

باب أبحاث العلوم الاجتماعية باللغة الانكليزية:

ENVIRONMENTAL EDUCATION AND EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR MEETING SELECTED SDGS

التعليم البيئي والتعليم من أجل التنمية المستدامة لتلبية بعض أهداف
التنمية المستدامة



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ملخص:

يحاول هذا المقال التعليق على التقدم المحرز منذ عام 2015 نحو تحقيق أهداف مختارة من أهداف التنمية المستدامة (SDGs) كما وردت في تقرير الأمين العام للأمم المتحدة لدورة عام 2024.

ويبين المقال الحاجة إلى التعليم البيئي ويتساءل عن مدى كفاءة التحرك نحو التعليم من أجل التنمية المستدامة. ويتناول أيضاً توصيات مختلفة مع رؤية عملية فيما يتعلق بالشراكة العالمية.

كلمات مفتاحية: التعليم، التعليم من أجل التنمية المستدامة، التعليم البيئي، النظم الاجتماعية-البيئية، عدم الاستدامة، المجتمع البشري، الموارد الطبيعية، الشراكة العالمية، جدول أعمال 2030، أهداف التنمية المستدامة.

Abstract

This article attempts to comment on the progress made since 2015 towards selected Sustainable Development Goals (SDGs) as presented by the report of the UN Secretary-general session 2024.

The article shows the need for environmental education (EE) and questions the efficiency of moving towards education for sustainable development (ESD). It addresses also various recommendations with practical insight regarding global partnership.

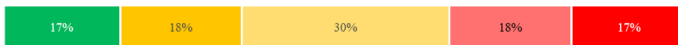
Keywords: Education, Education for Sustainable Development, Environmental Education, Social-Ecological Systems, Unsustainability, Human Society, Natural Resources, Global Partnership, Agenda 2030, Sustainable Development Goals.

1. INTRODUCTION

Since the 20th century and specifically with the Earth summit in Rio de Janeiro, Brazil, in June 1992, many countries have adopted comprehensive plans of action to build a global partnership for “sustainable development to improve human lives and protect the environment” (United Nations Department of Economic and Social Affairs, 2024).

Every year, and in line with this commitment, the UN secretary General presents an annual Report describing the implementation progress based on National Statistical data. The most recent SDG progress report reveals alarming findings. As illustrated in Fig.1, only 17% of the SDGs targets are on track to be achieved, 18% shows stagnation, and 17% have regressed (Progress towards the Sustainable Development Goals, 2024).

Figure 1: Overall progress assessment across targets with trend data, 2024 or the latest data

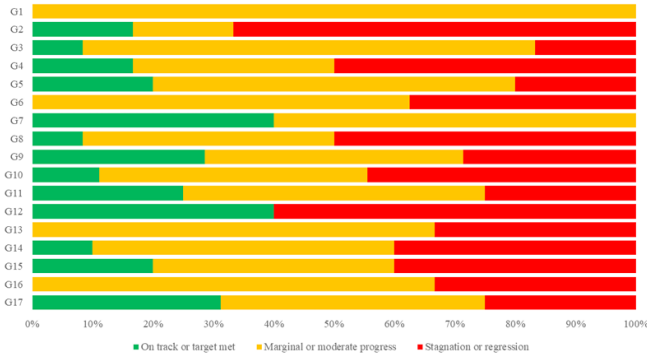


Source: Progress towards the Sustainable Development Goals, 2024, Page 4/26.

This overall progress assessment implies that around 65% of the targets need to be put on track with more efforts and serious follow-up. This reality is elaborated with more details based on the global indicator framework and data produced by national statistical systems and information collected at the regional level and developed by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators adopted by

the General Assembly on 6 July 2017. With respect to the background, the 2024 report of the Secretary General provides a global overview of progress showcasing in Figure 2¹ the progress assessment for the 17 SDGs.

Figure 2: Progress assessment for the 17 Goals based on assessed targets with trend data, by Goal, 2024 or the latest data



Source: Progress towards the Sustainable Development Goals, 2024, Page 4/26.

During the last decade, and in parallel to the 2030 Agenda, there was a global expanding level of interest regarding environmental education (EE) and education for sustainable development (ESD). EE proved to be necessary for enhancing awareness towards the urge of environmental preservation and quality of life improvement. It helps forming change in attitude in favor of a balance between individuals and their environment (Severiche-Sierra, 2016).

Many studies have sought to analyze the contexts in which EE takes place and the strategies implemented to attain it.

(1) Source: Progress towards the Sustainable Development Goals, 2024, Page 4/26.

For instance, EE and ESD are efficiently undertaken in group activities where learners reflect on the “importance of taking care of the planet, develop useful critical thinking and social skills” (Martinez Lirola, 2018) as well as collaborative team activity, during coastal EE actions in Brazil (Santos, 2018) Some researchers assert that EE programming impacts people’s attitudes and values with respect to the natural world (Gould, 2018). In some other research papers conducted in Vietnam, EE practice is described within workshops that focus on solid waste management and its effect concerning ecological ESD (Thao, 2016).

In this concern, the Arab Forum for Environment and Development (AFED) has launched a report based on a survey of environmental contents in school and university curricula across the Arab countries (AFED, 2019).

In figure 2, the 3 levels of progress are illustrated, and **the report specifies a detailed analysis opening an opportunity for discussion.**

It is true that the 17 goals form a homogeneous entity, however 8 goals revolve around environment and sustainability; Goals # 6, 7, 11, 12, 13, 14, 15, and 17.

And since it is through knowledge and education that the product of ignorance is addressed (ISB2 Environmental Education and Education for Sustainable Development, 2015), and because achieving the 4th goal is done through ensuring inclusive and equitable quality education and promoting lifelong learning

opportunities for all (United Nations Department of Economic and Social Affairs, 2024) there is a need to emphasize the role of Environment Education and Education for Sustainable Development in assessing the implementation progress of Goals# 6, 7, 11, 12, 13, 14, 15, and 17 in light of goal # 4 which represents the heart of the 2030 Agenda.

So, this article attempts to explore the role of EE and ESD in implementing the selected SDGs. Thus, the questions remain; to what extent can integrating sustainability principles across academic subjects enable learners to grasp the complexity of environmental challenges and the interconnectedness of environmental, social, and economic systems? What are the causes of stagnation and recession? What factors can enhance progress? What is the role of Education in this process?

It will try to prove the validity of the following hypotheses:

Assessing the progress of the selected SDGs depend on the implementation of EE and ESD.

EE and ESD could put the assigned targets of the selected SDGs on track.

Therefore we will abide by the following methodology.

2. METHODOLOGY

In order to answer the problematic questions, an exploratory research was conducted with the aim of studying in depth the progress of the SDGs. Therefore, the data was collected from preexisting primary research conducted and published in 2024 by

the United Nations as an annual report.

In this exploratory process, a qualitative method was applied seeking to produce real-world knowledge about the role of EE and ESD in implementing the selected SDGs.

This exploratory methodology opens the door to interpretation and reflection therefore it was important to select the most recent report that analyses the progress of the SDGs since 2015.

However, and in order to be more concise about sustainable development, a selected group of SDGs formed the basis of this research: out of the 17 SDGs pertaining to the 2030 agenda, goals # 6, 7, 11, 12, 13, 14, 15, and 17 were selected¹.

(1) According to the resource pdf document posted on the official website (UN, 2020)

Goal 6. Calls to Ensure availability and sustainable management of water and sanitation for all, it specifically seek to achieve by 2030: access to safety and affordability drinking water, sanitation and hygiene, reducing pollution, increasing water-use efficiency, and improving water and sanitation management.

Goal 7. Calls to Ensure access to affordable, reliable, sustainable and modern energy for all. It seeks to ensure by 2030, a universal access to affordable, reliable and modern energy services enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.

Goal 11. Calls to Make cities and human settlements inclusive, safe, resilient and sustainable. By 2030, it is expected to ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

Goal 12. Is about calling to Ensure sustainable consumption and production patterns by Implementing the 10-Year Framework of Programs on Sustainable Consumption and Production Patterns, where all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries. accordance with national policies and priorities.

Goal 13. This goal urges to Take action to combat climate change and its impacts. Its main target is to Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

Goal 14. To Conserve and sustainably use the oceans, seas and marine resources for sustainable development. This goal has specific targets that seek to prevent

The published report under exploration has elaborated the progress of all related targets without directly connecting them to the EE and ESD which served my inquiry and helped me proceed freely in terms of space and time. This process may lack conclusive results however it followed the content analysis technique in discussing the selected goals, countries, achievements and or limitations.

Figures 1 and 2 as retrieved from the 2024 report were the leading indicators for this article:

The weak progress in achieving the assigned targets facilitated my task and served as a starting point to see if EE and ESD were implemented and how efficient it was if any. But when assigned targets were on track to be met, the search for strengths and opportunities was the turning point for understanding the role of EE and ESD.

and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution. By 2030, it is expected to increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

Goal 15. To Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. By 2030, it is expected to combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation neutral world.

Goal 17. To Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development Finance. Precisely to Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection. Moreover, to Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favorable terms, including on concessional and preferential terms, as mutually agreed.

All this qualitative analysis was backed up by an extensive literature review that encompasses real world agreements, models, and scholarly sources regarding Education, Education for Sustainable Development, Environmental Education, Social–Ecological Systems, Unsustainability, Human Society, Natural Resources, Global Partnership, Agenda 2030, Sustainable Development Goals with all relevant theories and perspectives.

3. LITERATURE REVIEW

In order to provide an overview of current knowledge, the literature review will be divided into three sections: Environmental Education, Sustainable Development, and Education for Sustainable Development.

3.1 Environmental Education

EE in its view to include issues of poverty, inequity, values, and ethics, has been officially recognized since October 14–26, 1977 in the spirit of the Tbilisi Declaration (Kieft, 2010); The world’s first intergovernmental conference on Environmental Education. This conference that was organized by the United Nations Education, Scientific, and Cultural Organization (UNESCO) in cooperation with the U.N. Environment Program (UNEP) and convened in Tbilisi, Georgia (USSR) noted the undisputed accord concerning the “important role of environmental education in the preservation and improvement of the world’s environment, as well as in the sound and balanced development of the world’s communities” (UNESCO, 1977).

Since then, EE was implied to “raise awareness, develop caring and responsible behavior, and produce good students in environmental management”. This target changed the concept of EE into a more practical one with an interdisciplinary approach able to study national or local environmental issues preventing them from becoming international; thus it necessitates cooperation and on international levels (ICENIS, 2021). In this learning process, learners are driven into knowledge, skills, and a caring attitude toward the environment while being engaged into actual environmental events and projects.

It is the academic institutional role to “minimize behaviors that contribute to climate change, environmental degradation, and the use of unnecessary resources through environmental education, as shown by improvements in societal attitudes and behavior” (R. Pebriantika, 2020).

Hence, EE resulted from the worry that human development was having overwhelmingly harmful effects on the natural environment. This concern urged the aim towards protecting and conserving the natural habitats and ecosystem along with the reduction of poverty, the promotion of social justice and the improvement of quality of life for people. EE addresses essential human needs and relates local to international measures (Nevin, 2008).

3.2 Sustainable Development

The concept of sustainable development appeared as a response to a growing concern about human society’s critical

effect on the natural environment. It was determined in 1987 by the Brundtland Commission (formally the World Commission on Environment and Development) and defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987). By this definition, there is an acknowledgement regarding the necessity to improve the quality of life while meeting present and future human needs without exhausting the capacity of the natural environment. As such, the sustainable development movement has evolved and promoted on the basis that sustainability protects both “the interests of future generations and the earth’s capacity to regenerate” (Nevin, 2008). In 2012, SD was identified as one of the five key priorities by the United Nations (UN) Secretary-General Ban Ki-Moon in the UN action agenda, highlighting the key role SD should play in international and national development policies, programs and agenda. SD is related to providing the natural resources and ecosystem services upon which the economy and society depend. Understood as an approach to development SD uses resources in a way that allows their continuous existence and availability for others. Hence, SD safeguards social progress, environmental equilibrium and economic growth (Mensah, 2019)

3.3 Education for Sustainable Development

It is through its ESD program that the UNESCO activates its role to “make education a more central and visible part of the international response to climate change”. For it believes that the

ESD is a lifelong learning process that provides “knowledge, skills, values and agency to address interconnected global challenges including climate change, loss of biodiversity, unsustainable use of resources, and inequality” (UNESCO, 2024).

ESD is considered as an investment made for the future generation to enhance the economic well-being of families and communities so that the educational route is viewed as the cornerstone for economic and industrial development (ICENIS, 2021). ESD’s initial concern is the enhancement of the quality of life for people without damaging the environment (Nevin, 2008). According to the authors of Education for Sustainable Development in Further Education, the ESD is a strategic means utilized at all degrees of education with a community diversity approach. In their book, they pictured the ESD as a “transformative learning approach, an adaptive process that not only equips students with new knowledge but also promotes new ways of thinking” (Summers, 2016).

PROGRESS OF SELECTED SDGs UNDER DISCUSSION

The selected goals along with their targets have witnessed some progress therefore there is a need to discuss each one of them in a different section.

Goal # 6: CLEAN WATER AND SANITATION

According to the 2030 agenda (UNDP, 2024) there are 8 targets related to clean water and sanitation. However, looking at figure 2, none of them is on track neither met. Moreover, 40% shows

regression.

The first target related to this goal is achieving universal and equitable access to safe and affordable drinking water for all. UNDP facts reveal that 844 million people still lack basic drinking water.

The second target is to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations. Unfortunately, 2.3 billion people still lack sanitation (UN, Progress towards the Sustainable Development Goals, 2024).

3rd, it is expected by year 2030, to improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally. To date, 80% of wastewater goes into waterways without adequate treatment.

4th target is about substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

As for target 5, it is about implementing integrated water resources management at all levels.

Regarding target 6.6, to protect and restore water-related ecosystems was meant to be reached by 2020. In response,

and according to the same progress report, the world has lost 70% of its natural wetlands over the last century.

When dealing with target 6.7 that focuses on expanding international cooperation and capacity–building support to developing countries, it is crucial to enhance EE where human development is having detrimental effects on the natural environment.

At this point, it is worthy to note that EE aims at protecting and conserving the environment (Nevin, 2008). EE plays a fundamental role in promoting a sustainable future by preparing individuals with adequate knowledge, practical skills, and attitudes needed to face complex environmental challenges (Lasino, 2023) such as water– and sanitation–related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

Finally, to implement target 6.8 that seeks to support and strengthen the participation of local communities in improving water and sanitation management, EE is essential since it focuses on the relationship between humans and the environment by increasing knowledge and awareness of the environment and the human impact on it (NTF, 2023). Moreover, Education can improve skills and abilities in using natural resources more sustainably as well as improving sanitation thus improving goal # 4 as well.

Goal #7: AFFORDABLE AND CLEAN ENERGY

It is remarkable that countries have acknowledged the importance of ensuring access to affordable, reliable, sustainable and modern energy for all: Based on figure 2, the 5 targets of this goal show no regression but 40% are on track to be met with 60% with moderate progress.

Projections concerning global electricity suggest that 660 million people will still lack this crucial energy by 2030 and 1.8 billion people without access to clean cooking (Progress towards the Sustainable Development Goals, 2024).

In a revolutionary moment for the global energy transition, the 28th Conference of the Parties (COP28) to the United Nations Framework Convention on Climate Change (UNFCCC) in the United Arab Emirates agreed to convert from fossil fuels, triple renewable power capacity to 11 000+ terawatts and double energy efficiency by 2030 (IRENA, 2024).

The initiatives were launched on Dec. 2, 2023 under the Global Decarbonization Accelerator (GDA) program, designed to accelerate the energy transition and reduce global emissions which aligns with the SDG#7 (S&PGlobal, 2024). It is worthy to mention that the World Energy Transitions Outlook brief suggested various ways to enhance international collaboration among which enhancing institutional and human capacities: "Regional and country-specific energy transition roadmaps are required to harness indigenous resources and support local value creation. Efforts should also focus on expanding and training a skilled workforce,

including policy makers, regulators and those involved in permitting processes, across sectors and government ministries” (IRENA, 2024).

At the root of these efforts comes the EE and the ESD since Environmental Education (EE) “trains individuals to preserve ecological balance and understand the link between humanity and environmental protection” (Ramírez Suárez, Acosta–Castellanos, Castro, & Queiruga–Dios, 2023). Thus, the EE function is at the core of training the labor force. Moreover, the Education for Sustainable Development (ESD) “addresses social, cultural, political, and quality of life factors, and promotes the sustainable evolution of the planet” (Ramírez Suárez, Acosta–Castellanos, Castro, & Queiruga–Dios, 2023) and this is what the GDA program has called for.

Energy conservation efforts and the availability of renewable energy sources can be encouraged through education which is the main target of goal #4.

Goal # 11: SUSTAINABLE CITIES AND COMMUNITIES

According to the United Nations (UNDP, 2024) there are 10 targets assigned to make cities and human settlements inclusive, safe, resilient and sustainable. These targets showed a significant improvement since 2015 where figure 2 shows 25% of them are either met on track to be met and 50% in progress keeping 25% stagnant or in regression.

In the published report, gaps between developed and developing

regions exist especially in data about enjoying convenient access to open public spaces however a significant improvement is noted concerning local-level risk governance; local strategies are in line with national ones.

This confirms the hypothesis and highlights the importance of EE and ESD.

The findings from a research conducted about Environmental Education for Sustainable Development based on a Bibliometric Review of Curriculum Design and Pedagogical Approaches advised that the design and implementation of environmental education programs that foster environmental literacy can promote responsible environmental behavior, and empower individuals to address environmental challenges with knowledgeable decision-making (Lasino A. Y., 2023) and local-level risk governance is a typical example of such practice.

As such, Education called by goal #4 can increase community involvement in creating sustainable and disaster resilient cities.

Goal#12: RESPONSIBLE CONSUMPTION AND PRODUCTION

11 targets are assigned to ensure sustainable consumption and production patterns. According to fig.2, 40 % are met or on track, none is in progress but 60% show stagnation or regression. Investigating on these extremes leads us to National policies and strategies where the 2024 report mentions that:

63 member states, out of 191 have reported 516 policy instruments related to sustainable consumption and production.

19% of global food was wasted while 9 out of 193 countries have included Food Waste in their Nationally Determined Contributions.

Public funding for oil, coal, and gas production and consumption have tripled since 2015, hindering the commitment regarding the path and progress towards net-zero transition.

From a different perspective, the establishment of a UN Decade of Education for Sustainable Development (DESD) from 2005 to 2015 has recommended that each member country was encouraged to incorporate ESD into all relevant subjects in their formal educational systems and to develop policies and practices to achieve this (Berry T. H., 2015). Thus, National Curricula need to be updated with EE and ESD in order to reach the assigned targets decreasing Food Waste and increasing responsible production and consumption.

Based on goal #4, Education has the potential to alter production patterns as well as consumer perceptions of sustainably produced goods, thereby reducing waste production.

Goal # 13: CLIMATE ACTION

Five targets were assigned to meet this goal and take urgent action to combat climate change and its impacts. 60% of them show stagnation or recession and 40% are met or on track to be met keeping none of the assigned targets in progress. These results were reported along with a roadmap demanding

immediate action “for drastic reductions in global greenhouse gas emissions in this decade and the achievement of net zero by 2050” (Progress towards the Sustainable Development Goals, 2024).

Moreover, the report mentions a study conducted in 2023 targeting more than 530 grade 9 science and social science subject curricula. This study found that 69% contained no reference to climate change in academic curricula and 66% made no mention of sustainability as a key concept.

However, and based on the same study, three-quarters of countries reported having plans to revise their academic curricula in the following three years in order to emphasize more on climate change and sustainability.

And to be more specific about environmental contents in school and university curricula, we refer to the Arab Forum for Environment and Development (AFED) that launched a report about Environmental Education in Arab Countries based on a survey of environmental contents in school and university curricula across the Arab countries. The survey aimed at identifying gaps and recommending routes to enhance the role of education in advancing environmental protection and implementing the Sustainable Development Goals (SDGs).

The survey’s findings revealed weakness in the domains of environmental law and green economy but noted the following strong points:

57 universities surveyed offer 221 degree programs on environmental topics.

Postgraduate programs are typically research oriented.

Saudi Arabia and Egypt have been found to be the most active in environmental research output.

The most popular environmental topics in Arab schools' textbooks and curricula are Ecosystems, Natural resources, Pollution and Sustainable development.

The report concluded that Arab universities can further accelerate their contribution to sustainability by integrating all the 17 SDGs into their learning and teaching activities, research, and community initiatives. It also recommended the following:

Offering an introductory course on environment and sustainability to all enrolled first year university students.

Significant challenges facing the region such as water scarcity, desertification, drought, marine pollution and dangers of sea-level rise due to climate change, must become a central part of the curricula.

It is worthy to note that despite their state of unrest, Iraq, Lebanon and Syria had taken serious measures over the past years to integrate environment and sustainability into their education systems.

The AFED highlighted the “lack of funding for national and regional initiatives to promote sustainable development topics at

schools and universities. As most initiatives are dependent on international donors, they are largely not sustainable” (AFED, 2019).

To add, UNESCO which is the United Nations leading agency for ESD supports countries to develop, update and expand educational activities that revolve around sustainability issues such as climate change, biodiversity, disaster risk reduction, water, the oceans, sustainable urbanization and sustainable lifestyles through ESD. In addition, Education that focus on climate change is the main core of ESD as it helps people understand and address the effects of the climate crisis, investing in their knowledge, skills, values and attitudes required to act as agents of change. The importance of education and training to address climate change is recognized in all conventions and agreements which all urge governments and stakeholders to educate, empower and be engaged in drawing policies and actions pertaining to climate change. Through its ESD program, UNESCO works to make education a more central and visible part of the international readiness to address climate change. In addition to sharing knowledge, it provides policy guidance and technical support to countries and implements field projects (UNESCO, 2024).

Education (Goal #4) therefore acts as a tool for increasing public awareness of the effects of climate change, as well as adaptation and mitigation efforts, particularly at the local level.

Goal # 14: LIFE BELOW WATER

10 targets were assigned to Conserve and sustainably use the oceans, seas and marine resources for sustainable development. From figure 2 we realize that only 10% of the targets were put on track and 90% need follow-up to move along the path of progress. The report highlights that “illegal, unreported and unregulated (IUU) fishing threatens the social, economic and environmental sustainability of global fisheries, hindering countries’ abilities to manage their fisheries effectively” and urge the concerned parties to take actions in order to “ensure the long-term health and sustainability of the ocean through sustainable fishing practices, marine conservation efforts, pollution reduction and global cooperation to safeguard marine life and ecosystems for future generations”. That is, the report shows the threat and recommends actions. What should be done in response?

EE and ESD remain the focal points. If illegal actions are practiced, reporting and then regulating them are required. Here arises the role of EE and ESD in perceiving what actions are illegal and which practices are beneficial for conserving and responsibly using marine’s resources.

Some research papers feature the importance and necessity of activities for children’s environmental orientation especially through family and educational activities (Roberts, 2010). It is also acknowledged that early childhood educators’ perceptions of topics such as nature, science, and EE, impact children’s

environmental values (Torquati, 2013) thus leading them to identify acceptable from non-acceptable actions.

Some studies were conducted in view of investigating learners knowledge and attitudes towards the environment (Timur, 2013) others studied the secondary students' insights concerning nature and the environment (Ozturk, 2015) which show how well this group is ready and well equipped to face environmental challenges.

EE and ESD are efficiently assimilated in group activities where learners reflect on both; the importance of taking care of the planet as well as developing useful critical thinking and social skills (Martinez Lirola, 2018) as well as teamwork, during coastal EE activities for instance (Santos, 2018).

Goal # 15: LIFE ON LAND

12 targets were assigned to reach SDG #15; Life on land means Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. 40% of the targets are in stagnation or regression; a fact threatening life on land.

The report presents issues that jeopardize the balance of the ecosystem:

Depletion of forests

Species extinction.

Stagnation in safeguarding key biodiversity areas.

It also noted the progress in specific domains:

Sustainable forest management.

Ratifying and implementing access and benefit-sharing instruments; many countries have reported on their legislative, administrative or policy measures under the Nagoya Protocol and the International Treaty on Plant Genetic Resources for Food and Agriculture, respectively.

Implementing the international statistical standard to measure the environment and ecosystems and their connection to the economy.

It also specifies matters to be addressed with an imperative call to “intensify efforts in fulfilling the global environmental and biodiversity commitments”

Biodiversity loss.

Pollution.

Desertification.

Land and soil degradation.

Drought and deforestation.

Intensifying efforts requires awareness, knowledge and follow-up. Here comes the role of migrating from EE to ESD. Research studies conducted in Latin America assert that while EE is extensively studied, well promoted and well-established particularly in Colombia, ESD is still gaining increasing global importance. For further knowledge, a survey was conducted among 406 engineering students from eight universities in

Colombia that offer undergraduate engineering programs (Pedro Mauricio Acosta–Castellanos, 2024) where significant gaps were recognized:

Most students demonstrated limited knowledge of ESD and Sustainable Development (SD).

Lack of academic areas or subjects within the engineering curriculum that specifically promote the knowledge and application of ESD was evident.

Students’ responses emphasized the unusual “convergence between EE, a traditionally conservationist field, and ESD”.

Bottom line, the results discovered the “deep–rooted presence of EE in Colombian engineering programs and a gradual incorporation of ESD into these curricula” which proves the necessity of incorporating topics such as SD and the SDGs into formal learning environments such as subjects, forums, and courses, not only in Columbia and Latin America but to be generalized wherever they lack.

Hence, Education is an effort to improve skills and capacities to support sustainable livelihoods as well as the preservation of natural resources and biodiversity (Goal #4)

Goal # 17: PARTNERSHIPS FOR THE GOALS

19 targets were assigned in the 2030 agenda in order to strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development. Looking at figure 2 we notice that 25% of the targets are in stagnation or

recession and 30% on track. These significant rates lead us to the Division for Sustainable Development Goals (DSDG) within the United Nations Department of Economic and Social Affairs (UNDESA) which acts as the Secretariat for the SDGs (United Nations, 2024). Accordingly, the report specifies the areas of Global Partnerships that must translate a strong commitment by all stakeholders; Finance, Technology, Trade and Data thus excluding Education.

It also shed the light on the need for sustained collaboration and enhanced cooperation and support in a landscape of worsening international cooperation and geopolitical tensions.

Meanwhile, the UNESCO in its work on ESD (UNESCO, 2024) encourages coordination towards Greening Education Partnership that was launched in 2022 during the UN Secretary General's Summit on Transforming Education. The Greening Education Partnership aims to inspire action from countries to empower learners with the skills required for inclusive and sustainable economic development within the context of the transition toward digital and green economies.

The Partnership addresses four key areas of transformative education:

Greening schools: To follow accreditation criteria by meeting the standard. Accreditation schemes must incorporate at least one-third of suggested activities in governance, facilities, teaching, and community engagement.

Greening Curricula: To follow the guidance, a 10–step roadmap is available for countries to implement greening curriculum (Find the roadmap in appendix A).

Greening teacher training and education systems’ capacities: The main goal of this area is to train at least one teacher per school on “how to integrate climate education into teaching and learning throughout the school”. In this way, teachers and policy makers are supported through the integration of climate education in pre–service and in–service teacher training, building the capacity of school leaders and key education stakeholders.

Greening communities: The main goal of this area is making all concerned countries able to report at least three different ways of learning opportunities that are made available for adults outside the formal educational system; developing the skills, attitudes, and actions that will empower community resilience to tackle climate change.

And thus, a collaborative process has been undertaken by the UNESCO to develop the Green school quality standard with the goal of transforming at least 50% of schools in each partner country into green schools by 2030¹.

All in all, education, which is not included within the Global Partnership areas, is essential to address interconnected global challenges.

(1) The first UNESCO Green Academy was inaugurated in 2016 in Ethiopia (UNESCO, 2016).

5 –CONCLUSION

Despite the collaboration, the coordinated efforts and actions towards implementing the 2030 Agenda, there still exists a significant number of challenges hindering the progress of all the SDGs in general and not only the selected ones.

Drawing upon EE and ESD's holistic approach to learning, many SDG targets need to be supported by EE and ESD where awareness and capacity building may compensate regression and stagnation. For instance, Education can help achieve SDG 6 by improving skills and abilities in using natural resources more sustainably as well as improving sanitation.

As for Energy conservation efforts urged by SDG 7 and the availability of renewable energy sources they can also be encouraged through education.

Education has the power to increase community involvement in creating sustainable and disaster resilient cities called by SDG 11.

Education has the potential to adjust production patterns as well as consumer perceptions of sustainably produced goods, thereby reducing waste production called by SDG12.

Education acts as a means for increasing public awareness of the effects of climate change referred to by SDG13, as well as adaptation and mitigation efforts, particularly at the local level.

It is by Education that skills and capacities could be improved to support sustainable livelihoods as well as the preservation of natural resources and biodiversity in response to SDGs 14 and 15.

After all, education with its resourceful tools and curricula, is essential to address SDG 17 and the interconnected global challenges.

After this extensive analysis, and in order to complement the EE and ESD programs, all partner countries who signed their commitment towards the progress of SDGs are urged to initiate a national strategy promoting EE and ESD engagement practices, research studies, monitoring, evaluation, and dissemination.

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APPENDIX A

1.1 A 10–step roadmap

1. The Guidance provides a 10–step roadmap for countries to implement greening curriculum.
2. **Step 1.** Review existing education policies for footholds and rationales for strengthening the presence of greening education in the curriculum.
3. **Step 2.** Establish and ensure inclusive participation of stakeholders in the curriculum development process, including youth and community members.
4. **Step 3.** Decide on curricular strategies for infusing greening education within and across subjects and grade levels in schools, as well as recommendations for the non–formal education sector.
5. **Step 4.** Develop a detailed curriculum that ensures action–oriented learner outcomes, including the use of transformative and ‘place–based’ pedagogy.
6. **Step 5.** Prepare and pilot sample instructional resources within and across subject areas to test the new curriculum and solicit feedback from numerous stakeholders, especially youth.
7. **Step 6.** Finalize, produce and distribute learning resources, including suggestions for assessment, with an associated communication and publicity strategy.
8. **Step 7.** Provide substantive orientation to greening education for text–book writers, examination board staff and other stakeholders, and obtain any necessary approvals.
9. **Step 8.** Provide educators with quality pre– and in–service training and continuous professional development opportunities, in cooperation with higher education institutions and CSOs.
10. **Step 9.** Implement the Guidance through whole institution approaches and strengthen partnerships between schools, CSOs, municipal authorities and the private sector to implement greening education.
11. **Step 10.** Monitor and assess the results of education programming on climate change competencies in an ongoing manner.