of papers, and the Number of publications* (THE, 2024).

Campus food waste measurement is based on *Campus food waste tracking and Campus food waste per person* (THE, 2024). Assessing food waste at HEIs provides insight into the proportion of food that remains uneaten and is subsequently discarded. The first indicator reflects the implementation of systems that monitor food waste. The second indicator quantifies the amount of food waste per person. This is a complex issue, yet one that can be addressed through appropriate measures. A key contributor to food waste is serving fixed portions, which may exceed the consumption needs of individuals. A notable example of addressing this challenge is Mendel University in Brno (the Czech Republic), where the cafeteria was redesigned to serve food by weight, allowing students to select both the quantity and variety of their meals, thereby reducing waste.

Student hunger is measured by indicators as *Programme on student food insecurity, Interventions to target hunger among students and staff – for example, providing access to food banks, Sustainable food choices for all on campus, including vegetarian and vegan food, Healthy and affordable food choices for all on campus* (THE, 2024). HEIs may adopt various solutions to address this issue. For example, at Mendel University in Brno (the Czech Republic), students and faculty benefit from discounts at the cafeteria. Similarly, Koç University (Turkey) has a cafeteria where a set meal can be purchased for approximately 1 USD. However, resolving this issue undoubtedly involves a financial component: to provide more affordable meals, the university or the community must allocate additional financial resources.

The Proportion of graduates in food sustainability indicates that universities have established educational programs focused on the study of food sustainability (THE, 2024).

National hunger includes indicators supporting local farmers and food producers (THE, 2024). These are quite specific indicators, as the practices mentioned are typically more applicable to agricultural universities. In the case of traditional universities, such practices often take the form of workshops aimed at enhancing the entrepreneurial skills of farmers. Regarding the procurement of products from local farmers, Ukraine operates under a tender-based procurement system, which introduces certain complexities.

In the context of ESG compliance, the primary focus is on the *S-principle*, as ensuring food security directly impacts the well-being of students, staff and local communities.

In 2024, Queen's University was ranked first for its efforts toward achieving SDG 2: Zero Hunger, with numerous initiatives benefiting both students and the local community. Among the many initiatives implemented by Queen's University (Canada), a few key examples stand out. One notable initiative is that, between May 2022 and April 2023, 69 % of the food purchased by Queen's Hospitality Services was sourced from within Canada, with 45 % coming from local suppliers within a 500 km radius. Additionally, the student-run organization Soul Food collects surplus food from campus cafeterias and delivers it to four local shelters each night. Through the Swipe It Forward Queen's program, students can donate one meal per day (up to five per semester) to peers in need (QUEENSU, 2024).

Following Queen's University, another institution demonstrating significant efforts in addressing food insecurity is Oklahoma State University (the USA), ranked second for its initiatives aligned with SDG 2. The university has implemented several impactful programs to combat hunger on campus. Among these is the Pete's Pantry Program, which provides free food to students and advocates for reducing food insecurity within the university community. Additionally, Pete's Eats, a food recovery initiative, donates surplus food from dining services to students and their families, further supporting those in need (OKSTATE, 2024).

Lincoln University (New Zealand), ranked third for its achievements in SDG 2, excels in supporting local farmers and food producers by providing them with essential tools, knowledge, and resources to adopt sustainable agricultural practices (Lincoln University, 2024).

Box 6:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 2: Zero Hunger

Year	2022				2024				
Score	1.8–33.3	33.4–44.8	55.2–65.8	***HEIs in ranking***	2.5–30.9	31.1–46.6	46.9–54.3	61.6–71.8	***HEIs in ranking***
Ukraine	8	2	1	***11***	11	4	1	-	***16***
Czechia	1	-	-	***1***	2	-	-	1	***3***

Source: THE (2024)

SDG 3: Good Health and Well-Being

This group of indicators focuses on three main areas: research, teaching, and collaboration aimed at supporting the physical and mental health of students, staff, and local communities. While the research and teaching indicators are similar to those previously discussed, ***the Collaborations and health services*** category includes some particularly noteworthy indicators: *Smoke-free policy, Collaborations with local, national or global health institutions to improve health and well-being outcomes, Outreach programmes in the local community to improve or promote health and*

well-being, Access to sexual and reproductive healthcare services for students, Access to mental health support for students and staff, Community access to university sports facilities (THE, 2024).

For example, in Ukraine, HEIs have banned smoking within university buildings and public spaces. This practice is strongly supported by the Ministry of Education of Ukraine. In response to the heightened risks posed by the bombings of Kyiv and the disruption of critical infrastructure, the university clinic at Taras Shevchenko National University of Kyiv has taken significant steps to enhance its preparedness and resilience. A secure shelter has been established in the basement, complemented by installing a high-capacity generator, which ensures the clinic's operational stability during emergencies. With its reliable shelter, qualified medical staff, appropriate medical equipment, backup power supply, and attached cell towers for communication, the clinic has the potential to serve as a "resilience hub" for the campus residents, providing essential services and shelter in times of war (TSNUK, 2022, p. 259).

The S-principle plays a dominant role in the context of SDG 3, as it directly focuses on the physical and mental well-being of students, staff, and local communities. Universities contribute by providing access to healthcare services, promoting mental health initiatives, and ensuring the availability of resources for physical well-being. *The E-principle* relates to SDG 3 through environmental factors that influence health. Universities can contribute by ensuring healthy environments on campus–such as reducing pollution, improving air quality, and promoting green spaces.

In 2024, the first-ranking JSS Academy of Higher Education and Research (India) offers a curriculum that is enriched with healthcare education and research, aligning with global requirements. The institution provides healthcare infrastructure and services for urban and rural populations while offering healthcare training to students to support various healthcare operations. Additionally, JSS Academy engages in outreach programs and community services, further contributing to the improvement of public health (JSSAHER, 2024).

Second-ranking Australian Catholic University (Australia), for example, offers a wide range of support services for students, including International Student Advisers, Counsellors for family, emotional, physical, and psychological support, and Campus Ministers for religious and spiritual guidance. Access and

Disability Advisers are available to support students with disabilities or chronic health conditions, while Career Advisers help with career development, CVs preparation and interview skills gaining. Academic Skills Advisers help students adapt to the academic demands of studying in a new country. The university also has on-campus medical centres (ACU, 2024).

The third position in the 2024 ranking was taken by Mahidol University (Thailand), which has prioritized "Enabling opportunities for physical activity" and "Creating opportunities for recreation" as key aspects of its campus transformation to achieve SDG 3. Given the university's extensive network of faculties, institutes, and centers focused on medicine, public health, and health sciences, its significant research activity in this area is also noteworthy. In 2021, 85 % of Mahidol University's publications were related to SDG 3 (Mahaisavariya & Charmondusit, 2023).

Box 7:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 3: Good Health and Well-Being

Year	**2022**								
Score	63.7–68.6	41.5–53.2	27.0–41.4	0.8–26.9	53.3–63.6	73.9–79.6	84.8	68.7–73.8	***HEIs in ranking***
Ukraine	1	4	7	6	2				***20***
Czechia		1	1			1	1	1	***5***
Year	**2024**								
Score	60.0–67.5	0.8–43.0	43.1–51.1	71.9–75.8	51.2–59.9	75.9–80.9	81.3	67.6–71.8	***HEIs in ranking***
Ukraine	1	23	4	1	1				***30***
Czechia		1	1			1	1	2	***6***

Source: THE (2024)

SDG 4: Quality Education

The indicators for this goal consist of four key elements: Research on early years and lifelong learning education, Proportion of graduates with teaching qualifications, Lifelong learning measures, and Proportion of first-generation students (THE, 2024). Let us focus on the last two.

Lifelong learning measures include *Access to educational resources for those not studying at the university, Events that are open to the general public, such as lectures or specific educational courses, Educational events that provide vocational training for those not studying at the university, Educational outreach activities in the local community, including schools, Policy to ensure that these activities are open to all, regardless of ethnicity, religion, disability, immigration status or gender* (THE, 2024).

This section is particularly significant in the context of supporting the local community. While this tradition has deep roots, it has become somewhat forgotten within Ukrainian universities. It encompasses the organization of public lectures both on university campuses and offsite. Although outreach to prospective students is well established, the role of the university as a *third age institution* remains underdeveloped, with very few activities available for older adults.

The proportion of first-generation students reflects the inclusion of students who are the first in their families to pursue higher education (THE, 2024). In essence, this indicator also serves as a measure of the university's openness and accessibility to all segments of society, highlighting the institution's role in breaking down barriers to higher education for those from traditionally underrepresented backgrounds. By welcoming first-generation students, universities foster social mobility, contribute to the diversification among students and help to ensure that education is not limited to the privileged classes. This inclusiveness is crucial to promoting equity and extending the impact of education across all social strata.

The S-principle is central to SDG 4, as it emphasizes equitable access to education, social inclusion, and lifelong learning opportunities. Programs targeting first-generation students, gender equality initiatives, and support for students with disabilities are all examples of the *S-principle* in action. *The G-principle* aligns with SDG 4 by ensuring that effective governance includes the establishment of frameworks that guarantee academic freedom, institutional integrity, and educational equity.

In 2024, Aalborg University (Denmark) has achieved a top ranking for its high-impact research in the field of quality education (AAU, 2024). Hong Kong Baptist University (Hong Kong) ranked second, is also renowned

for its research in the field of improving teaching quality. Additionally, it implements initiatives such as faculty-student meetings to exchange ideas on teaching methodologies (HKBU, 2024). Amrita Vishwa Vidyapeetham (India), ranked third, implements several projects aimed at improving the quality of education, including the Rural India Tablet Education initiative, the Alcohol Awareness & Self-Esteem Program for Children in Tribal Villages, and the Amrita Virtual Interactive E-Learning World (Amrita, 2024).

Box 8:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 4: Quality Education

Year	**2022**							
Score	49.8–58.0	2.9–33.6	33.7–41.6	41.7–49.7	77.1	67.7–73.1	62.0–67.6	***HEIs in ranking***
Ukraine	3	13	10	1				***27***
Czechia		1	2		1	1	1	***6***
Year	**2024**							
Score	25.7–44.1	56.3–62.0	4.0–25.6	44.2–49.9	62.1–65.6	75.0	65.7–69.2	***HEIs in ranking***
Ukraine	26	4	5	5	1			***41***
Czechia	3	1			1	1	1	***7***

Source: THE (2024)

SDG 5: Gender Equality

Gender equality remains significant regardless of the country being examined. Traditionally, as with other Sustainable Development Goals, assessments are made based on research conducted in this area, women's participation in such research, and the preparation of specialists. Additionally, the ***Proportion of first-generation female students*** is evaluated as a key indicator (THE, 2024).

An entire section is devoted to ***Student access measures***, which includes important metrics such as the *Tracking of application, acceptance, and completion rates for female students, Policies addressing application, acceptance, entry, and participation rates for female students, the Provision*

of appropriate access schemes for women (such as mentoring), and efforts to *Encourage applications in areas where women are underrepresented* (THE, 2024).

In Ukraine, women's inclusion in education is relatively high. For instance, in 2023, 31 160 women (14 %) and 36 687 men (17 %) were admitted to bachelor's programs on a budget-funded basis, while 67 756 women (31 %) and 84 220 men (38 %) were enrolled on a fee-paying basis. At the master's level, the distribution was as follows: 16 601 women (11 %) and 21 995 men (14 %) were admitted to budget-funded programs, and 1 136 women (32 %) and 888 men (25 %) to fee-paying programs (TSNUK, 2023, p. 22).

Despite these statistics, particular attention is still needed in the STEM fields, where gender disparities persist. However, many support programs have been introduced to increase women's participation. Nevertheless, the overall trajectory cannot be considered entirely positive when analyzing trends (Table 2.2).

Table 2.2. Parity index in HEIs in Ukraine[1]

Degree	2010/11[2]	2011/12[2]	2012/13[2]	2013/14[2]	2014/15[3]	2015/16[3]	2016/17[3]	2017/18[3]	2018/19[3]	2019/20[3]	2020/21[3]	2021/22[3]	2022/23[4]
Bachelor's degree or its equivalent	1,17	1,13	1,12	1,09	1,08	1,07	1,08	1,06	1,08	1,09	1,14	1,13	1,05
Master's degree or its equivalent	1,40	1,39	1,37	1,29	1,30	1,28	1,24	1,30	1,28	1,29	1,43	1,40	0,94
Doctorate or its equivalent	1,48	1,50	1,48	1,51	1,47	1,15	1,10	1,06	1,03	0,97	0,9[5]	0,87[5]	0,53[5]

Source: UKRSTAT (2024)

[1] Ratio of the number of women to the number of men (UNESCO methodology).

[2] Including students, trainees and students of HEIs of the Autonomous Republic of Crimea and the city of Sevastopol.

[3] Excluding pupils, students and students of HEIs of the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the temporarily occupied territories in the Donetsk and Luhansk regions.

[4] Excluding students, trainees and students of HEIs of the territories temporarily occupied by the Russian Federation and part of the territories where hostilities are (were) taking place.

[5] Without taking into account the higher education holders of the Doctor of Science degree.

The next indicators in this group are ***Proportion of senior female academics, Proportion of women receiving degrees*** (THE, 2024). While women are well-represented across many areas of education, including at higher levels, ongoing efforts are required to ensure more balanced representation, particularly in traditionally male-dominated fields. These efforts are critical not only for achieving gender parity but also for fostering greater diversity in areas crucial for future development and innovation.

Women's progress measures include non-discrimination policies for women and transgender individuals, maternity and paternity policies to support women's participation, and the provision of accessible childcare facilities for both students and staff. Additional measures involve women's mentoring schemes with significant student participation, tracking and addressing gender disparities in graduation rates, and policies protecting individuals who report discrimination (THE, 2024). These initiatives represent a critical aspect of fostering an inclusive and equitable environment.

The S-principle is central to SDG 5, as it addresses the social dimensions of gender equality within universities. Still, *the G-principle* is fulfilled by establishing policies that promote non-discrimination, ensure equal representation of women in decision-making processes, and protect those reporting discrimination or harassment. Monitoring and evaluating the effectiveness of these policies is essential to ensure that universities actively contribute to reducing gender disparities and fostering an inclusive environment.

In 2024, Western Sydney University (Australia) ranked first in SDG 5. Key initiatives focused on advancing women into leadership roles, reducing the gender pay gap, and increasing workplace flexibility to support better women's needs (Western Sydney University, 2024). Institut Mines-Télécom Business School (France) implements practices to promote gender equality, from anti-discrimination measures within the university environment to offering scholarships for women and supporting gender studies (IMT-BS, 2024).

The Women University Multan (Pakistan) undertakes various activities to promote gender equality, including awareness and support initiatives. Awareness initiatives include seminars on breast cancer, highlighting

the importance of early detection, and on women's property rights, addressing the legal and social challenges women face in securing financial independence. Support initiatives focus on empowering women through education and entrepreneurship, such as workshops on research innovation and entrepreneurship for women scientists and seminars on the role of women in peace-building to encourage women's active participation in leadership and decision-making (The Women University Multan, 2022).

Box 9:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 5: Gender Equality

Year	2022					2024							
Score	39.6–48.3	28.7–39.5	3.9–28.5	48.4–53.4	***HEIs in ranking***	42.1–48.1	35.3–42.0	2.2–35.2	48.2–55.2	55.3–59.1	59.2–63.0	63.1–68.2	***HEIs in ranking***
Ukraine	5	7	5		***17***	5	12	11	2	1	1		***32***
Czechia		1	1	1	***3***		4	2	1			1	***8***

Source: THE (2024)

SDG 6: Clean Water and Sanitation

An important component of this area is for HEIs not only to conduct national-level research on the topic but also to implement practices for efficient water use and reuse on campuses, provide free high-quality water to students, staff and visitors, and support local communities in educating them about water use and improving its quality through university-based research. For example, Mendel University in Brno (the Czech Republic) has installed water stations where people can get free, purified water. For Ukrainian universities, such practices are still in the future, as they require significant financial resources (THE, 2024).

The E-principle is fundamental to SDG 6, as it involves the sustainable use and management of water resources. Research and innovation in water sustainability can be promoted through academic programs and campus

initiatives, contributing to broader environmental goals and fostering a culture of responsible resource management. Universities can introduce systems for rainwater harvesting, greywater recycling, and other conservation measures, reducing their environmental impact. *The S-principle* complements *the E-principle* by ensuring access to clean drinking water and proper sanitation facilities is essential for safeguarding the health of students, staff, and visitors. Moreover, HEIs can engage in community outreach programs that raise awareness about water conservation and sanitation.

University of Exeter (United Kingdom) has implemented several innovative practices to enhance sustainability. Rainwater harvesting systems reduce reliance on mains water. Water consumption is actively tracked to monitor and manage usage, and ultra-low water use toilets are installed to minimize waste. Additionally, sustainable lab practices contribute to resource conservation, particularly in research settings (EXETER, 2024). Shoolini University of Biotechnology and Management Sciences (India) is an example of a university actively implementing sustainable development practices. The university has its own wastewater treatment system, which allows efficient purification and reuse of water for irrigation and other technical needs. A rainwater harvesting system has also been implemented, reducing dependence on external water supply sources. Shoolini University also collaborates with businesses on projects to find sustainable solutions for polluted industrial water (Shoolini University, 2024).

UNSW Sydney (Australia) is committed to ensuring the availability and sustainable management of water and sanitation through a number of initiatives, including the well-known Global Water Institute, which conducts collaborative research and education focused on water management and sanitation. Secondly, it has achieved a 54 % improvement in water efficiency since 2018, with over 20 water audits and more than 25 water refill stations installed across campus, reducing water use by 454,000 litres through sustainable laboratory practices. Thirdly, it partners with communities to address water security challenges and promote sustainable water management. Finally, the University engages with the public through events such as the Water Research Laboratory Open Day, promoting water literacy and encouraging future water engineers and scientists (UNSW, 2024b).

Box 10:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 6: Clean Water and Sanitation

Year	2022				2024				
Score	38.1–47.1	13.1–38.0	2.8–12.7	***HEIs in ranking***	36.2–48.3	18.2–36.1	2.0–18.0	55.4–62.4	***HEIs in ranking***
Ukraine	1	8	1	***10***	1	8	7		***16***
Czechia		1		***1***	1	2	1`	2	***5***

Source: THE (2024)

SDG 7: Affordable and Clean Energy

Achieving this goal is crucial not only from the perspective of minimizing CO2 emissions into the atmosphere but also in terms of ensuring energy security. Dependence on fossil fuels has proven to be an effective tool in hybrid warfare. The Russian Federation's full-scale invasion of Ukraine, accompanied by the systematic destruction of Ukraine's centralized energy system through missile strikes, has highlighted the importance of developing independent and decentralized energy sources as a key element of resilience in the national energy infrastructure.

The measurement of achievements in this area is carried out through indicators such as: *Policy to ensure all renovations or new builds follow energy efficiency standards, Plans to upgrade existing buildings to a higher energy efficiency rating, Process for carbon management and reducing carbon dioxide emissions, Plan to reduce overall energy consumption, Reviews to identify areas where energy waste is highest, Policy on divesting from carbon-intensive energy industries, notably coal and oil* (THE, 2024).

Additionally, ***Energy use*** and ***Energy and the community*** are evaluated separately. This includes: *Programmes for the local community to learn about the importance of energy efficiency and clean energy, Promoting public pledges on 100 per cent renewable energy beyond the university, Services aimed at improving energy efficiency and clean energy for local industry, Informing and supporting governments on policy development related to clean energy and energy-efficient technology, and Assistance*

for start-ups that foster and support a low-carbon economy or technology (THE, 2024).

Thus, HEIs contribute not only through education and research (Box 11) but also by directly implementing technologies on their campuses. A notable example is the energy efficiency project at Lutsk National Technical University, where, with the support of the Nordic Environment Finance Corporation (NEFCO) and EU funding, an academic building was converted into an energy-efficient dormitory for displaced students and staff. This initiative reduces electricity consumption by 40 % and heating by 65 %, significantly contributing to Ukraine's energy independence and demonstrating the impact of sustainable energy solutions on campus (NEFCO, 2023).

Box 11:

In 1997, the Institute of Energy Saving and Energy Management (IEE) was established at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (NTUU "KPI"), based on the departments of power supply, thermal engineering, and energy saving, as well as the Energy Research Institute. In 1998, the Mining Engineering Faculty was integrated into the IEE. The Institute played a key role in proposing the introduction of a new specialty in Ukraine – "Energy Management".

In 1997, with the support of the European Community, the IEE established the Center for Energy Manager Training. The center's main activities include training, retraining, and advanced training of specialists in energy saving, eco-management, and energy management based on higher education.

In 2009, the university launched its Sustainable Energy Program, within which the Educational and Scientific Center "Sustainable Energy" was created. This center aims to consolidate global and national experience in the development of energy-efficient technologies, systems, and devices to enhance energy independence and environmental security at both the individual facility and regional/national levels.

The main scientific activities at the Institute of Energy Saving and Energy Management include: formulation of sustainable development energy policies, development of tools for energy saving and energy efficiency management, development and improvement of energy supply systems, strategic planning of urban underground space use, creation of resource- and energy-saving technologies in geotechnical construction and mining, development of impulse-wave rock destruction methods, engineering and automation of electrical systems, mechatronics for energy-intensive industries, research and mitigation of hazardous industrial factors arising from the implementation of new production technologies and materials.

Source: KPI (2024)

The E-principle is central to SDG 7, as it deals with the transition to clean and renewable energy sources, energy efficiency, and the reduction of carbon emissions. HEIs can promote energy-saving initiatives, reduce energy consumption in buildings through smart technologies, and encourage research in sustainable energy solutions. By adopting these practices, HEIs not only reduce their environmental impact but also serve as models of sustainability for students and surrounding communities. *The S-principle* supports SDG 7 by addressing the social benefits of clean energy, particularly in terms of improving energy access for vulnerable groups and enhancing the quality of life within university communities. Through outreach programs and community partnerships, universities can support local initiatives aimed at improving energy access in underserved areas, demonstrating their commitment to social equity and sustainable development.

In 2024, the first place possessed by Afe Babalola University (Nigeria), it has significantly enhanced its energy production since launching its Independent Power Project (IPP) in 2021. By 2022, the university expanded its energy generation through hydro and solar sources, increasing its energy supply to 5 gigajoules. This energy is entirely renewable, and the university has achieved an 85 % reduction in energy wastage. With these developments, the university is on track to fully transition to renewable energy soon (ABUAD, 2024). Second place was awarded to the National

Autonomous University of Mexico (Mexico), while third place went to the Saveetha Institute of Medical and Technical Sciences (India) (THE, 2024).

Box 12:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 7: Affordable and Clean Energy

Year	2022					2024				
Score	55.2–61.0	61.1–68.1	29.9–49.5	3.2–29.8	***HEIs in ranking***	63.4–69.1	46.4–55.2	33.5–46.3	0.1–33.4	***HEIs in ranking***
Ukraine	2	1	2	8	***13***	1	6	5	7	***19***
Czechia		1		1	***2***	1			3	***4***

Source: THE (2024)

SDG 8: Decent Work and Economic Growth

Achieving this goal is primarily realized through ***Research on economic growth and employment***. Important indicators for assessment include ***Employment practices***, which encompass: *Payment of a living wage to staff and faculty, Recognition of union and labor rights, Policy for ending discrimination in the workplace, Policies against modern slavery, forced labor, human trafficking, and child labor, Guarantees of equal rights for outsourced labor workers, Policy on pay scale equity and gender pay gaps, Measuring and tracking pay scale gender equity, Processes for employees to appeal decisions on rights and/or pay* (THE, 2024). Naturally, these practices may vary depending on the ownership structure of the HEIs. In Ukraine, for instance, salaries differ across various HEIs based on available funding. Discrimination based on gender is certainly absent, and trade unions play a role in protecting the rights of HEI personnel, though unfortunately not a decisive one.

Another key indicator is ***Expenditure per employee***, calculated by dividing the university's total expenditure by the number of employees, and then normalizing it by the regional GDP per capita (THE, 2024). ***Proportion of students taking work placements*** reflects the demand for professionals prepared by the university and is calculated as the number of students who have had employment for more than a month as part of their studies divided

by the total number of students (THE, 2024). Tracking students' trajectories is essential for this purpose, requiring the establishment of a database and, consequently, additional funding.

Proportion of employees on secure contracts is a crucial measure calculated as the proportion of HEI employees with contracts longer than 24 months (THE, 2024). Long-term contracts allow employees to save time and provide them with a sense of security.

The fundamental principle here is the *S-Principle* focuses on promoting decent working conditions for all university staff, including faculty and administrative personnel, through fair wages, job security, and opportunities for professional development. The *E-Principle* means how universities can contribute to sustainable economic growth through research, education, and innovation to develop new technologies and enhance productivity. *The G-Principle* emphasizes transparency and promoting diversity and inclusion in hiring practices.

The peculiarity of SDG 8 is that in 2024 the first three places were occupied by South Korean universities: Kyungpook National University, Yonsei University (Seoul campus), Pusan National University. Universities focus on working with students and the community to achieve SDG 8 (THE, 2024).

Box 13:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 8: Decent Work and Economic Growth

Year	**2022**								
Score	70.3	45.0–55.2	64.7–70.2	25.0–44.9	55.3–59.5	59.6–64.6	4.2–24.9	72.3	***HEIs in ranking***
Ukraine	1	2	1	7	1	1	7		***20***
Czechia			1	1	1	1		1	***5***
Year	**2024**								
Score	69.3–73.8		65.2–69.2	61.2–65.1	52.8–61.1	43.1–52.7	30.7–43.0	1.4–30.6	***HEIs in ranking***
Ukraine	1		4	2	5	6	7	7	***32***
Czechia	3		2		1		1		***7***

Source: THE (2024)

SDG 9: Industry, Innovation and Infrastructure

Universities play a significant role in achieving this goal, as the indicators highlight the connection between science, education, and business. Key indicators include ***Research on industry, innovation, and infrastructure, Patents citing university research, University spin-offs***, and ***Research income from industry***. These aspects are examined in the context of STEM (Science, Technology, Engineering, and Mathematics), medicine, and the arts, humanities, and social sciences. However, the relationship between universities, industry, and innovation is often contentious.

Firstly, achieving impactful research and innovation requires substantial financial resources, which are increasingly acquired through competitive project funding. Universities often depend on grants from governmental and non-governmental organizations, industry partnerships, and private investments to finance their research endeavors. This dependency can create disparities in the quality and quantity of research outputs, favoring institutions with better access to funding. The competition for these limited resources can lead to a focus on projects that promise quick returns on investment rather than on long-term, exploratory research that may not yield immediate financial benefits but is critical for foundational knowledge.

Secondly, the issue of competition is pressing, even with the existence of patents. While patents are meant to protect intellectual property and encourage innovation, the competitive landscape can be challenging for universities. The commercialization of research outputs often pits academic institutions against each other and against private companies, creating an environment where collaboration is sometimes sacrificed for the sake of maintaining a competitive edge.

For SDG 9, an interesting situation arises when many universities have achieved the maximum number of points – 100 (Table 2.3).

While the *E-Principle*, emphasizing environmental sustainability, can be viewed as the main principle in relation to SDG 9, the integration of *S-principle* is equally crucial. Together, they ensure that universities contribute not only to economic growth but also to social equity and environmental stewardship.

Table 2.3. Activities under SDG 9 among the TOP-3 rated universities according to THE 2024

Place / Points	University / Country	Activities under SDG 9
1 / 100	Delft University of Technology / Netherlands	Delta Futures lab: "Investments in infrastructure for transport, irrigation, energy and information & communication technology are crucial to achieving sustainable development in urbanizing deltas. The innovation and infrastructure focus of SDG 9, is therefore a central issue. Infrastructures may however also undermine the sustainability of deltas by impeding natural processes of erosion and sedimentation and can cause a decline of bio-diversity" *Source: TU Delft, 2024*
	RWTH Aachen University / Germany	The university distinctly separates its teaching and research efforts in the achievement of SDG 9, placing a strong emphasis on the importance of education. A notable feature is the use of a multidisciplinary approach. The seminar "Selected Aspects of Responsible Research and Innovation (RRI)" equips students with a broad understanding of SDGs, particularly 9, 10, 11, and 13. Additionally, the course "Discovering Innovation – Project Work Beyond Engineering" focuses on resilience in the face of environmental challenges. The "Engineering, Culture and Society" course explores the influence of culture and diversity on engineering and innovation. On the research side, the university emphasizes diversity management and inclusive work environments within engineering networks *Source: RWTH Aachen University, 2024*
	Technical University of Munich / Germany	The Sustainable Production Department was established within the university to offer solutions based on an interdisciplinary approach to achieving SDGs in the field of production. The department provides a clear definition of sustainable production as "*the creation of goods and services using processes and systems that do not cause negative environmental impacts, are energy and resource efficient, economically profitable and compatible for employees, the community and consumers*". Key focus areas include Circular Economy, Energy-flexible control of production systems, Integration of renewable energies, and Data-based investigation of production processes. As stated, "*With our research, we want to enable manufacturing companies to retrofit their*

Place / Points	University / Country	Activities under SDG 9
		industrial processes and technologies to make them more sustainable, clean and environmentally friendly" *Source: Technical University of Munich, 2024*
	TU Dresden / Germany	At TU Dresden, focus on SDG 9 emphasizes sustainable industrialization, particularly in poor countries of the global south. This involves helping countries integrate into global value chains and markets by addressing non-tariff trade barriers, such as quality infrastructure–covering areas like standardization, testing, and certification *Source: TU Dresden, 2024*
	University of Edinburgh / United Kingdom	The University of Edinburgh achieved a perfect score for its contribution to SDG 9, thanks to its research, patents, industry funding, and spinouts. In 2022/23, Edinburgh Innovations supported over 123 startups and spinouts, securing £107.6 million in investment. Research projects focused on SDG 9 generated £91.9 million in funding. An example of their innovation is Danu Robotics, a cleantech startup founded by a data science graduate. It develops automated waste sorting systems, enhancing recycling efficiency and reducing costs *Source: University of Edinburgh, 2024*
	FAU/ Germany	The university's success in achieving SDG 9 is based on industry partnerships, third-party funding and patents based on FAU research. The university has incubators to support start-ups, such as the Digital Tech Academy, the Existence network for entrepreneurs, Josephs, Zollhof and the FAU Start-up Service *Source: FAU, 2024*
	University of Stuttgart / Germany	Industry research and patents, established spin-offs, and funding from industry *Source: University of Stuttgart, 2023*
	Yonsei University (Seoul campus) / South Korea	Yonsei University's exceptional performance stems from a broad range of initiatives. Since 2017, the university has hosted the Global Engagement & Empowerment Forum on Sustainable Development (GEEF), growing into a major global event. Alongside GEEF, Yonsei implements various sustainable development programs, such as SDG-focused courses, extracurricular activities, and innovation contests. Their Workstation platform has supported over 1 100 teams and nurtured over 6 000 social innovators *Source: Yonsei University, 2024*

Place / Points	University / Country	Activities under SDG 9
2 / 99,9	Hanyang University / South Korea	Hanyang University is making significant strides towards achieving SDG 9 through its robust support for start-ups and industry-university collaboration. The university fosters innovation by supporting start-ups through the Seoul Hanyang Institute for Entrepreneurship and the ERICA Startup Education Center. Additionally, it promotes industry-university cooperation via the Seoul and ERICA industry-university Cooperation Foundations. On 2023 Hanyang University launched the "HY Meister Degree Semiconductor Advanced Course" in response to growing industry demand for specialized semiconductor education *Source: Hanyang University, 2024*
	NAUM / Mexico	–
	National Cheng Kung University (NCKU) / Taiwan	NCKU has effectively launched a collaborative effort that brings together industry, government, academia, and researchers to strengthen Taiwan's R&D capabilities, driving innovation and technological advancements *Source: NCKU, 2023*
	National Taiwan University (NTU) / Taiwan	As a result of the concerted efforts of the Office of Research and Development at National Taiwan University (NTU) and its associated units, there has been a consistent year-on-year growth in patent citations, the number of new start-ups, and research income *Source: NTU, 2022*
	Technical University of Darmstadt / Germany	Addressing global challenges such as climate change and digital transformation, the TU Darmstadt advocates for a shift from traditional one-way knowledge transfer to a more dynamic, multidirectional exchange, known as XChange. By partnering with business, civil society, politics, and culture, TU Darmstadt collaborates to develop sustainable, pioneering solutions through initiatives like the HIGHEST Innovation and Start-up Centre *Source: TU Darmstadt, 2020*
	Universidade Estadual Paulista (Unesp) / Brazil	–
	University of Alberta / Canada	At the University of Alberta, a variety of innovation incubators support students across disciplines. These include the Student Innovation Centre, a 5,000-square-foot space with workstations, 3D printers, and high-performance computing for creative projects; eHub, an entrepreneurship-focused co-working space offering funding, resources, and mentorship for student

Place / Points	University / Country	Activities under SDG 9
		ventures; The Shack, a makerspace with advanced design and manufacturing technologies like 3D printers and laser cutters; and the Elko Engineering Garage, a hands-on prototyping space equipped with tools for fabrication, metalworking, and 3D printing *Source: University of Alberta, 2024*
3 / 99,8	Osaka University / Japan	Osaka University promotes SDG 9 by broadening its co-creation network to involve a diverse group of stakeholders, including industries, local authorities, economic organizations, international entities, and citizens. This collaborative effort aims to accelerate advancements in science, technology, and academia, while also fostering the growth and development of skilled individuals *Source: Osaka University, 2024*
	Paris Sciences et Lettres – PSL Research University Paris / France	PSL Research University is a member of the European Engineering Learning Innovation & Science Alliance (EELISA), a consortium of nine European institutions across seven countries. Together, these institutions strive to establish a shared framework for advancing European higher education and research. The EELISA initiative focuses on shaping a unified model for European engineering professionals, emphasizing societal integration, inclusivity, interdisciplinary collaboration, and strong societal commitment. A key goal of EELISA is to develop a standardized European engineering degree. By achieving this, the alliance aims to educate a new generation of engineers equipped with cutting-edge technological expertise, aligned with societal needs, and committed to sustainable development objectives *Source: PLS, 2024*
	Tohoku University / Japan	Tohoku University contributes to achieving SDG 9 through a variety of specialized laboratories focused on innovation and technological advancement. These include the Obayashi & Yakeno Laboratory, the Funamoto Laboratory, the Takana Laboratory, the Nagai Laboratory, the Kobayashi & Hayakawa Laboratory, the Komiya Laboratory, and the Iga Laboratory etc. Each of these laboratories plays a key role in advancing research and fostering innovation in diverse fields, helping to strengthen the university's commitment to industry, infrastructure, and sustainable development

Source: Tohoku University, 2024

Box 14:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 9: Industry, Innovation and Infrastructure

Year	2022				2024						
Score	27.9–46.9	6.9–27.8	57.6–69.8	***HEIs in ranking***	41.5–57.2	26.0–41.4	12.2–25.9	65.2–76.9	57.3–65.1	2.5–12.1	***HEIs in ranking***
Ukraine	3	12		***15***	1	6	16				***23***
Czechia	3		1	***4***	3	1	1	1	1	1	***8***

Source: THE (2024)

SDG 10: Reduced Inequalities

Universities are crucial in addressing inequality through their educational, research, and social initiatives. They can ensure equal access to quality education, foster skill development, enhance social mobility, and combat discrimination. The nature of inequalities faced by societies differs across regions. For instance, in Ukraine, access to education for girls is universally open and unproblematic. However, the ongoing war has caused and will continue to cause disparities related to injuries and disabilities. Addressing these issues will necessitate additional efforts to create an inclusive educational environment and establish conditions that support the full social integration of individuals with disabilities.

The indicators presented in this group include ***Research on reduced inequalities, Share of First-generation students, Share of Students from developing countries, and Proportion of Students and staff with disabilities*** (THE, 2024).

A separate set of indicators focuses on policies and opportunities for inclusion, such as *Non-discriminatory admissions policy, Tracking application and admission rates of under-represented groups, Planned action to recruit students and staff from under-represented groups, Anti-discrimination and anti-harassment policies, Existence of a diversity and equality committee, office or officer, Mentoring, counselling, or peer support programs aimed at students and staff from under-represented groups, Accessible facilities for people with disabilities, Support services for people with disabilities, Access schemes for people with disabilities, and*

Accommodation policy or strategy for people with disabilities, including adequate funding (THE, 2024).

Meeting these standards requires substantial financial investment, particularly for building accessible infrastructure such as ramps, restrooms, and classroom access. For individuals with visual impairments, universities must also improve their websites, provide opportunities for lecture note-taking using Braille on laptops, and ensure other supportive measures.

The *S-Principle* is central here, as it fosters social equity through inclusive admissions, accessible facilities, and support for under-represented groups, particularly individuals with disabilities. HEIs can directly address social inequalities by implementing anti-discrimination policies and promoting diversity. The *G-Principle* reinforces these efforts by ensuring transparent and accountable governance structures that uphold inclusion and equal opportunity initiatives.

In 2024, RMIT University (Australia) holds the top position in the ranking and takes a global approach to addressing inequalities "within and among countries" through a range of projects focused on sustainable communities, poverty alleviation, and more (RMIT, 2024). The University of Huddersfield (United Kingdom) secured the second position for its accelerated efforts toward achieving SDG 10, particularly through increasing the enrollment of students from developing countries (HUD, 2024). London South Bank University (United Kingdom) earned the third position, focusing on internal transformations to promote diversity and inclusion within the university (LSBU, 2024).

Box 15:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 10: Reduced Inequalities

Year	2022					2024							
Score	48.3–54.7	35.7–48.2	5.2–35.5	55.1–62.4	***HEIs in ranking***	56.5–62.1	47.2–56.4	37.0–47.1	23.8–36.9	2.4–23.6	68.8–75.2	62.2–68.7	***HEIs in ranking***
Ukraine	2	7	4	2	***15***	1	7	12	8	2			***30***
Czechia		1	1	1	***3***		1		2		1	1	***5***

Source: THE (2024)

SDG 11: Sustainable Cities and Communities

Urbanization is a trend. That is why there is increasing attention today on sustainable cities and communities. In this area, universities are evaluated based on a range of indicators. As always, this includes ***Research on sustainable cities and communities*** (THE, 2024). Moreover, this also includes ***Support of arts and heritage***, which *Public access to buildings and/or natural heritage landscapes of cultural significance, Public access to university libraries, Public access to university museums, galleries or works of art, Public access to open and green spaces, Provide artistic events for members of the public, such as concerts, Record and preserve local heritage* (THE, 2024).

Additionally, ***Expenditure on arts and heritage*** plays a crucial role. It is important to note that these indicators reflect the openness of universities to society; however, two significant questions arise: safety and funding. For example, many universities have botanical gardens or mini-botanical gardens. This means that ensuring open access requires guaranteeing an adequate level of safety for both visitors and the objects of cultural and natural heritage, which may demand substantial resources for security, infrastructure maintenance, and insurance. At the same time, funding for such facilities becomes particularly relevant, as universities must balance expenditures on artistic initiatives and the provision of essential educational and research activities. In this context, universities can seek additional funding by attracting sponsors, collaborating with local communities and businesses, and obtaining grants to support cultural projects.

Sustainable practices include *Targets on sustainable commuting, Promote sustainable commuting, Encourage telecommuting, remote working or condensed working weeks, Affordable housing for students, Affordable housing for staff, Prioritise pedestrian access on campus, Work with local authorities to address planning issues, including the provision of affordable housing for local residents, Build to sustainable standards, Build on brownfield sites* (THE, 2024).

These sustainable practices reflect universities' commitment to *E-principle* and *S-principle*. By implementing targets on sustainable commuting and promoting partial telecommuting, HEIs can significantly

reduce their carbon footprint while enhancing the work-life balance of both students and staff. Affordable housing initiatives are crucial in ensuring that the university community can thrive without the burden of excessive living costs, thereby attracting and retaining talent. Additionally, prioritizing pedestrian access on campus fosters a healthier lifestyle among students and staff, while collaboration with local authorities to address planning issues can create more sustainable communities.

The University of Manchester (United Kingdom) ranks first in the rating in 2024. An example of its commitment to achieving SDG 11 is its collaboration with local authorities on the planning and development of affordable housing in the city, specifically focusing on the location and standards for constructing student housing. Additionally, the university has worked alongside a local housing association to support "naturally-occurring retirement villages" (Manchester, 2024a). Arizona State University (Tempe, USA) ranks second. Among its numerous initiatives is the innovative approach to redeveloping previously used land, where old structures are renovated into improved and more practical facilities. For instance, the university's Polytechnic campus was established on a former airbase (ASU Tempe, 2024). Holding the third position, Simon Fraser University (Canada) provides public access to its campus and SFU Museum of Archaeology & Ethnology, allowing the community to explore and engage with its facilities (SFU, 2024a).

Box 16:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 11: Sustainable Cities and Communities

Year	2022					2024					
Score	53.4–60.0	38.9–53.3	0.6–38.8	69.2–78.6	***HEIs in ranking***	44.9–56.6	33.7–44.8	12.1–33.6	71.5–78.3	64.4–71.4	***HEIs in ranking***
Ukraine	2	3	12		***17***	2	9	15			***26***
Czechia		1		3	***4***	3		1	2	2	***8***

Source: THE (2024)

SDG 12: Responsible Consumption and Production

This goal is achieved through ***Research focused on responsible consumption and production, Operational measures, Measurement of recycled waste***, and ***Publication of sustainability reports***. Universities work in this direction by developing relevant policies, such as a policy on minimizing plastic use. There may be collection points on campus for paper, batteries, and other recyclables (THE, 2024).

The implementation of these initiatives is closely tied to the *E-principle* and *S-principle* components of the ESG framework. *E-principle* demonstrates universities' efforts to minimize their ecological footprint. The *S-principle* aspect is reflected in the engagement of students and staff in these initiatives, raising awareness about responsible consumption and production. *G-principle* ensures responsible consumption and production through waste recycling monitoring and the publication of sustainability reports, promoting transparency and accountability in resource use.

In 2024, two universities from the United Kingdom share the first position – Bournemouth University and King's College London. Among its many initiatives, Bournemouth University implemented the "No Disposable Cups Week" campaign (Bournemouth, 2024). King's College London has a Centre for Sustainable Business, one of whose key areas is the practice of sustainable consumption. Additionally, university researchers explore the "paradoxes between consumerism and sustainability". The institution has also established the Net Zero Center, which is focused on waste minimization and advancing recycling processes (KCL, 2024). The second position is also held by a university from the United Kingdom – the University of Reading. Third place – Western Sydney University (Australia) (THE, 2024).

Box 17:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 12: Responsible Consumption and Production

Year	2022				2024				
Score	64.4–75.5	41.6–53.9	4.2–41.5	***HEIs in ranking***	73.1–81.4	57.7–65.4	41.1–57.4	13.7–40.9	***HEIs in ranking***
Ukraine	1	1	5	***7***	1	1	2	7	***11***
Czechia	1		1	***2***	1			1	***2***

Source: THE (2024)

SDG 13: Climate Action

The achievement of this goal involves universities actively participating in ***Research on climate action***. Alongside this, practices related to ***Low-carbon energy use*** are assessed (*Measuring the amount of low-carbon energy used and Proportion of electricity from low-carbon sources*) and ***Environmental education measures***. The latter includes evaluating indicators such *as Local education programs or campaigns on climate change, Existence of a university climate action plan shared with local government and community groups, Work with local or national governments in planning for climate change disasters, Informing and supporting local or regional governments on issues related to climate change, and Collaborating with NGOs on climate change adaptation* (THE, 2024).

Achieving these indicators can be particularly challenging, especially for specialized HEIs. This also applies to commitments to ***Carbon neutral-university***, where universities set goals for *Commitment to carbon neutrality and Achieve-by date* (THE, 2024).

Both the *E-principle* and *G-principle* are highly relevant to the achievement of SDG 13: implementing sustainable practices in campus operations, reducing carbon emissions, and adopting transparent governance models that prioritize climate-related initiatives, thereby advancing climate resilience and sustainability efforts.

The top-ranking universities in 2024 included the following trio: the University of Tasmania (Australia) (holding first place for three consecutive years), UNSW Sydney (Australia), and Simon Fraser University (SFU) (Canada). The University of Tasmania has identified four main types of activities to achieve SDG 13. Firstly, the University of Tasmania supports *research into climate change*. Postgraduate students have been involved in projects such as studying sea level rise. Through the Sustainability Integration Project for Students (SIPS), many students have contributed to climate-related initiatives impacting the university and the community. Secondly, *low-carbon energy* use is being achieved through significant investment in campus development, with the University aiming to reduce emissions in new buildings by 25 %. Energy-saving measures, LED lighting, and the elimination of natural gas in new developments are in line with its low-carbon goals. All new buildings are solar-ready. Thirdly, the University supports *environmental education* by offering over 100 climate-related courses, providing students from all

disciplines with knowledge about climate change. Fourth, *commitment to carbon neutrality*. Since 2016, the University of Tasmania has been certified as carbon neutral by Climate Active. It continues to offset unavoidable emissions. As part of the global Race to Zero initiative, it is working towards net zero emissions by 2050 (UTAS, 2024).

UNSW Sydney is highly dedicated to achieving the SDGs. UNSW's Environmental Sustainability Policy forms the core of the Environmental Sustainability Plan for 2022–2024, supported by three key themes: Climate Action, Living Campuses, and Resource Efficiency. To achieve its Climate Action goals, UNSW has identified two primary focus areas, each with specific targets and key initiatives. The first focus area, operational emissions, has set targets such as maintaining net zero operational (Scope 1 and 2) emissions and increasing onsite solar PV capacity to 1.5 MWp. To achieve these targets, the following key initiatives are planned: implement Stage 1 of the Electrification Strategy; procure 100 % renewable electricity. The second focus area, partnering for net zero, aims to reduce total (Scope 1, 2, and 3) emissions by 30 % by 2025, 50 % by 2030, and reach net zero by 2050, alongside divesting investments in fossil fuel companies. To meet these objectives, the key initiatives include completing a climate risk assessment; developing and implementing the Net Zero Strategy; maintaining the Responsible Investment Framework; maintaining the Sustainable Procurement Framework (UNSW, 2024a).

SFU has developed a focused plan, the Strategic Sustainability and Climate Action Plan, which clearly outlines goals and activities to achieve SDG 13. In addition, SFU has committed to fully divesting from fossil fuels by 2025 (SFU, 2024b).

Box 18:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 13: Climate Action

Year	2022				2024				
Score	18.7–36.4	1.8–18.6	36.5–45.5	***HEIs in ranking***	36.0–46.6	21.6–35.9	1.8–21.5	46.7–53.4	***HEIs in ranking***
Ukraine	5	5		***10***	2	5	11		***18***
Czechia			1	***1***	2			2	***4***

Source: THE (2024)

SDG 14: Life Below Water

This block includes a set of indicators focusing mainly on three areas: "marine resources, protecting coastal ecosystems and combating marine pollution". The indicators used to assess the universities' progress towards this goal are: ***Research on life below water, Supporting aquatic ecosystems through education, Supporting aquatic ecosystems through action*** (*Direct involvement in projects or partnerships that actively protect and restore marine and coastal ecosystems; Policy to ensure that seafood on campus is sustainably harvested*), ***Water-sensitive waste disposal*** (*Implementation of systems and practices that minimise the release of harmful substances into waterways; Efforts to ensure that all waste disposal methods are environmentally friendly and do not harm aquatic life*); ***Maintaining a local ecosystem*** (*Actions taken to preserve and enhance the local marine and coastal environments associated with the university; Community engagement projects that involve local stakeholders in marine conservation efforts*) (THE, 2024).

All these indicators will also reflect universities' adherence to the *E-principle*.

In 2024, first place got Arizona State University (Tempe) (USA), second place – University of Alberta (Canada), and third place – two HEIs: Aalborg University (Denmark), Florida International University (USA). Arizona State University (Tempe) (ASU) has initiatives to protect coral reefs. For example, ASU's Centre for Global Discovery and Conservation Science is leading the Allen Coral Atlas project, which uses satellite imagery to map and monitor the world's coral reefs, supporting global marine conservation efforts. ASU also works with local communities in Hawaii, focusing on coral reef restoration and coastal sustainability (ASU, 2024b). In collaboration with U.S. colleagues, researchers at the University of Alberta are studying how biodiversity will change under extreme climate conditions (UALBERTA, 2024).

Accordingly, universities in countries without direct access to the ocean focus their research on seas and rivers. For instance, Lviv Polytechnic National University (Ukraine) conducts studies under SDG 14 aimed at reducing water pollution and protecting coastal ecosystems. The university implements educational programs on water resource management and

conservation, as well as organizes initiatives that promote the sustainable use of rivers and lakes (LPNU, 2024). Taras Shevchenko National University of Kyiv (Ukraine) is actively engaged in projects dedicated to water resource preservation, including developing methods for stabilizing rivers' banks (TSNUK, 2024).

Box 19:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 14: Life Below Water

Year	2022			2024		
Score	0.7–19.6	19.8–38.0	***HEIs in ranking***	10.7–39.7	1.6–10.1	***HEIs in ranking***
Ukraine	6	1	***7***	8	2	***10***
Czechia		1	***1***	2		***2***

Source: THE (2024)

SDG 15: Life on Land

SDG 15 means ensuring the sustainable management of terrestrial ecosystems, restoring biodiversity, supporting forestry practices, and preventing the degradation of fertile land into deserts.

The indicators used to evaluate universities include research and education in these areas. A significant focus is placed on the direct activities of the universities themselves, such as: ***Supporting land ecosystems through action*** (*Sustainable policies relating to land used by the university and threatened species affected by the university's operations; inclusion of local biodiversity in campus planning and development, such as the construction of new buildings; collaboration with the local community to protect natural habitats and restore ecological balance*) and ***Land-sensitive waste disposal*** (*Implementation of waste management practices that minimize impact on land and prevent habitat disruption; efforts to ensure that disposal techniques are environmentally responsible and support the overall health of the local ecosystem*) (THE, 2024).

This goal intersects with other SDGs, such as SDG 11: Sustainable Cities and Communities, SDG 12: Responsible Consumption and Production,

and SDG 13: Climate Action, highlighting the interconnectedness of sustainability efforts. By sustainably managing land ecosystems, developing environmentally responsible campuses, and implementing effective waste disposal practices, universities contribute to biodiversity restoration and sustainable, resilient communities. These efforts promote sustainable resource use, reduce environmental impact, and align with broader climate resilience and ecological balance goals.

In the context of SDG 15, the key principle is the E-Principle, as it encompasses sustainable land management, biodiversity restoration and ecosystem support. Universities focus on reducing their impact on the natural environment through responsible land management, reducing pollution, and integrating campus conservation efforts. The *S-principle* is also important, involving working with local communities to protect natural habitats and restore ecological balance. Involving local people in education and research programs helps to spread awareness and foster responsible attitudes towards natural resources. As for the *G-principle*, it plays a supporting role. Sustainable university governance should demonstrate transparency and accountability in decision-making related to environmental impact.

Box 20:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 15: Life on Land

Year	**2022**			**2024**			
Score	31.1–42.9	3.2–31.0	***HEIs in ranking***	29.3–45.7	2.0–29.1	45.8–55.1	***HEIs in ranking***
Ukraine	3	7	***10***	7	10		***17***
Czechia		1	***1***		1	1	***2***

Source: THE (2024)

In the THE ranking in 2024, the University of Manchester (UK) came first, followed by the University of Tasmania (Australia), Arizona State University (Tempe) (USA) and Western Sydney University (Australia) (THE, 2024). For example, University of Manchester developed an interactive web platform (AquaPlan) designed to help farmers, businesses and governments strengthen agricultural water management and adapt to climate challenges.

It also serves as an educational tool for students and the public, raising awareness of water security and sustainable food practices. This initiative received the Making a Difference Award for its outstanding contribution to environmental sustainability and promoting a low-carbon future (Manchester, 2024b).

SDG 16: Peace, Justice and Strong Institutions

This goal is undoubtedly one of the most challenging because, despite the progress made by humanity, the frequency and brutality of wars persist. The world continues to witness tragedies that cause untold suffering and destruction. A stark example is the Russian Federation's unprovoked aggression against Ukraine – an aggression that has brought terror and pain to the lives of a nation of 40 million people. Every day, Ukrainians live under the constant threat of missile attacks and face daily danger and the loss of loved ones as they witness the killing of civilians and the destruction of cities. This war reminds us that even in the 21st century, peace is fragile and the challenges to achieving it are immense. The contribution of universities is undoubtedly made through research that will promote peace and justice. Moreover, it is important how ***University Governance Measures*** (*Initiatives to ensure transparency and accountability in university operations; Policies and procedures that uphold ethical governance and prevent corruption, including engagement with local stakeholders*) are implemented. In response to the Russian Federation's invasion, several universities and academic institutions ended cooperation with researchers who publicly supported the Russian Federation government's actions. This move was part of a global boycott campaign aimed at isolating the Russian Federation and Belarus for their aggression. It underlines the unacceptability of supporting violence and violations of international law within the academic community.

Indicators such as the following are also considered: ***Working with government*** (*Collaborations with government bodies to influence policymaking and enhance public service delivery; Participation in drafting national legislation and frameworks that promote peace and justice*) and ***Proportion of graduates in law and civil enforcement*** (*Proportion of graduates qualified to enter professions in law, civil enforcement and related fields*).

If the *G-principle* is already addressed through the above indicators, the *S-principle* means that universities should play a key role in building peaceful and just societies. This is achieved through active engagement with local communities to promote values of peace and tolerance, foster social cohesion and contribute to post-conflict reconstruction.

The first place in the 2024 ranking was held by Universiti Sains Malaysia (Malaysia), second place – by Western University (Canada), and third place was shared by Queen's University (Canada) and the University of Neuchâtel (Switzerland) (THE, 2024).

Box 21:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 16: Peace, Justice and Strong Institutions

Year	2022						2024									
Score	56.2–63.9	64.0–71.2	13.0–40.3	40.4–56.1	82.5	***HEIs in ranking***	72.7–79.6	67.0–72.6	61.9–66.8	51.3–61.8	39.6–51.2	23.7–39.3	80.1	79.9	2.8–23.6	***HEIs in ranking***
UKR	2	3	6	9		***20***	2	3	3	4	12	10				***34***
CZ	1	1	1	2	1	***6***			1	2	1		1	1	2	***8***

Source: THE (2024)

SDG 17: Partnerships for the Goals

This goal is quite broad. It includes the following indicators for evaluating universities: ***Research***; ***Relationships to support the goals*** (*Collaborations and relationships with NGOs and governments relating to the SDGs, including policy, capturing data and research and educational programmes; International collaborations to develop best practices on tackling SDGs*); ***Publication of SDG reports***, and ***Education on the SDGs***.

In this case, the *G-principle* is a main point, as the primary responsibility for achieving this goal lies with the university's governance. Effective governance ensures that university policies, decision-making processes and leadership are aligned with the institution's commitment to support the SDGs. Strong governance structures are essential for fostering partnerships, promoting transparency, and ensuring accountability.

University of Technology Sydney (Australia) got first place in 2024, Institut Agro (France) and James Cook University (Australia) – second place, and third one – Western Sydney University (Australia) (THE, 2024).

Box 22:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 17: Partnerships for the Goals

Year	2022							
Score	58.8–70.2	76.7–83.0	1.6–41.4	41.5–50.1	50.2–58.7	70.3–76.6	96.7	***HEIs in ranking***
Ukraine	2	1	17	5	3			***28***
Czechia	1		1	1		3	1	***7***

Year	2024							
Score	84.8–90.0	75.4–80.0	67.5–75.3	59.9–67.4	52.9–59.7	36.9–52.8	1.7–36.8	***HEIs in ranking***
Ukraine	1	2	1	1	4	13	23	***45***
Czechia	1		1	3	1	2	2	***10***

Source: THE (2024)

Conclusions

Achieving the SDGs is possible only through the effective implementation of ESG principles. This section highlights the strong interconnection between SDGs and ESG, emphasizing that, in most cases, a single ESG principle plays a leading role in driving progress toward specific goals. However, for some SDGs, a precise alignment with two or even all three ESG principles can be observed, underscoring the multidimensional nature of sustainable development.

While many universities are steadily advancing toward achieving certain SDGs, there are some SDGs where institutions have achieved exceptional results, making it challenging to identify distinct leaders. A notable example is SDG 9: Industry, Innovation, and Infrastructure, where 18 universities attained the highest scores, securing top positions in the ranking. Among these leading institutions, six are from Germany, with Japan, South Korea, and Taiwan each contributing two universities (Table 2.4). This success reflects the tangible benefits of investing in innovation, with European and Asian countries leading in this area.

Table 2.4. Number one ranked institution in THE 2024

SDG	University	Country	Region
SDG 1	Universitas Airlangga	Indonesia	Asia-Pacific
SDG 2	Queen's University	Canada	North America
SDG 3	JSS Academy of Higher Education and Research	India	Asia-Pacific
SDG 4	Aalborg University	Denmark	Europe
SDG 5	Western Sydney University	Australia	Asia-Pacific
SDG 6	University of Exeter	United Kingdom	Europe
SDG 7	Afe Babalola University	Nigeria	Africa
SDG 8	Kyungpook National University	South Korea	Asia-Pacific
SDG 9	Delft University of Technology RWTH Aachen University Technical University of Munich TU Dresden University of Edinburgh University of Erlangen-Nuernberg University of Stuttgart Yonsei University (Seoul campus) Hanyang University National Autonomous University of Mexico National Cheng Kung University (NCKU) National Taiwan University (NTU) Technical University of Darmstadt Universidade Estadual Paulista (Unesp) University of Alberta Osaka University PSL Research University Paris Tohoku University	Netherlands Germany Germany Germany United Kingdom Germany Germany South Korea South Korea Mexico Taiwan Taiwan Germany Brazil Canada Japan France Japan	Europe Europe Europe Europe Europe Europe Europe Asia-Pacific Asia-Pacific Latin America Asia-Pacific Asia-Pacific Europe Latin America North America Asia-Pacific Europe Asia-Pacific
SDG 10	RMIT University	Australia	Asia-Pacific
SDG 11	University of Manchester	United Kingdom	Europe
SDG 12	Bournemouth University King's College London	United Kingdom United Kingdom	Europe Europe
SDG 13	University of Tasmania	Australia	Asia-Pacific
SDG 14	Arizona State University	USA	North America
SDG 15	University of Manchester	United Kingdom	Europe
SDG 16	Universiti Sains Malaysia	Malaysia	Asia-Pacific
SDG 17	University of Technology Sydney	Australia	Asia-Pacific

Source: authors development based on THE (2024)

Overall, leadership in the Times Higher Education 2024 rankings is predominantly held by universities from Europe, which occupy 15 top positions across various SDGs, followed by the Asia-Pacific region with 14 and North America with three.

Encouragingly, countries like Ukraine and the Czech Republic are also showing significant improvements. A particularly remarkable trend in Ukraine is the substantial increase in universities adopting SDGs and being included in the THE rankings. For example, In 2024, an average of 9 more Ukrainian universities were included in the THE ranking for each SDG compared to 2022. The increase over two years (THE 2024 vs. THE 2022) for Czech universities amounted to 2 additional universities in each SDG ranking. However, it is essential to note that Ukraine's higher education system includes significantly more universities than the Czech Republic.

The most significant growth in Ukraine's representation in the rankings was observed for SDG 10 and SDG 5 (+15 universities in 2024 compared to 2022), SDG 4 and SDG 16 (+14 universities each), and SDG 8 (+12 universities). In the Czech Republic, the most remarkable progress was seen in SDG 5 (+5 universities), SDG 6, SDG 9, and SDG 11 (+4 universities each), as well as SDG 13 and SDG 17 (+3 universities each).

Additionally, the scores achieved by Ukrainian and Czech universities across nearly all SDGs are steadily rising, further validating the progress being made. These trends reflect the increasing commitment of universities in both countries to embedding SDGs into their strategic objectives and activities, thereby contributing meaningfully to global sustainable development efforts.

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