



Sustainability Management at the Federal University of Mato Grosso do Sul - Brazil: Integrating Institutional Projects with the SDGs

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Abstract. The Federal University of Mato Grosso do Sul (UFMS) is the largest educational institution in the Midwest of Brazil, with its quality in teaching, research, extension, management, and infrastructure recognized at national and international levels. In 2023, the university received the highest rating in the institutional assessment conducted by the Ministry of Education (MEC), the government body responsible for promoting quality education in the country, and for the first time, ranked in the top 100 global in the UI GreenMetric World University Ranking. UFMS was considered the 74th most sustainable university out of 1,183 institutions evaluated, and the 5th in the country. The university implements various good practices aligned with each of the Sustainable Development Goals (SDGs) of the United Nations (UN) 2030 Agenda. The aim of this work is to present some of these practices, with an emphasis on incorporating the SDGs into the university's teaching, research, and extension projects. In a quantitative and descriptive analysis, from 2018 to 2023, there have been over 20,000 projects registered at UFMS with more than 45,000 SDGs indicated. It is hoped that this study can inspire other institutions regarding the importance of meeting the SDGs.

Keyword:

SDGs, 2030 Agenda, Management, University, Sustainability

1. Introduction

The Federal University of Mato Grosso do Sul (UFMS) is a higher education institution (HEI) that serves as a local, regional, and national reference, and every year it increases its efforts to fulfill its social role of contributing to the development of the state of Mato Grosso do Sul and Brazil. It strengthens its actions in providing quality education to its students and

promoting scientific and technological development. In recent years, the university has focused on improving planning, governance, and institutional management, striving to become better and better. As a result, it has gained recognition from society.

In 2023, the Ministry of Education (MEC) awarded it the highest score in the institutional re-accreditation of Regular Education and Distance Education (Ead), proving its excellence in teaching, research, extension, innovation, and entrepreneurship, and recognizing its modern, inclusive, and high-quality infrastructure. This places it among a select group of universities that have achieved the highest rating in both modalities [1,2,3].

For a HEI to begin its activities, it must be accredited by the MEC. The initial accreditation has a maximum term of three years and needs to be periodically renewed thereafter. During this evaluation, the so-called Institutional Concept (CI) is assigned, an indicator of quality from the National System for the Evaluation of Higher Education (SINAES), established by Federal Law No. 10.861/2004 [4]. The CI score ranges from 1 to 5, with HEIs receiving a score of 3 or higher deemed capable of providing the basic requirements for quality education. UFMS received a score of 5 for the first time in its history, considering Planning and Institutional Evaluation; Institutional Development; Academic and Management Policies; and Infrastructure. The final evaluation occurs after an on-site visit to the university and the preparation of a report by the evaluation committee.

As the largest HEI in the Mid-West region of Brazil, with approximately thirty-seven thousand undergraduate and graduate students, sixteen hundred professors, and eighteen hundred administrative workers, the university seeks to grow even more, being accessible, inclusive, and providing quality education that trains qualified professionals to transform and build a just and sustainable country and society. UFMS's organizational values guide its actions and contribute to achieving its goals, including ethics, respect, transparency, effectiveness, interdisciplinarity, professionalism, independence, and sustainability [5].

HEIs play a critical role in promoting sustainable development in their regions. The Sustainable Development Goals (SDGs) provide a framework for HEIs to demonstrate their impact, attract funding, and foster collaboration. HEIs contribute to the SDGs by offering innovative solutions, educating future leaders, serving as role models, and developing cross-sectoral leadership. In Latin America and the Caribbean, HEIs have focused on environmental sustainability since the 1980s, with key efforts like the 1985 Bogotá Charter [6,7,8].

The term sustainability is often used exclusively to refer to environmental issues; however, it is known that sustainability involves many other aspects of our daily lives. At UFMS, this concept is considered in all its dimensions: social, cultural, ecological, territorial, economic, political, and environmental [9]. One of the university administration's commitments is to align its activities with the 169 targets and 17 SDGs established by the United Nations' 2030 Agenda. The sustainability has been integrated into the university's standards and processes, which have matured and consolidated internally over time [10,11].

An initiative in this perspective was to require that the teaching plans of the courses and the institution's research, teaching, and extension projects must be linked to at least one of the SDGs [12]. Additionally, the university now monitors these projects and tracks the progress of this action annually [13].

The creation of the Sustainable Development Board (DIDES), linked to the Rectory, to coordinate and articulate sustainability actions at UFMS represented significant progress in aligning the university with sustainable development [14,15]. It is also important to highlight UFMS's Sustainability Policy, which conceived the UFMS Sustainable Program and its

instruments: the Sustainable Logistics Plan (PLS), Solid and Health Waste Management Plan (PGRS/PGRSS), Annual Procurement Plan (PCA), and the UFMS Carbon Neutral Program [16]. Each of these documents has ensured that sustainability is transversal to all areas of the institution, impacting both the internal and external community.

Thus, the objective of this work is to present how sustainability management is conducted at UFMS, explaining how the 17 SDGs are incorporated into the university's daily activities, as well as the teaching, research, and extension projects. The evolution of this practice will be analyzed from 2018 to 2023, and finally, the possibilities for optimizing the implementation of the 2030 Agenda within the institution will be evaluated.

2. Scenario

2.1 UFMS in the UI GreenMetric World University Ranking

Since 2019, UFMS has participated in the UI GreenMetric World University Ranking, which measures the commitment of educational institutions to sustainability. The university's evaluation has increased by more than 45% since it began participating, ranking 74th in 2023, making its debut in the top 100 worldwide. It maintained a prominent position in Latin America, ranking 11th among the 148 participating institutions, and in Brazil, being the 5th most sustainable educational institution in the country [17]. In the same year, UFMS organized for the first time the National Workshop on UI GreenMetric World University Rankings for Universities in Brazil (NWGM Brazil) and the 1st UFMS Sustainable Meeting (Figure 1) [18,19].



Figure 1. Activity of the NWGM Brazil at the Pantanal Biopark

2.2 Incorporation and Implementation of the SDGs at UFMS

For SDG 1 – No Poverty, UFMS invests in inclusion and student assistance programs under the leadership of the Dean of Student Affairs (PROAES), where aid is directed to socioeconomically vulnerable students [20]. In combating hunger and promoting sustainable agriculture, SDG 2 – Zero Hunger, being in a state with strong agricultural activity, several undergraduate and graduate projects are aligned with this goal, including those related to agroecology and family farming. Additionally, through its University Restaurants, students who prove their vulnerability pay almost 80% less than the conventional price [21].

Regarding SDG 3 – Good Health and Well-being, the university works for the internal community, composed of students, professors, and staff, as well as for society in general. The Dean of Human Resources (PROGEP) has the Directorate of Employee Assistance (DIAS), responsible for coordinating and organizing the Health Assistance Program (PAS-UFMS), with the support of the Health Assistance Department (SEAS), and for assisting employees with disease prevention, accessibility, and affirmative action's [22,23]. Meanwhile, the Directorate of Student Affairs (DIAES), through the Student Health Care Department (SEASE), develops health care actions for UFMS students, such as promoting and monitoring physical and mental health, as well as providing free psychological care [24,25,26].

SDG 4 – Quality Education is the most incorporated goal into the institution as it is deeply related to its social role. UFMS's vision is to be recognized nationally and internationally for its excellence in teaching, research, extension, and innovation [6]. It has stood out by receiving awards and recognition for its contribution and delivery of quality education to society [27,28,29]. For SDG 5 – Gender Equality, the university's main initiative is the Sou Mulher UFMS Program ("I'm a woman" UFMS), an annual call for proposals that provides financial resources for operational expenses to support research and innovation projects coordinated by female UFMS students and staff members [30,31].

Across all university *campi*, access to drinking water and sanitation is guaranteed, ensuring the universal right to clean and safe water. Similarly, the provision of clean energy for the institution's activities is ensured. Various UFMS laboratories, through teaching, research, and extension, develop projects within the scope of SDG 6 – Clean Water and Sanitation and SDG 7 – Affordable and Clean Energy [32]. The university seeks to use renewable energy sources, primarily through the use of photovoltaic solar panels distributed across its units (Figure 2), which are also present at the UFMS Eletroposto, a fast-charging station for electric vehicles and bicycles, inaugurated in April 2023 (Figure 3) [33,34].



Figure 2. Photovoltaic Solar Panels on UFMS Buildings

SDG 8 – Decent Work and Economic Growth is addressed by creating an organizational environment that provides adequate and inclusive conditions for workers to perform their duties with dignity and feel motivated to contribute to the institution's growth. Actions are promoted to stimulate and value training, entrepreneurship, creativity, and innovation

[35,36]. Regarding SDG 9 – Industry, Innovation, and Infrastructure, UFMS primarily collaborates with public and private companies, such as the Brazilian Micro and Small Business Support Service (SEBRAE), the Federation of Industries of Mato Grosso do Sul (FIEMS), and the Foundation for the Development of Education, Science, and Technology of Mato Grosso do Sul (FUNDECT). The Internationalization and Innovation Agency (AGINOVA) is the sector responsible at UFMS for managing initiatives related to international cooperation and promoting entrepreneurship and innovation within the institution. It supports the Pantanal Mixed Business Incubator (PIME), responsible for supporting the development of new enterprises and training potential entrepreneurs [37,38].



Figure 3. UFMS Electrostation: Recharging Electric Cars and Bicycles

UFMS develops actions to reduce inequalities, especially with policies aimed at the most vulnerable groups, such as people with disabilities, black people, indigenous people, refugees, women, children, LGBTQIA+ individuals, and the elderly, in line with the goals of SDG 10 – Reduced Inequalities [39,40]. Through these actions, the university seeks to build a safer, more accessible, inclusive, and sustainable society. In its activities, the organization has integrated SDG 11 – Sustainable Cities and Communities through projects, events, assistance, or infrastructure available to the community to ensure basic services for all who need them. The Sustainability Policy and its instruments, previously described, are examples of institutionalizing actions to make cities and communities more resilient and sustainable, directly linked to SDG 12 – Responsible Consumption and Production [16].

The UFMS PLS includes actions to reduce waste generation, such as using digital systems for recording workers' attendance and conducting administrative processes, as well as issuing diplomas and certificates, assigning PIN codes for printer use, among others. Another goal is to organize an annual waste collection event on all university campuses, the Zero Waste Week UFMS, which began in 2021, with waste being reused, recycled, or properly disposed of [41,42]. The PGRS/PGRSS addresses waste management at the institution from generation to final disposal [43]. Part of the organic waste from the university's Restaurants and Bioterium is used in agroecology projects (Figure 4).

Acting on climate change is a commitment of the university, with strategic objectives and plans for prevention and adaptation to extreme situations, such as the Business Continuity Plan (PCN), which aims to prepare UFMS to minimize the impact of crises on its

activities and define actions and responsibilities of the teams involved in the process, aligned with SDG 13 – Climate Action [44]. The institution aims to neutralize its CO₂ emissions by 2050 and was present at COP 28 in Dubai to follow discussions on the topic [17,45]. UFMS has an air quality monitoring station developed in partnership with the National Institute for Space Research (INPE) through the QualiAR project [46,47].



Figure 4. UFMS Composting Projects

UFMS is not close to the marine ecosystem and directs its efforts regarding SDG 14 – Life Below Water to the streams, rivers, and lakes in the state of Mato Grosso do Sul. At the heart of the university is the Lake of Love, located on the Cidade Universitária campus in Campo Grande, MS. In 2022, a mapping of vertebrate animals was carried out, identifying 231 species, including 150 birds, 30 mammals, 23 reptiles, 19 fish, and 9 amphibians [48]. The institution is situated in the Pantanal, Cerrado, and Atlantic Forest biomes, which boast vast biodiversity, both aquatic and terrestrial. Various areas of knowledge develop teaching, research, and extension activities aligned with the conservation and sustainable use of these environments. The work on SDG 15 – Life on Land aims to ensure the protection, recovery, and conscious use of natural resources. UFMS has a 50.11-hectare conservation area with a management plan approved in 2022, as well as other facilities dedicated to teaching and research, such as the School Farm, and the Study Base of Pantanal and Bonito [49,50].

SDG 16 – Peace, Justice, and Strong Institutions is transversal to the university's regulations and daily activities, aiming to be transparent, effective, accountable, inclusive, non-discriminatory, participatory, and representative at all levels. The main regulation on this topic is Resolution No. 311-COUN/UFMS from the University Council (COUN), which establishes the Institutional Governance System (SIGOVI) [51,52]. UFMS's governance is recognized by society for its commitment to excellence [53,54]. It seeks to incorporate best practices from other institutions, aligned with SDG 17 – Partnerships for the Goals. For example, in 2023, UFMS founded the Brazilian Network of Higher Education Institutions for Sustainable Development, UniSustentável, which aims to promote an environment of cooperation, exchange, and communication among member institutions, contributing to the construction of a more sustainable society [55].

In October 2023, the Network was approved as a member of the Alianza de Redes Iberoamericanas de Universidades por la Sustentabilidad y el Ambiente (ARIUSA) [56]. ARIUSA is an alliance of university networks from Latin America, the Caribbean, and Spain

that coordinate their activities and cooperate to promote universities' commitment to sustainability. By April 2024, UniSustentável was composed of 20 public and private educational institutions from all geographic regions of the country.

Another international partnership is with the Observatorio de la Sustentabilidad en la Educación Superior en América Latina y el Caribe (OSES-ALC), an inter-institutional program for research, extension, and continuing education on the commitment of higher education institutions in the region to the environment and sustainability. UFMS joined OSES-ALC through Cooperation Agreement No. 35/2022-UFMS, established between UFMS and the Universidad de Ciencias Aplicadas y Ambientales – U.D.C.A., Colombia [57]. Furthermore, the institution has committed to global sustainability actions such as the UN Global Compact and the UN Academic Impact [58,59]. These are some of the actions that UFMS undertakes to demonstrate how sustainability is managed within the institution, proving the incorporation of sustainability and each of the SDGs in all areas of the university, impacting the internal community (students, faculty, and staff) as well as the local, regional, national, and international society. In this context, the following will detail how the teaching, research, and extension projects registered at the university align with the 17 SDGs of the UN Agenda 2030.

3. Methodology

The Information and Project Management System (SIGProj) at UFMS is managed by the Communication and Information Technology Agency (AGETIC). This unit is responsible for coordinating, guiding, supervising, executing, and controlling Information and Communication Technology activities within the University [60,61]. The platform is used for registering projects and calls for teaching, research, extension, innovation, and student assistance. Created in 2018 and modernized in 2021, the system aims to facilitate submissions within the university. Besides the basic project data such as objectives, methodology, schedule, among others, the system requires linking the projects to the SDGs.

Since 2018, the project registration form includes a multiple-choice question listing the 17 SDGs for selection, allowing proponents to identify which SDGs their work aligns with from the project's inception. Since 2020, a final report is required to verify which SDGs were effectively implemented when the project is concluded. The data extracted from SIGProj is formatted into a spreadsheet and sent by AGETIC to DIDES, including the name and protocol number of the project, the project status (Approved, In Progress, In the Accounting Phase, Completed), the project area (Undergraduate and Student Affairs; Research and Graduate; Internationalization and Innovation; or Extension, Culture, and Sports projects), the call under which it was registered, and the SDGs to which its coordinator declares alignment.

That is, DIDES handles the data processing, compiling all the information related to calls for proposals, projects, and final reports, as well as identifying which SDGs were assigned to them during the analyzed period. This study analyzes the period from 2018 to 2023, but an annual evaluation is also conducted and published in the SDG Report at UFMS.

4. Results

According to the information received, between 2018 and 2023, 21,468 projects were registered indicating the incorporation of at least one SDG in their planning. These include 2,532 Undergraduate and Student Affairs projects, 7,642 Research and Graduate, Internationalization, and Innovation projects, and 11,294 Extension, Culture, and Sports projects. The most incorporated SDGs were SDG 4 in 9,428 projects, SDG 3 in 8,103 projects,

and SDG 8 in 3,034 projects. SDGs 16 and 15 also showed interest from researchers.

Thus, it is clearly noted that SDG 3 and SDG 4 are far above the others, accounting for 37.74% and 43.92% of the projects, respectively. These goals are closely linked to the social mission of an educational institution, which values quality, accessible, and equitable education [62], and cares for people's health and well-being. Figures 5, 6, and 7 show each of the three categories of projects with the number of projects linked to each SDG. Figure 8 provides the consolidated results, with projects and the SDGs attributed to them.

Upon examining each figure separately, it is noted that SDG 3 and SDG 4 emerge as the primary objectives addressed by studies across all categories. Following these, in Undergraduate and Student Affairs, as well as in Research and Graduate, Internationalization, and Innovation projects, SDG 16 appears. In Extension, Culture, and Sports projects, SDG 15 is the third most linked. It is interesting to note that although SDG 8 appears third in the total number of related projects, it does not appear in the top 3 of any of the evaluated categories.

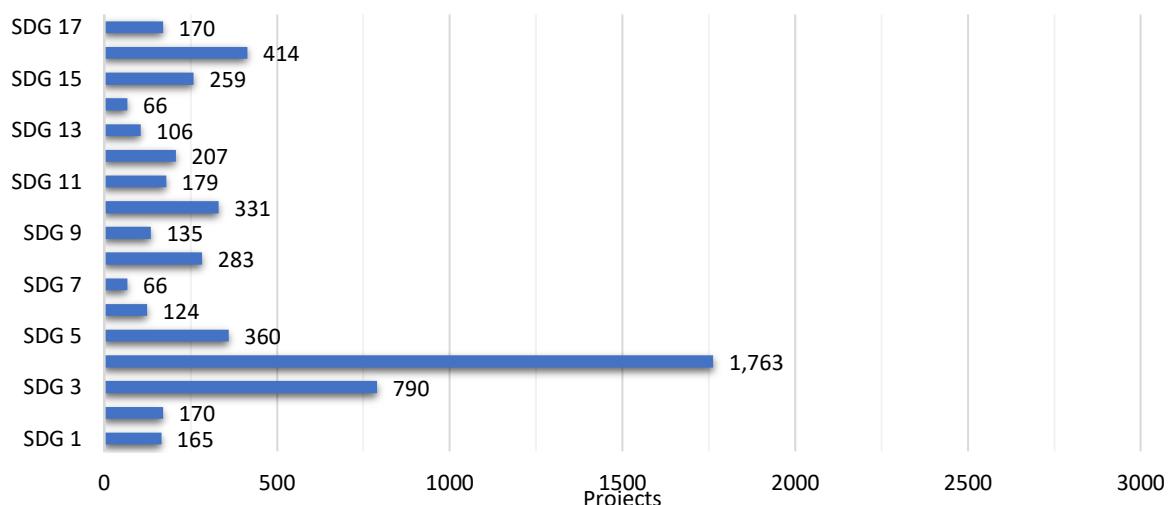


Figure 5. SDGs at Undergraduate and Student Affairs projects
(2,532 projects and 5,588 SDGs)

In Undergraduate and Student Affairs projects, SDGs 3, 4, 5, 10 and 16 are the most frequent. SDG 4 stands out, present in 69.63% of the projects. SDGs 7 and 14 appeared in fewer projects, opening up space for planning ways to stimulate research aligned with them.

In Research and Graduate, Internationalization, and Innovation projects, SDGs 2, 3, 4, 8 and 15 are the most prevalent, with SDG 3 standing out, featured in 37.27% of the projects. SDGs 7 and 14 also exhibited the lowest representation like the previous category, suggesting potential areas for further research and development efforts aligned with these goals.

In Extension, Culture, and Sports projects, SDGs 3, 4, 8, 10 and 16 are the most prevalent, with SDG 4 being the most prominent, present in 48.50% of the projects. SDGs 7 and 14 are also the least implemented by projects in this category. This consistent lack of representation in these SDGs highlights a need to encourage research in these areas, as well as raise awareness within the academic community about their importance.

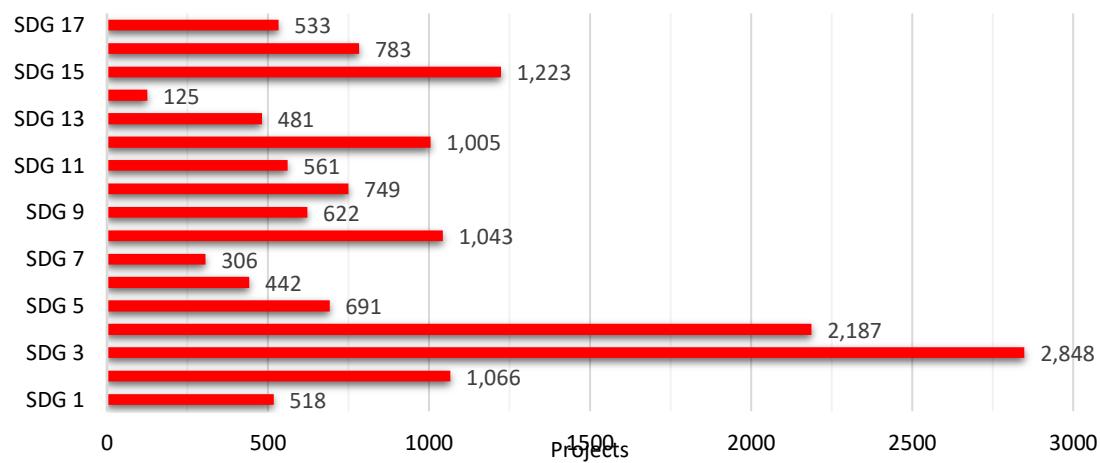


Figure 6. SDGs at Research and Graduate, Internationalization, and Innovation projects
(7,642 projects and 15,183 SDGs)

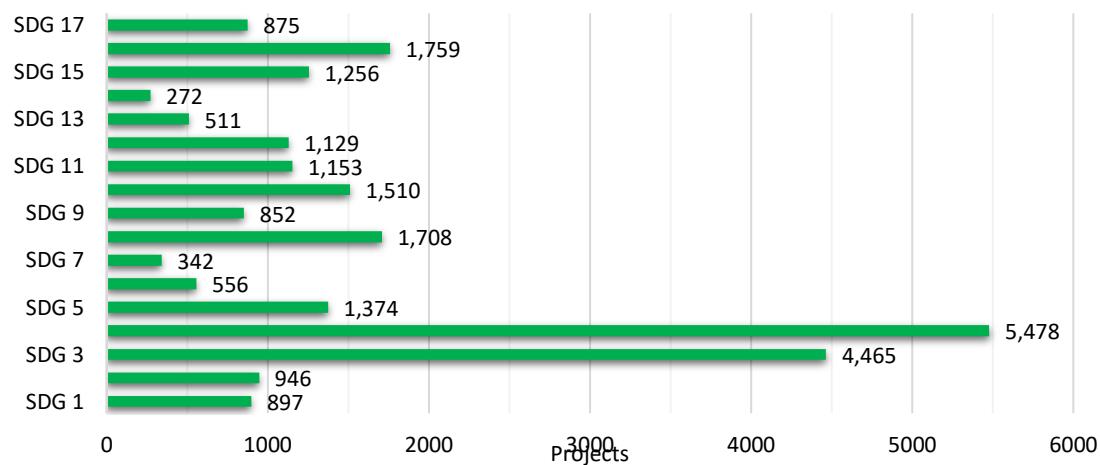


Figure 7. SDGs at Extension, Culture, and Sports projects
(11,294 projects - 25,083 SDGs)

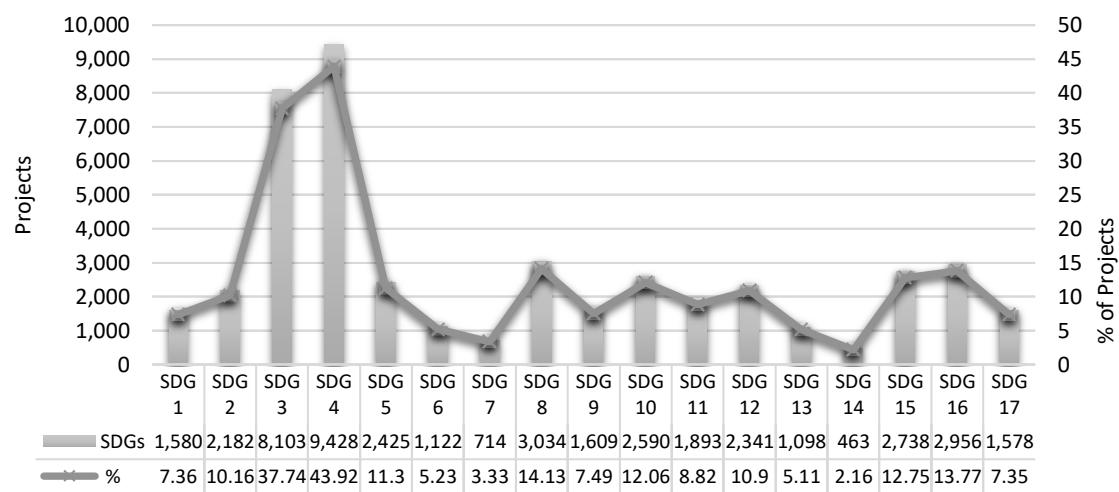


Figure 8. SDGs at UFMS Projects between 2018 and 2023
(21,648 projects - 45,854 SDGs)

5. Conclusions

The UFMS exemplifies how a HEI can successfully integrate sustainability into its core mission and operations. Through strategic planning, governance, and robust institutional management, UFMS has achieved significant milestones that underscore its commitment to quality education, scientific advancement, and community engagement. Receiving the highest score in the Ministry of Education's institutional re-accreditation for regular and distance education highlights UFMS's excellence in various domains including teaching, research, innovation, and infrastructure. This recognition not only reflects the university's capabilities but also its dedication to maintaining high standards and continuous improvement.

UFMS's proactive approach towards sustainability is evident in its comprehensive policies and initiatives. The creation of the Sustainable Development Board (DIDES) and the implementation of the UFMS Sustainable Program demonstrate a structured and integrated effort to align the university's activities with the United Nations' 2030 Agenda. The incorporation of the 17 Sustainable Development Goals (SDGs) into the university's projects, teaching plans, and institutional processes signifies a holistic understanding of sustainability, encompassing social, cultural, ecological, economic, and political dimensions.

The university's participation in the UI GreenMetric World University Ranking, where it has consistently improved its standing, further attests to its commitment to sustainability. Hosting national workshops and sustainable meetings fosters a culture of environmental consciousness and collaboration within the academic community and beyond.

UFMS's efforts to align its operations with the SDGs are comprehensive, addressing a wide range of issues from poverty alleviation and quality education to clean energy and climate action. The substantial number of projects aligned with SDGs such as SDG 4 – Quality Education, SDG 3 – Good Health and Well-being, and SDG 8 – Decent Work and Economic Growth underscores the university's multifaceted approach to sustainability.

Moreover, the establishment of international partnerships and networks, such as the Brazilian Network of Higher Education Institutions for Sustainable Development (UniSustentável) and its membership in the Alianza de Redes Iberoamericanas de Universidades por la Sustentabilidad y el Ambiente (ARIUSA), highlights UFMS's role in promoting global sustainability efforts. These collaborations enhance the university's ability to contribute to a sustainable future on a larger scale.

In summary, UFMS's strategic integration of sustainability into its institutional framework and activities sets a powerful example for other HEIs. Its achievements in sustainability management, recognition in national and international rankings, and robust alignment with the SDGs illustrate the university's significant role in fostering a just and sustainable society. Moving forward, UFMS is well-positioned to continue leading in sustainability, ensuring that its efforts contribute positively to the community.

6. Future Perspectives

From this moment on, the management's focus is on measuring the different levels of contribution of each of its projects. This involves not only analyzing incorporation and implementation but also understanding which goals each project contributes to and to what extent within the SDGs. The final reports of the projects, as mentioned, provide evidence of which SDGs were actually achieved. However, these reports are not required for all projects and currently do not offer enough information for a robust understanding of each project's

contribution. Therefore, in the near future, we expect to develop indicators that provide information to recognize the potential of the projects developed by our university in favor of sustainable development. It is hoped that more institutions will seek to integrate the 17 SDGs into all their activities and that this good practice of UFMS will serve as an inspiration.

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