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STRATEGIES FOR SUSTAINABLE DEVELOPMENT AT POLISH UNIVERSITIES

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ABSTRACT: The purpose of the article is to provide insights into the current state of sustainability efforts within Polish higher education. It systematically assesses how Polish universities are integrating SDGs into their strategy frameworks, providing a critical understanding of their progress in aligning with global sustainability objectives. A systematic university documents review was based on web research of internet pages of all 103 Polish public academic universities. The analysis addresses the adopted implementation methodology, including time frames, monitoring, target indicators, areas of university activity and Sustainable Development Goals of "Transforming our World: The 2030 Agenda for Sustainable Development" covered by planned actions and methods of evaluating progress. The article also discusses the importance and benefits of implementing the concept of sustainable development at Polish universities. The findings can guide university administrators in refining their strategies to better align with global sustainability trends, ensuring that their institutions remain competitive and relevant.

KEYWORDS: sustainable development, SDG, Sustainable Development Goals, sustainable university, university strategy, university management, ESG (Environmental, Social, Corporate Governance)

Introduction

Sustainable development has emerged as a critical imperative for universities in the 21st century (Xue, 2022; Von Hauff & Nguyen, 2014), reflecting a global shift towards addressing complex environmental, social, and economic challenges (Ejdys et al., 2019; Szpilko & Ejdys, 2022). The role of higher education institutions in advancing sustainable development is multifaceted (Suklun & Bengü, 2024), encompassing not only the integration of sustainability principles into education and research but also the implementation of sustainable practices in campus operations and broader community engagement (Husic, 2024; Sart, 2023). Universities are uniquely positioned to serve as catalysts for innovation, shaping future leaders and driving societal change by aligning their activities with the United Nations' Sustainable Development Goals (Pakkan et al., 2023).

Despite the clear benefits, the process of developing and implementing sustainable development strategies within universities is complex and resource-intensive. It requires a substantial investment of time and financial resources, as well as a commitment from all levels of university leadership (Dumitraşcu, 2023; Leal Filho et al., 2017). Universities exhibit varying approaches to the integration of SDGs into their strategic documents, reflecting differences in the degree of engagement they seek and the time and resources they are willing to allocate. This variability underscores the diverse priorities and capacities of institutions in their pursuit of sustainability.

This study aims to provide a comprehensive analysis of how Polish public universities are responding to the challenge of sustainable development. Given their state funding and accountability to national policies, public universities are expected to lead in implementing sustainable practices, aligning with both national priorities and international commitments like the SDGs. Specifically, the study examines the extent to which SDGs have been integrated into the strategic documents of these institutions, the areas of university activity that have been prioritised, and the mechanisms in place to monitor and evaluate progress toward these goals. The analysis highlights the diverse strategies adopted by universities, showing how their commitment to sustainable development is shaped by institutional goals, available resources, and the strategic importance they place on contributing to global sustainability efforts.

By offering insights into the current state of SDG implementation in Polish universities, this study seeks to contribute to the broader discourse on sustainability in higher education and provide practical guidance for institutions aiming to enhance their sustainability strategies.

The article consists of six sections. The introduction is followed by a review of the relevant literature, which situates this study within the broader context of sustainability in higher education. The methodology section details the document analysis process used to assess the integration of SDGs into university strategies. The results and discussion sections present the findings of this analysis, highlighting key trends and challenges. Finally, the conclusion offers recommendations for future research and practical steps for universities seeking to strengthen their sustainability efforts.

An overview of the literature

The concept of sustainable development and its application within higher education institutions has garnered significant attention in both academic and policy-making circles. Understanding the evolution and definitions of "sustainable development" and "sustainable universities" requires an examination of key publications and frameworks established by leading global institutions. In seeking definitions of these concepts, one should refer to publications from institutions that play the most significant roles in these areas. Such institutions primarily include the United Nations (UN) and the United Nations Environment Programme (UNEP) (Kang & Xu, 2018). A growing number of academic articles offer in-depth analyses and frameworks that further elaborate on how these concepts are applied and evolved within the higher education sector (Deleye, 2023; Hallinger & Chatpinyakoop, 2019).

The definition of sustainable development according to the United Nations (UN) originates from the Brundtland Report, published by the World Commission on Environment and Development (WCED), a UN body, in 1987. This report defines sustainable development as: "Development that meets the needs of the present without compromising the ability of future generations to meet their

own needs." The concept, which emerged in the 1980s, is one of the most important contemporary ideas in economic development (Latoszek et al., 2016).

The most important document in the field of sustainable development is currently the 2030 Agenda for Sustainable Development (Glass & Newig, 2019; de Jong & Vijge, 2020). It serves as a global action plan aimed at improving people's quality of life and protecting the planet, characterised by its comprehensive and inclusive nature. It encompasses 17 Sustainable Development Goals (SDGs) and 169 associated targets to be achieved by 2030. The Agenda also outlines the Means of Implementation and Global Partnership, as well as the Follow-up and Review processes. The Agenda was adopted on September 25, 2015, by a resolution of the General Assembly, with the agreement of all 193 UN member states (ONZ, 2015).

According to the United Nations Environment Programme, a "sustainable university" educates global citizens on how they can support sustainable development in their lives, careers, and wider life choices. Such an institution will also research and offer insight into how to overcome urgent societal challenges and role model possible solutions that can be taken forward by other actors in the world. It not only works to reduce the environmental, economic, and social footprints of its operations, but it will also seek to break new ground by putting more back into society and the environment than it takes out as a carbon net-positive actor in its community. It does this by making sustainability a central priority and by both inspiring and empowering students, faculty, and staff to act (UNEP, 2021). This idea aligns with the engaged community discourse, which presents the sustainable university as a community of people engaged in sustainability both inwards (campus and its inhabitants) and outwards (i.e., the local community) (Deleye, 2023). To be truly sustainable, a university must not only teach sustainability but also embody sustainable practices in its own operations and activities, following the principle of "practice what you preach" (Sterling et al., 2013; Amaral et al., 2015).

The first official statement made by a worldwide group of university representatives that emphasises commitment to environmental sustainability in higher education is the Talloires Declaration. It's a one-page statement containing a ten-point action plan developed in 1990 by the Association of University Leaders for a Sustainable Future. It currently boasts over five hundred signatory institutions from more than fifty countries (ULSF, 2024). Despite its early date, the declaration contains a message that remains relevant today. It not only emphasises the need to implement sustainable practices at universities but also encourages these institutions to raise awareness and educate about sustainable development, conduct research in this field, institutionalise sustainability, and engage all stakeholders. As a result, it remains a model for other similar initiatives (ULSF, 2024).

Since the time of the Talloires Declaration, which continues to gather an increasing number of signatories, universities have been determined to prove their commitment to sustainability. The results of this commitment are easily demonstrated through participation in various sustainability rankings (Malinowska et al., 2022). Leading rankings that specifically focus on evaluating and comparing the sustainability performance of higher education institutions are the UI GreenMetric and the THE Impact Ranking. The UI GreenMetric Ranking focuses specifically on environmental sustainability. It assesses universities across six main criteria: Setting and Infrastructure, Energy and Climate Change, Waste, Water, Transportation, and Education and Research. The Times Higher Education (THE) Impact Rankings, meanwhile, have a broader scope, evaluating universities based on their contributions to the United Nations' Sustainable Development Goals. This evaluation is conducted through multiple dimensions: Research, Stewardship, Outreach, and Teaching. Universities increasingly use these rankings as a means of highlighting and validating their dedication to sustainability (GreenMetric, 2024; Times Higher Education, 2024). This trend is evident worldwide, including in Poland, from the growing participation rates in both UI GreenMetric and THE Impact Rankings (Table 1).

A key driver for universities to adopt more sustainable practices is the necessity of establishing a distinct institutional identity (Bardaglio & Putman, 2009; Pałasz, 2023), which often comes along with the increasing pressure of the students. Students, aware of global challenges such as climate change, environmental pollution, and social inequalities, expect higher education institutions (HEIs) to take action by integrating sustainable development into their curricula. Evidence of this demand is shown in a survey conducted by the National Union of Students of the United Kingdom (NUS-UK), which reveals that most students globally want sustainable development incorporated into all university courses. Key findings of a survey conducted globally in spring 2018, with 3247 students participating, are that 91% of students agreed their place of study should actively incorporate and pro-

mote sustainable development, 70% of them would like to see sustainable development incorporated and promoted through all courses, 81% admitted sustainable development is something they would like to learn more about, 25% said sustainable development hasn't been covered at all by their course, and only 17% rate their university as 'very good' in relation to the action it takes to limit the negative impact it has on the environment and society (UNESCO, 2024).

Table 1. Number of Schools Participating in the UI GreenMetric Ranking and in the The Impact Rankings

Year	Worldwide		Poland	
	UI GreenMetric	THE Impact	UI GreenMetric	THE Impact
2010	95	–	1	–
2011	178	–	2	–
2012	215	–	2	–
2013	301	–	3	–
2014	361	–	5	–
2015	407	–	4	–
2016	515	–	5	–
2017	619	–	6	–
2018	718	–	7	–
2019	780	467	4	1
2020	911	768	5	5
2021	956	1117	9	12
2022	1050	1410	11	15
2023	1182	1591	15	23

Source: authors' work based on GreenMetric (2024) and Times Higher Education (2024).

The swift advancement of environmental protection measures and the increasing number of associated regulations have elevated the implementation of sustainable development goals to a strategic priority. This shift results in a growing demand for graduates familiar with the latest trends who are capable of implementing these principles of SDG's. Consequently, the early integration of sustainable development goals into educational programs can fortify higher education institutions against the inevitably evolving circumstances (UNESCO, 2024; Desha & Hargroves, 2014; Korzeb et al., 2024).

The Australian branch of SDSN, the Sustainable Development Solutions Network, a global initiative launched by the UN in 2012, has published a guide for universities, higher education institutions, and the academic sector titled "Getting started with the SDGs in universities." The publication highlights that one of the benefits of implementing sustainable development in higher education institutions is building new external and internal partnerships (SDSN Australia/Pacific, 2017). The implementation of sustainable development goals provides a framework for collaboration between various sectors and organisations that have previously been weakly or not at all connected. Therefore, universities engaged in sustainable development often collaborate with the government, industry, NGO's and local community, for example, in the areas of research and education activities (Sengputa et al., 2020). Thanks to clearly defined sustainable development goals, it is easier to identify common interests in different fields, not only with external partners but also inside the university. Therefore, the implementation of sustainable development goals gives the opportunity to transcend single-disciplinary perspectives. Bringing together researchers from various disciplines can leverage diverse expertise and viewpoints, creating new collaboration possibilities among researchers and leading to more holistic and innovative solutions to complex global challenges (Cottafava et al., 2022; Leal Filho et al., 2023).

Another benefit of universities implementing SDGs is raising student engagement in university activities and enhancing the integration of the academic community (Delaney & Horan, 2020). The vision of contributing to a more inclusive and cohesive campus environment encourages students to actively participate in sustainability initiatives. As students engage with these goals, they develop a deeper sense of belonging and purpose within the university, creating a vibrant and collaborative community. Additionally, by addressing global challenges collectively, universities can cultivate an atmosphere of shared responsibility and innovation, further strengthening the bonds among students, faculty, and staff.

The current literature on sustainable development within Polish higher education institutions reveals efforts to embed sustainability into university structures and curricula. This is often investigated through case studies that showcase specific institutional practices. Studies emphasise the need for sustainability to be integrated across disciplines and operational levels to equip graduates with the skills required for addressing environmental and social issues (Kalinowska & Batorczak, 2017; Bryx, 2020). One prominent focus is on creating educational programs that foster a deep understanding of sustainability, encompassing economic, environmental, and social dimensions (Michalska, 2016; Jakubiak, 2018). Research also highlights the role of interdisciplinary collaboration and international partnerships in enhancing sustainability education. Furthermore, findings indicate that Polish universities are increasingly incorporating sustainable development into their educational and administrative frameworks, although challenges remain, such as limited systemic support and the need for enhanced curriculum guidelines at the national level (Lorek et al., 2023).

Research methods

The research was conducted in five stages. The first stage involved identifying strategic documents from 103 public, academic universities in Poland using the RAD-on system. This included both general university strategies and those specifically focused on sustainable development. The second stage consisted of selecting comparative criteria for analysing these strategies. Key factors included timeframes, whether individual goals had specific deadlines, monitoring practices, target indicators, the areas of operation related to the SDGs, and the allocation of responsibility for implementing the strategies. In the third stage, the main areas of university activities were identified. These areas were categorised into teaching, research and science, management, infrastructure, and partnerships. These categories helped frame the analysis of how different institutions approached sustainable development. The fourth stage involved extracting and analysing the data. The analysis was conducted using comparative and descriptive statistical methods to evaluate how universities integrate sustainable development goals into their strategic documents. Finally, in the fifth stage, conclusions were formulated based on the findings of the analysis. These conclusions provided insights into the level of commitment and the approaches taken by the universities to align their activities with the Sustainable Development Goals.

The study was conducted on all 103 public academic universities in Poland listed in the RAD-on system, a public system that supports the Ministry of Science and Higher Education and other state agencies in shaping scientific policy in Poland (RAD-on, 2024).

The study employed the document analysis method, which allows for the identification of the institution's goals and objectives, as well as the quality of its actions and the outcomes achieved (Apanowicz, 2002). The process of retrieving these documents involved an extensive search through university websites. Most documents were located either in sections dedicated to sustainable development, within legal documentation sections such as the Public Information Bulletin (BIP) or posted in the universities "News" sections. The inconsistency in the placement and categorisation of these documents across different institutions made the retrieval process particularly challenging.

The research focused on two distinct groups of documents produced by universities. The first group comprised general documents outlining the overall development strategies, while the second group consisted of more specialised sustainable development strategy documents, which detailed specific goals and plans for aligning with sustainability initiatives (Szpilko, 2014).
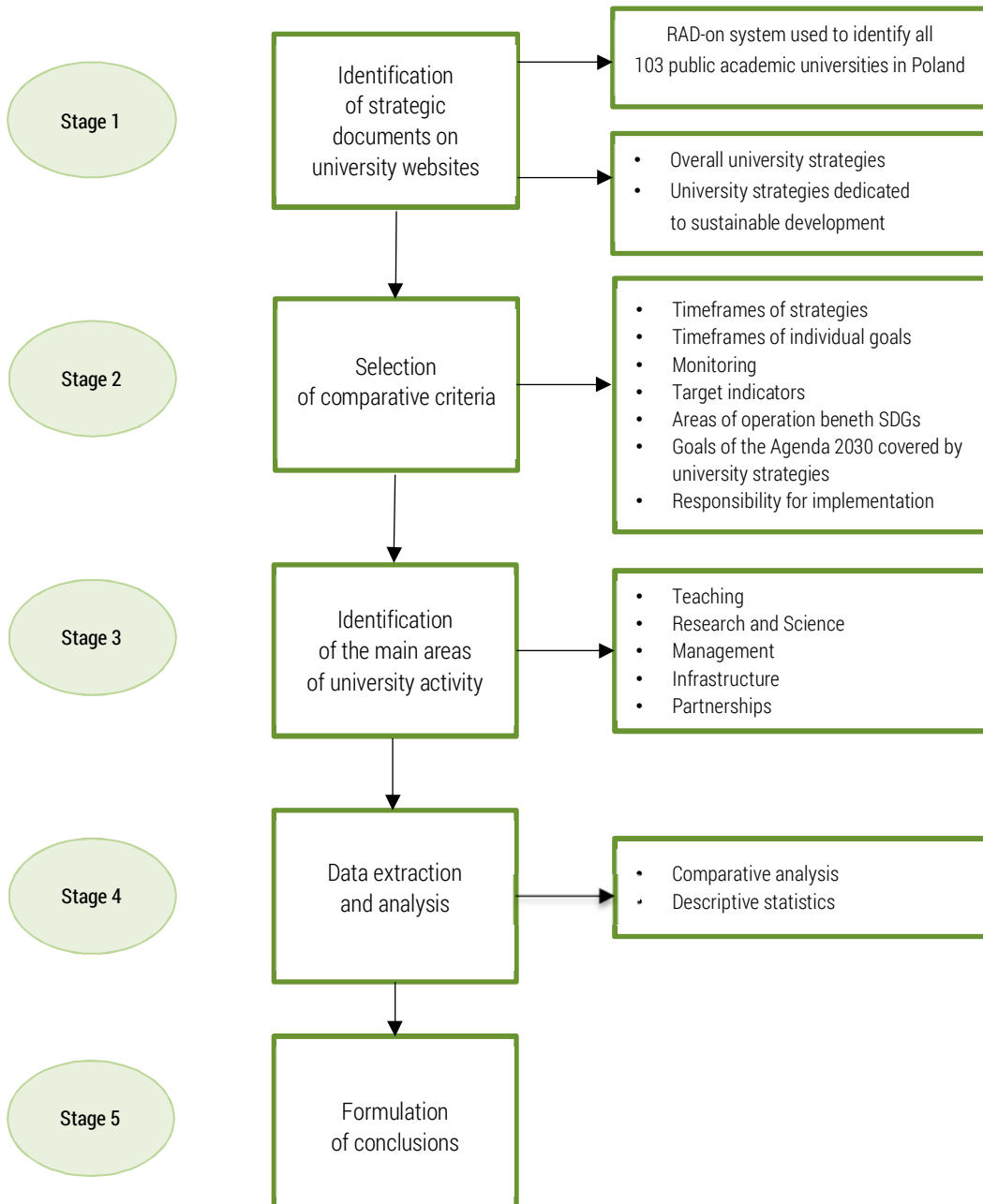
Figure 1. Stages of the research process

Both types of documents were subjected to a detailed analysis focusing on several key aspects:
1. How many universities have developed the specified documents?
2. What are the timeframes of these documents?
3. Have timeframes been established for the specific goals or tasks outlined within them?
4. Is there a provision for monitoring the implementation of these strategies?
5. Do the documents include target indicators to measure the degree of achievement of the strategy's objectives?
6. In which areas of their operations do the universities plan actions?
7. Under which goals of the 2030 Agenda were these actions defined?
8. Has responsibility for the implementation of specific tasks been identified?

To systematise the areas in which universities implement sustainable development goals, we have identified five main areas of university activity. These areas were distinguished based on the strategic documents of universities, where institutions often explicitly identify and categorise them

as key aspects of their functioning. They are typically formulated within the framework of defining the strategic goals of the university, ensuring alignment with its long-term vision. This categorisation also emerged from a comprehensive review of the literature, which highlights these areas as fundamental to the operations of academic institutions. The identified areas are:

- Teaching – focuses on integrating sustainability into curriculum design and preparing students for addressing global challenges.
- Research and Science – provides knowledge and innovations through research that contributes to solving environmental, social, and economic issues related to sustainability.
- Management – covers governance and administrative practices that embed sustainability into strategic planning, as well as decision-making processes.
- Infrastructure – encompasses creating sustainable campus facilities, resources, and organisational practices to create an eco-friendly and supportive environment.
- Partnerships – these partnerships involve collaboration within the university and with external stakeholders to strengthen sustainability efforts through knowledge exchange, resource sharing, and joint initiatives.

The areas of university activity were identified following a thorough analysis of the universities' strategic documents, which frequently involved the categorisation and grouping of goals according to the specific operational domains of the institution.

After gathering the necessary data from the strategic documents of universities, a descriptive statistical method was employed to systematically collect, organise, and analyse the information and data related to the examined documents (Ręklewski, 2020).

This comprehensive analysis aimed to assess the extent to which universities have integrated sustainable development principles into their strategic planning and how effectively they are structured to achieve these goals.

Results of the research – University development strategies

In the first part of the study, we analysed the overall development strategies of the universities with a focus on the provisions related to sustainable development and the implementation of its goals. The analysis revealed that out of the 103 universities, only 44 have incorporated the principles of sustainable development in any form within the aforementioned document. The analysis reveals a broad national effort across various regions, with the largest academic centres leading sustainability initiatives. The Masovian and Lesser Poland regions top the list, each with 6 universities that have explicitly integrated SDGs into their strategies, followed closely by Pomeranian with 5 universities (Figure 2).

Figure 2. A map illustrating the number of universities in each voivodeship that have explicitly integrated Sustainable Development Goals into their institutional development strategies

Source: authors' work based on individual university strategies.

We categorised these universities based on the principle that if a university incorporated sustainable development goals only in its mission, vision, or general provisions of the document, we classified this approach as "general." However, if at least one SDG was included in the specific goals or actions outlined in the strategy, they were classified as "detailed." As a result of this classification, we found that 14 universities represent a general approach to the Sustainable Development Goals in their strategies, while 30 universities (Table 2) have adopted a detailed approach. The regions with the highest number of universities integrating SDGs in a detailed manner include Masovian and Lesser Poland, each with 6 universities, and Pomeranian with 5 universities (Figure 2). These regions demonstrate the most active engagement in embedding sustainability within university strategies.

For the purpose of this research, only aforementioned group of 30 universities was subjected to further analysis based on based on previously selected criteria presented in Table 2.

Table 2. Overview of university approaches to SDG implementation based on overall university development strategies

University	Overall strategy	Time frame	Time frame of individual goals	Monitoring of the overall strategy	The unit/person responsible for achieving the goal	Target indicator for SDGs
Academy of Fine Arts in Gdańsk	University Development Strategy for 2016–2024 Adam Mickiewicz University in Poznań – Strategy of Adam Mickiewicz University for 2020–2030	2016–2024	–	–	–	–
Academy of Fisical Education in Katowice	Strategy 2020–2040	2020–2040	–	–	–	–
Adam Mickiewicz University in Poznań	Adam Mickiewicz University in Poznań – Strategy of Adam Mickiewicz University for 2020–2030	2020–2030	+	yes – not specified	+	binary, descriptive
AGH University of Krakow	The strategy of the AGH University of Science and Technology in Krakow	2022–2026	–	annual	–	–
Cardinal Stefan Wyszynski University in Warsaw	Strategy of Cardinal Stefan Wyszyński University in Warsaw for 2022–2025	2022–2025	–	yes – not specified	–	–
Cracow University of Technology	Development Strategy of Tadeusz Kościuszko Cracow University of Technology for 2021–2025	2021–2025	–	yes – not specified	+	yes – not specified
Gdańsk University of Technology	Gdańsk University of Technology Strategy 2020–2030	2020–2030	–	yes – not specified	no data	yes – not specified
Jagiellonian University	Development Strategy of Jagiellonian University until 2030	–	–	–	–	–
Lodz University of Technology	Development Strategy of Lodz University of Technology for 2020–2025	2020–2025	–	yes – not specified	no data	yes – not specified
Maritime University of Szczecin	Implementation of the Sustainable Development Policy of Maritime University of Szczecin	2021–2030	+	yes – not specified	–	numerical
Medical University of Gdańsk	Strategy of the Medical University of Gdańsk for 2019–2025 (updated)	2019–2025	+	yes – not specified	no	numerical binary
Nicolaus Copernicus University in Torun	Nicolaus Copernicus University in Toruń Strategy 2021–2026	2021–2026	–	yes – not specified	–	–
Piotrowska Academy	Vision, mission, and strategy of the university	not specified	–	–	–	–

University	Overall strategy	Time frame	Time frame of individual goals	Monitoring of the overall strategy	The unit/person responsible for achieving the goal	Target indicator for SDGs
Pomeranian Medical University in Szczecin	Development Strategy of Pomeranian Medical University in Szczecin for 2024−2026	2024−2026	−	−	−	−
Pomeranian University in Słupsk	Development Strategy of Pomeranian Academy in Słupsk for 2013−2026	2013−2023	+	yes − not specified	+	−
Poznan University of Life Sciences	Development Strategy of the University of Life Sciences in Poznań for 2022−2027	2022−2027	−	annual/ continous	no	−
Poznan University of Technology	Development Strategy of Poznań University of Technology for 2021−2030	2021−2030	−	yes − not specified	−	−
SGH Warsaw School of Economics a	Development Strategy 2022−2032 of the SGH Warsaw School of Economics	2022−2032	−	yes − not specified	−	−
Silesian University of Technology	Development Strategy of the Silesian University of Technology 2020−2026	2021−2026	−	yes − not specified	no data	yes − not specified
University of Agriculture in Krakow	Strategy of Hugo Kołłątaj University of Agriculture in Krakow for 2021−2025	2021−2025	−	−	+	binary
University of Economics in Katowice	Development Strategy of the University of Economics in Katowice for 2018−2025	2018−2025	−	annual	+	−
University of Gdańsk	Strategy of the University of Gdańsk for 2020−2025	2020−2025	+	yes − not specified	+	yes − not specified
University of Lodz	Strategy of the University of Lodz 2021−2030	2021−2030	−	−	−	−
University of the National Education Commission, Krakow	Development Strategy of the Pedagogical University of National Education in Krakow for 2023−2030	2023−2030	−	yes − not specified	+	yes − not specified
University of Warsaw	Strategy of the University of Warsaw for 2023−2032	2023−2032	−	every 3 months	−	−
War Studies University	Development Strategy of the War Studies University for 2021−2026	2024−2035	−	continous	−	−
Warsaw University of Life Sciences − SGGW	Strategy of the Warsaw University of Life Sciences − SGGW to 2030	2022−2030	−	annual	−	−
Warsaw University of Technology	Development Strategy of Warsaw University of Technology until 2030	2022−2030	−	−	−	−
Wroclaw University of Economics and Business	Strategy 2030	2021−2030	−	every six months	−	yes − not specified
Wroclaw University of Science and Technology	Strategy of Wrocław University of Science and Technology 2023−2030	2023−2030	−	yes − not specified	−	−

Note: "+" means the aspect is present or addressed in the university's sustainable development strategy, "−" means the aspect is absent or not specified in the university's sustainable development strategy, "yes − not specified" means the university has confirmed the presence of a particular feature but has not provided specific details about its scope, methods, or metrics.

The time frames for the universities' strategies vary from 3 to 21 years. It is worth noting, however, that the majority of universities have planned their development strategies for a duration of 8 years or more, with most of these strategies being developed between 2020 and 2022. Eleven universities have set 2030 as the end date for their strategies (Table 2).

Out of the group of 30 universities, 22 have planned to monitor the implementation of their strategic objectives. However, 15 of these universities did not specify how frequently this monitoring should occur. The remaining seven universities (out of 22) have outlined in their strategies a plan to conduct monitoring either continuously, every three months, every six months, or annually. Only 5 universities have set time frames for individual goals. The target indicators were anticipated in 11 strategies; however, they are explicitly listed in only four of these documents (Medical University of Gdańsk – numerical and binary, Maritime University of Szczecin – numerical, Adam Mickiewicz University in Poznań – binary and descriptive, University of Agriculture in Krakow – binary), (Table 2). In the remaining cases, the indicators are usually part of internal university documentation that is not publicly accessible.

The data regarding the number of universities that have set goals related to the Sustainable Development Goals in different areas of their activities (Teaching, Research and Science, Management, Infrastructure, Partnerships) are as follows:
- 9 universities set goals in one area,
- 12 universities set goals in two areas,
- 4 universities set goals in three areas,
- 2 universities set goals in four areas,
- 3 universities set goals in five areas.

The most frequently implemented area of SDGs by universities was Teaching, with 18 implementations, followed by Management and Infrastructure, both implemented 16 times. Areas such as Research, and Science, and Partnership were implemented only 9 times. Detailed data is presented in the Table 3.

Table 3. Areas of implementing SDGs in overal strategies of universities

University	Area of implementing SDGs					Number of areas coverd by SDGs actions
	Research and Science	Teaching	Management	Infrastructure	Partnerships	
Academy of Fine Arts in Gdańsk (2024)		X	X			2
Academy of Fisical Education in Katowice (2020)			X	X		2
Adam Mickiewicz University in Poznań (2021)	X	X		X	X	4
AGH University of Krakow (2013)			X	X		2
Cardinal Stefan Wyszynski University in Warsaw (2022)		X				1
Cracow University of Technology (2021)		X				1
Gdańsk University of Technology (2020)				X		1
Jagiellonian University (2021)		X	X	X		3
Lodz University of Technology (2019)	X	X			X	3
Maritime University of Szczecin (n.d.)				X		1
Medical University of Gdańsk (2023)		X		X		2
Nicolaus Copernicus University in Torun (2022)	X	X	X		X	4
Piotrowska Academy (2024)				X		1
Pomeranian Medical University in Szczecin (2023)		X				1
Pomeranian University in Słupsk (2017)	X	X				2
Poznan University of Life Sciences (2022)	X	X	X	X	X	5

| University | Area of implementing SDGs | | | | | Number of areas coverd by SDGs actions |
	Research and Science	Teaching	Management	Infrastructure	Partnerships	
Poznan University of Technology (2024)		X		X		2
SGH Warsaw School of Economics (2021)		X	X		X	3
Silesian University of Technology (2021)		X			X	2
University of Agriculture in Krakow (2021)	X				X	2
University of Economics in Katowice (2018)			X			1
University of Gdańsk (2019)	X		X			2
University of Lodz (2021)		X				1
University of the National Education Commission, Krakow (2023)			X	X		2
University of Warsaw (2023)	X	X	X	X	X	5
War Studies University (2021)			X	X		2
Warsaw University of Life Sciences – SGGW (2021)	X	X	X	X	X	5
Warsaw University of Technology (2021)			X	X		2
Wroclaw University of Economics and Business (2021)			X			1
Wroclaw University of Science and Technology (2023)		X	X	X		3
Number of universities implementing SDGs in specified area	9	18	16	16	9	

As clearly shown by the conducted study (Table 4), the main Sustainable Development Goals under which universities have planned actions in their overall strategies are Goal 4 ("Quality Education") and Goal 11 ("Sustainable Cities and Communities"). What we can also observe is that 25 universities have chosen only one or two goals. A distinctive case is Poznan University of Life Sciences, which opted to undertake initiatives that included as many as 12 Sustainable Development Goals.

Table 4. The UN Agenda Sustainable Development Goals in the overall development strategies of universities

| University | Sustainable Development Goal number* | | | | | | | | | | | | | | | | | Number of SDGs in the university strategy |
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Academy of Fine Arts in Gdańsk (2024)				X							X							2
Academy of Fisical Education in Katowice (2020)											X							1
Adam Mickiewicz University in Poznań (2021)				X							X						X	3
AGH University of Krakow (2013)											X							1
Cardinal Stefan Wyszynski University in Warsaw (2022)				X														1
Cracow University of Technology (2021)				X														1
Gdańsk University of Technology (2020)				X							X							2
Jagiellonian University (2021)				X							X							2
Lodz University of Technology (2019)				X													X	2
Maritime University of Szczecin (n.d.)											X							1
Medical University of Gdańsk (2023)				X							X							2

University	Sustainable Development Goal number*																	Number of SDGs in the university strategy
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Nicolaus Copernicus University in Torun (2022)				X							X							2
Piotrowska Academy (2024)											X							1
Pomeranian Medical University in Szczecin (2023)				X														1
Pomeranian University in Słupsk (2017)				X														1
Poznan University of Life Sciences (2022)	X	X		X	X	X	X		X			X	X		X	X	X	12
Poznan University of Technology (2024)							X											1
SGH Warsaw School of Economics (2021)				X							X							2
Silesian University of Technology (2021)				X							X							2
University of Agriculture in Krakow (2021)				X							X						X	3
University of Economics in Katowice (2018)											X							1
University of Gdańsk (2019)					X					X	X							3
University of Lodz (2021)				X							X							2
University of the National Education Commission, Krakow (2023)											X							1
University of Warsaw (2023)				X							X						X	3
War Studies University (2021)				X							X							2
Warsaw University of Life Sciences – SGGW (2021)				X							X							2
Warsaw University of Technology (2021)											X							1
Wroclaw University of Economics and Business (2021)							X					X						2
Wroclaw University of Science and Technology (2023)				X							X							2
Number of universities that chosen specific SDG	1	1	0	20	2	1	3	0	1	1	22	2	1	0	1	1	5	

Note: *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 Inequality, 11. Sustainable Cities and Communities, 12. Responsible Consumption and Production, 13. Climate Action, 14. Life Below Water, 15. Life on Land, 16. Peace, Justice, and Strong Institutions, 17. Partnerships for the Goals.

The important finding was that seven universities have designated or planned to designate in other documents individuals or units responsible for the implementation of specific goals and tasks outlined in the strategy.

Results of the research – University sustainable development strategies

Following an analysis of the strategic documents available on the universities' websites, it was determined that only 10 higher education institutions from the studied group have a strategic document specifically dedicated to the sustainable development of the institution (Figure 3).

Overall, universities from eight voivodeships across Poland have strategic documents for the implementation of SDGs, reflecting a widespread yet varied national effort to address global sustainability challenges. The most active regions are Masovian and Lesser Poland.

That group of 10 universities was subjected to further analysis based on based on previously selected criteria presented in Table 5.

Figure 3. A map illustrating the number of universities in each voivodeship that have a strategic document
dedicated to sustainable development

Source: authors' work based on individual university strategies.

Table 5. Overview of university approaches to SDG implementation based on strategies for sustainable
development

University	Sustainable development strategy	Time frame	Time frame of individual goals	Monitoring of the sustainable development strategy	The unit/ person responsible for achieving the goal	Target indicator for SDGs
Bialystok University of Technology	My Green University	2022−2035	−	yes − not specified	−	descriptive, binary
Gdańsk University of Technology	Climate Plan of Gdańsk University of Technology for 2022−2030	2022−2030	+	yes − not specified	+	numerical, binary
Jagiellonian University	The Jagiellonian University 2030 Environment and Climate Strategy	2021−2030	−	−	−	−
Kracow University of Economics	Goals of the Cracow University of Economics for Achieving the 17 UN Sustainable Development Goals	−	−	−	−	−
Lodz University of Technology	Lodz University of Technology Action Plan for Race to Zero	2022−2050	−	yes − not specified	−	−
Maritime University of Szczecin	Implementation of the Sustainable Development Policy of the Maritime University of Szczecin	−	−	−	−	−
The Maria Grzegorzewska University	Sustainable Development Strategy of the Maria Grzegorzewska University	2021−2030	−	yes − not specified	+	−

University	Sustainable development strategy	Time frame	Time frame of individual goals	Monitoring of the sustainable development strategy	The unit/ person responsible for achieving the goal	Target indicator for SDGs
University of Warmia and Mazury in Olsztyn	Agenda for sustainable development by 2030 at the University of Warmia and Mazury in Olsztyn & Action Plan Based on Sustainable Development Issues of UWM Until 2030 – Preliminary Assumptions	2022–2030	+	–	–	descriptive
University of Warsaw	The Climate Change and Sustainable Development Agenda	2023–2030	+	–	–	no
Wroclaw University of Environmental and Life Sciences	Action plan for achieving climate neutrality at the Wrocław University of Environmental and Life Sciences for 2023–2050	2023–2050	+	yes – not specified	+	–

Note: "+" means the aspect is present or addressed in the university's sustainable development strategy, "−" means the aspect is absent or not specified in the university's sustainable development strategy, "yes − not specified" means the university has confirmed the presence of a particular feature but has not provided specific details about its scope, methods, or metrics.

The time frames for the strategies vary across universities, ranging from 10 to 29 years. All the strategies were developed within a narrow time frame, specifically between 2021 and 2023. Five universities have chosen 2030 as the end date for their strategic documents, aligning with the dead-line set by the United Nations in "Transforming our World: the 2030 Agenda for Sustainable Development." Two universities have set 2050 as the end date for their strategies – these are institutions that have signed the Race to Zero initiative, which includes a commitment to halve greenhouse gas emissions by 2030 and achieve climate neutrality by 2050. One institution set 2035 as the end date for its strategy. The remaining two universities have not set any specific time frames. It is noteworthy that one institution, the Poznań University of Economics and Business, despite not having a formal sustainable development strategy document, has provided information regarding its commitment to the Sustainable Development Goals on its official website.

In five out of the ten university sustainable strategies, monitoring of goal achievement was planned; however, only four of them specified a time frame for individual goals, and only four included target indicators. The Bialystok University of Technology used descriptive and binary indicators, Gdańsk University of Technology – used numerical and binary, while the University of Warmia and Mazury in Olsztyn used only descriptive indicators.

In almost all 10 strategic sustainability documents, the universities have integrated sustainable development goals across all five of the aforementioned areas of university activity: Research and Science, Teaching, Management, Infrastructure, and Partnerships. The only exception is the Partnerships area, where Lodz University of Technology and the Maritime University of Szczecin have not set any goals.

Six universities have structured their strategic documents on sustainability by directly aligning their planned actions with the Sustainable Development Goals outlined in the UN Agenda. The remaining four universities did not establish this direct connection; therefore, following an analysis of their documents, we have undertaken this alignment, creating the combined summary below.

It is worth noting that all universities have planned activities within the framework of Goal 4 – Quality Education and Goal 12 – Responsible Consumption and Production. Seven institutions chose Goal 7 – Clean Water and Sanitation, Goal 8 – Affordable and Clean Energy and goal 17 – Partnerships for the Goals. None of them chose Goals 1, 2, 14, 16, which are: No Poverty, Zero Hunger, Life Below Water, Peace, Justice, and Strong Institutions (Table 6).

Table 6. The UN Agenda Sustainable Development Goals selected by the university for implementation in their strategic documents

University	Sustainable Development Goal number*																	Number of SDGs in the university strategy
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Bialystok University of Technology (2022)				X		X	X				X	X					X	6
Gdańsk University of Technology (2022)			X	X		X	X	X			X	X	X		X		X	10
Jagiellonian University (2024)				X		X	X				X	X					X	6
Kracow University of Economics (n.d.)			X	X	X			X	X			X	X				X	8
Lodz University of Technology (2019)				X		X	X				X	X						5
Maritime University of Szczecin (n.d.)			X	X	X					X		X	X				X	7
The Maria Grzegorzewska University (2023)				X	X	X	X			X		X			X			7
University of Warmia and Mazury in Olsztyn (n.d.)			X	X	X							X	X					5
University of Warsaw (2023)				X		X	X					X	X				X	6
Wroclaw University of Environmental and Life Sciences (2023)				X		X	X				X	X					X	6
Number of universities that chosen specific SDG	0	0	4	10	4	7	7	2	1	2	5	10	5	0	2	0	7	

Note: *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 Inequality, 11. Sustainable Cities and Communities, 12. Responsible Consumption and Production, 13. Climate Action, 14. Life Below Water, 15. Life on Land, 16. Peace, Justice, and Strong Institutions, 17. Partnerships for the Goals.

In terms of assigning responsibility for the implementation of specific tasks or goals within the universities' sustainable development strategies, three institutions from the analysed group (Gdańsk University of Technology, The Maria Grzegorzewska University and Wroclaw University of Environmental and Life Sciences) explicitly designate particular individuals or units responsible for these actions. One university specifies the appointment of coordinators, who will subsequently identify the responsible implementers for each task. However, the remaining universities either fail to designate responsible parties or refer to other documents – often inaccessible – that detail the execution plans.

Discussion

A review of the literature indicates that previous studies on the inclusion of SDGs in universities worldwide have primarily focused on examining actions taken by leading institutions in this field (Viera Trevisan et al., 2024) or outlining key elements for the transformation of sustainable universities (Kang & Xu, 2018), one of which is the implementation of dedicated sustainability strategies. The studies were based on case studies of universities that are recognized as advanced in the implementation of SDGs or rank highly in rankings that measure the level of commitment to sustainable development. Currently, the first pieces of literature focusing on assessing the extent to which sustainable development principles are implemented in universities are emerging. An example is the study by Pactwa et al. (2024) titled Including the Social Responsibility of Universities and Sustainable Development Goals in the Strategic Plans of Universities in Europe. In their study, the authors examined 83 Polish higher education institutions (HEIs), both public and non-public (unlike in this article where we focused solely on public universities), that had signed the Polish Declaration of Social Responsibility by 2019 and conducted a parallel analysis of 141 European HEIs from the United Nations Global

Compact. Pactwa et al. (2024) study found that 43.8% of Polish HEIs referenced the SDGs in their strategic plans, compared to 62.8% for the European universities.

Implementing sustainable development is among the primary challenges facing universities in the 21st century (Khahro & Javed, 2022; Blasco et al., 2020). Sustainability strategies play a fundamental role in integrating sustainable practices into the core functions of universities (UNEP, 2014). The study mostly focused on illustrating the institutional approach of Polish public universities to incorporating SDGs into the development of their strategic documents.

The research that was conducted allowed us to identify two groups of strategies that universities implement. The first group consists of overall university strategies that include Sustainable Development Goals, representing only 30 out of the 103 universities. The second group comprises strategies entirely dedicated to SDGs, which included only 10 out of the 103 universities. These data, combined with the growing participation of universities in rankings that assess sustainable development, suggest a significant shift in university management practices towards the implementation of the Sustainable Development Goals. However, the development and implementation of a sustainable development strategy in universities requires significant time and financial resources. The study indicated that this process is predominantly pursued by universities with a broad academic profile.

The time frames of documents from the first group were much shorter than those from the second group, where the end dates were mostly aligned with UN initiatives such as "Transforming our World: The 2030 Agenda for Sustainable Development" and the "Race to Zero" campaign.

The study also analysed the monitoring of goal achievement within the strategies, which is a critical factor for effective implementation. Such monitoring facilitates necessary adjustments in response to emerging opportunities or challenges and ensures that progress is systematically tracked. This approach is integral to maintaining the strategic direction and achieving intended outcomes, as it provides the data needed for informed decision-making and timely interventions Regular monitoring is crucial as it provides the necessary information to make timely corrections and ensures that the strategy remains on course towards achieving its objectives (Wołczek & Ignacy, 2017; Kaleta, 2008). In this context, the monitoring of goal achievement was planned for 22 out of 30 cases in the first group and 5 out of 10 cases in the second group. Time frames for individual goals were set in 5 overall development strategies and in 4 sustainable development strategies. It is also noteworthy that 7 universities among all those analysed have published Sustainable Development Reports. For some, these reports served as foundational starting points, while for others, they represented annual summaries of achievements.

Assigning target indicators to strategic goals is one of the key factors supporting the implementation of an institution's strategy (Wołczek & Ignacy, 2017). Therefore, it cannot be considered a good result when such indicators are set in only 11 universities with overall strategies and in 4 universities with sustainable development strategies.

Ten analysed sustainability strategies encompassed actions across nearly all areas of university activity (Teaching, Research and Science, Management, Infrastructure, Partnerships). The majority of the overall strategies, however, tended to concentrate on actions within only one or two areas, most commonly selecting from Teaching, Management, or Infrastructure. Therefore, strategies dedicated to sustainable development should be regarded as more robust and comprehensive in this context.

The study found that overall university strategies predominantly align their actions with Goal 4 (in 20 documents) and Goal 11 (in 22 documents), while the entire study showed that 25 out of 30 universities had chosen only one or two goals associating their actions with Sustainable Development Goals. The situation differs significantly for universities that have dedicated sustainable development strategies, where the number of selected Sustainable Development Goals ranges from 5 to 10.

When it comes to assigning responsibility for the implementation of specific tasks, 7 out of 30 overall strategies and 3 out of 10 sustainable development strategies explicitly designated responsible individuals or units. The lack of clearly defined responsibilities could significantly undermine the effective execution of strategic goals. Without a robust accountability framework, there is a higher risk of tasks being neglected, delayed, or improperly executed, which can impede the overall success of the strategy. To mitigate this risk, universities should consider implementing more rigorous mechanisms for assigning and tracking responsibilities.

The conducted analysis also allows us to conclude that the actions related to sustainable development outlined in the overall strategies were articulated in a highly generalised manner, whereas the goals in the strategies dedicated to SDGs were typically more precise.

Conclusions

The analysis indicates a significant difference in the level of specificity between overall strategies and those specifically dedicated to Sustainable Development Goals. The actions related to sustainable development in overall strategies were often articulated in broad, generalised terms, which may lead to ambiguity and a lack of clear direction in implementation. In contrast, strategies specifically dedicated to SDGs typically had more precise and clearly defined goals, which likely contributed to more focused and effective implementation. This proves that universities aiming to achieve meaningful progress in sustainable development should consider adopting dedicated SDG strategies. These strategies are more likely to include well-defined goals and actions, leading to better outcomes and more efficient use of resources.

In summary, the study highlights that Polish universities aspiring to become or remain significant academic institutions must intensify their efforts toward transforming into sustainable entities. This transformation is essential not only for maintaining their competitive edge but also for aligning with global trends in higher education. The findings suggest that strategies specifically dedicated to sustainable development allow for a more systematic approach and better control of the process, which is significantly more challenging when sustainable development goals are mixed with other objectives in general strategies.

The research presented in this article has several limitations. Firstly, the study is limited to Polish academic universities, which may affect the generalizability of the findings to other universities. Secondly, the reliance on publicly available strategic documents may exclude internal strategies or initiatives not disclosed online. Some of the studied documents had attachments intended for internal university use only, which may have restricted access to crucial information relevant to the analysis.

The analysis focuses on documents that were current at the time of research, but some were created years ago when sustainable development was less emphasised. The terms of those documents are nearing expiration, and future strategies will likely address sustainability more comprehensively.

The last limitation was the categorisation and interpretation of data, which may involve subjective judgments, potentially influencing the results. Some of the goals listed in university strategies were too general to be clearly assigned to specific SDGs, requiring a consistent approach to be adopted in such cases.

In future studies, it is recommended that the research be expanded to include universities from various countries, allowing for a comparative analysis of the findings from Polish universities with those of other nations. Such a study would enable a comprehensive evaluation of where Polish universities stand in relation to their international counterparts in terms of their progress towards becoming sustainable institutions. This would provide a broader understanding of global trends in university sustainability, identify areas for improvement, and highlight best practices that could be adopted by Polish institutions.

The contribution of the authors

Conceptualisation, U.M., K.H., G.L., N.E. and D.S.; literature review, U.M.; methodology, U.M., K.H., G.L., N.E. and D.S.; formal analysis, U.M.; data collection, U.M.; writing, U.M., K.H., G.L., N.E. and D.S.; conclusions and discussion, U.M., K.H., G.L., N.E. and D.S.

All authors have read and agreed to the published version of the manuscript.

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STRATEGIE ZRÓWNOWAŻONEGO ROZWOJU NA POLSKICH UCZELNIACH

STRESZCZENIE: Celem artykułu jest przedstawienie obecnego stanu działań na rzecz zrównoważonego rozwoju w polskim szkolnictwie wyższym. Artykuł ocenia, w jaki sposób polskie uczelnie integrują Cele Zrównoważonego Rozwoju (SDGs) w swoje ramy strategiczne, dostarczając krytycznego zrozumienia ich postępów w zgodności z globalnymi celami zrównoważonego rozwoju. Systematyczny przegląd dokumentów uczelni został oparty na badaniu stron internetowych wszystkich 103 polskich publicznych uczelni akademickich. Analiza obejmuje przyjętą metodologię wdrażania w tym m.in.: ramy czasowe, monitoring, wskaźniki docelowe, obszary działalności uniwersytetów oraz Cele Zrównoważonego Rozwoju z dokumentu „Przekształcamy nasz świat: Agenda na rzecz zrównoważonego rozwoju 2030" uwzględnione w planowanych działaniach, metody oceny postępów. Artykuł omawia również znaczenie i korzyści płynące z wdrażania koncepcji zrównoważonego rozwoju na polskich uczelniach. Wyniki mogą pomóc zarządzającym uczelniami w ulepszaniu ich strategii, aby lepiej dostosować je do globalnych trendów zrównoważonego rozwoju, zapewniając konkurencyjność i wzrost znaczenie ich instytucji.

SŁOWA KLUCZOWE: zrównoważony rozwój, SDG, Cele Zrównoważonego Rozwoju, zrównoważona uczelnia, strategia uczelni, zarządzanie uczelnią, ESG (Environmental, Social, Corporate Governance)