

# MENDIVE

REVISTA DE EDUCACIÓN

*Translated from the original in Spanish*

## Implementation of the Sustainable Development Goals from a University Study Center

### Implementación de los Objetivos del Desarrollo Sostenible desde un Centro de Estudios Universitario

### Implementação dos Objetivos de Desenvolvimento Sustentável desde o Centro de Estudos Universitário

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## ABSTRACT

Faced to the challenges proposed by the Sustainable Development Goals approved internationally in the 2030 Agenda, the key role of the University in its achievement is recognized. In order to evaluate the contributions of the Center for Environmental and Natural Resources Studies, of the University of Pinar del Río "Hermanos Saíz Montes de Oca", Cuba, in the period 2017-2018, in favor of the Sustainable Development Goals, a qualitative investigation was conducted through theoretical methods; the analysis / synthesis, and the documentary analysis as procedures and research techniques respectively. Perceived postgraduate and research activities that responded to the Sustainable Development Goals in the period evaluated were identified and quantified. 434 actions were carried out that paid 52.9% of the Objectives. Objective 4 "Quality education", Objective 11 "Sustainable cities and communities" and Objective 15 "Life of terrestrial ecosystems" were the most significant, with 160, 80 and 70 activities respectively. The graduate contributed 50 courses and 24 master theses; while the research paid tribute to 48 publications, 11 projects, 24 awards and 133 papers, of which 42 were presented at national and international scientific events. It is concluded that through the training and research processes, the Study Center was able to advance in the implementation of the Sustainable Development Goals with emphasis from environmental education; however, it is necessary to strengthen actions that respond to all the objectives, as well as increase awareness and training activities.

**Key words:** 2030 agenda; investigation; postgraduate; sustainable development goals; university.

## RESUMEN

Frente a los desafíos que proponen los

Objetivos de Desarrollo Sostenible, aprobados internacionalmente en la Agenda 2030, se reconoce el papel clave de la Universidad en su consecución. Con el objetivo de evaluar las contribuciones del Centro de Estudios de Medio Ambiente y Recursos Naturales, de la Universidad de Pinar del Río "Hermanos Saíz Montes de Oca", Cuba, en el período 2017-2018, a favor de los Objetivos de Desarrollo Sostenible, se realizó una investigación cualitativa a través de métodos teóricos, el análisis/síntesis y el análisis documental, como procedimientos y técnicas de investigación respectivamente. Se identificaron y cuantificaron en porcentajes las actividades de posgrado e investigación ejecutadas, que respondían a los Objetivos de Desarrollo Sostenible en el período evaluado. Se desarrollaron 434 acciones que tributaron al 52,9 % de los Objetivos. El Objetivo 4 "Educación de calidad", Objetivo 11 "Ciudades y comunidades sostenibles" y Objetivo 15 "Vida de ecosistemas terrestres", resultaron los más significativos, con 160, 80 y 70 actividades respectivamente. El posgrado contribuyó con 50 cursos y 24 tesis de maestría; mientras que la investigación tributó con 48 publicaciones, 11 proyectos, 24 premios y 133 ponencias, de las cuales 42 se presentaron en eventos científicos nacionales e internacionales. Se concluye que, a través de los procesos de formación e investigación, el Centro de Estudios logró avanzar en la implementación de los Objetivos de Desarrollo Sostenible, con énfasis en la educación ambiental; no obstante, se requiere potenciar acciones que respondan a la totalidad de los objetivos, así como incrementar las actividades de sensibilización y capacitación.

**Palabras clave:** agenda 2030; investigación; objetivos de desarrollo sostenible; posgrado; universidad.

## RESUMO

Diante aos desafios que propõem os Objetivos de Desenvolvimento Sustentável aprovados internacionalmente na Agenda 2030, reconhece-se o papel chave da Universidade na sua consecução. Com o objetivo de avaliar as contribuições do Centro de Estudos de Médio Ambiente e Recursos Naturais da Universidade de Pinar del Río, Cuba, no período 2017-2018, a favor dos Objetivos de Desenvolvimento Sustentável, realizou-se uma pesquisa qualitativa através de métodos teóricos; a análise/síntese, e a análise documental como procedimentos e técnicas da investigação respectivamente. Identificaram e quantificaram-se em porcentagens as atividades de pós-graduação e investigações executadas que respondiam aos Objetivos de Desenvolvimento Sustentável no período avaliado. Desenvolveram-se 434 ações que forneceram ao 52,9% dos Objetivos. O Objetivo 4 "Educação de qualidade", Objetivo 11 "Cidades e comunidades sustentáveis" e Objetivo 15 "Vida de ecossistemas terrestres", resultaram os mais significativos, com 160, 80, e 70 atividades respectivamente. Os pós-graduação contribuíram com 50 cursos e 24 teses de Mestrado e 133 ponências, das quais 42 apresentaram-se em eventos científicos nacionais e internacionais. Conclui-se que, através dos processos de formação e investigação, o Centro de Estudos logrou adiantar na implementação dos Objetivos de Desenvolvimento Sustentável com ênfase desde a educação ambiental; não obstante, requer-se potenciar ações que respondam à totalidade dos objetivos, mesmo assim acrescentar as atividades de sensibilização e capacitação.

**Palavras chave:** Agenda 2030; investigação; Objetivos de Desenvolvimento Sustentável; pós-graduação; universidade.

## INTRODUCTION

In September 2015, world leaders, within the framework of the United Nations, unanimously adopted the document "Transforming our world: the 2030 Agenda for Sustainable Development". At the center of the Agenda are the 17 Sustainable Development Goals (SDGs), also called Global Goals, and their specific goals that should be achieved in the next 15 years.

The SDGs are a set of priorities and aspirations for all countries. They address the most pressing challenges, including the eradication of poverty and hunger; the protection of the planet from environmental degradation by tackling climate change; to ensure that all people can enjoy prosperous, healthy and fulfilling lives; and promote peaceful, just and inclusive societies, free of violence and without fear (Kestin *et al.*, 2017, p.6).

When analyzing the role that corresponds to the University in achieving these objectives, and according to the criteria of Sureda, Sánchez & Benaya (2017): "Universities, within the framework of their social and environmental responsibility, cannot keep up with the margin of these objectives. The 2030 Agenda for Sustainable Development is also the mission and commitment of the university" (p.1).

Although, "The 2030 Agenda will not depend only on what the universities do, but it is clear that without the University's competition it is difficult for

the Agenda to become a reality". Well, it is noteworthy that they have some advantages, "such as having an audience interested in listening and acquiring knowledge. On the other hand, each profession has analysis tools that make it possible to address the implication of their area of knowledge in favor of Sustainable Development" (Millán Sánchez Grande & Pérez Escalona, 2018, p.2).

The university, as the main agent of transformation, is called to incorporate these objectives in a transversal and integrated way, through the different processes that characterize it: training, research, extension and institutional management, in order to fulfill the task of training professionals competent and committed to their social task in solving the problems that affect contemporary society.

As the authors Millán Sánchez Grande & Pérez Escalona (2018) express well, in their work *Challenges, contributions and proposals from the Valencian Public Universities for the incorporation of the 2030 Agenda and the SDGs through their tools, mechanisms and processes*, the Universities can contribute to the SDGs from their main areas of action:

- Since the training through the development of skills, knowledge and capacities on sustainable development, both in students and in teaching and research staff and the administrative and service staff.
- From research to the development of interdisciplinary research and innovations that allow the implementation of the SDGs.
- From the institution itself, to develop policies that supports the SDGs.

- From the university extension, establishing dialogues and alliances with other sectors that allow the development of joint actions in order to achieve these objectives (p.3).

In order to promote the incorporation and integration of these objectives, through the different fields of action of the university, the key role of SDG 4 "Quality Education" is recognized in this context, which becomes an axis for the achievement of the goals of the remaining 16 objectives. "The achievement of quality education is the basis for improving people's lives and sustainable development" [Economic Commission for Latin America and the Caribbean (ECLAC), 2016, p.15].

The Latin-American General Secretariat established the lines of action. The universities must implement them to support governments in the realization of the ODS with the axes that have as a base a quality education: "The research promotion and innovation; undergraduate and postgraduate training related to the 2030 Agenda; the education and awareness for development; the active participation in alliances with other social actors to reach the ODS.

For the resize of these axes in favor of the implementation of the 2030 Agenda with its 17 SDGs and in the context of Cuban higher education, the potential of the Study Centers is noted. It has a priority has the mission of contributing to the achievement of higher levels of relevance and quality of the institutions, from the postgraduate and research activities they carry out.

In this regard, in the present work we were assessed contributions which, from the post graduate and research, conducted the Study Center of Environment and Natural Resources (CEMARNA) at the University of Pinar de

Rio "Hermanos Saiz Montes de Oca", Cuba, in the process of implementing the SDGs in the period of 2017-2018.

## MATERIALS AND METHODS

A qualitative and retrospective investigation was carried out at the Center for Environmental and Natural Resources Studies of the Pinar del Río University "Hermanos Saiz Montes de Oca", during the first semester of 2019. Theoretical methods were used, specifically the systemic - structural and analysis and synthesis procedures. The research technique used was the documentary and bibliographic analysis with the review of the compliance reports of the Environmental Strategy and of the objectives and criteria of measures of the Study Center in the period 2017 and 2018, as well as the specialized bibliography on the 2030 Agenda and the SDGs.

From the revised documentation, we proceeded to extract and relate all the activities carried out by CEMARNA in its two fundamental areas of work: postgraduate and research, during the years 2017 and 2018. Subsequently, those actions that in some way contributed to the SDGs were selected, identifying the specific objective to which they were taxed.

In relation to postgraduate studies, the following variables were quantified:

- Courses taught over the years
- Contributions of investigations of the third editing of the Mastering of Environmental Management

Regarding the research activity, the following variables were quantified:

- Participation projects

- Publications
- Awards received
- Presentations at international and national scientific events
- Papers presented at the VII, VIII and IX Student Scientific Workshop

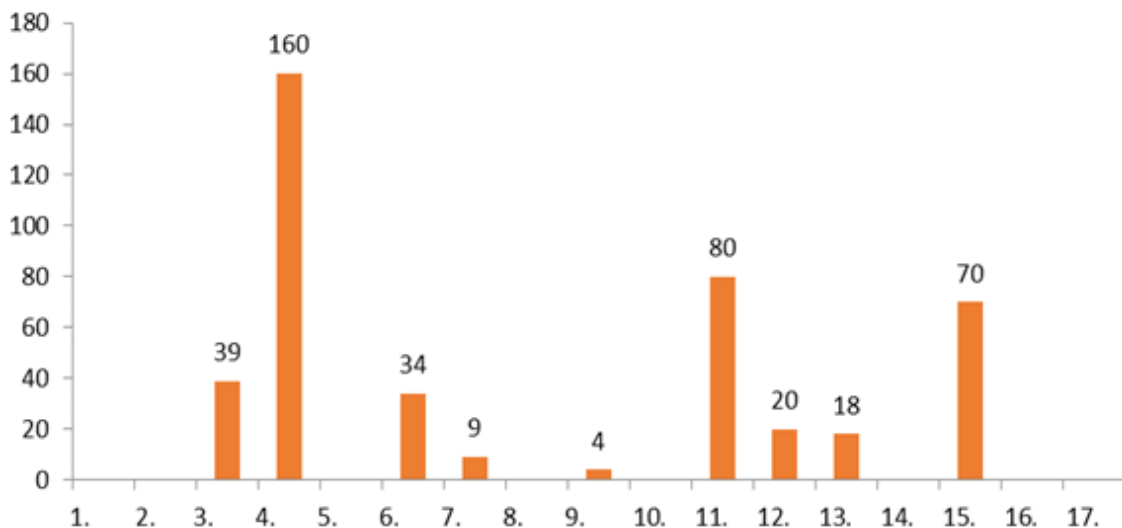
### Statistical processing

The different postgraduate and research activities that contributed to each of the SDGs were stored in an Excel 2016 spreadsheet and descriptive analysis of the data was carried out, based on obtaining the percentages as a measure of aggregation. It is clarified that the study variables, corresponding to postgraduate and research activities, mostly contributed to more than one SDG, so the sum of the absolute frequencies is greater than the total number of activities carried out.

### RESULTS

Of the 17 objectives of sustainable development in the period 2017-2018, the CEMARNA with its graduate and research activities got results in nine of them; at which it was taxed to 52,9 % thereof.

434 actions were executed. Of these, the greater amount, corresponded to the Objective 4 "Quality education" with a total of 160 (36.9 %) activities, followed by the Target 11 "Sustainable Cities and Communities" and in the Objective 15 "Life of terrestrial ecosystems", with 80 (18.4 %) and 70 (16.1 %) activities, respectively. The total shares for the nine objectives, which will be taxed on the period of study, are reflected as absolute frequencies in figure 1.



**Fig. 1-** Global contribution of CEMARNA activities to the SDGs (x-axis) in the period 2017-2018

In the evaluation period, the CEMARNA gave 32 professional improvement activities, including two editions of the Diploma in Environmental Education, training, five workshops and 24 courses. 96.9 % (31) of these activities responded to the objective 4 "Quality Education"; 43.8 % (14) to the Objective 11 "Sustainable Cities and Communities"; to the Objective 6 "Clean water and sanitation", 34.4 % (11); to the objective 13 "Climate Action", 31.3 % (10). To the objective 3 "Health and Wellness", 7 "and use affordable clean energy" and 15 "Life of terrestrial ecosystems", pay tax 21.9 % (7), 12.5 % (4) and 15.6 % (5) of the professional improvement activities, respectively.

The main topics addressed through the postgraduate course were: Environment and sustainable development, biodiversity management, environmental education, environmental pollution, environmental and landscape rehabilitation, public policies and sustainability, agriculture and climate change, health and the Environment, climate change and Environment.

The 24 (100 %) research students of the third edition of the Masters responded to the objective 4 "Quality Education"; to the objective 11 "Sustainable Cities and Communities", pay tax 83.3 % (14) of theses and objectives 15 "Life of terrestrial ecosystems" and 6 "Clean water and sanitation" contributed 15 (65.5 %) and 14 (58.3 %) theses, respectively. Only one of the studies (4.2 %) contributed to the objectives 9 "industry, innovation and infrastructure", 12 "Production and consumption responsible" and 13 "Climate Action".

The science and technique activities that were registered during the years 2017 and 2018 in the Study Center corresponded to: 44 publications, seven

projects (three are coordinated by CEMARNA and participates in four), 133 papers at scientific events and 20 awards. In the publications, Objectives 4 and 11 were the most significant. Since the projects, it levied, largely, to the objective 15 and the Goal 4.

The documents were published, essentially, in journals indexed in the databases SCOPUS, SciELO, REDALYC, DOAJ and LATINDEX; Important aspect that highlights the visibility of the scientific results obtained.

Of the 133 papers, 42 (31.6 %) were presented at national and international scientific events, both by professors and collaborators of the Study Center. Of the 91 papers presented at student events (68.4 % of the 133 total), contributions to Objective 4 were significant with 43 papers (46.7 % of the total student papers), followed by Goal 15 with 23 (25 %) and of Objective 3 "Health and well-being" with 17 (18.5 %). The objectives 4, 11 and 15 are the most significant from the work of the CEMARNA in the two years evaluated.

The students' presentations were presented at the VII and VIII Student Scientific Workshop on the Environment, which is convened annually by CEMARNA. The fundamental themes addressed in the works were environmental education, climate change, biodiversity, environmental risks, health and the environment, environmental legislation and food security.

The CEMARNA, in the years 2017-2018 totaled 20 prizes, contributing mainly to Objectives 4 and 11, as shown in Figure 2. These awards were obtained because of the presentation of works in: the Technical Event of the Municipal and Provincial Science and Technical FORUM, the Provincial Academy of Sciences

Award of Cuba and the Technological  
 Innovation Award.



**Fig. 2** - Contribution of CEMARNA to the objectives of sustainable development from the awards received

## DISCUSSION

The Organization of the United Nations Educational, the Scientific and Cultural Organization (UNESCO), (2017), in his book *Education Goals Sustainable Development: learning objectives*, states the following: " Quality education is both a goal in itself as a means to achieve all other SDGs, because it is an integral part of sustainable development and a key enabler of it. That is why education represents an essential strategy in achieving the SDGs" (p.1).

To address the challenges of the SDGs, "Individuals must become agents of change. They need knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Therefore, education is crucial to achieve this type of development" (UNESCO, 2017, p.7).

Environmental education, as a specific type of education, by extending its objectives to the context and incorporating the relationships of human beings with each other and with nature, is an essential instrument for achieving these objectives.

In the XX Meeting of the Forum of Ministers of the Environment of Latin America and the Caribbean was held from March 28-31, 2016 in Cartagena, Colombia. There it was recognized the key role of environmental education as part of policies for sustainable development, for the care of the planet, to understand the causes of the processes of environmental degradation and also their consequences, to propose solutions and to transform values, behaviors and visions in pursuit of development aimed at the eradication of poverty, peace, inclusion, respect for interculturality, gender equality, youth

participation, sustainable consumption and production, decent work, improved quality of life and protection of the environment.

In the Cuban context, environmental education is recognized as one of the instruments for managing environmental policy, which is clearly expressed in Article 18, subsection of Environmental Law 81, in force since 1997. Environmental education is defined in the referred Law as:

It is a continuous and permanent process, which constitutes a dimension of the comprehensive education of all citizens, oriented so that in the acquisition of knowledge, development of habits, skills and abilities and attitudes and in the formation of values, the relationships between beings are harmonized human and there with the rest of society and nature, to promote the orientation of economic, social and cultural processes towards sustainable development (Law No. 81 of the Environment, 1997, p.7).

From these analytical perspectives, the potential of environmental education is founded, as an essential way for society to respond to the main challenges posed by the 2030 Agenda and its SDGs, as:

The transversality that environmental education offers makes it possible to cover all these challenges from a single space with dynamics that make us think and reflect on inequality in different

parts of the world, our responsibility to them and the need to take measures that make us develop together and better. Environmental education seeks nothing more than awareness of our actions so that something as simple as using a reusable cloth bag is the first step to end poverty. Because that is the basis of environmental education and the SDGs, everything is related and if we want a sustainable world, with all that that implies: equality, sustainable development, end of hunger and poverty, we must fight to achieve it in everyone of the aspects of our life (Pedraza, 2018, p.1).

The main research of the CEMARNA is the Environmental Education Community, which represents the shaft, through which activities and research postgraduate develop an integrated manner. This justifies that it is SDG 4 "Quality Education" to which it contributes the most from these processes, followed by SDG 11 "Sustainable Cities and Communities" and SDG 15 "Life of terrestrial Ecosystems"; to a lesser extent, SDG 6 "Clean Water and Sanitation", SDG 13 "Climate Action" and SDG 3 "Health and Well-being".

Although actions directed toward the OBJECTIVE 6 "Water clean and sanitation" were not the most representative it is recognized the potential from environmental education to pay tribute to the finish line 6.3: "By 2030, improve the quality of water by reducing the contamination, eliminating dumping and minimizing the emission of chemical products and



hazardous materials, reducing by half the percentage of untreated wastewater and considerably increasing recycling and reuse without risk worldwide" (CEPAL, 2016, p.19).

Actions aimed at the OBJECTIVE 7 "affordable and clean energy" also proved insufficient, despite considering this goal as essential to achieving the sustainable development, because "... the energy is central to almost all major challenges and opportunities those facing the world today, both for jobs, security, food production, increased incomes and as a priority in the current context, associated with tackling climate change" (ECLAC, 2016, p.21).

From the Study Center and during the period evaluated, contributions to SDG 13 "Action for climate" were insufficient, despite the importance they represent to the effects of the environmental dimension of the SDGs ; however, progress is being made through the approval of a new project entitled "Participatory environmental education strategy for the mitigation, adaptation and solution of environmental impacts in the face of climate change in communities of Pinar del Río, Cuba", and in which project there are inserted most of the investigations of the 5th - edition of the Masters in Environmental Management.

On the other hand, the courses that contributed to this objective have been taught by the Center for Studies in Municipal University Centers (CUM), with the aim of promoting the implementation of more effective mitigation and adaptation actions from environmental education in the framework of the Life Task, Cuban State Plan to confront climate change.

Beyond the training and research processes carried out by the Study Center, through which it has gradually contributed to the incorporation of the

SDGs, it is necessary to promote awareness-raising and permanent training activities in all of the objectives, from a sustainability vision , as the central axis of the contributions of the Study Center to this process, which implies the integrated analysis of the three dimensions : natural, social and economic , in each of these or objectives: " The Sustainability is a paradigm for thinking about a future in which environmental, social and economic considerations are balanced in the search for development and a better quality of life. These three spheres - society, the environment and the economy - are intertwined (United Nations Educational, Scientific and Cultural Organization, (UNESCO), 2012, p.1).

Consequently, the themes prioritized from the postgraduate and research activity of the Study Center respond to this vision of sustainability that UNESCO is founded on.

On the other hand, for such purposes, it is necessary to strengthen alliances between the Study Center and the various sectors of society, in the implementation, monitoring and evaluation of the 2030 Agenda, as well as promoting online courses. "Online education is crucial to provide permanent training aimed at various audiences on the 2030 Agenda. In this sense, the design of courses and workshops in this regard is essential" (Sánchez Gutiérrez, 2018, p.43).

The study carried out evidenced the main contributions made by the Center for Environmental and Natural Resources Studies (CEMARNA), of the Pinar del Río University "Hermanos Saíz Montes de Oca", Cuba, in the process of implementing the SDGs, since postgraduate and research activity.

It is suggested to strength partnerships between universities and the various sectors of society and to promote the

realization of awareness and ongoing training.

[ws/legislation/cuba/cuba\\_81-97.pdf](http://www.mendive.upr.edu.cu/legislation/cuba/cuba_81-97.pdf)

The SDGs are the main aspirations for the development of environmental education as an essential instrument of society to respond to them.

Millán Sanchez Grande, C. & Pérez Escalona, Y. (2018). Retos, aportes y propuestas de las Universidades Públicas Valencianas para la incorporación de la Agenda 2030 y los ODS a través de sus herramientas, mecanismos y procesos. UMH: España. Recuperado a partir de <http://cooperacion.umh.es/files/2018/06/Articulo-3.-Retos2c-aportes-y-propuestas-de-las-Universidades-Pu%CC%81blicas-Valencianas-para-la-incorporacio%CC%81n-de-la-Agenda-2030-y-los-ODS.pdf>

It is required to advance, from the Center of Studies, in the analysis and contribution to the 17 ODS from the perspective of sustainability, so as to favor the integrated analysis of the three dimensions: natural, social and economic in its implementation.

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#### **Conflict of interest:**

Authors declare not to have any conflict of interest.

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#### **Authors' Contribution:**

Authors participated in the writing process of this article and in the analysis of documents.



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