



## Research Article

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# Implementing the SDGs in Higher Education: A Systematic Review

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## Abstract

Sustainable development is essential for the well-being of society, as it enabling future generations to meet their own needs. Therefore, it is crucial to work on the 17 Sustainable Development Goals (SDGs) to eradicate poverty, protect the planet and ensure peace and prosperity. Universities must integrate actions related to the SDGs and communicate their results in research that promotes sustainability and sustainable development. A methodology including terms related to academic institutions, such as “universi\*”, “college”, “the 17 goals”, “17 SDGs” and “sustainable development goals” was used to conduct a systematic literature search using the Boolean operators AND and OR to perform a systematic literature search. The resulting search string was: ((universi\*) OR (college)) AND (“the 17 goals”) OR (“17 SDGs”) AND (“sustainable development goals”). The goal was to conduct a systematic literature review, that included articles on the implementation of the SDGs from 2015 to 2023, categorized them into three groups. Articles whose titles were not related to the scope of this research were excluded. It was concluded that research on SDG implementation in universities is limited, which can be attributed to the pandemic, lack of demand, and insufficient implementation of international policies regarding SDG compliance.

**Keywords:** Sustainable Development Goal (SDG); Implementation; Higher education institution

## 1. Introduction

The United Nations (UN) is responsible for annually assessing each country's compliance with the 17 Sustainable Development Goals (SDGs). On an annual basis 2015, 193 countries pledged to work towards the 17 goals, which are divided into three main areas: eradicating poverty, protecting the planet, and ensuring peace and prosperity for all people by 2030. (1), (2), (3) says that higher education institutions must contribute to solving the problems of the global society and should not

ignore this great challenge. Education plays an important and fundamental role to play in achieving a sustainable society (4). Higher education institutions have an important role to play in promoting knowledge and research on sustainable development (5), Similarly, there is mention of (6), (7), (8) that higher education has the primary responsibility to implement, implement actions with respect to the 17 SDGs, take action to minimize negative impacts and identify opportunities for future action to improve sustainability (9) teachers, students and universities should submit research proposals on sustainability issues at the international level through the Sustainable Development Goals (10) clarifies that higher education institutions should integrate SDG actions and report on research that promotes sustainability and sustainable development (11) explains that there is a need to raise awareness of the goals and assess the real impact generated in SDG research (12) the 2023 agenda states that the 17 SDGs will be measured and mapped in order to assess progress on sustainability in order to obtain international sustainability development issues, to establish policies related to the SDGs to motivate teachers to conduct research on the SDG theme (9), (13) It states that the United Nations 2030 Agenda for Sustainable Development of the United Nations through its Sustainable Development Goals (SDGs) is an international policy that should be given greater importance to measurement and should be monitored in order to achieve the SDG goals. It is important to know what is being researched by higher education institutions in the world in relation to the 17 Sustainable Development Goals (SDGs). The selected studies were grouped into three categories: Eradicate poverty, protect the planet, and ensure peace and prosperity for all people. A systematic literature review of 29 peer-reviewed articles from 2015 to 2023, was conducted, using re-review in Scopus databases, and not considering google Scholar was not considered and Web of Science, (14) because Scopus has more results compared to the other two databases. This article aims to show what is being researched in the field of higher education in universities worldwide and what is the progress of the fulfillment of the sustainability of the 17 Sustainable Development Goals (SDGs) having as relevant questions regarding the implementation, review and communication in the university community. Therefore, a novel research work is presented formulating three research questions. The following sections detail the methodology of the systematic review, results and discussions, conclusions and future studies are detailed.

## 2. Materials and Methods

### 2.1 Literature search

To carry out our systematic review work, we followed the block procedures used by (15). Definition for the search: where the research question is defined, the scope of the review, the inclusion and exclusion criteria and finally the search string and Execution of the search: where the selection of primary works and dissemination of analysis criteria are defined.

### 2.2 Definición para la búsqueda

- **Research question**

There are many systematic reviews research on sustainable development but very few in higher education, so the following questions are asked:

What is the current status of the SDGs in higher education? ¿What is the time period in which articles on the SDGs have been published?, ¿What are the benefits of universities implementing the SDGs?

Why should the SDGs be implemented in Peruvian universities, what are the SDGs?, ¿Why should the SDGs be implemented in Peruvian universities, and what are the SDGs that have been implemented in universities?

- **Scope of the review**

We conducted systematic review search of the research literature on SDG, implementation in

higher education institutions over the past eight years, considering the title, abstract, and content of the study on SDG implementation (16).

We have reviewed the literature fusing automated search terms according to our study. We searched for ODS articles in the SCOPUS database from 2015 to 2023 based on their scientific relevance. Table 1 shows the search terms used by Boolean operator AND and OR to repeat a single search term.

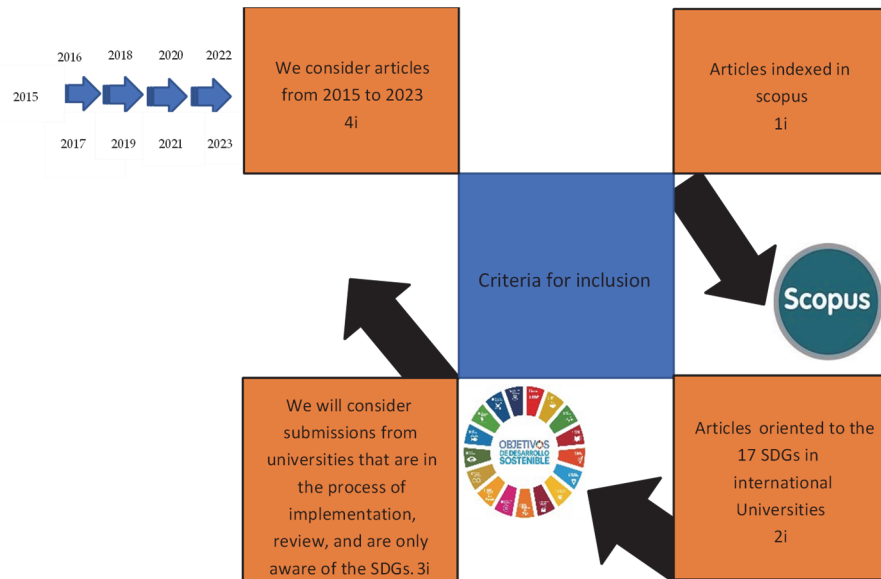
**Table 1.** Logical connectors used in the search string

Terms	Chain
Universi Collegue The 17 goals 17 SDGs Sustainable Development Goals	((universi*) OR (collegue)) AND (("the 17 goals") OR ("17 SDGs")) AND ("Sustainable Development Goals")

The search string was adapted to the SCOPUS database format resulting in 29 papers that were selected according to our research topic, inclusion and exclusion criteria.

• **Criteria for inclusion**

Figure 1 shows the inclusion criteria as part of the filtering of the study documents used in our research:



**Figure 1.** Information search procedure according to our research

• **Exclusion criteria**

Figure 2 outlines the procedure guidelines for excluding documents that meet the characteristics of articles relevant to our research:

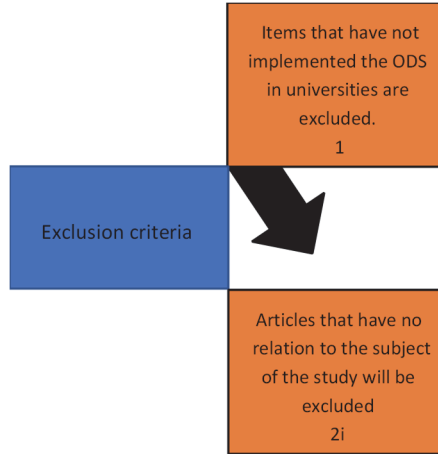


Figure 2. Exclusion procedure

- **Search string**

Documents are searched using two two levels of review filtering stages:

Stage 1:

- The titles of published articles obtained from the SCO-PUS database were reviewed.
- The articles were classified according to the categories of our research and then reviewed and read.

Stage 2:

A thorough reading of the articles is then performed to select the documents to be studied.

### 2.3 Search Implementation

The selection process for SDG implementation in higher education was developed as follows:

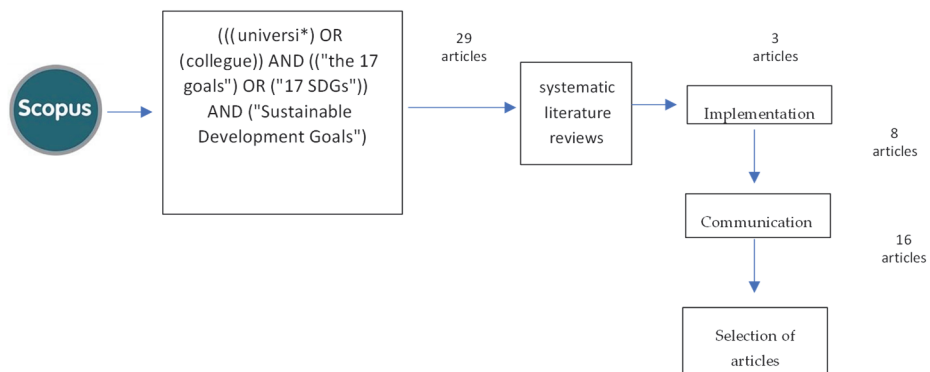


Figure 4. Procedure for Performing a Boolean Operator Search

### 3. Results

#### 3.1 Descriptive and thematic analysis

Table 2 The relevant articles that were searched from 2015 to 2023 are observed. These documents were exported to an Excel where they were classified into three categories, reducing them to 27 candidate articles. Articles whose titles were not related to the object of this investigation were excluded, a total of 2 articles were selected directly focused on research work on sustainable development goals in higher education.

**Table 2.** Results of research on sustainable development goals in higher education

Database	Relevant	Candidates	Revision	Selected	Comunicación
Scopus	29	27	3	8	16

#### 3.2 Research questions

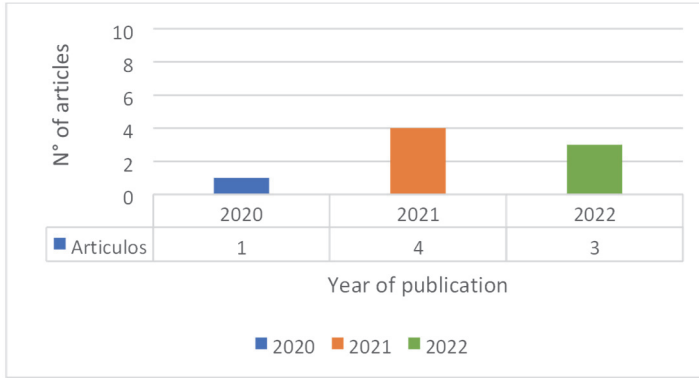
What is the current status of the SDGs in higher education institutions?

In the search we only found research on universities in a systematic review search conducted until 27 march 2023, seven universities have implemented the SDGs, as evidenced by eight published articles.

**Table 3.** Systematic review of SDG implementation in universities.

Writer	Title of paper	Superior Intuition Education	ODS Implementation
In reference (17)	Assessing the United Nations Sustainable Development Goals in Academic Libraries	University of Southern Queensland Library (Australia)	They have documented and planned in the library to increase access to information on the eight SDG goals (End hunger SDG 1, SDG 3, SDG 4, SDG 5, SDG 8, SDG 9, SDG 10, SDG 17).
In reference (8)	Aligning with the UN Sustainable Development Goals: Assessing the Contributions of the UBC Botanical Garden	University of Colombia Británica	The Botanic Garden contributes to 12 of the 17 SDGs through its programs and activities (SDG 1, SDG 2, SDG 4, SDG 5, SDG 6, SDG 7, SDG 9, SDG 13, SDG 14, SDG 15, SDG 16, 17 SDG).
In reference (18)	Through Sustainable Development Goals in Language Education, Towards 21st Century Citizenship	Technical University of Estambul, Turkey	As part of the teaching and learning methodology, the 17 Sustainable Development Goals (SDGs) are integrated into the subjects.
In reference (9)	Research and community policy on SDGs at Universitas Diponegoro	University of Diponegoro	Establish policies on SDG issues for teachers and students through curricula related to the 17 SDGs.
In reference (11)	Application of the SDGs as a systematic approach to the integration of sustainability in higher education	University of Paris Vasco	They have made the articulation of the 17 SDGs with the curriculum, in order to achieve the expected learning outcomes in their subjects in their undergraduate and graduate learning process.
In reference (19)	A Holistic Approach to Integrating and Evaluating Sustainable Development in Higher Education The case study of the University of the Basque Country	University of Paris Vasco	They designed and articulated the 17 SDGs within their institution adopting a holistic approach in three sectoral plans, equality campus, inclusion campus and planet care campus, and improving its educational model and the sustainable development indicator panel
In reference (20)	Pre-service early childhood teachers' perspectives on socio-environmental issues and their relationship to the Sustainable Development Goals	University of Sevilla	Have implemented in research projects based on the 17 SDGs
In reference (21)	A case study from the University of Nottingham on integrating the Sustainable Development Goals into curricular and extracurricular activities	The University of Nottingham	They have been integrated into the curriculum formally and informally so that students and staff of the university community can recognise and practice the 17 SDGs.

When did you start publishing articles on SDG implementation?



**Figure 5.** Period of publication of articles on the implementation of the SDGs in universities.

According to the search conducted, very few articles have been published on the implementation of the SDGs in universities. This is due to many factors, as mentioned by Nikoláeva et al 2021, where she attributes the COVID 19 pandemic, which has had a negative impact on the achievement of the SDGs, and therefore recommends rethinking global priorities and intensifying work to achieve the SDGs at national and global levels,(22), states that it is difficult to administratively operationalize the transition to integrate a real and flexible and adaptable model in institutional policies, due to the lack of tools to achieve the SDGs and mapping to understand and complement in the academic sector to work on the SDGs, (23) He gave an overview of the relationship between legal regulations and the SDGs, stating that where international regulations are unclear or insufficient, they should be studied to meet the challenges of the international community. The SDGs need to be adapted and reinterpreted to the reality that COVID 19 left us. (24) According to the authors, many laws and policy documents are inconsistent with the achievement of the SDGs. At the normative level, the instruments for achieving the UN SDGs and their indicators are not directly included in the laws.

In the context of the COVID-19 pandemic, one of the limiting factors affecting research related to the SDGs was the significant decline in economic income that affected countries such as Bangladesh, (25) ,(26) Mentions that the pandemic has had an impact that has been exacerbated by the political, economic, social, and environmental crisis, setting back almost all of the SDGs. Therefore, it is recommended to refocus efforts on advancing sustainable development through education, research, and innovation to address the challenges of the 2030 Agenda. Universities have a responsibility to align their research, teaching, and learning with the SDGs.

What are the benefits for universities in implementing the SDGs?

In 2015, 193 countries pledged to eradicate poverty, protect the planet, and ensure peace and prosperity for all, as international leaders agreed to implement 17 Sustainable Development Goals (SDGs) aimed at improving the quality of life in low- and middleincome countries, (2).

(27) ,(28) ,(29), Successful implementation of the UN Sustainable Development Goals (SDGs) can benefit universities worldwide, helping them to improve their position in the Shanghai ranking and meet academic and environmental standards. By adopting the SDGs, universities can access new financial resources, be recognized as responsible and globally aware institutions, and take advantage of new opportunities and business models. This will enable them to achieve higher rankings in the Sustainability Tracking, Assessment and Certification System (STARS), strengthening their reputation and contributing to their success at home and abroad.

Why should the SDGs be implemented in Peruvian universities?

The implementation of the SDGs in Peruvian universities also demonstrates the commitment of the education sector to global challenges and its role in the search for solutions for a more equitable and sustainable future, due to the requirements of higher education regulations, such as the

University Law 30220, the renewal of institutional licenses, the accreditation of university higher education study programs, the General Environmental Law and the National Environmental Policy 2030, as well as the contribution to the sustainable development of the country and the training of responsible professionals (30). According to Article 124 of the University Law 30220, universities should support sustainable growth and the well-being of society. For this reason, universities should focus their efforts on promoting the SDGs Legislative (2014, p. 18). University institutions must support and maintain a commitment to sustainable development in line with the SDGs, according to Component 1.10, University Social Responsibility (National Superintendence of University Higher Education) (31) (Model of Accreditation of University Higher Education Programs [SINEACE] prepared by (32) Regulation 26 mentions the implementation of environmental policies that must be monitored to prevent and acquire control measures in accordance with the provisions of the competent bodies such as the Ministry of Environment and the Ministry of Education.

What are the SDGs that have been implemented in universities?

**Table 5.** Implementation of the SDGs in Universities

ODS	Universidad de la Biblioteca del Sur de Queensland (Australia)	Universidad de Columbia Británica	Universidad Técnica de Estambul, Turquía	Universidad Diponegoro	Universidad de Paris de Vasco	Universidad de Sevilla	Universidad de Nottingham	Total
SDG 1: End hunger	X	X	X	X	X	X	X	7
SDG 2: zero hunger		X	X	X	X	X	X	6
SDG 3: Health and well-being	X		X	X	X	X	X	6
SDG 4: Quality education	X	X	X	X	X	X	X	7
SDG 5: Gender equality	X	X	X	X	X	X	X	7
SDG 6: Clean water and sanitation		X	X	X	X	X	X	6
SDG 7: Affordable and clean energy		X	X	X	X	X	X	6
SDG 8: Decent work and economic growth	X		X	X	X	X	X	6
SDG 9: Industry, innovation and infrastructure	X	X	X	X	X	X	X	7
SDG 10: Reducing inequalities	X		X	X	X	X	X	6
SDG 11: Sustainable cities and communities			X	X	X	X	X	5
SDG 12: Responsible Consumption and Production			X	X	X	X	X	5
SDG 13: Climate action		X	X	X	X	X	X	6
SDG 14: Underwater Life		X	X	X	X	X	X	6
SDG 15: Terrestrial ecosystem living		X	X	X	X	X	X	6
SDG 16: Peace, justice and strong institutions		X	X	X	X	X	X	6
SDG 17: Partnerships to achieve the goals	X	X	X	X	X	X	X	7

#### 4. Discussion

The review work on the implementation of the SDGs in higher education addresses the following questions:

What is the current status of the SDGs in higher education?

The results of our research confirm that few universities are implementing the SDGs, as is the case in our study of universities in Chile,(33) When we analyzed the 17 SDGs in the strategic plans of 18 higher education institutions with the goal of identifying compliance outcomes, we found that at least one concept was associated with some SDGs, such as 4 and 9, but not implemented (34) . He said there is currently a concern that higher education institutions are not measuring the impact of the SDGs, so it is important, and a decision must be made to implement the SDGs in their processes.

(35) Universities must take concrete actions to implement research, integrated curricula, and strategic engagement in the university community to act for sustainability change. (36) I researched that out of 55 universities, 53 responded to the questionnaire where they expressed that there are governance-related barriers to implementing the SDGs. These research papers support our research that there are few universities that have implemented the SDGs, as evidenced in our research with seven universities that have implemented and published. (37) University authorities, policy makers and decision makers often lack the will to envision a sustainable future for universities. However, without the support of a university's top management, sustainable initiatives seem to fail in the long run due to lack of investment and support.

What is the time period in which articles on the SDGs have been published?

(38) states that outreach on the SDGs by government agencies needs to be improved, as publication is very low, and sustainability needs to be ensured. (39) I am investigating that the SDGs should be integrated into universities, as it will become an area of exploratory study and production should increase in the coming years.

What are the benefits of universities implementing the SDGs?

(27) Universities worldwide can successfully benefit from implementing the UN SDGs to achieve the highest rating in the Sustainability Tracking, Assessment and Rating System (STARS). (29) By implementing the SDGs, universities will benefit from accessing new sources of funding, be recognized as a responsible and globally aware university, and gain new opportunities and business models.

Why should the SDGs be implemented in Peruvian universities, what are the SDGs?

(29), (40) mentioning that the SDGs are part of the formative management of every student betting on a sustainable future for all, and must be managed in research to have a real impact on the 2030 Agenda, the implementation will allow to train professional students who will have the purpose to work in favor of the Sustainable Development

Goals

Why should the SDGs be implemented in Peruvian universities, and what are the SDGs that have been implemented in universities?

After searching for SDG articles in the SCOPUS database from 2015 to 2023, eight universities were found to have implemented all 17 SDGs, as shown in Table 5.

This research work on the Sustainable Development Goals in higher education raises many questions about the current status of the goals of the institutions, it can be observed that the aforementioned universities show a low implementation of the SDGs, the institutions do not measure the impact of the SDGs sufficiently, so it is recommended to effectively integrate it in their educational processes, as there are also barriers to the implementation of the SDGs by the authorities.

(41) emphasizes the importance of implementing the Sustainable Development Goals in higher education as critical to the long-term well-being of society and the planet. This also opens new opportunities for innovation and economic growth. Well-designed policies and research can turn challenges into opportunities, creating positive and sustainable impacts over time. (42) The results of the SDGs, as established by the United Nations, have important implications for university policymakers. These results provide valuable information that can be used to improve the quality of life for people and the environment, contributing to a broader knowledge base to achieve integrated sustainability in society.

The implementation of the Sustainable Development Goals (SDGs) is a shared responsibility



among countries, which face the great challenge of accelerating their achievement across more than 20 countries to understand what the world will look like in 2030. In this context, it is recommended that researchers and academics worldwide raise awareness within universities, as these institutions play a critical role in accelerating the achievement of the SDG framework. Through education, research and innovation, universities can promote sustainable practices, train future leaders committed to sustainability, and develop solutions to address global challenges. Fostering interdisciplinary collaboration and international cooperation within universities can contribute to the effective implementation of the SDGs and help move us toward a more sustainable and equitable world 2030 (43), (44).

## 5. Conclusions

From 2020 to March 2023, there is evidence of 8 articles that explain the fulfillment of the 17 SDGs implemented in universities, according to the systemic review conducted with the Bolivian operators. Higher education institutions must integrate the 17 SDGs in their study plans to promote sustainable development, and they must commit to the university community, including governance and participation, internal environmental management, teachers, students and the community as a whole.

More than 193 countries have committed to work on the 17 Sustainable Development Goals (SDGs) to end poverty, protect the planet, and ensure peace and prosperity. The only way to achieve these goals is to engage the university community, including government, participation, internal management, faculty and students. We must all work together to achieve the 2030 Agenda and the 17 SDGs.

Due to various factors, there has been little research on the implementation of the SDGs in universities, which has been attributed to the pandemic, lack of demand and implementation of international policies on the fulfillment of the SDGs, which has had a negative impact on achieving the expected outcomes, so everything related to the 2030 Agenda and the Sustainable Development Goals must be reconsidered.

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