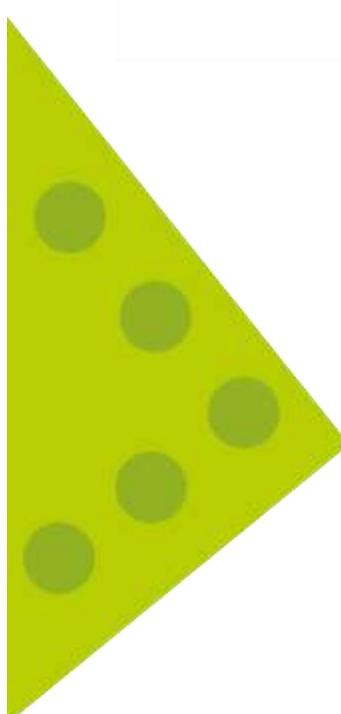




**EDUCATION FOR SUSTAINABLE DEVELOPMENT AS
KEY ELEMENT OF QUALITY EDUCATION IN THE
INSTITUTIONS OF HIGHER EDUCATION, FACILITATOR OF
SUSTAINABLE DEVELOPMENT: ACADEMIC PATH FOR
SUSTAINABLE DEVELOPMENT AT SIMÓN BOLÍVAR UNIVERSITY
(COLOMBIA)**

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INTRODUCTION

Currently, according to UNESCO data, the world population is over 7,000 million people, and is expected to reach 8,500 million in 2030, 9.7 billion in 2050 and 11.2 billion in 2100. Planet earth has a limited number of natural resources, so it is a priority that we, as individuals and societies, learn to live sustainably. We have the responsibility to take part in it, being aware that our actions today will impact the lives of future generations somehow.

In this context, one of the main facilitating strategies of development is the Education for Sustainable Development, ESD, which has a growing international recognition as an integrating element and key to quality education.

UNESCO aims to improve access to education on the quality of sustainable development at all levels and in all social contexts, to transform society by reorienting education and helping people to develop the necessary knowledge, skills, values and behaviors for sustainable development. It involves sustainable development issues, such as climate change and biodiversity, in teaching and learning. With ESD individuals are encouraged to be responsible to face or solve any challenge, respect cultural diversity and contribute to create a more sustainable world.

“ESD empowers people to change the way they think and work towards a sustainable future ”

The Ministry of National Education in Colombia recognizes the need to implement strategies for the generation of competencies in students for sustainable development, through ESD. An example of this is the joint cooperation agreement between the Ministry of Education of Colombia and the French Ministry of Education and Youth, September 2019, in which one of the main points consist of the implementation of ESD, both in the contents and in the citizen practices, and the management of the educational institutions.

For those reasons, Educational Institutions and specifically Higher Education Institutions are major actors in the comprehensive training of individuals who generate value and contribute to a permanent improvement of society. It is an urgent task to define in their educational projects a strong bond and commitment to ESD, and implement content, learning environments and pedagogical practices for its operationalization.

As a guiding element for the implementation of ESD in Institutions of Education, UNESCO suggests the dimensions that are shown next:

EDS dimensions

Learning content: Integrate essential questions in the curricula such as climate change, reduction of the risk of disasters and consumption and sustainable production.

Pedagogy and Learning Environments: Conceiving Teaching and Learning in an interactive, student-centered way that enables exploratory, transformative, and action-oriented learning. Rethink learning environments, both physical and virtual, to encourage the students desire to act in favor of sustainability.

Social transformation: Empower students of any age, in any educational environment, to transform themselves and the society they are part of.

- Enable a transition to greener economies and societies.
 - Provide students with skills for green jobs.
 - Motivate people to adopt sustainable lifestyles.
- Empowering people to be citizens of the world who participate and take active roles, locally and globally, so they face and solve global problems and contribute to creating a more just, peaceful, tolerant, inclusive, safe and sustainable world.

ESD AT THE SIMÓN BOLÍVAR UNIVERSITY, ACADEMIC PLAN FOR SUSTAINABLE DEVELOPMENT

The Simón Bolívar University arises as an initiative of a group of academics led by the social scientist, journalist, writer and teacher José Consuegra Higgins, for whom the great events that contribute to the social, cultural, economic and environmental development are produced in the university; In this sense, one of the principles of the institution is the formation of an ethical, cultured, supportive and autonomous being for a just, democratic, supportive and sustainable society. This principle has been maintained throughout its existence and greatly influences the fulfillment of its mission.

In the process of updating the Institutional Educational Project, PEI, carried out in 2019, the University reaffirmed its commitment to sustainable development. In this same year, it joined the United Nations Global Compact, with a great commitment to its principles and institutional values and to contributing to the Sustainable Development Goals, SDG. He also adhered to PRME, Principles for Responsible Education in Management, which is the first organization between the United Nations and management-related academic institutions, business schools and universities.

PRME provides a global network to academic institutions to promote sustainability and corporate social responsibility, and a framework of commitment for the incorporation of universal values in programs and research.

To materialize the commitment to sustainable development reaffirmed in the PEI, the Strategic Institutional Development Plan was aligned with the Sustainable Development Goals of the 2030 Agenda, which also constitute a framework for action of the University's Social Responsibility System.

In this exercise, it was considered pertinent and important to carry out a materiality analysis. Materiality is the result of knowing the important issues (topics) of an organization, which have a high influence on the development of its economic activity. To understand the materiality, it is necessary to identify the expectations of the organization and its internal and external stakeholders or parties concerned.

The construction of the materiality matrix of the Simón Bolívar University was carried out in three steps: identification of stakeholder expectations, identification of University priorities and final construction of the materiality matrix.

1. Identification of stakeholder expectations. The main expectations of the seven defined interest groups were identified through channels such as semi-structured interviews, virtual surveys, focus groups and review of secondary information. Thus, the following approach mechanisms were established to learn about the relevant material issues:

Table 1. Approach mechanisms for the identification of material issues.

Group	Mechanism
Teachers	a. virtual survey (128 answers). b. virtual interview with teachers' representative.
Graduates	a. virtual survey (68 answers) b. virtual interview with graduates' representative.
Students	a. virtual survey (6335 answers) b. virtual interview with students' representative.
Ministry of Education	a. interview with the representative of the university (Principal).
Business sector	a. focus group with university representatives who are related with the business sector. b. Review of studies of statistical results of business companies.
Administrative collaborators	a. virtual survey (148 answers) b. virtual meeting with the human resources office.
General Room (maximum governing body), Rector and Vice-rectories	a. virtual survey (3 answers)

- 2. Identification of the priorities of the University.** In order to know the 'internal materiality' or the expectations of the Simón Bolívar University, a semi-structured interview was conducted with the rector and vice-rectors, independently.
- 3. Final construction of the materiality matrix.** With the results of internal materiality and external materiality (seven prioritize stakeholders), the materiality matrix was built and the relevant issues of the Simón Bolívar University were defined.

Graph 1. Materiality Matrix of the Simón Bolívar University



Table 2. List of identified relevant issues.

No.	Issues
1	Research, scientific production and generation of knowledge
2	Academic Offer
3	Quality and academic excellence
4	Teacher training and qualification
5	Employment practices
6	Employability to the academic community
7	Internationalization of the University
8	Social impact in the community (Inclusion of vulnerable population)
9	Economic and financial sustainability
10	Sustainable development
11	Education for sustainable development
12	Heritage and culture
13	Entrepreneurship support
14	Accreditation processes
15	Bilinguism
16	Reputation

No.	Issues
17	Ethics and transparency
18	Compliance with legislation
19	Incentives and wellness
20	Virtuality
21	Academic dropout
22	Strategic alliances
23	University life and well-being project
24	Organizational climate
25	Sustainable sourcing
26	Gender approach
27	Information security
28	Human Rights
29	Generational handover
30	Intellectual property
31	Energy
32	Water
33	Waste management
34	Health and safety at work

For prioritization, grades from one to five were defined, as follows: 1. Irrelevant, 2. Low relevance, 3. Important, 4. Very important, 5. Priority. The matrix represented in a Cartesian plane indicates in the component of the 'x' axis the results of the internal materiality, and the results of the external materiality in the 'y' axis. Under this methodology, the points of the Cartesian plane are established, where those that are closest to the point (5,5) are the relevant matters of the organization.

Sustainable development and Education for Sustainable Development were two of the most relevant material topics, located in the upper right quadrant of the materiality matrix.

To respond to the relevant aspect of Education for Sustainable Development, it was decided to implement an academic path for sustainable development, aimed at promoting knowledge, skills, values and behaviors necessary for sustainable development in students, as raised by UNESCO.

The internal analysis was carried out taking into account three fundamental aspects: 1. The opinion of the students about the topics of their interest regarding sustainable development, 2. The opinion of the teachers about the pertinent topics regarding sustainable development, 3. Institutional strengths, capacities and weaknesses to address Education for Sustainable Development.

Regarding the opinion of the students about the topics of their interest regarding sustainable development, a consultation instrument was designed and applied, the results are presented in the following table.

Table 3. Results of the survey applied to students.

Items	Number of answers
Business environmental management (actions and decisions of a company on its impacts on the environment).	860
Corporate social management (commitments and actions of a company for the welfare of the community).	711
Circular economy (new trends that generate change in production and consumption systems).	474
Human Rights and organizations (protection of human rights from the business environment).	1.251
Sustainability in the health sector (application of the sustainability with health sector organizations).	702
Sustainable entrepreneurship transformative (ideas and business to generate positive impacts).	1.810
Sustainable purchasing and supply (analysis of the sustainability in supply chains).	151
ICTs and technology for development (the role of ICTs in the sustainability).	667
Research and social innovation for sustainability (new practices and innovative solutions to social problems)	975
Diversity and gender equity (models of diversity and inclusion applied to organizations).	800
Ethics and anti-corruption (anti-corruption mechanisms).	1.597
Total	9.998

The external analysis was oriented to know the state of the art regarding Education for Sustainable Development in Higher Education Institutions at the national and international level; a search and analysis was carried out for this purpose. It took into account: the levels and types of training (undergraduate programs, specializations, masters and doctorates), the academic unit to which they are attached in the Higher Education Institutions and the study modalities (face-to-face, virtual, distance, and blended).

The information on Higher Education Institutions in which relevant progress was found regarding the issue of Education for Sustainable Development is presented below.

Table 4. Higher Education Institutions of national origin.

No.	Name of the Institution of Higher Education
1	Universidad Externado de Colombia
2	Pontificia Universidad Javeriana
3	Universidad EAN
4	Universidad Del Norte
5	Universidad Pontificia Bolivariana
6	Universidad de Manizales
7	Universidad de los Andes
8	Universidad de Antioquia
9	Universidad Católica Luis Amigo
10	Universidad de Medellín
11	Universidad Simón Bolívar

Table 5. International Higher Education Institutions consulted.

No.	Name of the Institution of Higher Education	Country of origin
1	Red de Universidades Anáhuac	Mexico
2	Universidad Autónoma de Barcelona	Spain
3	Conscious Management Institute - CMI Business School	Spain
4	Universidad Castilla La Mancha	Spain
5	University of Cambridge	Spain

Regarding academic programs, it was found mostly majors and master's degrees as shown in the following table. 25 programs were identified, 17 national and 8 international.

Table 6. Academic programs associated with the theme of sustainable development in Higher Education Institutions of national origin.

No.	Academic program
1	Master in Social Responsibility and Sustainability
2	Master in Management of Social Responsibility and Sustainability Business
3	Master in Sustainable Development Projects
4	Specialization in Environmental Management
5	Master in Sustainability
6	Master in Sustainable Development and Environment – Virtual
7	PhD in Sustainable Development
8	Specialization in Organizations, Social Responsibility and Development
9	Specialization in Corporate Social Responsibility
10	Specialization in Management of Corporate Social Responsibility
11	Certification course in Social Responsibility and Business Sustainability
12	Specialization in Corporate Social Responsibility
13	Specialization in Social Management
14	Bachelor of Industrial Engineering
15	Specialization in Sustainability of Museums and Cultural Institutions
16	Bachelor of Business Administration
17	Course in Design and implementation of a sustainable management program - Social Responsibility

Table 7. Academic programs associated with the theme of sustainable development in Higher Education Institutions of international origin.

No.	Academic program	Country of origin
1	Doctorate in Innovation and Social Responsibility	Mexico
2	Master in Social Responsibility - Virtual and Face-to-face	Mexico
3	Official Master's Degree in Interdisciplinary Studies in Environmental, Economic and Social Sustainability	Spain
4	MBA Responsable	Spain
5	Master in Corporate Social Responsibility and Sustainability	Spain
6	Master in Environmental Sustainability in Local and Territorial development.	Spain
7	Master of Studies in Sustainability Leadership	England
8	Postgraduate Diploma in Sustainable Business	England



Taking into account the information of each higher education institution and its programs related to sustainable development, the following table shows the consolidation of the most common and differentiating themes.

Table 8. Consolidated of the subjects / courses related to sustainable development.

Subjects/Courses	
More common	Differentiators
<ul style="list-style-type: none"> ▶ Standards and auditing of CSR. ▶ Business ethics and sustainability. ▶ Markets, consumption, production and sustainability. ▶ Global standards and instruments for the measurement of CSR. ▶ Sustainable development 	<ul style="list-style-type: none"> ▶ Sustainable business and green management. ▶ Social innovation.
<ul style="list-style-type: none"> ▶ Communication, diffusion and image. ▶ Corporate social responsibility. ▶ Sustainable production and consumption. ▶ Conscious leadership and related skills 	<ul style="list-style-type: none"> ▶ Big data and Industry 4.0 ▶ Responsible entrepreneurship. ▶ Sustainable design and technology.

In total, 14 faculties that offer programs related to Sustainability and / or Corporate Social Responsibility were found, these are: business and business administration, economic and administrative sciences and engineering.

On the one hand, essential topics in Colombia for the development of courses in Sustainability and Corporate Social Responsibility are related to Global Standards and instruments for measuring CSR, Business Ethics and sustainability and sustainable development. While at the international level there is Communication, dissemination and image, and Conscious Leadership and related skills.

On the other hand, topics related to sustainable business and green management and social innovation, at the national level, and Big data and Industry 4.0, responsible entrepreneurship and sustainable design and technology, at the international level, are courses that can generate added value compared to the current offer.

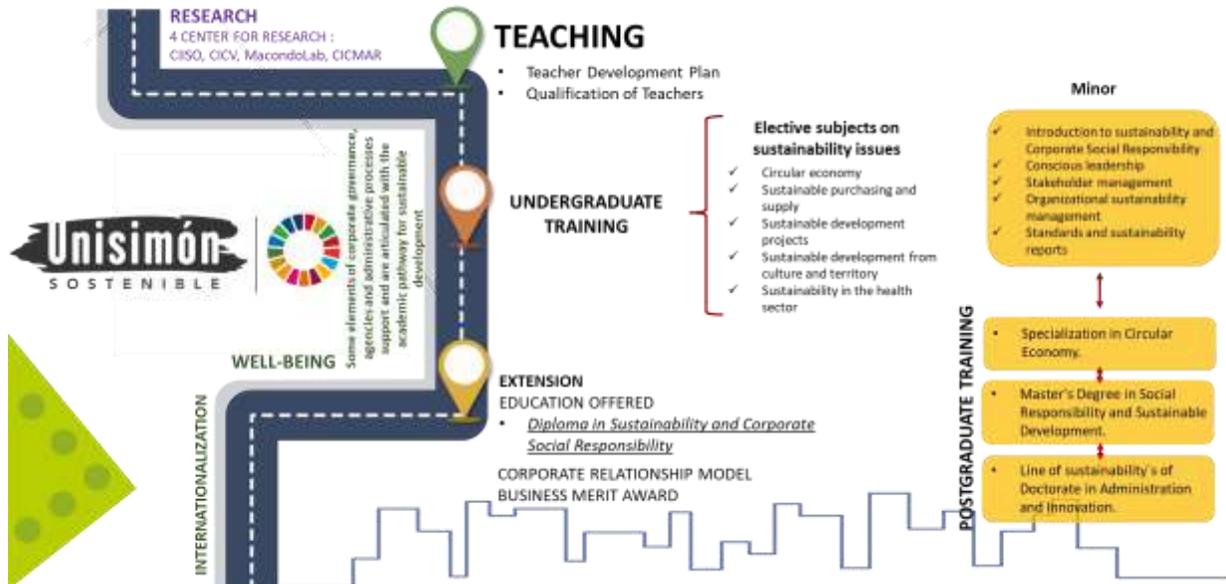
ACADEMIC PATH FOR SUSTAINABLE DEVELOPMENT

Once this information was analyzed, which was triangulated with the results of the survey applied to the students, the analysis of institutional capacities, the opinion of external experts hired and the opinion of the professors involved, we proceeded with

the design of the academic route for sustainable development at the Simón Bolívar University supported by the Global Pact Red Colombia and the expert firm on sustainability issues ARCO M&D, in order to guarantee relevant and priority content.

The academic path is described below.

Figure 1. Academic path for sustainable development Universidad Simón Bolívar



Plan, in the chapter associated with permanent, pedagogical and disciplinary training, specific objectives and goals are proposed at two levels:

- A first level aimed at qualifying a group of full-time professors who will be dedicated to running the specific courses in sustainability that are part of the academic path.
- The second level is aimed at ensuring that the professors of all the courses of the institutional curriculum (to which it applies) develop their contents with a sustainability approach.

The academic path for sustainable development is implemented in the different levels of education offered by the University, undergraduate, graduate studies and continuing education.

Currently, each of the undergraduate and graduate programs has specific and compulsory courses associated with sustainable development, but expectations are related to strengthening the skills of students in this area.

Undergraduate

For the undergraduate level, a minor has been designed, as a degree option, and five (5) elective courses, in the process of virtualization, to be offered to all students as of the second semester of 2021.

The Minor in Sustainable Development contains five courses:

- **Introduction to sustainability and Corporate Social Responsibility**

The purpose of this course is to acquire general and practical knowledge about Corporate Social Responsibility and Sustainability as a fundamental axis for the development of organizations, from a historical context and the needs identified on the global scene.

- **Conscious leadership**

This course seeks to provide the student with tools and skills for organizational management articulated with Sustainability and CSR, taking into account materiality as a key concept in strategic development.

- **Stakeholder management**

Identify and apply strategic relationship tools with stakeholders to identify their role, needs and demands within the value chain.

Generate in students a complete vision of organizations to learn to manage problems related to their reputation, license to operate, non-conformities and attention to responses. With the purpose of implementing a strategy that encompasses stakeholder relationship problems, generating trust and value for all parties involved.

- **Organizational sustainability management.**

Its objective is to understand which are the tools for diagnosis, management, implementation and evaluation of sustainability seen from the perspective of organizations.

- **Standards and sustainability reports.**

Know the reporting standards and methodologies, learn how to create a sustainability report and apply organizational performance communication mechanisms. This is complemented by what is defined in the Sustainable Development Goals regarding the aspirations for the year 2030, seeking the mobilization of organizations around a set of common objectives and goals.



We also have five more specific elective subjects on sustainability issues, designed and in the virtualization process, to be offered to all undergraduate students from the first semester of 2022. These subjects are:

- **Circular economy**

This subject has the same objective as it has in the minor.

- **Compras y proveeduría sostenible**

Its objective is to provide the student with elements and tools that strengthen the integral vision with sustainability criteria on the value chain and the life cycle of a service or product to identify implementation opportunities and increase the productivity and competitiveness of the organization and the actors integrated into the supply chains.

- **Sustainable development projects**

This course seeks to integrate the analysis of the triple account of sustainability in project management, recognizing the different tools for formulation, execution and evaluation that allow the development of projects economically viable, environmentally sustainable and socially responsible, for both public and private organizations. The purpose of the course is to identify the logical framework for structuring a project, adding the component of sustainability that starts from the social innovation approach as a generator of impact and as a differentiator from a traditional project.

- **Sustainable development from culture and territory**

Generate in students a critical thinking and analysis on concepts of territory, culture and sustainable development in which they are articulated to contribute to the fulfillment of the Sustainable Development Goals (SDG).

- **Sustainability in the health sector**

The objective of this course is to develop competencies that allow proposing strategies and solutions based on the context of the relationship between health and sustainability, as the axis of social, political, environmental, economic and governance development.

Postgraduate

For postgraduate training, the Minor in Sustainable Development is articulated to a Specialization in Circular Economy, in the process of design. This specialization is articulated with a Master in Social Responsibility and Sustainability, also in the design process, which is expected to be offered in the first half of 2022. The master's



degree is articulated with the existing Doctorate in Administration and Innovation, in the line of sustainability.

The Specialization in Circular Economy has the following purposes:

1. Offer tools to implement strategies that help preserve materials, products and resources within the framework of the circular economy, as well as present management systems for the efficient use of materials, products and resources that contribute to sustainable development.
2. Demonstrate how through the circular economy, entrepreneurship and innovation, companies can create value through the reuse and recycling of products in order to contribute to sustainability.
3. Disclose the methodologies and tools corresponding to the calculation of the environmental impact associated with products, resources and / or processes.

This academic path is supported and articulated with the substantive functions of research and social projection, in a two-way feedback process.

The Master in Social Responsibility and Sustainability is aimed at teaching a solid socio-humanistic training, to generate in students the ability to design, undertake and apply social responsibility processes, through the use and knowledge of practical tools for the development of sustainable management systems in organizations.

Continuing education

In order to provide a qualification offer to any kind of public, for the generation of skills for sustainable development, a Diploma course in Sustainable Development has been designed based on the minor offered to regular students, articulating it to the Specialization in Circular Economy and to the entire postgraduate training route mentioned above.

This diploma course aims to expose the different concepts and postulates of sustainability and Corporate Social Responsibility, addressing fundamental elements for understanding such as stakeholders, materiality, Sustainable Development Goals, reporting standards, among others. In addition, the vision of conscious leadership is included as a differentiating factor to leave conventional



organizational practices behind and, that environmental, social, economic and governance criteria will be taken into consideration within the business strategy corporate,

so that they may meet the need for change required by the planet and the market demands in terms of sustainability.

On the other hand, the proposed approach seeks that the contents are applicable in a practical way by professionals who want to take this diploma and who seek to apply sustainability in their organizations, without leaving aside the conceptual and academic part that must be considered for a deep understanding of sustainability.

Research support to the academic path for sustainable development

The vice-chancellorship for Research and Innovation has four research centers from which research projects and processes directly related to sustainable development are approached that support the academic plan.

Center for Research and Social Innovation - CIISO

It is the response of the Simón Bolívar University to the challenge represented by the generation of knowledge for social innovation.

Life Sciences Research Center - CICV

It contributes to the generation of sustainable development through research, technological development and interdisciplinary innovation processes in the Life Sciences, for the achievement of social, economic and environmental solutions to the challenges faced by humanity.

Business Growth Center - MacondoLab

It is a technological development center that is supported by two fundamental pillars: innovation and technological convergence. Processes that, in a coordinated manner with different actors in the socio-economic environment, contribute 17 to social, political, cultural and economic development, not only at the local level but also at the national level and with an international perspective.



Caribbean Marine and Limnological Research Center - CICMAR

The Caribbean Marine and Limnological Research Center –CICMAR– is an inter-institutional effort between the Simón Bolívar University, Atlántico University, De la Costa University and the ARC Barranquilla Naval School of NCOs to form an academic and scientific unit for the comprehensive study of the ecosystem of the Caribbean Region. Maritime and coastal spaces are defined as the domain of action of CICMAR, including the coastlines of the continental portion, deltas and mouths of rivers, islands, islets, keys, shallows, banks and the continental shelf of the Greater Caribbean.

Support of the function of extension and social projection to the academic path.

The Extension department has a corporate relationship model, implemented to positively impact economic and social development, the purpose of which is to continue creating an environment of trust between UNIVERSITY - COMPANY - STATE - SOCIETY to contribute to development of the 2030 Agenda of the Sustainable Development Goals. It also has the Business Merit Award, which is the highest recognition that is awarded annually to companies and entrepreneurs in the national territory, aimed at those who with their business trajectory have proven to be models for today's young entrepreneurs. Through these strategies SDG 17 is directly addressed, alliances for the SDGs.

Likewise, outreach and social projection activities that are carried out from the faculties and academic programs support and articulate the academic path.

Support from the institutional government and administrative functions to the academic path.

Some elements of corporate governance, agencies and administrative processes support and that are articulated with the academic path for sustainable development, such as:

The planning department, which is in charge of promoting university social responsibility in all the processes that are part of the management system.

The Financial Vice-rectory that supports social responsibility and sustainable development activities with the contribution of economic resources to the budget.



The Office of Physical Infrastructure that maintains and supports the adaptation of spaces and environments for the development of academic activities.

The Integrated Management Policy: Quality; environmental management, occupational health and safety and risks.

The Social Responsibility System.

The quality management system.

The Zero Waste Management System.

The area of labor welfare.

The environmental management area.

The area of occupational health and safety management.

The risk management area.

There are many challenges that must be assumed at the institutional level to meet the objectives and measure the impact of this academic path for sustainable development, however the Simón Bolívar University will continue to promote this initiative with its resources and capabilities, to support training comprehensive, the generation of competencies, skills and behaviors in individuals, for a sustainable world.

This initiative will be made available to Higher Education Institutions, with which it works in a network, and with the entities of the sector that consider it pertinent, to encourage more actors to join this important and urgent purpose.

Challenges

This route does not end here, we continue working on challenges that still exist: Consolidate Education for Sustainable Development as a hallmark in the comprehensive training of students, achieve replication of this experience in other Education Institutions, nationally and internationally ; articulate the academic plan for sustainable development with the previous levels of education and continue taking advantage of the University-Company-State-Society alliances, to promote the development of the Academic Route for Sustainable Development.