Sustainable Development Goals

An Overview on the Progress of SDGs "Clean Water and Sanitation", "Conserve and Sustainably Use the Oceans, Seas, and Marine Resources", "Gender Equality", "Decent Work and Economic Work", "Industry, Innovation and Infrastructure" and "Sustainable Cities and Communities"

Isabella Coronel

Joana Lourenço

Luana Lopes

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TECHNICAL DATA

Supervision:

Hugo Pinto

Professor of Regional and Urban Economics of the Faculty of Economics, University of Algarve (UAlg)
Integrated Researcher at CinTurs/UAlg
Principal Investigator of Atlantic Social Lab at the Centre for Social Studies, University of Coimbra

Carla Nogueira

Invited Professor at the Faculty of Economics, University of Algarve
Integrated Researcher at CinTurs/UAlg
Project member of Atlantic Social Lab at the Centre for Social Studies, University of Coimbra

Degree in Sociology

Discipline Economics

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Abstract:

Sustainable Development Goals (SDGs) were adopted in 2015 by the United Nations as a call to action to end poverty, protect the planet, and ensure that by 2030 all world benefits from more peace and prosperity. The 17 SDGs are integrated, recognizing that action in different domains affect the outcomes in others, and that development needs to balance social, economic and environmental concerns. This is a report on how the SDGs 5, 6, 8, 9, 11, and 14 ("Clean Water and Sanitation", "Conserve and Sustainably Use the Oceans, Seas, and Marine Resources", "Gender Equality", "Decent Work and Economic Work", "Industry, Innovation and Infrastructure" and "Sustainable Cities and Communities") are progressing globally, in Europe, and in Portugal. A brief explanation of the Sustainable Development Goals is done, what they refer to, why they are relevant, and the progress they have made since they were first established until the present day. Following this, and how these SDGs are being implemented. The report ends with the presentation of some interesting case studies, that contribute for SGDs success.

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1. Introduction

The Agenda 2030, also known as Sustainable Development Goals, is a human rights agenda approved by all United Nations Member Countries in 2018 through Resolution No. A/RE/72/279 (Silva & Lima, 2022). The United Nations (1992) as cited by Cardeira et al. (2021) note that Agenda 21 was adopted as an action plan to promote local sustainability and global partnership for development. Silva et al. (2022) argue that this agenda replaced the Millenium Development Goals (MDGs) set in 2015 and expanded the Sustainable Development Goals from 8 to 17. The 2030 Agenda is relevant not only for the 193 Member Countries, but for all those who are committed to sustainable development. It is composed of five axes of action known as the 5 P's: Peace, People, Planet, Prosperity, and Partnerships. Some say, like Canguçu, Candido, Baptista and Novais (2021) that the SDGs are a continuation of the MDGs. Bouckaert, Loretan and Troupin (2016) cited by Cardeira et al. (2021) argue that the SDGs are much more specific than the MDGs in terms of policy instruments, which facilitates their implementation by public administration.

In about four decades, the concept of sustainable development has become a permanent part of the vocabulary of rulers, citizens, and businesses (Cadeira et al., 2021). The concept of Sustainable Development Goals was first introduced in the report Our Common Future, according to the 1987 Brundtland Report, the concept of sustainable development is not a fixed state of harmony, but rather a process of change that seeks to reconcile present and future needs through resource exploitation, investment, technological development, and institutional change. This process may be difficult and require hard choices, but political will is essential to achieve sustainable development (Canguçu et al., 2021).

The SDGs appeared after decades of work, starting in June 1992, at the Earth Summit in Rio de Janeiro, Brazil, where more than 178 countries adopted the first version of the SDGs, Agenda 21. This Agenda was a plan of action for sustainable development to protect the environment and improve human lives. After that, in the year 2000, member states adopted the Millenium Declaration, which consisted of eight Millenium Development Goals (MDGs) to reduce extreme poverty by 2015. In June 2012, the UN High-level Political Forum on Development was established. Finally, in January 2015, the negotiation process on the post-2015 development agenda began with the General Assembly. In September 2015, the 2030 Agenda was officially established alongside the 17 SDGs (UN: Department of Economic and Social Affairs, 2023).

The SDGs matter because they are a universal, integrative, and innovative way to ensure our planet's and people's health. The 2030 Agenda is universally applicable because it considers all different national realities, levels of development, and national priorities. In addition, the 2030 Agenda provides an integrative approach to global issues, because it emphasizes the interconnection between social, environmental, and economic dimensions for sustainable development. Lastly, the 2030 Agenda is innovative due to the importance of accelerating technological innovations for countries to leap forward (UN Environment Programme, 2023). These goals aim to shape and influence political policies and national strategies for development of all UN member states. Their progress is tracked annually with the UN Secretary-General presenting an annual SDG Progress report based on the global indicator framework and national statistics systems, alongside data collected at the regional level (UN: Department of Economic and Social Affairs, 2023).

The SDGs also receive criticism, questioning if they are the best approach to measuring sustainable development. They have been criticized mainly for being inconsistent, difficult to quantify, implement, and monitor (Swain, 2017). The Internation Council for Science, after reviewing the SDGs, critically recognized an inconsistency between ecological sustainability and socioeconomic progression (ICSU & ISSC, 2015). In addition to being inconsistent, the SDGs are also criticized for being difficult to quantify, Easterly (2015), argues that the SDGs are too vague and broad; quantifying a multi-dimensional concept like sustainable development is challenging because many definitions of it exist, making it to a certain degree anthropocentric as a concept (Swain, 2017). In terms of the implementation of the SDGs, it's important to consider the differences in resources and social issues between developed and developing countries, raising questions on how the developing countries should implement the SDGs and to which they should give priority (Swain, 2017). Lastly, to monitor the progress of the SDGs a lot of data is required, data that in developing countries is often poor and missing (Swain, 2017).

To summarize, this report is divided in 4 parts, the first one is about the challenges in the implementation of the SDGs, the second part will assess the implementation of the SDGs at global, European and Portuguese level, where we will understand how countries are meeting the goals. In the third phase, we will present some case studies and, finally, we will make a brief conclusion. There are two perspectives

on the importance and effectiveness of the SDGs, but the intention behind their creation is to shape global policies, as stated in Agenda 2030 cited by Canguço et al. (2021) the goals are working for an integrated development with three dimensions: social, economic and environmental.

2. Challenges to the Implementation of the Sustainable Development Goals

In this section, a presentation of each SDG will be made individually, focusing on their importance, why they were created, and the challenges for implementing them. First, the SDG 5 "Gender equality" will be presented, second the SDG 6 "Clean water and sanitation", third the SDG 8 "Decent work and economic growth", fourth the SDG 9 "Industry, innovation and infrastructure", fifth the SDG 11 "Sustainable cities and communities", and finally the SDG 14 "Life below water".

Feminist movements that emerged in the second half of the 20th century were essential in changing the view on the role of women in society (Nunes et al., 2015). These movements allowed women to have more opportunities to perform tasks beyond those of wife and mother and to advocate for gender equality. In addition, these movements helped to create ways of representing the female role in society and, consequently, in organizations. Kanan (2010) cited by Nunes et al. thinks that this transformation was driven by significant achievements, such as the right to decide the size of the family, the right to vote, the possibility of participating in the family income, the freedom to divorce, progress in marital relationships, and the increase of female presence in professional, technical, and academic training spaces.

In this sense arises the SDG 5, which according to Canguço et al. (2021) establishes gender equality as one of its goals, aiming at empowering women and girls and ensuring better living conditions for them. Despite the decrease in gender inequality in corporate positions over the years, the numbers are still insufficient. The difference is not only about the amount of vacancies, but also about the different salary amounts between men and women. It is above all important to begin to understand what gender equality is, for Torres, Pinto, Costa, Coelho, Maciel, Reigadinha and Theodoro (2018) it can be defined as a symmetry between individuals of different genders and sexual orientations, as well as other diverse identities, in access to resources, power and rights, however, this symmetry is far from being achieved. Queiroz, Leitão, Oliveira, and Catarina (2011), add that the elimination of gender inequalities is a goal that should be pursued by all, but especially by those whose influence and social position serve as a reference, as in the case of university institutions.

The SDG 6 was created because access to safe water, sanitation, and hygiene is a human right, and if we continue with our current management of water and sanitation, billions of people won't have these basic needs met by 2030 (UN, 2022). Water is not only essential for our health, but also for poverty reduction, food security, peace, and education (UN, 2023). Due to decades of misuse, poor management, contamination of fresh water, and over-extraction of groundwater, we're facing exacerbated water stress. The demand for water is rising more rapidly with population growth, urbanization, and water needs from the agriculture, industry, and energy sectors increasing. While simultaneously, countries are facing challenges linked to degraded water-related ecosystems, water scarcity caused by climate change, underinvestment in water and sanitation, and insufficient cooperation on transboundary waters (UN, 2022).

In 2017, an estimated 3 billion people worldwide didn't have the ability to safely wash their hands at home (UN, 2023). In 2016, one in four medical care facilities didn't have water, sanitation, and hygiene services available, one in five didn't have sanitation services, and two in five didn't have soap or alcohol-based hand sanitation (UN, 2023). And today, 4.2 billion people still face challenges accessing basic services; of these, 673 million practice open defecation (UN, 2023). In addition, 2.2 billion people still lack safely managed drinking water, including 785 million without basic drinking water (UN, 2023). If we manage our water sustainably, we will be able to ensure all people have access to this human right, better manage our production of food and energy, and contribute to economic growth. Moreover, we would be able to preserve our water ecosystems and their biodiversity, acting on climate change too (UN, 2023).

According to Herrera and Goiria (2021) the 2030 Agenda has brought about a change in the role of economic growth, which has come to be questioned as the only or fundamental indicator of progress for societies. The current trend is to more openly question this measure and its implications, especially in relation to environmental sustainability. The authors consider that the development approach based solely on economic growth has faced problems since the 1970s, when it was observed that many countries continued to face situations of poverty, inequality, and other challenges even with increasing GDP per capita. This led to a shift in focus to basic needs and a redistribution with growth approach proposed by the World Bank. The idea of shaping economic growth to be inclusive shows the difficulty in abandoning the concept of economic growth as a fundamental indicator of progress despite all its criticisms.

Herrera and Goiria (2021) also add that Goal 8 of the Sustainable Development Goals aims to foster economic growth that is inclusive and sustainable, in addition to promoting jobs and decent work for all. The concept of economic growth is linked to employment and decent work, as the two go together.

However, in high-productivity environments, other approaches may be needed, such as splitting existing jobs to combat joblessness and low-quality jobs. Poverty in the labor sector and youth unemployment are also problems affecting high-income countries. As the International Labor Organization (2017) cited by Galhera and Hernandez (2019), the concept of decent work is the point of convergence of the organization's four strategic objectives: respect for rights at work, promotion of productive and quality employment, an extension of social protection, and strengthening social dialogue. Among the fundamental rights are freedom of association, elimination of forced labor, abolition of child labor, and elimination of discrimination in respect of employment and occupation. For Lima (2019) each of these goals plays an important role in achieving broader goals such as social inclusion, poverty eradication, strengthening democracy, inclusive development, and personal fulfillment.

Regarding SDGs 9 and 11 "Sustainable communities and cities", and "Innovation and infrastructure" there are challenges to the implementation of new practices and the resistance of the population to their sedimentation. Both SDGs 9 and SDGs 11, being related, present some challenges at a global level, which prevent the construction of a more resilient, inclusive, and sustainable future (UN, 2023). The most prominent factor is financial, which conditions the coherence of public policies and the quality of infrastructure. Technological innovation is essential for the effective promotion of a sustainable goal. The obstacles to the implementation of the goals are diverse, and there is no specific main one. The lack of knowledge about the SDGs by the municipalities was mentioned, as well as the lack of cooperation between the government and municipalities. It was also mentioned, in a survey done by the OCDE, to the governments of different countries, the lack of resources and difficulty financing after the pandemic (Gross, 2021).

Goal 9 requires the implementation of sustainable policies that take industry and technologies into account. It is imperative to use renewable, innovative, resilient, and reliable dynamics for economic development and human well-being, through urban planning and public policies aimed at sustainability. An absolute end is an accessibility for all in compliance with standards at the global, national, and consequently at a more micro, regional level (UN, 2023). This goal encompasses infrastructure, accessible digital services, and energy sustainability. The most known challenges are technology adoption and digital divide, and industrial diversification and job creation, since globally there is a great extent of people who lack minimum technological services and a system that can meet the expectation of a substantial immigration in the cities (UN-habitat, 2022).

At a more specific level there, about SDG 11, there is the problem of innovation and sustainable cities, and the obstacle appears to be of the same character. With the increase in population, their management, to guarantee housing, basic sanitation, and drinking water is basic and complex. Adding that factors such as exclusion that comes from immigration, untrained rulers culminate in the difference in ways of living of the population that resides in the same place. Given that the strategies used, and the challenges stand out when there is a need for collaboration and communication on the part of leaders, challenging territorial management to be innovative, sustainable and culturally safeguarded. The Sustainable Cities Index reveals a growing dichotomy between economic development and sustainability. Stating that, the concept and assessment currently used to measure city growth are dated. This makes one of the challenges evident, which is the complexity of configuring what growth is and should be considered (UN-habitat, 2022). However, although it was something inevitable, the outbreak of the pandemic has not failed to present itself as a delay, in which there were countries that stagnated and others that regressed in meeting the indicators.

The SDG 14 was created because our oceans play a fundamental role in making Earth habitable. It's imperative to conserve and sustainably use the world's ocean, seas, and marine resources. The oceans cover more than 70 percent of the surface of our planet and are the planet's life support. Oceans are the most diverse and important ecosystem, they regulate the climate and provide natural resources including food, material, substances, and energy (UN, 2023). They also are the home to nearly a million known species and contain immense potential for scientific discovery.

Moreover, oceans, seas, and other marine resources are essential to human well-being and social and economic development worldwide. Achieving this SDG is essential for poverty reduction, with Marine Protected Areas increasing fish catches, creating new jobs, improving health, and empowering women. Marine resources are particularly important for people living in coastal communities, who in 2010 represented 37 percent of the world's population (UN, 2023). In these populations, oceans provide livelihoods, and benefits for sectors like fisheries and tourism. Oceans also regulate the global ecosystem by absorbing the heat and CO2 from the atmosphere. However, coastal areas are extremely vulnerable to environmental degradation, overfishing, climate change, and pollution, which is why this SDG is fundamental (UN, 2023).

It's imperative to pay attention to SDG 14 because the ocean absorbs around 23 percent of the annual CO2 emissions and helps mitigate the impacts of climate change by absorbing more than 90% of the excess heat in the climate system (UN, 2023). However, this is generating marine heat waves that threaten the ocean's ecosystem and are killing coral reefs around the world (UN, 2023). The lack of care for the ocean is also causing an economic impact, with an estimated 5 to 12 million metric tonnes of plastic entering the oceans every year, it costs around $13 billion to clean up, also adding to the financial losses for fisheries and other industries. In addition to an economic impact, it could also negatively impact our health. The ocean can be an ally for pharmaceuticals because, in the depths of the oceans, bacteria are found to carry out testing for new medicine. Furthermore, 50% of the protein source for the population in the least developed countries comes from marine fisheries (UN, 2023).

To conclude, all the SDGs face numerous challenges when attempting to implement them. Each SDG has its own challenges; however, they share some common challenges when trying to implement them. First, all the SDGs have multiple goals they're looking to meet, which in the moment of measuring the progress, complicates the process of identifying data and information needs. Second, the goal needs to be clear, which is challenging, for example, in SDG 6 when using water in agriculture for energy and food production. In this case, it's often difficult to clarify the goal due to a lack of regulations specifying integrated measurement goals. In addition, developing such regulations requires negotiation processes that imply relevant costs. Furthermore, when trying to clarify the goal, it's confusing to determine whether existing indicators can be used or if combined indicators are needed (Kirsche & Avellan, 2018).

Then, if the indicators are sorted, and the goal is clear, it's challenging to find the relevant data and information needed. Such data needs are challenging to meet from a technical point of view, due to the high complexity of the social-ecological system. Third, even if data are available, the information transfer involves high requirements, because data is usually dispersed across research groups and public entities. What makes complicated the sharing of data between these entities is the lack of communication or trust, or asymmetric power and interests involved (Kirsche & Avellan, 2018).

Lastly, if these challenges are solved, another challenge appears regarding their use for a truly integrated assessment of solutions. It's particularly difficult to interpret data and information, for example in SDG 6, measuring the amount of nitrogen in soils and waters can be interpreted in various ways, from a water quality perspective, agricultural perspective, economic growth, and food security. For understanding such relations, it's necessary to think in new, broader systems (Kirsche & Avellan, 2018).

To summarize, all SDGs have their unique reasons for creation, and are interdependent. They all share the same challenges when trying to implement them, however its essential to look for ways to overcome these and attempt to put them in action in all countries across the world.

3. Evaluation of the Implementation of the Sustainable Development Goals in a Global, European, Portuguese, and regional dimension

In this section, 3 goals and 3 indicators of each SDG encompassed in this study will be reviewed and analyzed in a global, European, and Portuguese dimension. First, in the SDG 5, goals 5.3, 5.4, and 5.5 and their indicators will be reviewed. Indicator 5.3.1 was chosen because of its importance, the practice of child marriage or early unions is a human rights violation and has detrimental consequences for girls, this indicator is critical to understanding the extent of this problem and developing effective strategies to combat it. Indicator 5.4.1 was chosen because domestic work and unpaid caregiving, such as caring for children, the elderly, the sick, and performing household chores, have historically fallen disproportionately on women. Promoting gender equality in domestic work and unpaid caregiving is critical to achieving gender equality and ensuring that women have equal opportunities to participate in public life and the paid labor market. Indicator 5.5.2 was chosen because the representation of women in leadership and managerial positions is an important indicator of progress toward gender equality in the professional environment. Traditionally, women have faced structural and cultural barriers to accessing leadership positions, which limits their participation in decision-making. This choice is due to our curiosity to understand the inclusion and representativeness of women in higher positions of responsibility.

Second, for the SDG 6, goals 6.1, 6.2, and 6.3 along with their indicators. Indicator 6.1 was chosen because access to clean water and sanitation is a fundamental human right and essential for overall well-being. Lack of access to safe drinking water and basic sanitation facilities disproportionately affects marginalized communities, including women and girls who often bear the responsibility of water collection. Monitoring progress towards achieving universal access to clean water and sanitation is crucial for identifying areas that require intervention and ensuring that everyone has equal opportunities to lead healthy lives. Indicator 6.2 was chosen because water scarcity and water stress pose significant challenges to sustainable development. With increasing population growth and the impacts of climate change, it is important to monitor water resource availability and usage. This indicator provides insights into the efficiency of water use, water stress levels, and the implementation of integrated water resources management strategies. By tracking progress in this area, policymakers can make informed decisions to address water scarcity issues, protect ecosystems, and ensure water security for present and future generations. Finally, indicator 6.3 was chosen because it focuses on improving water quality and reducing pollution. Access to safe and clean water is not only about availability but also about ensuring that the water is free from contaminants. Monitoring water quality helps identify pollution sources, assess the effectiveness of water treatment systems, and protect human health and ecosystems. This indicator plays a vital role in measuring progress towards achieving sustainable water management and safeguarding the environment.

Third is the SDG 8 along with the goals 8.3, 8.6, and 8.7 with their indicators. Indicator 8.3.1 was chosen due to the interest that one has on the subject, one is curious to see how this indicator has evolved since it involves activities generally associated with precarious working conditions, low wages, insecurity, and lack of rights. Indicator 8.6.1 was chosen because the rate of unemployed young people who are not in education or training is an important indicator for understanding the situation of young people in relation to employment and education. Young people face significant challenges in transitioning from the education system to the labor market, and many may face unemployment or inactivity, which can have negative impacts on their personal development, well-being, and future opportunities. Indicator 8.7.1 was chosen because child labor is a violation of children's fundamental rights and a global concern. We think it is important to monitor the proportion and number of children involved in child labor in order to understand whether the 2030 agenda is on track.

Fourth is the SDG 9 along with goals 9.1, 9.2, and 9.4 and their indicators. The indicator 9.1 was chosen because it measures how many people own a mobile phone and if it's easy to use and affordable. It recognizes the benefits of technology in connecting people, accessing important services, and reducing the digital divide. Indicator 9.2 by measuring the use of technological patents issued by a country, fosters, and encourages technological innovation and increases investment in technology. Consequently, it is also important because given the type of industry, it is the move towards a more sustainable industry. Finally, the indicator, 9.4 measures the percentage of adults who have attained a specified level of competence in digital literacy. This indicator recognizes the importance of digital literacy in promoting inclusive and sustainable industrialization. By equipping people with digital knowledge, it creates equal opportunities, reduces inequalities, and allows active participation in the digital world.

Fifth is the SDG 11 with goals 11.B.1, 11.A.1, and 11.6. Indicator 11.b.1 measures the cost of urban land per square meter, reflecting affordability and availability of land for housing and infrastructure projects. This indicator highlights the importance of affordable housing and sustainable land use in creating inclusive and resilient cities. Indicator 11.a.1 assesses the importance of urban planning and decision-making processes. It recognizes the importance of inclusive governance and citizen engagement. By involving residents in urban planning, cities can ensure that their development is aligned with the needs and aspirations for the creation of a sustainable and equipped community. Indicator 11.6.2 measures the annual average levels of fine particulate matter (PM2.5) in cities. This indicator was chosen because air pollution poses significant health and environmental risks in urban areas. In this way cities can work towards creating healthier, cleaner, and more sustainable environments for their residents.

Finally, for the SDG 14, goals 14.1, 14.2, and 14.5 along with their indicators. Indicator 14.1 was chosen because it focuses on monitoring the proportion of fish stocks within biologically sustainable levels. Fish and other marine resources play a vital role in supporting food security, livelihoods, and the overall health of marine ecosystems. Tracking the status of fish stocks helps identify areas where conservation and fisheries management measures are needed to ensure sustainable fishing practices and the long-term health of our oceans. Indicator 14.2 was chosen because it measures the proportion of economically important fish stocks that are managed sustainably. Sustainable fisheries management is crucial for preserving fish populations, maintaining ecosystem balance, and supporting the livelihoods of those dependent on fishing. By monitoring the sustainability of fisheries, policymakers and stakeholders can assess the effectiveness of management measures, such as catch limits, gear regulations, and marine protected areas. Indicator 14.5 was chosen because it addresses the conservation and sustainable use of coastal and marine areas. Coastal and marine ecosystems are rich in biodiversity and provide numerous ecosystem services, such as carbon sequestration, coastal protection, and tourism opportunities. However, these ecosystems are under increasing pressure from human activities, including pollution, habitat destruction, and climate change. Monitoring the extent of protected areas, their management effectiveness, and the coverage of key habitats is essential for safeguarding marine biodiversity, supporting sustainable tourism, and promoting the sustainable use of coastal and marine resources.

Below is a table illustrating the names of each goal and indicator that will be reviewed.

SDGs and indicators that will be reviewed		
SDGs	**Targets**	**Indicators**
SDG 5: "Gender Equality"	5.1: "End discrimination against women and girls"	5.1.1: "proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18"
	5.4: "Value unpaid care and promote shared domestic responsibilities"	5.4.1: "proportion of time spent on unpaid domestic and care work, by sex, age and location"
	5.5: "Ensure full participation in leadership and decision-making"	5.5.2: "proportion of women in managerial positions"
SDG 6: "Clean Water and Sanitation"	6.1: "Safe and affordable drinking water"	6.1.1: "Proportion of population using safely managed drinking water services"
	6.2: "End open defecation and provide access to sanitation and hygiene"	6.2.1: "Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water"
	6.3: "Improve water quality, wastewater treatment and safe reuse"	6.3.1: "proportion of wastewater safely treated"
SDG 8: "Decent Work and Economic Growth"	8.3: "Promote policies to support job creation and growing enterprises"	8.3.1: "proportion of informal employment in non-agriculture employment, by sex"
	8.6: "Promote youth employment, education and training"	8.6.1: "proportion of youth (aged 15–24 years) not in education, employment or training"
	8.7: "End modern slavery, trafficking, and child labour"	8.7.1: "proportion and number of children aged 5–17 years engaged in child labour, by sex and age"
SDG 9: "Industry, Innovation and Infrastructure"	9.2: "Promote inclusive and sustainable industrialization"	9.2.1: "manufacturing value added as a proportion of GDP and per capita"
	9.4: "Upgrade all industries and infrastructures for sustainability"	9.4.1: "CO2 emissions per unit of value added"
	9.c: "Universal access to information and communications technology"	9.c.1: "proportion of population covered by a mobile network, by technology"
SDG 11: "Sustainable Cities and Communities"	11.6: "Reduce the environmental impacts of cities"	11.6.2: "annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)"
	11.A: "Strong national and regional development planning"	11.A.1: "proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city"
	11.B: "Implement policies for inclusion, resource efficiency and disaster risk reduction"	11.B.1: "number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030"
SDG 14: "Life Below Water"	14.1: "Reduce marine pollution"	14.1.1: "index of coastal eutrophication and floating plastic debris density"
	14.2: "Protect and restore ecosystems"	14.2.1: "proportion of national exclusive economic zones managed using ecosystem-based approaches"
	14.5: "Conserve coastal and marine areas"	14.5.1: "coverage of protected areas in relation to marine areas"

3.1. Sustainable Development Goal 5

Starting with Goal 5, goals 5.3, 5.4, and 5.5 will be reviewed. According to the authors Mariano and Molari (2022), indicator 5.3 intends to eliminate all harmful practices, such as early, forced, and child marriages, and female genital mutilation. This goal addresses concerns expressed in the 1995 Beijing Declaration, such as child and forced marriage and female genital mutilation, in this goal indicator 5.3.1 will be analyzed.

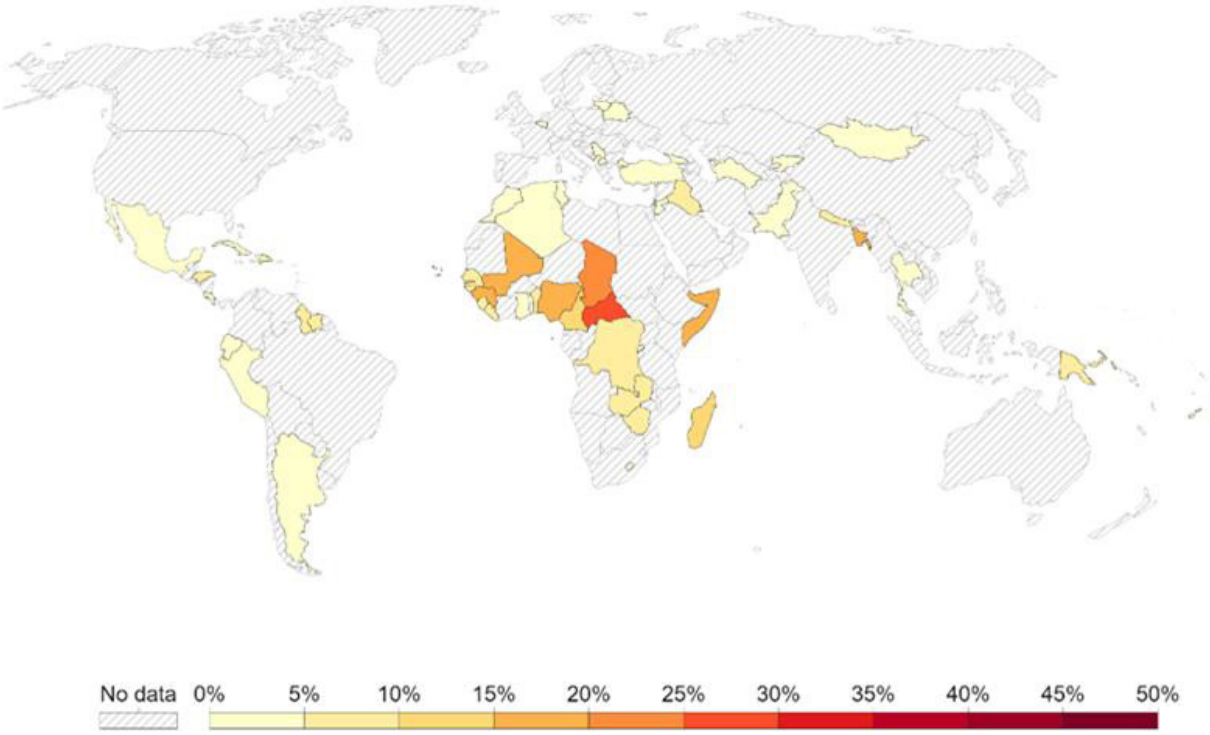


Figure 1: **Share of women aged 20 to 24 years who were married by age 15, 2021**

Source: UN (2022)

Through the figure 1 which concerns the proportion of women aged 20 to 24 who married before the age of 15 and before the age of 18, in the world, we see that where there is a higher rate is in the Central African Republic with 25.8% of early marriages. This is followed by Chad (24.2%), Guinea (17%) and Somalia (16.7%). In Europe the highest percentage is in Montenegro (1.9%) and Serbia and Montenegro (1.2%)

Mariano and Molari (2021) add that target 5.4 intends to recognize and value unpaid care work and domestic work, through the provision of public services, infrastructure and social protection policies, as well as the promotion of shared responsibility within the home and family, according to national contexts. This goal is in line with the Beijing Declaration, which has as one of its strategic objectives to encourage the harmonization between work and family responsibilities for men and women. Care work and domestic work is a particularly relevant issue for women in developing countries, as in Latin America, in this goal, indicator 5.4.1 will be analyzed.

Figure 2: **Average daily time spent by women on domestic work (paid and unpaid) 2015**

Source: UN (2017)

The figure 2 presents data on the average daily time spent by women on paid or unpaid domestic work. It is in Mexico (9.4 hours) that they spend the most time on domestic chores. However, if we notice, more countries spend 8 hours or more than those that spend 0 to 2 hours or 2 to 4 hours.

If we focuse on Europe, there is no country that spends less than 4 hours. Lithuania has the highest average number of hours, the average being 8.52 hours per day. And it is in Greece (5.65 hours per day) that the least hours are spent on domestic work. Portugal is also one of the countries that spend the most hours, spending 7.7 hours per day.

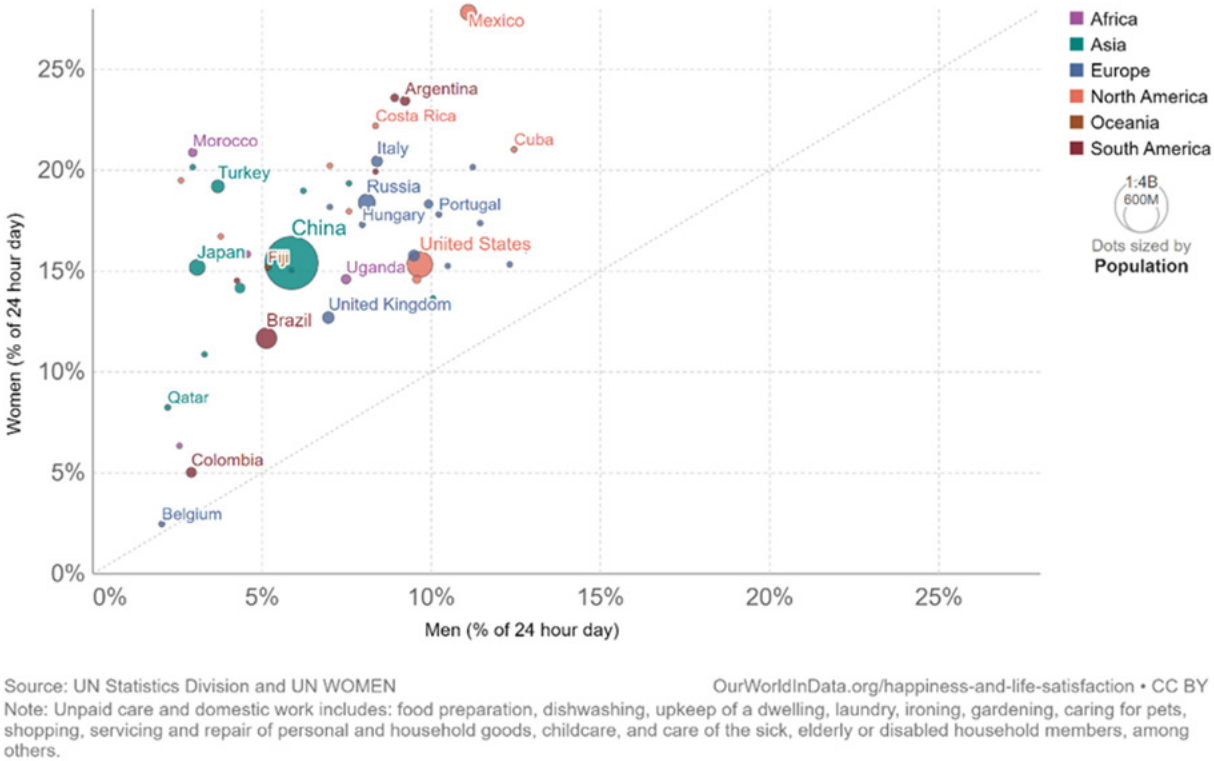
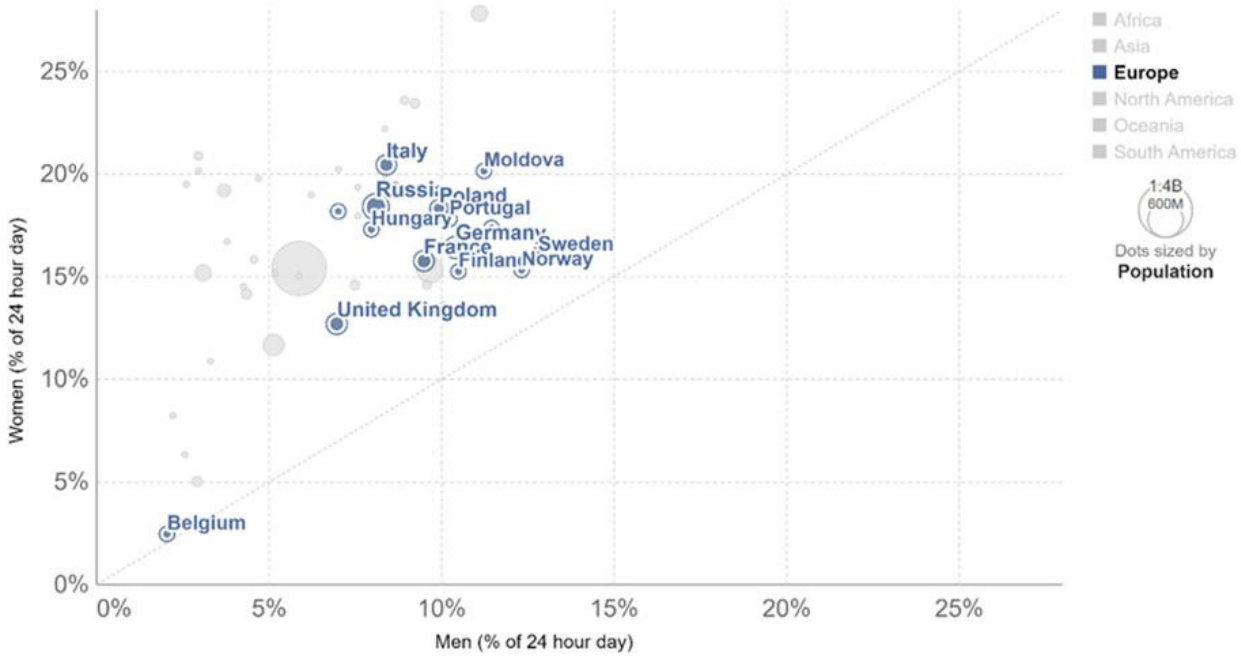


Figure 3: **Time spent on unpaid care and domestic work, women vs. Men, 2020**

Source: UN (2023)

The figure 3 refers to the time spent on unpaid care and domestic work, making a comparison between men and women. A distinction is immediately apparent; while women reach 20%, men do not even reach 15%. It is in Mexico (27.77%) that women spend the most time on unpaid care and domestic work, and where they spend the least time is in Belgium (2.43%). It is also in Belgium (2.04%) that men spend the least time and it is in Sweden (12.83%) where men spend the most time on domestic chores or unpaid care.



Source: UN Statistics Division and UN WOMEN — OurWorldInData.org/happiness-and-life-satisfaction • CC BY
Note: Unpaid care and domestic work includes: food preparation, dishwashing, upkeep of a dwelling, laundry, ironing, gardening, caring for pets, shopping, servicing and repair of personal and household goods, childcare, and care of the sick, elderly or disabled household members, among others.

Figure 4: **Time spent on unpaid care and domestic work, women vs. Men, 2020**

Source: UN (2023)

In Europe we see that countries are very close if we compare the rates. Only Belgium stands out with a big difference from the other European countries. Although the countries are close, Sweden is the one with the highest rate, and women (16.04%) have a higher rate than men (12.83%). In Portugal, it is also women (17.81%) who spend more time on domestic chores compared to men (10.24%).

Mariano and Molari (2022) further add that indicator 5.5 wishes to ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life. In addition to positions in parliament, the goal and indicators include other positions with power to make decisions, broadening the view on the representation of women in leadership.

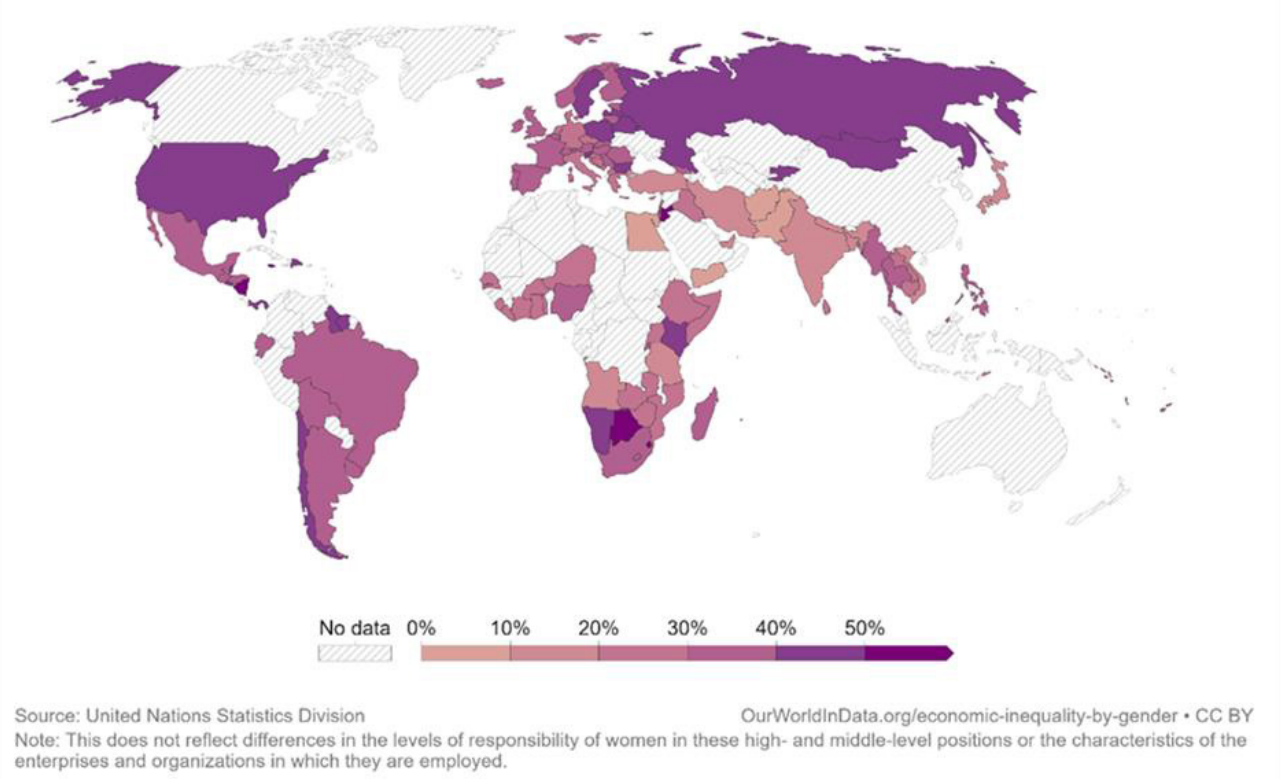


Figure 5: **Share and senior and middle management positions filled by women, 2021**

Source: UN (2023)

The figure 5 refers to senior and middle management positions held by women. Where there is a higher percentage is in Jamaica (63.9%) and the lowest percentage is in Yemen (4.5%). In Europe the highest percentage is in Russia (43.2%) and the lowest in Italy (23%).

Regarding Europe, the country that has more women in management positions is Latvia (32.6%) and the one with the least is Kosovo (2.7%). Portugal is not the country in Europe with the highest rates, but it is also not the country with the lowest rate, with a percentage of 35.7%.

3.2. Sustainable Development Goal 6

In the case of SDG 6, the UN has defined 8 targets and 11 indicators, three of these targets and indicators will be analyzed: Safe and affordable drinking water, with the indicator of safe drinking water; End open defecation and provide access to sanitation and hygiene with the indicator of safe sanitation and hygiene, and finally the target of Improve water quality, wastewater treatment and safe reuse with the indicator of safe sanitation and hygiene.

First, the target of Safe and affordable drinking water will be analyzed. The goal is to achieve universal and equitable access to safe and affordable drinking water for all. This refers to a safely managed drinking water service that is available when needed and free from contamination. The definition of access to sanitation facilities ranges from safely managed (not shared with other households, excreta disposed of in-situ), basic (under 30mis to collect), limited (over 30mis to collect), unimproved (water from an unprotected dug well or unprotected spring), and finally surface water (water directly from a river, dam, lake, pond, stream, or canal) (UNICEF, 2020).

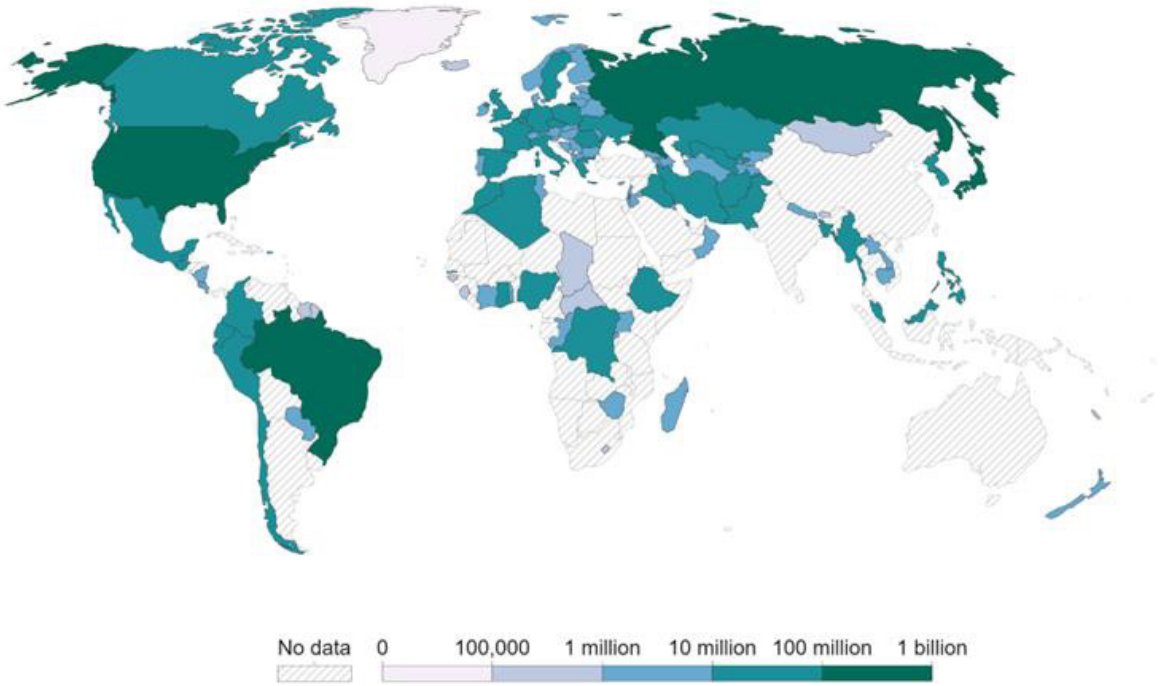


Figure 6: **Number of people with access to safely managed drinking water, 2020**

Source: UN (2020)

This first chart shows how many people count with safely managed water globally. This information can help us figure out what countries need to pay more attention to SDG 6 and how it's more optimal for them to implement it. The European continent shows a reasonable amount of people with safely managed water according to the number of populations in each country.

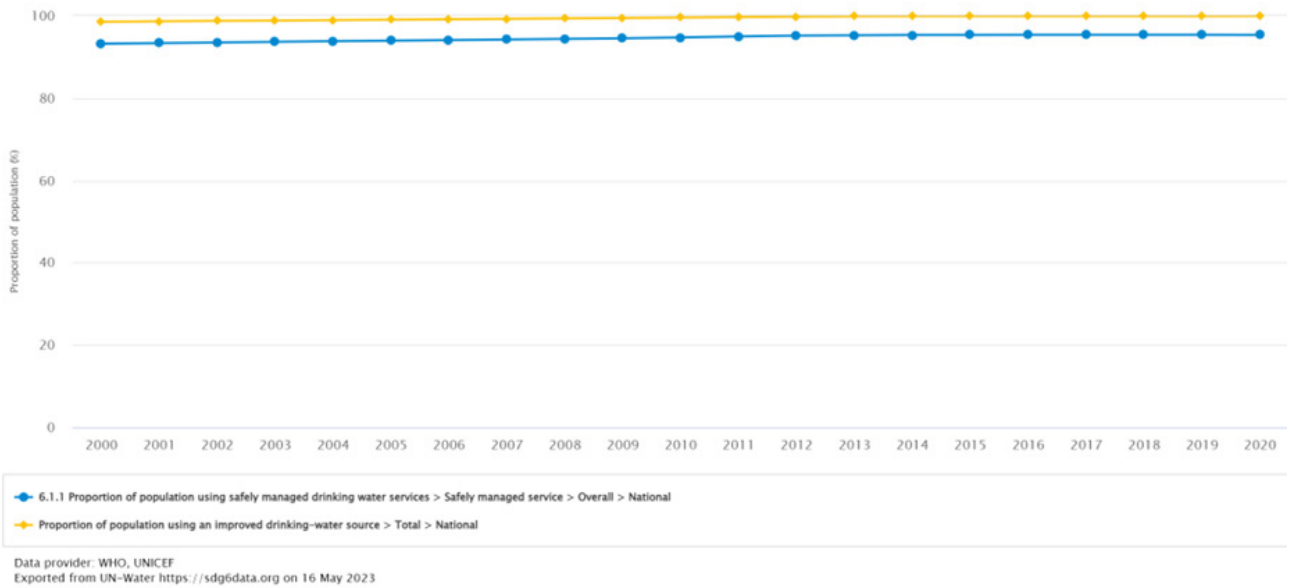


Figure 7: **Proportion of population using safely managed drinking water services in Portugal, progress over time**

Source: UN (2020)

Finally, figure 7 shows the progress in Portugal's sanitation and drinking water access over time. The blue line represents the proportion of the population using safely managed drinking water, and the yellow line represents the portion of the population using an improved drinking water source.

The second indicator that will be analyzed is the "Proportion of the population using safely managed sanitation services and a hand-washing facility with soap and water". This refers to the share of the population using safely managed sanitation facilities and at least basic handwashing facilities. A safely

managed sanitation facility means one where excreta is safely disposed of in situ or treated off-site. A basic handwashing facility is determined as a device to contain the flow of water to facilitate handwashing with soap and water in the household (UNICEF, 2020).

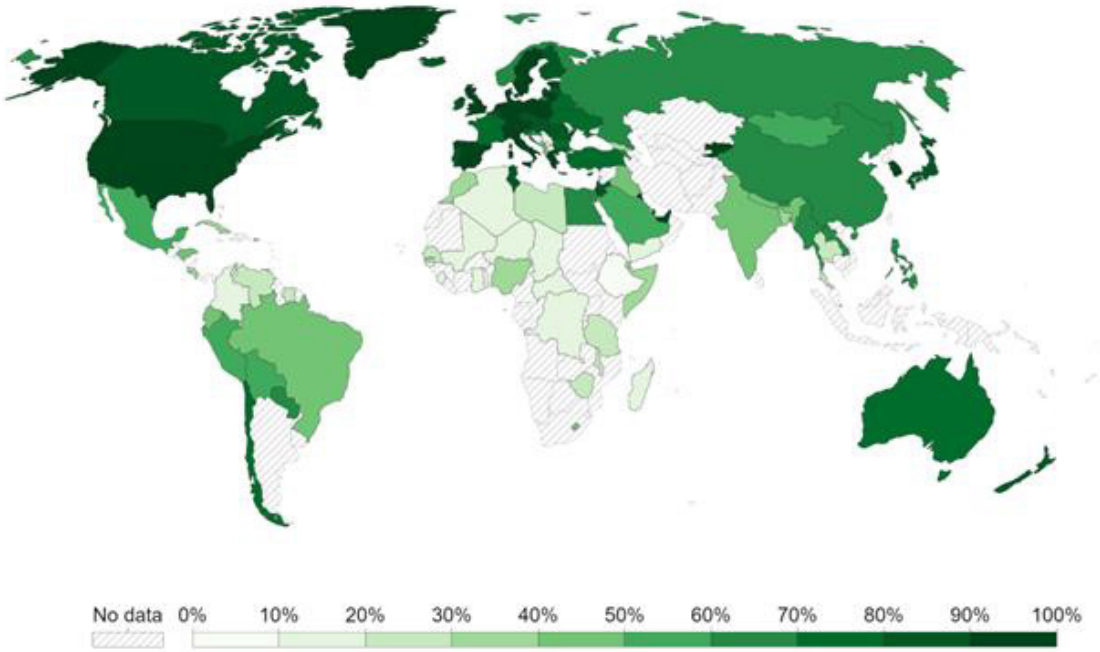


Figure 8: **Share of population using safely managed sanitation facilities, 2020**

Source: UN (2020)

Figure 8 shows the percentage of people in each country globally that have access to safely managed sanitation facilities. European countries and the United States range from 95% to 100% of the population. The ones in the lowest percentage are African countries ranging from only 6.68% of the population in Ethiopia to a maximum of 67. 06% in Egypt.

Focusing on the European continent, among the highest percentages of 90 to 100% are Germany, Switzerland, Sweden, Spain, Greece, U.K, Lithuania, Austria, Italy, Denmark, and Estonia. Among the lowest are North Macedonia with 12.2%, Serbia with 18%, Montenegro with 45%, and Albania with 47%.

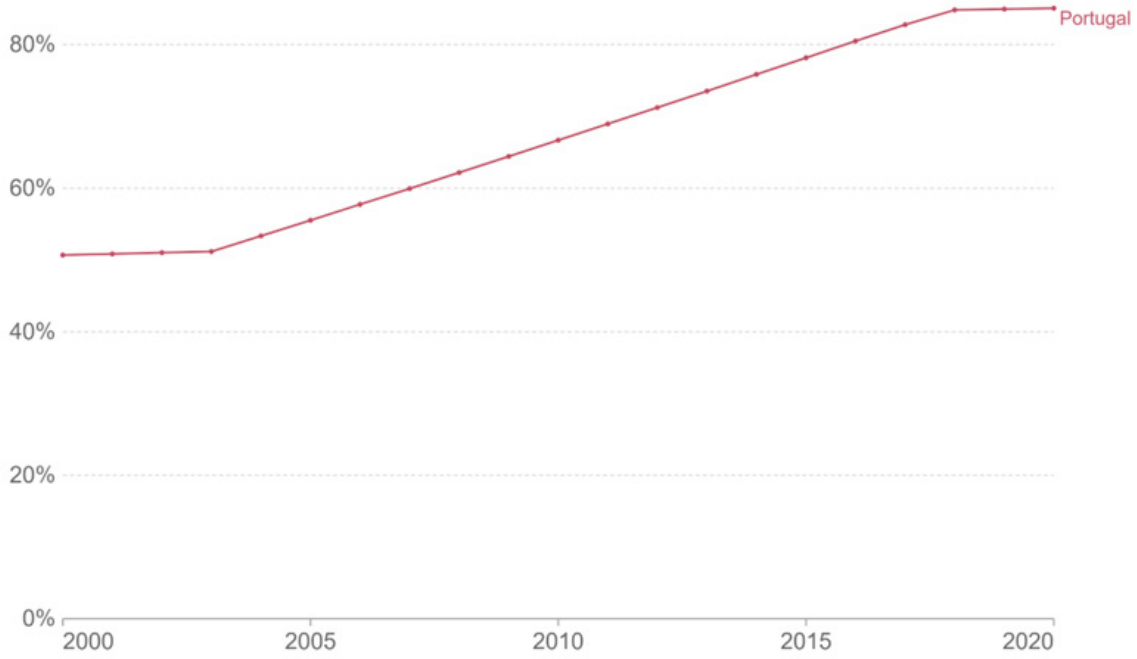


Figure 9: **Safely disposed in situ or transported and treated off-site**

Source: UN (2020)

Finally, this graphic shows the progression of the share of the population using safely managed sanitation facilities in Portugal. Starting with 50% of the population in the year 2000 and reaching a high of 85% of the population in 2020.

The last indicator that will be analyzed from SDG 6 is the proportion of wastewater that is safely treated. This indicator is looking to meet the goal of "Halving the proportion of untreated and substantially increasing recycling and safe reuse globally" by 2030.

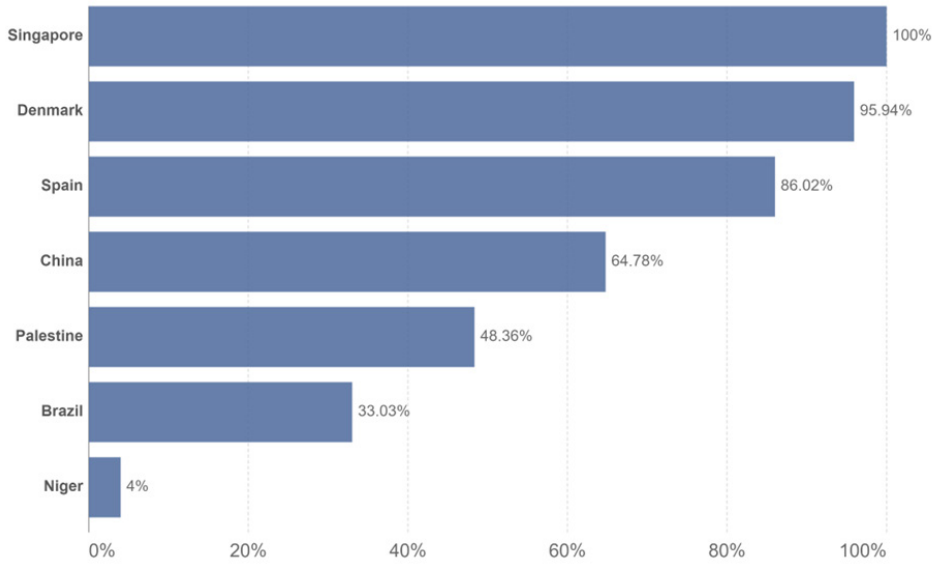


Figure 10: **Share of domestic wastewater that is safely treated in the world, 2020**

Source: World Health Organization (2020)

This chart shows some significant countries globally and their percentage of domestic water that is safely treated. At the top of the chart is Singapore which manages to safely treat 100% of its wastewater, at the bottom is Niger with only 4% of its wastewater treated safely.

This map illustrates the share of domestic wastewater that is safely treated in European countries. Most of the countries are in the range of 80-100%, however, Russia and North Macedonia encompass the lowest range of 0-20%.

In this same European map, we can focus on Portugal. Portugal safely treats 73.58% of its domestic wastewater. It's a good range that has been augmenting over the years, so the trend is for it to go up.

3.3. Sustainable Development Goal 8

Goal 8 is formed by several goals, as already mentioned, and in this study an evaluation of three indicators related to SDG 8 will be carried out. The selected indicators correspond to goals 8.3, 8.6, and 8.7. In target 8.3, according to the ILO (2017), small and medium-sized enterprises are the main generators of employment globally, accounting for at least two-thirds of all job opportunities. They are also the most impacted by the financial crisis, as access to credit has been increasingly restricted. Small businesses often operate in the informal sector, where working conditions are not regulated in practice. It is crucial to support small business in the coming years as labor markets evolve and entrepreneurial activity intensifies. Policies need to take into account the diversity of new enterprises in terms of size, structure and segment, and should facilitate access to finance and create an enabling environment for business success. It is important to improve working conditions and accompany micro, small and medium-sized enterprises in their transition to the formal economy. In this target the indicator 8.3.1 will be analyzed.

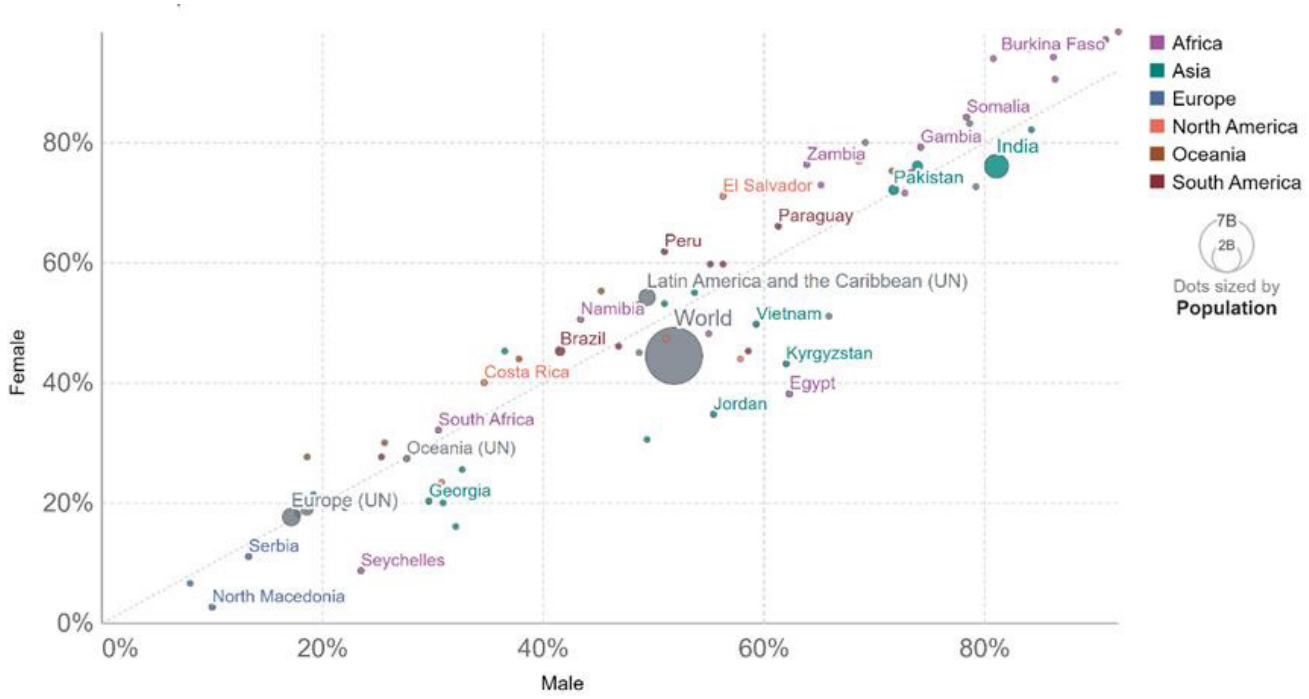


Figure 11: **Informal employment in non- agricultural workplaces, by sex, 2021**

Source: UN (2023)

The figure 11 concerns informal work, worldwide, in non-agricultural workplaces. The highest rate, in both genders, is from Benin, an African country. The data from this country is worrisome because of the high rate of 98.4% of women and 92.1% of men working in informal jobs. North Macedonia has the lowest rate relative to the other countries in the female gender (2.5%) and Bosnia and Herzegovina has the lowest rate relative to the male gender (8%).

For Europe there is little data, but from what we have we can already make comparisons. Serbia has the highest rates in both genders for informal work in non-agricultural workplaces. As in the previous figure, North Macedonia continues to have the lowest rate for females (2.5%) and Bosnia and Herzegovina has the lowest rate for males (8%).

Target 8.6, according to ILO (2017), globally, more than 73 million young individuals (between the ages of 15 and 24) were seeking occupation in 2014. The global rate of unemployed youth who are not enrolled in educational systems.

Furthermore, more than a third of employed youth in developing countries lived on less than US$2 a day in 2013. Early school leavers are the most likely to remain in jobs where their rights are not respected and in precarious and impoverished work situations. The experience of unemployment or underemployment in youth can leave deep scars that affect long-term employment and life prospects. Establishing a virtuous circle of education, high productivity, more quality jobs, and economic growth would bring vast social and economic benefits. It is crucial to develop strategies to support youth employment that combine an integrated approach to growth and job creation with targeted interventions, such as job search assistance or support measures for young entrepreneurs. Reducing the skills mismatch through training programs that meet labor market needs and include work experience modules in technical and vocational education is important. Investing in innovative forms of social protection is key to improving the financial security of workers in vulnerable jobs. In this goal indicator 8.6.1 will be analyzed.

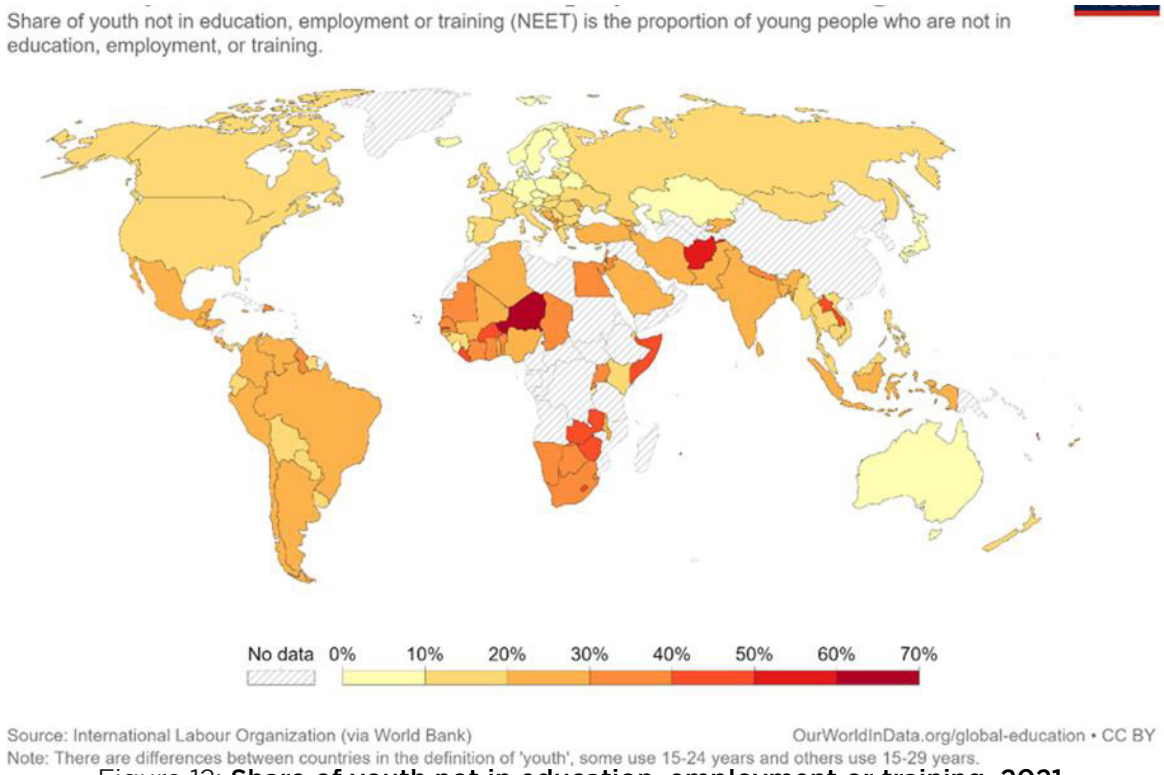


Figure 12: **Share of youth not in education, employment or training, 2021**

Source: UN (2022)

It is in Niger (65.86%), an African country, where the percentage of young people not working and not studying is highest overall. Next, in Afghanistan (53.76%) the rate is also quite high. The lowest rates are generally located in Europe, with the lowest rate not in Europe but in Asia, with Japan with a rate of 3.11%.

Regarding target 8.7, the ILO (2017) reports that some 168 million children, which is equivalent to more than 10 percent of the global child population, are engaged in labor activities. Although there has been a decrease in their number since 2000, the levels are still unacceptable. Worldwide, there are about 21 million people who are subjected to forced labor, more than 11 million of whom are women and young girls. Most victims are exploited by individuals or corporations, generating more than $150 billion in illegal profits a year. It is crucial that international labor standards be implemented at the national level, forming a solid framework in the fight against child labor and forced labor. A multilevel approach to eradicating child labor is needed, including legislation, universal access to education for all children, social protection for all families, and labor market policies. It is important to ratify at the national level the 2014 ILO protocol on forced labor, which contains provisions to eradicate modern forms of slavery. Under this goal, indicator 8.7.1 will be analyzed.

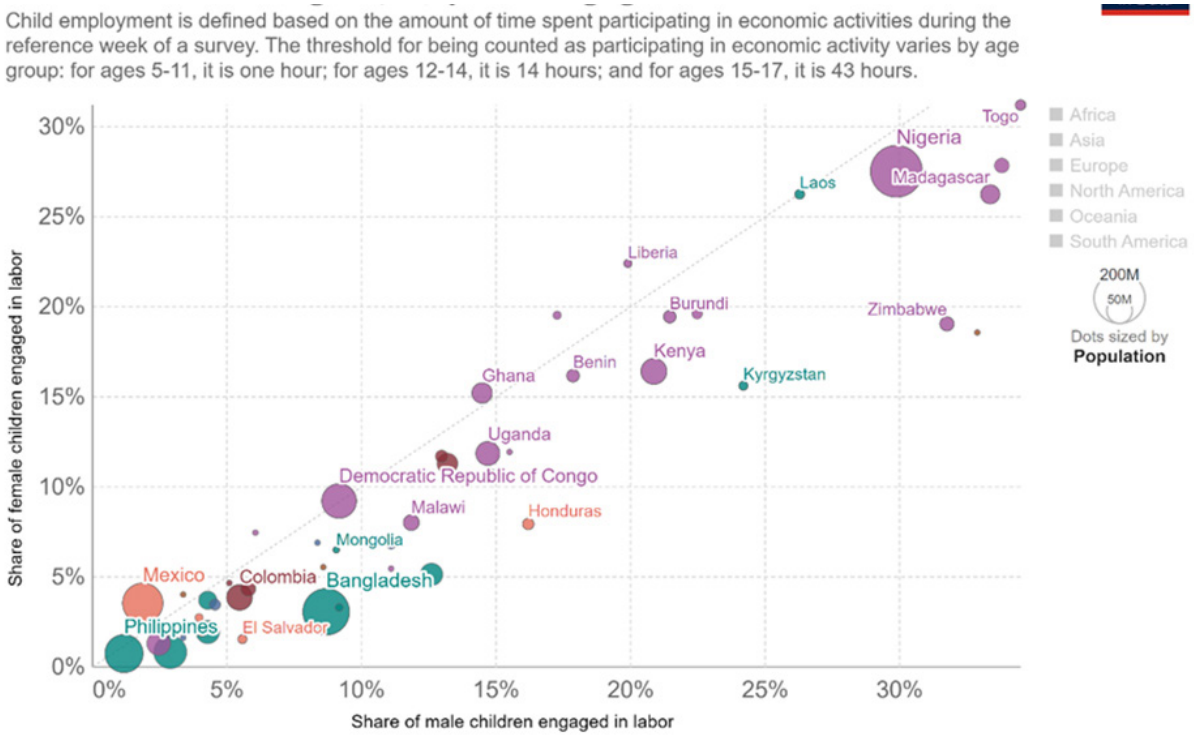


Figure 13: **Share of children aged 5- 17 years engaged in labor, 2020**

Source: UN (2023)

The figure 13 concerns the proportion of children aged 5 to 17 who work. We can clearly see that the one that deserves the most attention is Africa, not only because Togo, an African country, has the highest rate of underage children working in both genders but also because Africa (purple balls) appears most often in the figure. The Philippines has the lowest rate in both genders.

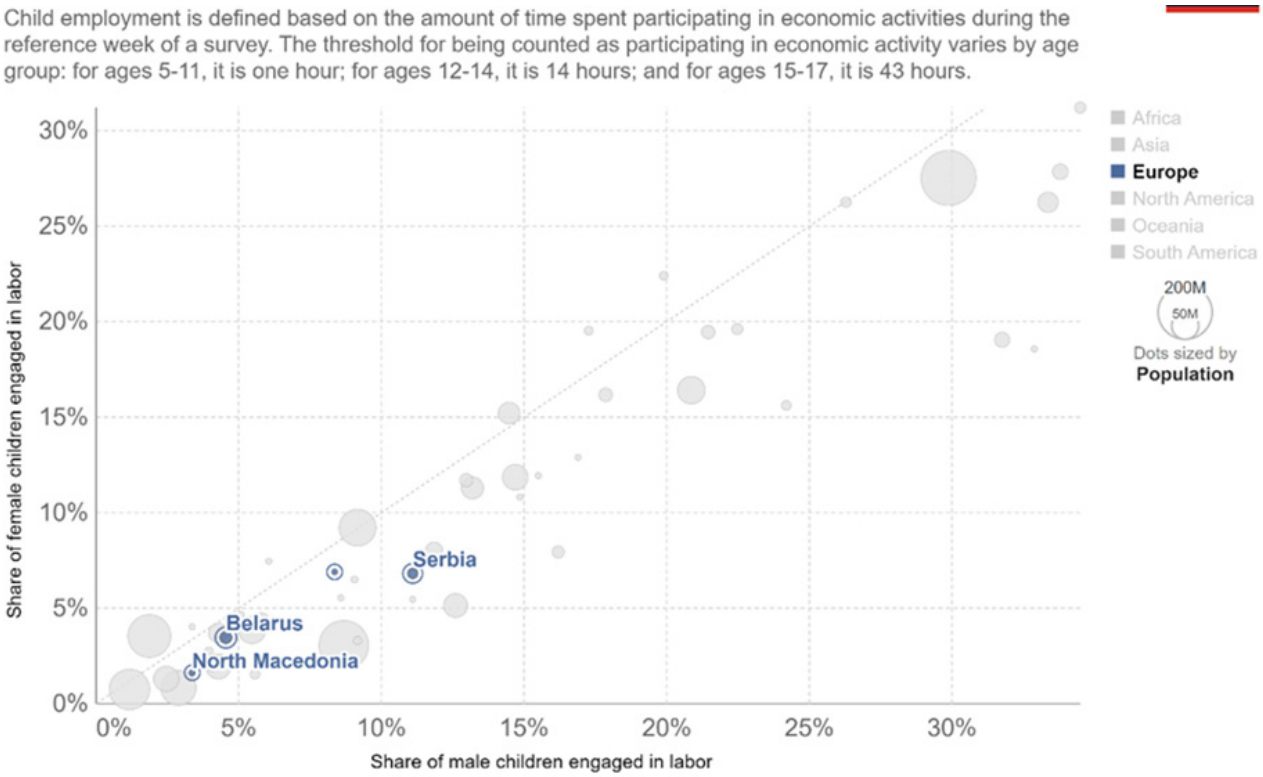


Figure 14: **Share of children aged 5- 17 years engaged in labor, 2020**

Source: UN (2023)

For Europe we have less data, but within what we have we see that Serbia is the country that has the highest proportion of male children working (11.1%), while Montenegro has the highest rate for girls (6.9%). North Macedonia is the country in Europe, within the data we have, that has the lowest percentage in both genders.

3.4. Sustainable Development Goal 9

Sustainable development refers to all of society's dynamics. The specifics that are proposed are related to SDG 9, industry, innovation, and infrastructure. The report will analyze 3 of the 12 indicators used. SDG 9 is divided into 12 indicators, which focus mostly on sustainability across the board. Building decarbonized and accessible communities. The focus on transportation, micro-enterprises and national companies, and energy for all is a priority of this agenda. Proving also that it improves productivity and wages at a general level. The indicators chosen were 9.1, 9.2 and 9.4, representing industry, information technology and accessibility; CO2 emissions of value added, manufacturing value added as a percentage of GDP and per capita, share of gross value added of micro-industrial enterprises in total industry.

This indicator, 9.c.1, is part of target 9.C "universal access to information and communications technology" and aims to improve accessibility to technology, namely internet and forms of communication by 2020, in developed countries. This indicator encompasses two dimensions: number of smartphone subscriptions per 100 people, and number of mobile internet users.

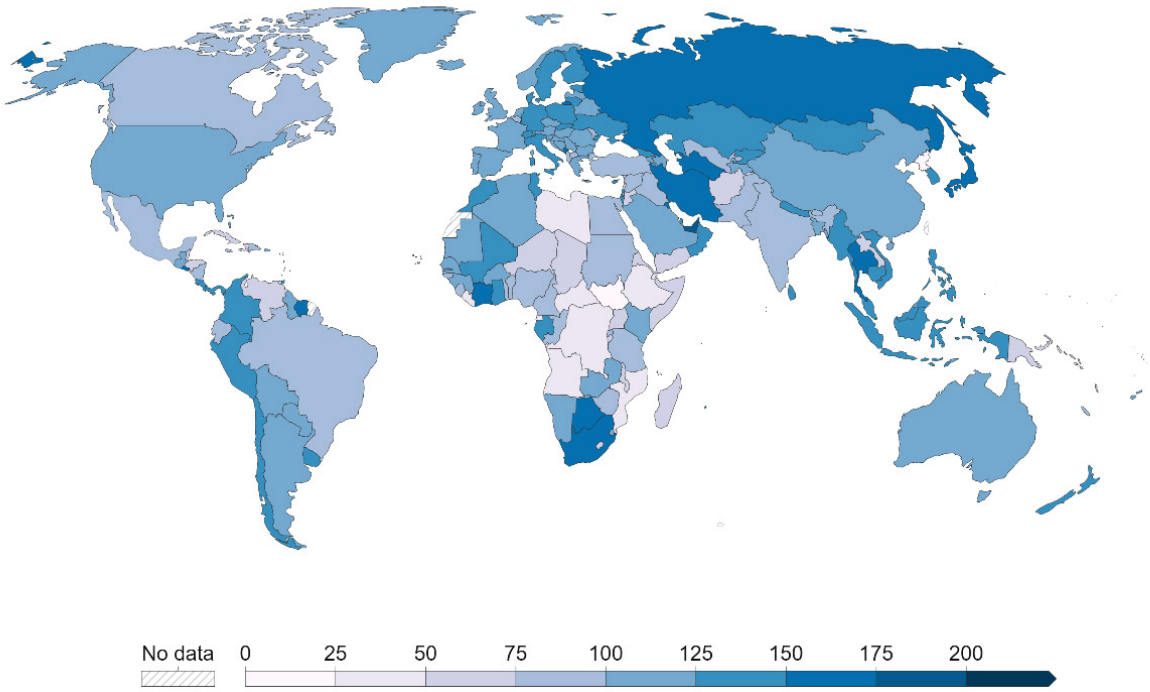


Figure 15: **Mobile phone subscriptions per 100 people, 2020**

Source: UN (2023)

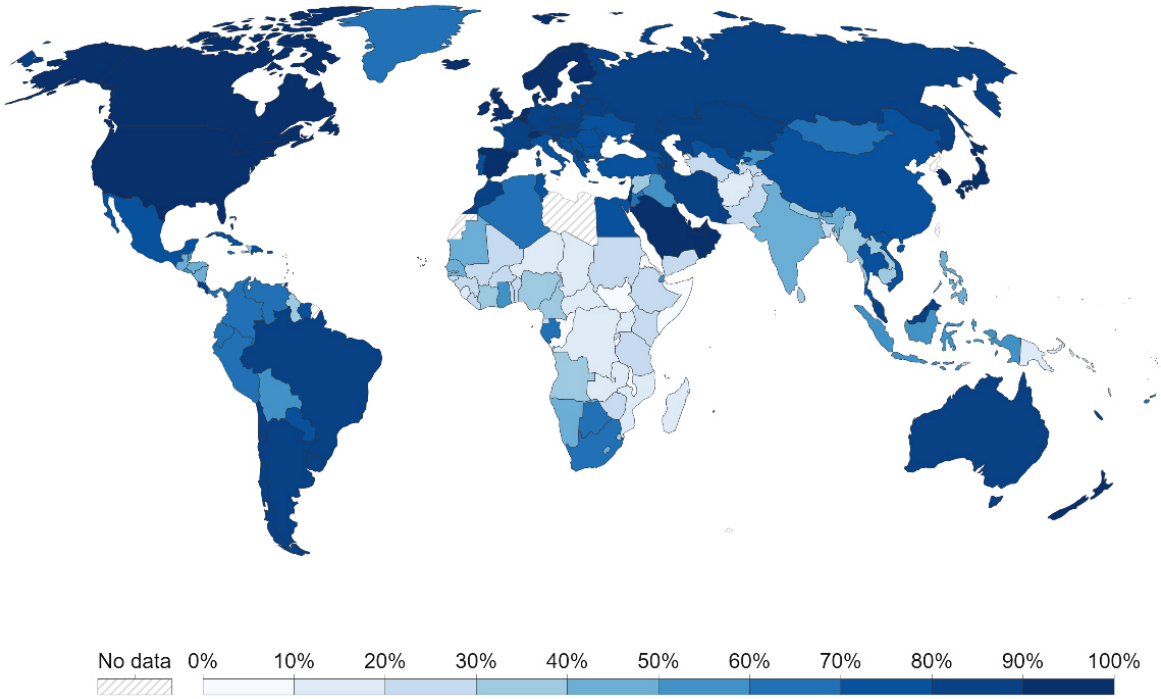


Figure 16: **Share of the population using the Internet, 2020**

Source: UN (2020)

The level of development in this indicator is remarkable. East Asia and Central Europe show favorable levels of improvement in this dimension. Presenting a percentage between 125% and 175%. Portugal presents an average level of about 116%. At the global level, the values are more discrepant. Nevertheless, there are few countries that have an index below 50%. However, based on the graphs, the countries that were already at a lower level have made the least progress.

Internet usage is progressing rapidly and efficiently. The level of smartphone subscriptions is substantially lower than the rate of internet usage. Where North American and European countries are at the highest values. Regarding figure 15, the country with the highest number of mobile subscriptions, and Sudan and North Korea with the lowest.

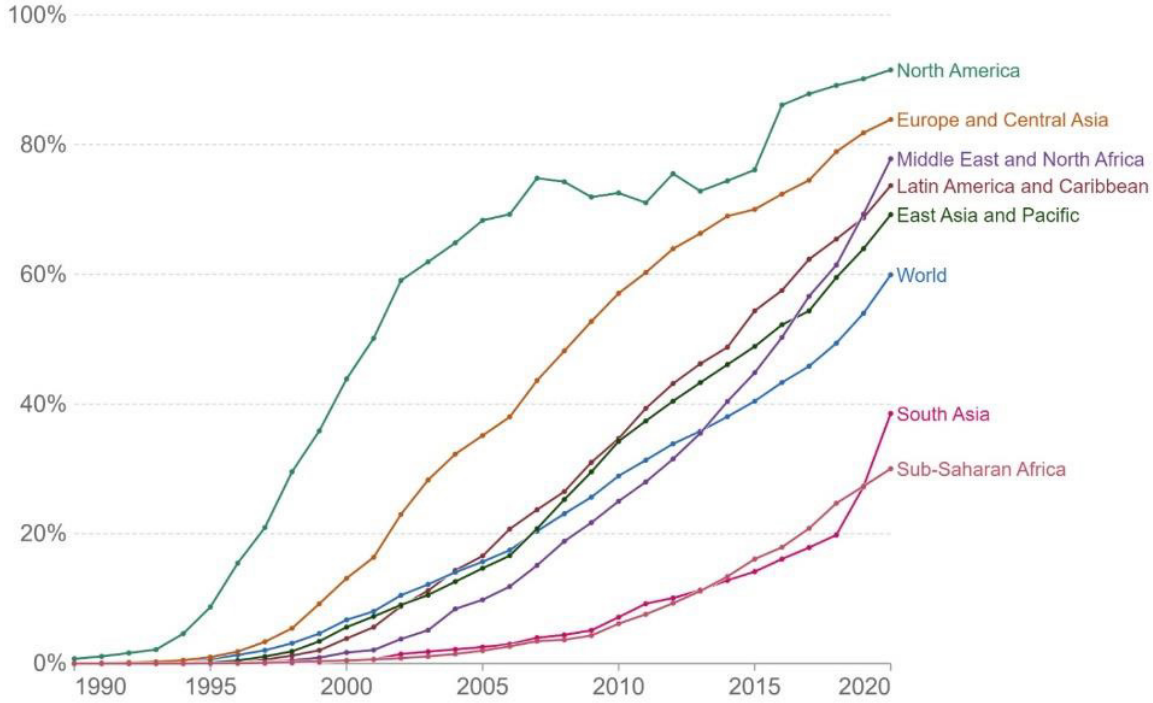


Figure 17: **Share of the population using the Internet, 2020**

Source: UN (2020)

More specifically, these graphs show the progress from 1990 through 2020. From the beginning of the century, the level of both dimensions was substantial. Both at the European and global levels.

Indicator 9.4.1 falls under the target 9.4 "upgrade all industries and infrastructures for sustainability" and measures carbon emissions and intensity per unit of economic value. This indicator focuses mainly on large polluting industries and technologies. By 2030 progress is imperative to have an efficient industry in which there is conscious choice regarding the environment and surrounding processes.

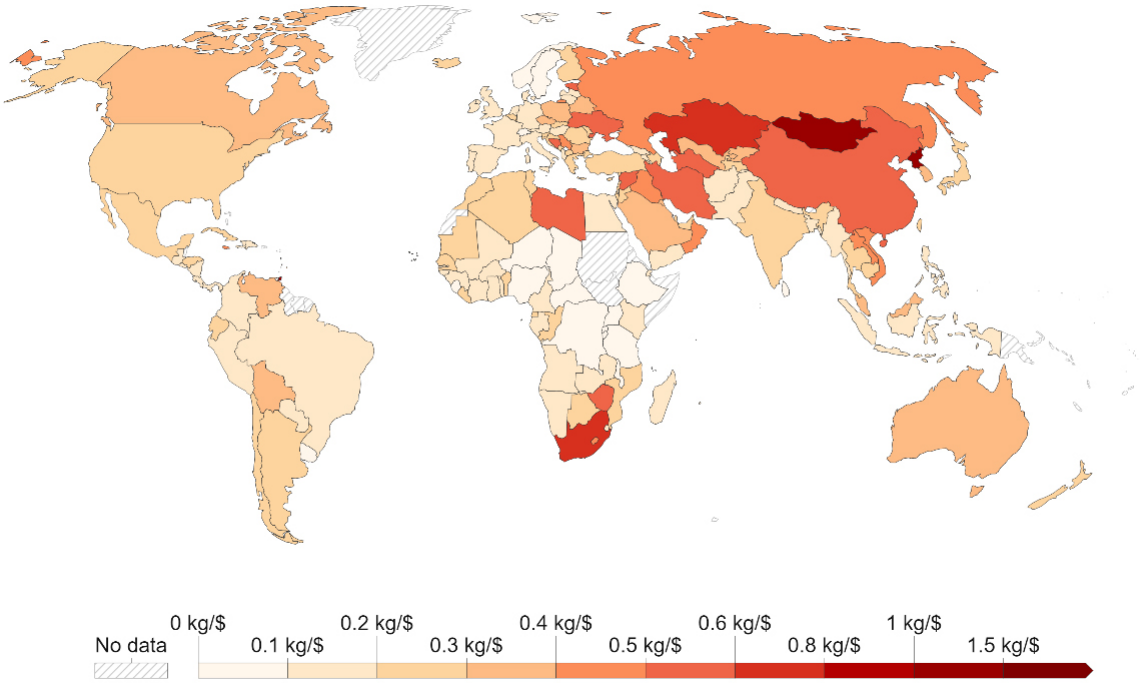


Figure 18: **Carbon emission intensity of economies, 2018**

Source: UN (2018)

On a global and European level, there is a difference between developed and developing countries. Emissions are high, remaining at 1.5kg/$. Portugal presents very low levels, compared to its European peers. The highest cvalues belong to Mongolia, North Korea, and Barbados. The lowest countries are a few, most of them belong to African countries.

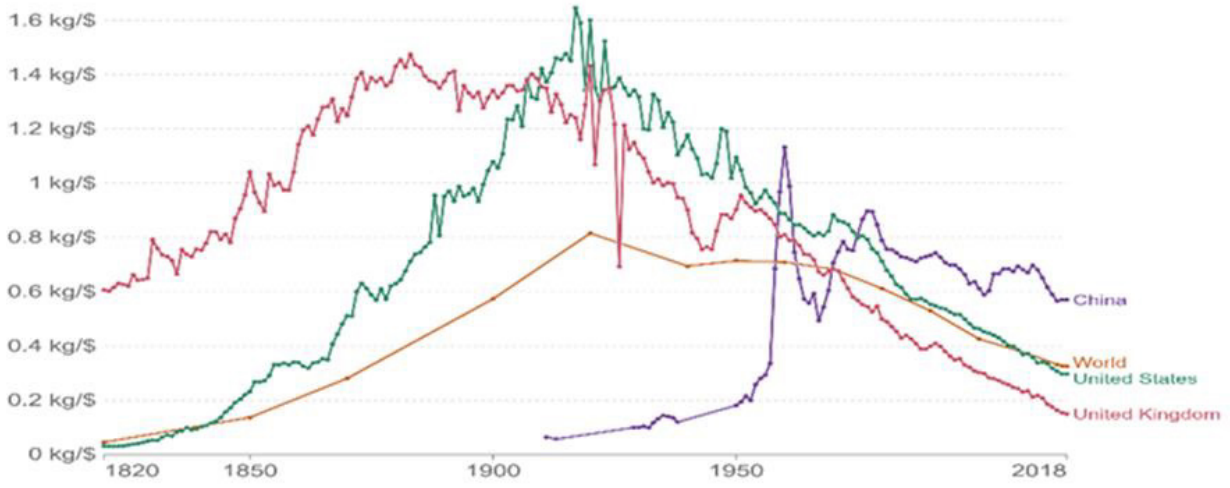


Figure 19: **Carbon emission intensity of economics**

Source: UN (2018)

Still, the emission has been decreasing over the years with public environmental policies.

This indicator 9.2.1 is part of the target 9.2 “promote inclusive and sustainable industrialization” and measures what part of the GDP comes from the manufacturing sector. One of the goals is to increase the share of industry in the employment sector, with the purpose of increasing GDP. Thus, benefiting domestic industries in both developed and developing countries.

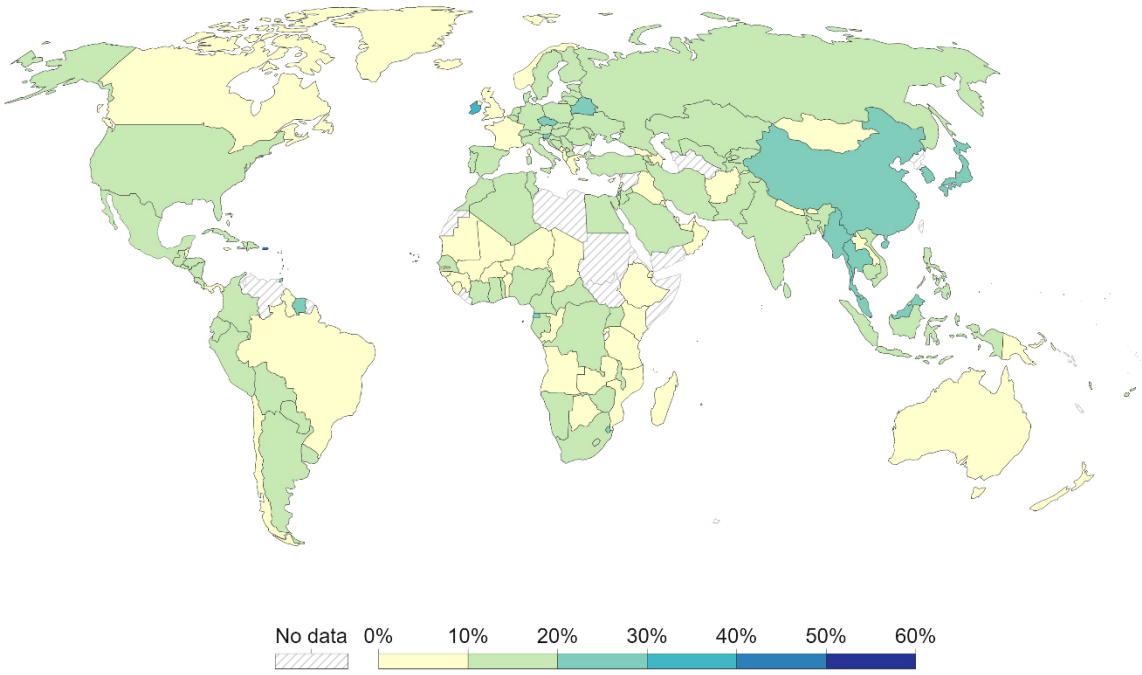


Figure 20: **Manufacturing`s value added to GDP, 2020**

Source: UN (2020)

In general, the focus on manufacturing is weak, and the values are average, compared for example with Belarus, the Czech Republic and Ireland, which have above average values.

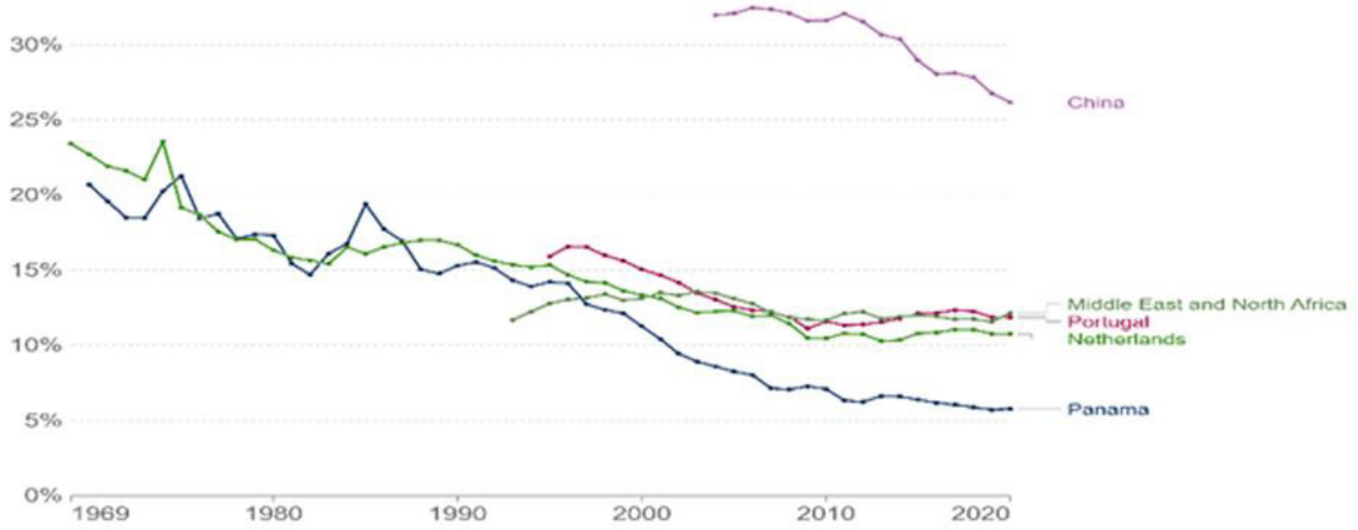


Figure 21: **Manufacturing`s value added to GDP, 1969 to 2020**

Source: UN (2020)

Portugal is, compared to countries with a strong industry, is not well positioned, compared with the type of industry. Considering that most of the countries with low emissions are Canada, Australia and a few countries in Europe with dynamic and string economies. Let’s also see that China has adapted its economy recently, yet it has established itself as one of the strongest in this indicator.

This indicator 9.3.1, which falls under the target 9.3 "increase access to financial services and markets", aims to assess the value that microenterprises represent in a country's gross domestic product, and consequently to evaluate whether progress has been made in this area, and improvements should be constant until 2030.

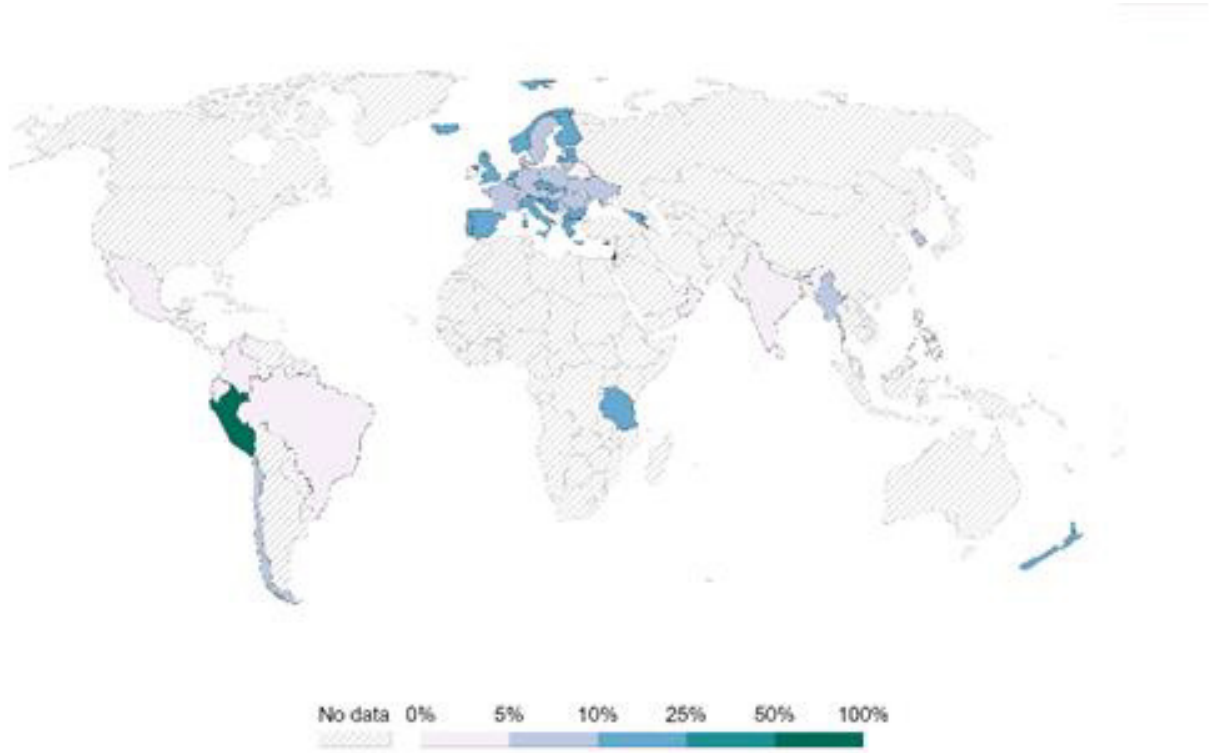


Figure 22: **Small-scale industries as a share of total industry value added, 2019**

Source: UN (2021)

We can observe that most countries do not present data to evaluate this indicator. However, at the European level, the levels are relatively positive, and Portugal presents an index capable of matching other European countries. With about 15% representation in the GDP. Peru, however, is the only country that with about 58% of the industry distinguishes itself from the others.

Overall, SDG 9 is progressing and is on track for maintaining SDG achievement. Even though there are challenges that remain.

3.5. Sustainable Development Goal 11

The SDG 11 indicators focus on the sustainable growth of cities, from sanitation to street safety, housing, and transportation. It is composed of 15 indicators, of which I will only address three: integrated disaster risk management, urban and regional planning, and urban air pollution.

This indicator, 11.B.1, falls under the target 11.B "implement policies for inclusion, resource efficiency and disaster risk reduction" and presents values that allow to analyze the degree of measures implemented for the management of natural risks. This indicator had until 2020 to have an equal implementation, or at least existing in some countries.

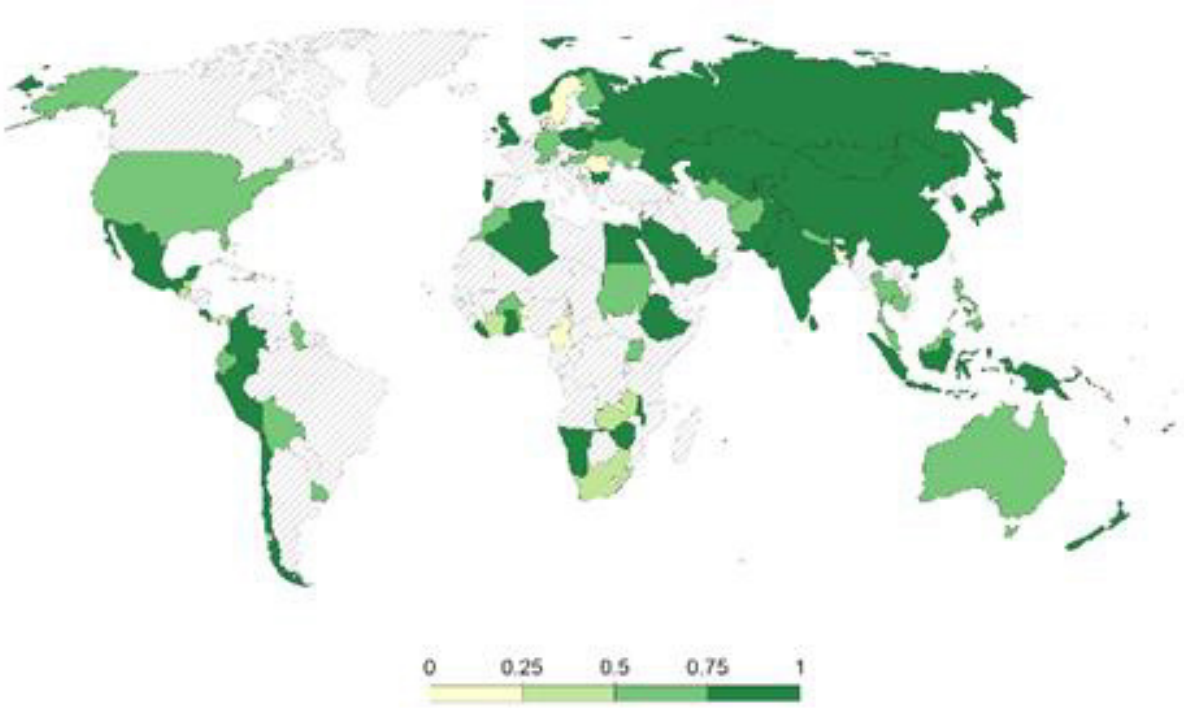


Figure 23: **Adoption and implementation of policies to reduce disaster risk, 2021**

Source: UN (2021)

In general, prevention measures spread across the globe. At very favorable levels, between 0.75 and 1 in the Sendai Framework for Disaster Risk Reduction 2015-2030 index, we can relate the economic and infrastructure level to the public policy index. It is also important to denote that the places that bet on these measures are prone to these natural events.

Portugal has a 0.9 index, and compared to other countries, is at a positive level. It is important to note that there are few countries that present the last level of evaluation, from 0% to 25%, such as Sweden and Camaron, which is quite positive.

This indicator 11.A.1, integrated into the regional and urban planning target 11.A assesses the number of people living in cities that are committed to planning, regional cooperation, and a healthy city environment by 2030.

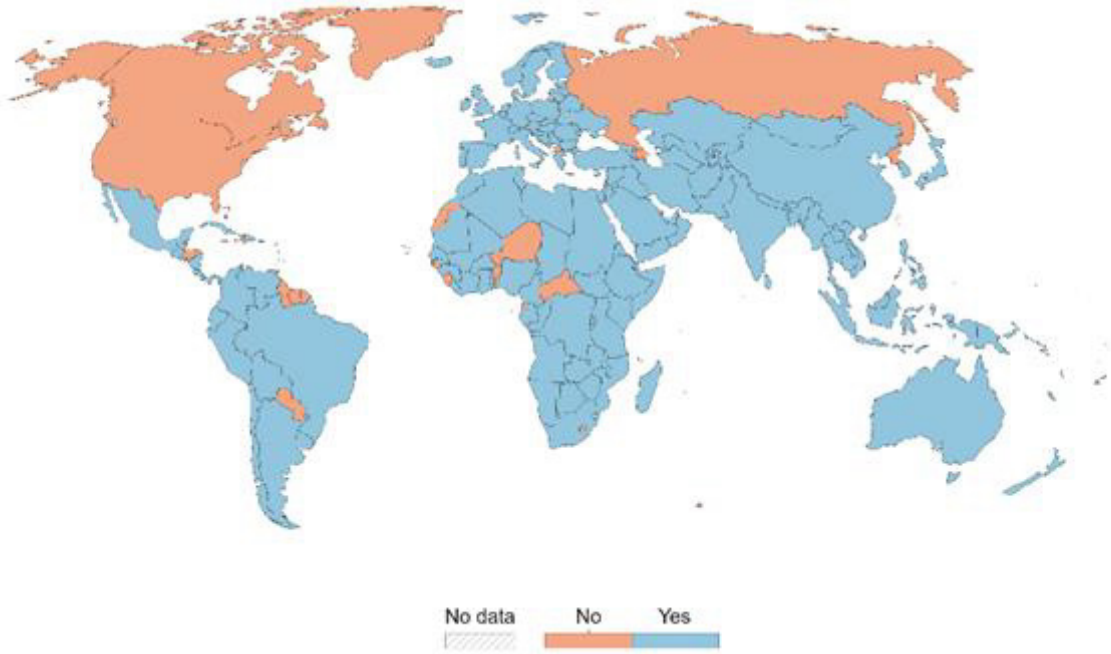


Figure 24: **Urban policies that respond to population dynamics,2020**

Source: UN (2021)

The discrepancy in data is striking and drastic. The options vary between yes and no, it is only Russia and Canada, and some countries in Latin America and the African continent do not present decent support for the inhabitants. Considering that Portugal has a "yes" policy, comparing to most of the countries in the world.

The indicator 11.6.2, shown, covers environmental issues and allows us to evaluate the number of individuals exposed to pollutant gases, and particles that measure at least 2.5 microns in diameter.

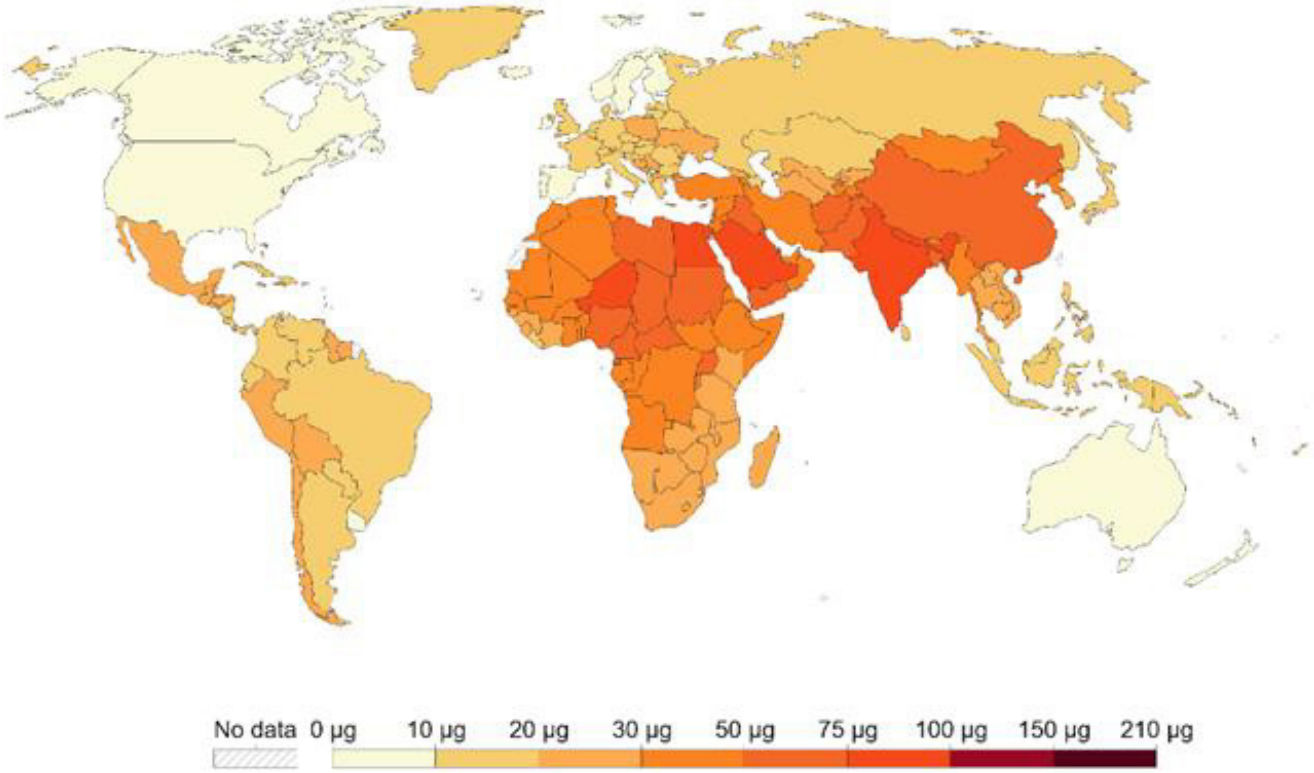


Figure 25: **Exposure to air pollution with fine particulate matter, 2017**

Source: UN (2021)

The values are not similar, nor are they very high. We have the countries of the Middle East and Asia, which present the highest values, worldwide, with about 50-75 ug. The North American and Australia stand out on the positive side with residual pollution.

Portugal, in comparison with the countries noted, is quite well positioned, with about 8 ug per cubic meter.

In general, the challenges remain according to the UN, this SDG is moderately improving and at this moment is impossible to attain in Portugal.

3.6. Sustainable Development Goal 14

For SDG 14, there are 10 targets and 10 indicators, of which only 3 will be analyzed. The first goal is "Reduce marine pollution" with the indicator "index of coastal euthtrophication and floating plastic density"

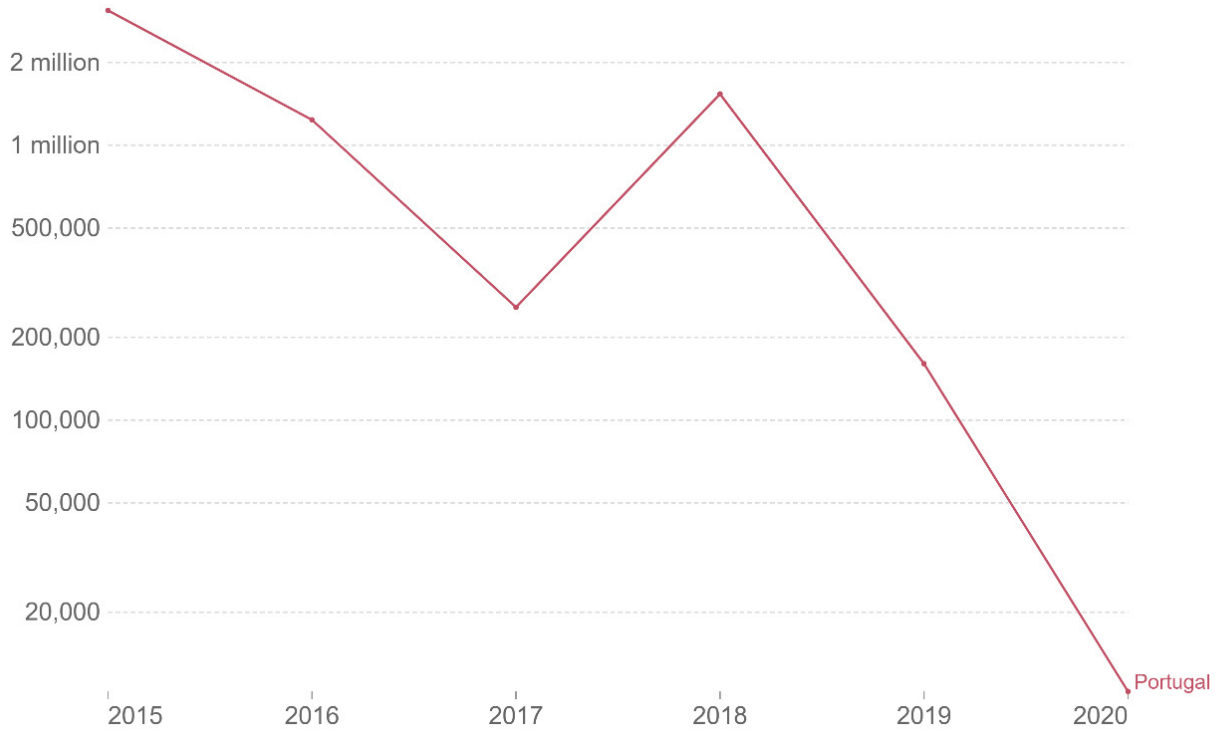


Figure 26: **Beach litter, 2015 to 2020**

Source: UNICEF (2020)

This chart illustrates the average amount of items of plastic beach litter per square kilometer, with representative countries globally. The country with the most amount of plastic beach litter is Ghana with 100 million per square kilometer in 2020. The country with the least amount of beach litter is Barbados with 2,458 plastic items per square kilometer in 2018.

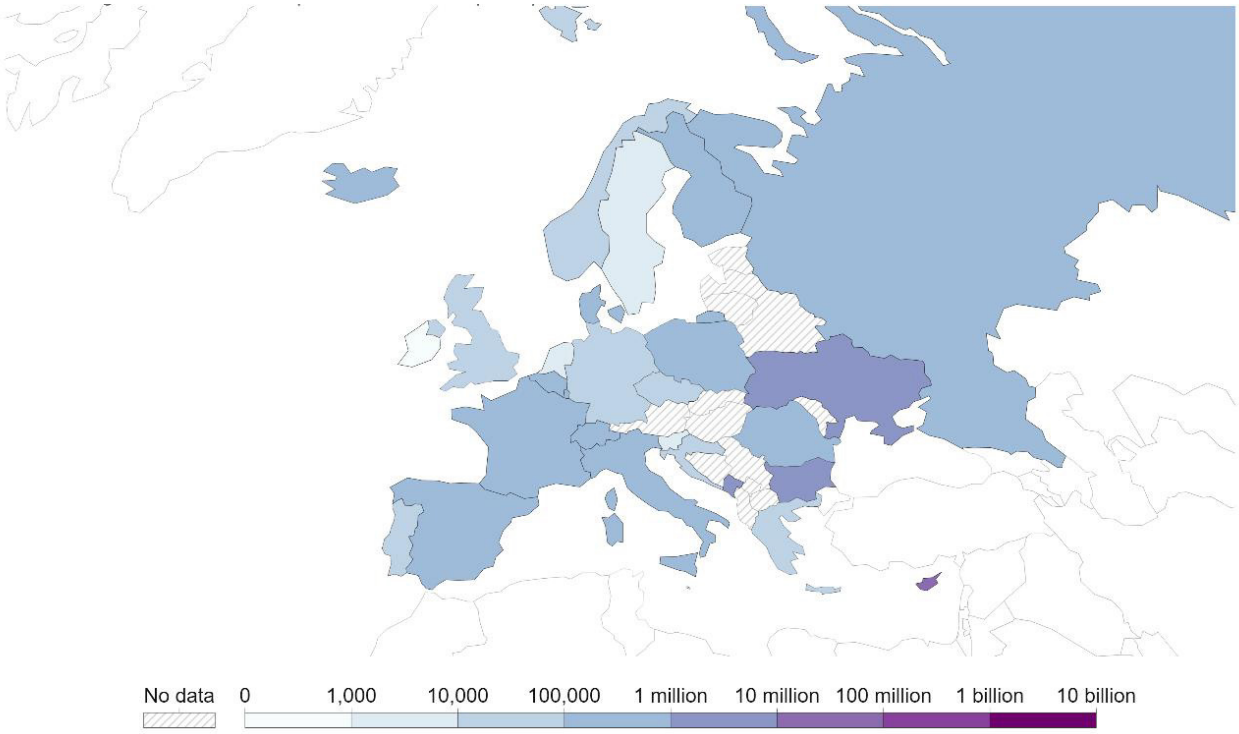


Figure 27: **Beach litter, 2020**

Source: UNICEF (2020)

This next graphic demonstrates the average count of plastic items in European countries. The countries with the most amount of plastic beach litter are Ukraine and Bulgaria that within the range of 10,000 to 1 million. On the other hand, the countries with the least amount of beach litter are Ireland in the range of 0 to 1,000, and Sweden, Netherlands, and Slovenia which are within the range of 1,000 to 10,000.

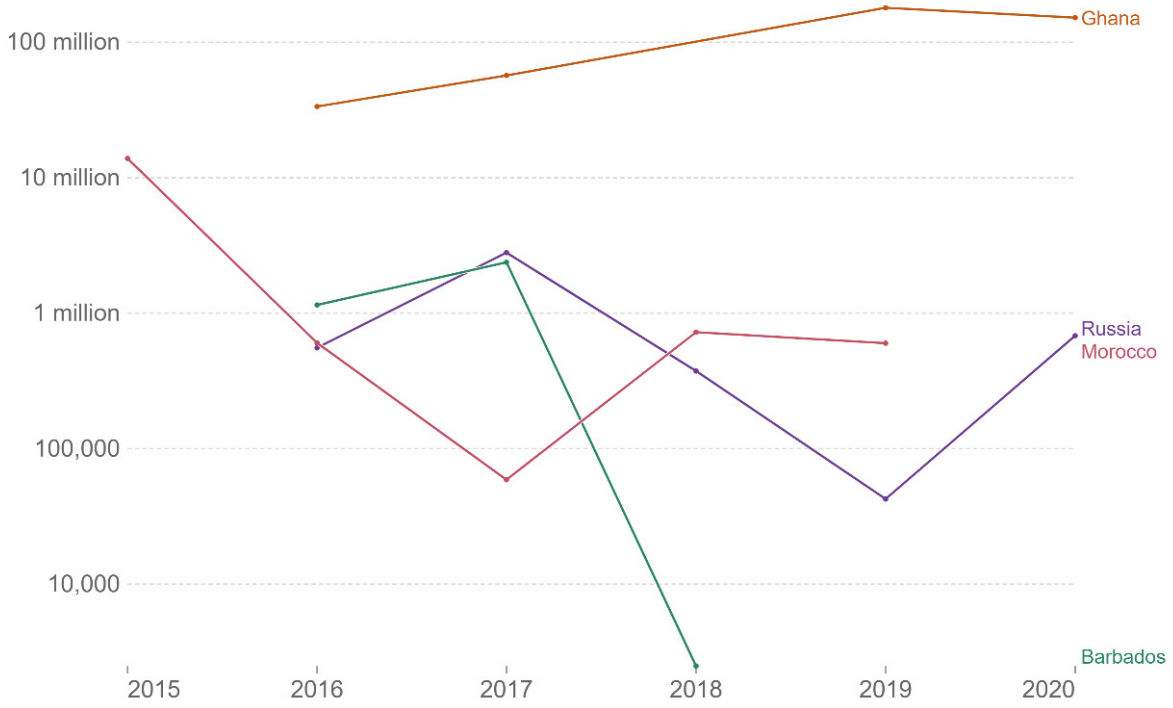


Figure 28: **Beach litter, 2015 to 2020**

Source: UNICEF (2020)

This last chart shows Portugal's progress over the years in reducing their average amount of beach litter. The country had on average 2 million in 2015, and in 2020 had 10,000. The country has made significant progress and has a positive decrease every year.

The next goal from SDG 14 to be analyzed will be "Protect and restore ecosystems" and its indicator the "proportion of national exclusive economic zones managed using ecosystem-based approaches". Unlike most SDGs that are targeted to be completed for the year 2030, this one is targeted for 2020. It focuses on the importance of ecological integrity, biodiversity, and overall ecosystem health.

Figure 29: **Countries using ecosystem- based approaches to manage marine areas, 2021**

Source: United Nations Environment Programme (2021)

This chart shows globally which countries are using an ecosystem-based approach. Unfortunately, there isn't sufficient data, but the graphic shows only Colombia, Belize, Jamaica, Germany, Denmark, Lithuania, Finland, Bulgaria, China, Vietnam, Cambodia, China, Malaysia, Indonesia, and Thailand as the countries using an ecosystem-based approach. The rest of the countries worldwide have not provided any data.

The continent that is the most representative is Asia with seven countries following this approach. Europe only has 5 countries, and America has 3 countries using this approach.

From this graphic, it's simple to deduce this SDG goal is not being met and did not reach its target of completing this indicator by 2030. It's still complicated to make analysis since a significant amount of data is missing, which resolves to show an example of how the difficulty of finding data complicates meeting the SDGs.

The last goal of SDG 14 to be viewed is "Protected marine areas" and its indicator "coverage of protected areas in relation to marine areas". This means particular marine areas, especially those with high biodiversity, that are reserved and protected within national and international law. This indicator is looking to measure the share of territorial water which are protected (UNICEF, 2020).

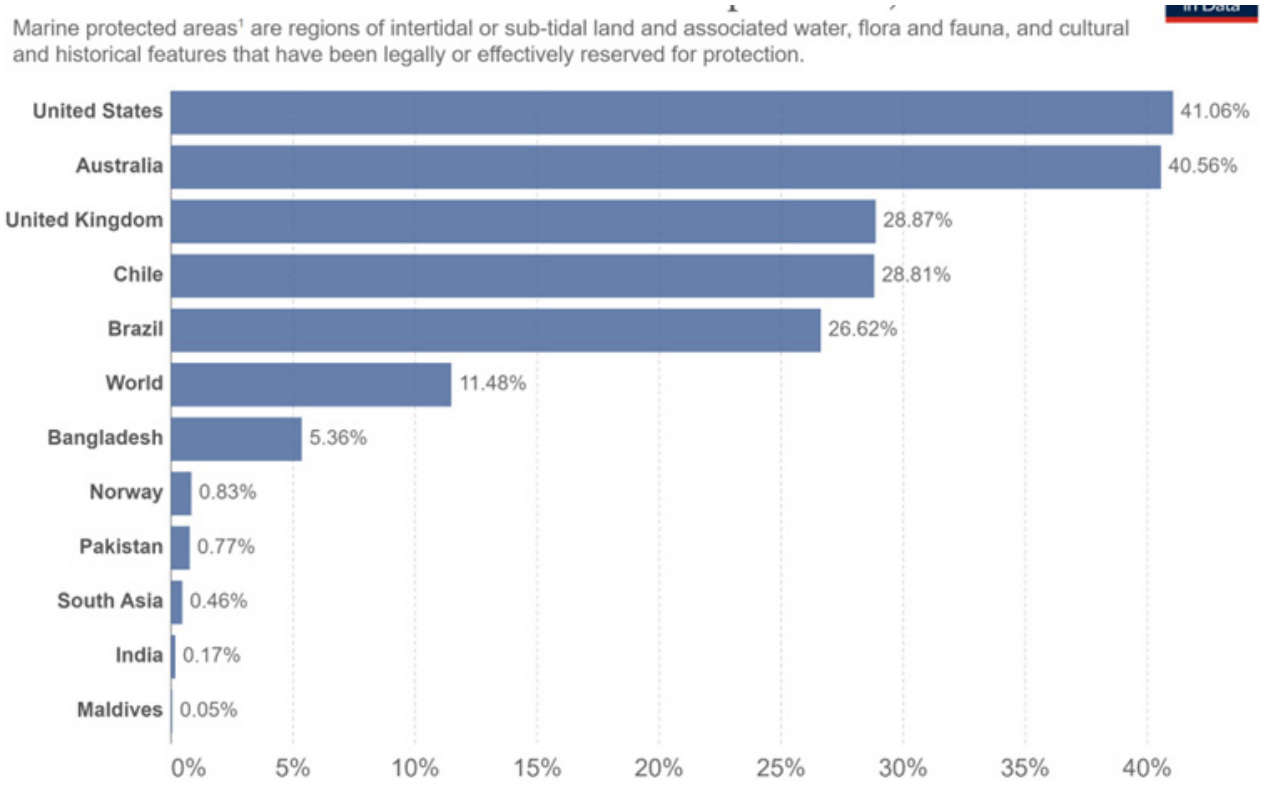


Figure 30: **Share of marine territorial waters that are protected, 2018**

Source: UN Environment Programme (2018)

Figure 30 illustrates the percentage of marine territorial waters that are protected globally. It highlights the countries that have a higher percentage of protected marine territorials and the ones with a lower percentage. The world's average percentage of protected marine territorials is 11.48%, the countries with the highest percentage are the United States (41.06%) and Australia (40.56%). On the other hand, the countries with the lowest percentages are the Maldives (0.05%) and India (0.17%). These statistics can act as a guide to which parts of the world it's necessary to pay attention to.

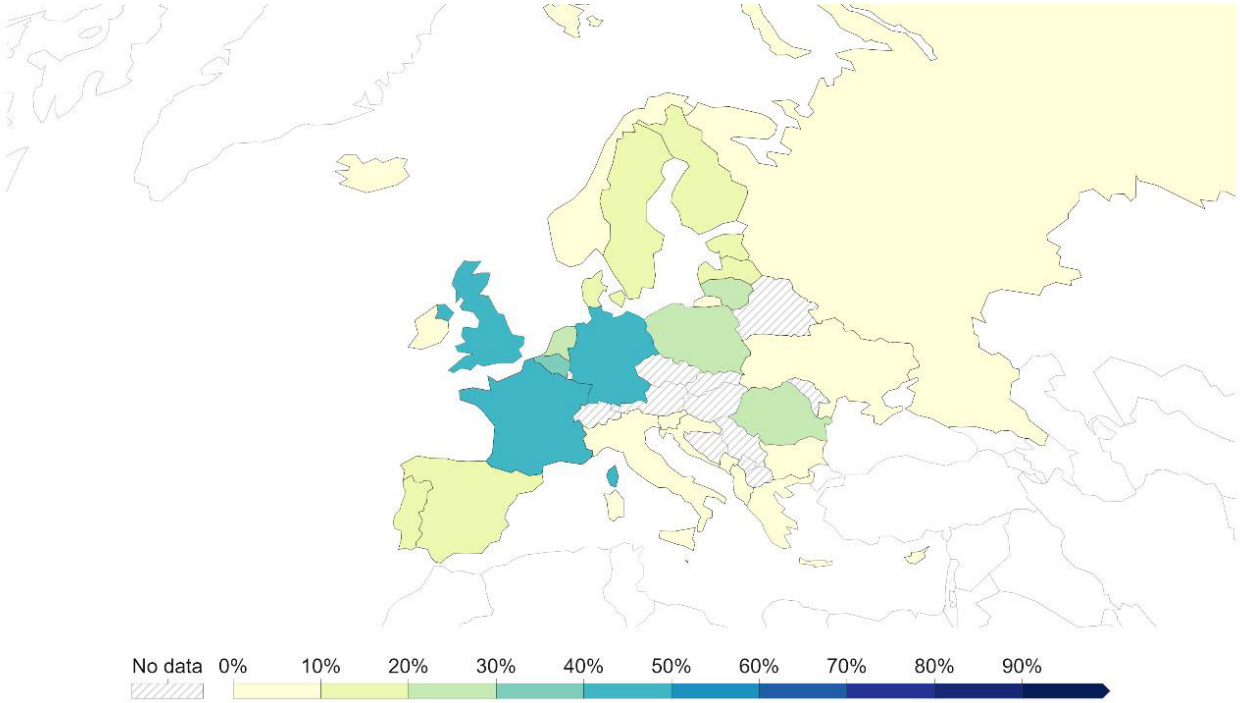


Figure 31: **Share of marine territorial waters that are protected, 2021**

Source: UNICEF (2022)

Figure 31 showcases European countries' percentages of protected marine territorials. The ones with the highest percentages fall within the range of 40-50% and are the U.K, France, and Germany. The ones that fall within the lowest range of 10-20% are Portugal, Spain, Sweden, Denmark, Finland, Estonia, and Latvia.

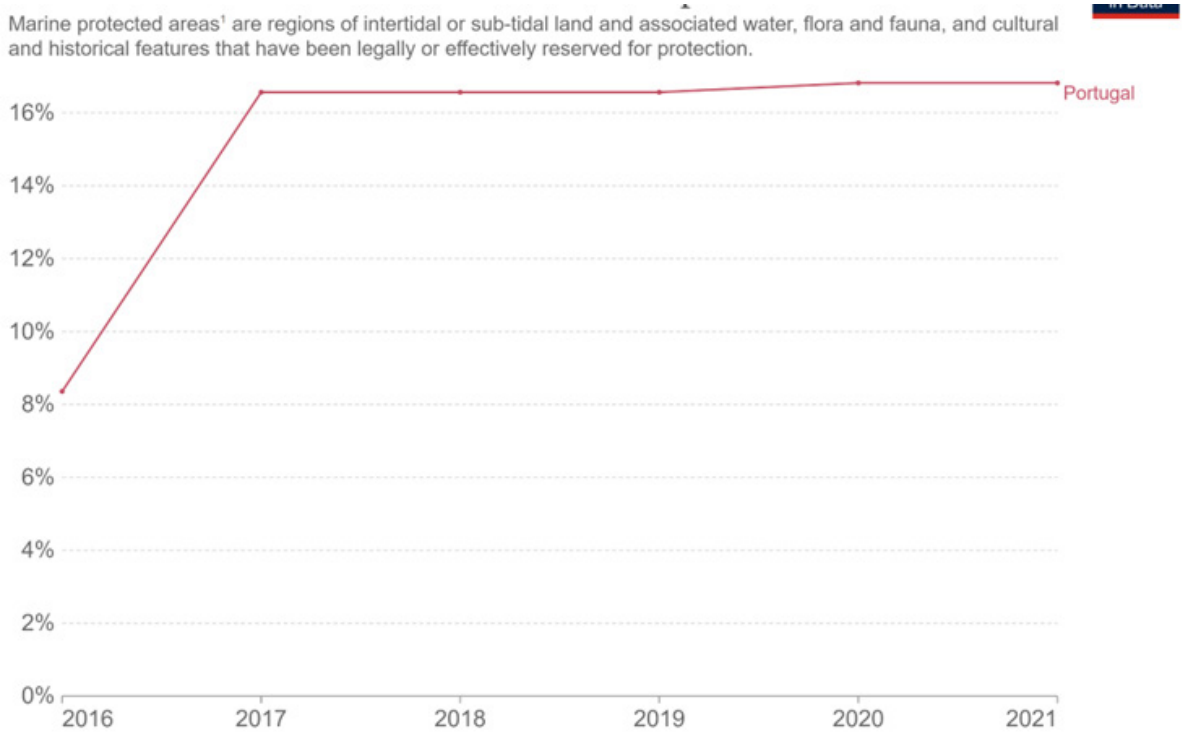


Figure 32: **Share of marine territorial waters that are protected**

Source: UN Environment Programme (2021)

Finally, figure 32 illustrates Portugal's progress over time regarding the country's share of protected marine territorial waters. Starting in 2016, with 8%, in 5 years, the country has gone up to 16% of protected marine territorial waters.

4. Case Studies on Sustainable Development Goals Implementation

In the coming years, the main global challenge will be to meet the demands of an ever-growing population, which is expected to reach about 9-10 billion individuals by 2050, for jobs, income, energy, food, water, and materials (Allen et al., 2017). It is critical to keep resource consumption and environmental impacts within the Earth's natural limits, preserving its carrying capacity. Success or failure in achieving the SDGs will be contingent on implementation at the national level. However, the SDGs encompass a much more comprehensive, integrated, and holistic agenda than the Millennium Development Goals (MDGs) and are thus considerably more challenging for countries to implement. Barnes (2019) thinks that although countries are some of the key players in achieving the SDGs, the creation of a global partnership for Sustainable Development highlights that other stakeholders, such as private business, civil society, and international organizations, also have a crucial role to play in this effort.

The following case studies are about SDG 5

Tagga o teu futuro, EDP

Figure 33: **Tagga o teu futuro**

Source: BCSD (2023)

Projects, partnerships and commitments promoted by the EDP Group's Diversity and Inclusion area contribute to the Sustainable Development Goals. Among these projects, we highlight "Tagga o teu futuro", whose main objective was to bring students closer to the job market and demystify the idea that professions have a gender, valuing decision making. Training in unconscious bias also led the organization to reflect on the potential biases that can influence recruitment, development and promotion processes. Partnerships were maintained with organizations such as Inspiring Future, Professional Women Network, CITE and Associação Salvador, which enhance the action plan developed until 2018. EDP has also made organizational commitments, such as the UN Women's Empowerment Principles (BCSD, nd).

El Salvador

Figure 34: **El Salvador**

Source: UNICEF (2022)

In El Salvador, a joint program was implemented to improve food security and combat hunger and child malnutrition. The country faces high levels of poverty and relies on imports and remittances, making the poorest groups more vulnerable to external changes. The program reached 608 families in three municipalities, providing learning about food, nutrition and health. It also supported the diversification of agricultural production, built rainwater tanks, and helped in the creation of microenterprises. These initiatives have reduced the food insecurity rate from 64% to 14% and promoted women's empowerment (Nosthas, 2017)

Romani Tehara (Ciganas de Amanhã)

Figure 35: **Romani Tehara**

Source: ODS Local (2023)

The Romani Tehara project in Faro is included in the area of health promotion, community, and socio-educational intervention and will be carried out in the Roma community camps, in the municipality of Faro, especially with the Roma women, regarding actions related to topics such as "culture, mediation and leadership", "healthy sexuality", "health promotion and perception, including mental health", "building a successful life project" and the children, regarding activities of "psychosocial accompaniment and guidance". This project is important at the level of ods 5 because it aims to develop tools to foster female presence in social leadership initiatives, through dialogues between cultures and knowledge sharing, build positive self-esteem, and promote education for personal and social development. However, this project also acts within the scope of SDG 8 in order to try to boost capacity-building strategies for a successful life plan, following the following guidelines: development of self-knowledge (skills, interests, values, attitudes, and life goals); Definition of Career Goals (realistic and appropriate identification of available opportunities); Entrepreneurship/employment possibilities and family finances.

The following case studies are about SDG 6

Enhancing access to and provision of water services with the active participation of the poor program

Figure 36: **Poor Program**

Source: UN (2022)

This case study is an example of the implementation of SDG 6, its name is the "enhancing access to and provision of water services with the active participation of the poor program" in the Phillippines.

The program has improved the delivery of water for 122,000 households by supporting and encouraging investment in services for poor communities; while also encouraging the capacity of local duty bearers, particularly women, to demand and sustain the delivery of services (UN, 2017).

One of the country's most successful initiatives that came from this project, was the Localized Customer Service Code (LCSC) for small water systems. This consisted of a binding social contract between a service provider and its customers developed through a participatory process involving both parties, sharing the responsibilities for maintaining the water system. Thirty-six LCSCs were formulated and implemented in the program, their adoption positively impacted the sustainability of water facilities, in addition to an increased collection efficiency and participation of consumers in the management of the system (UN, 2017).

The program allowed access to and provision of water services to 36 municipalities, that didn't have water services, in five regions of the country. Because of this partnership too, the municipalities received $8 million from the government for water infrastructure projects (UN, 2017).

Water and sanitation management with a gender perspective in Mexico

Figure 37: **Water and sanitation management in Mexico**

Source: SDGF (2023)

This case study serves as an example for SDGs 6 and 5. The project was based on the three states of Chiapas, Tabasco, and Veracruz. Where Mexico's hydrological resources are concentrated, but the data show strong contrasts in the water and sanitation coverage, due to ethnic and gender inequalities. The intervention aimed to improve the management of water in these rural areas in Mexico. Its objective was to develop democratic and transparent water governance, as well as better participation in civil society, particularly with an emphasis on the role of women. Even though 86% of Mexicas have access to water, the rural communities, specifically the indigenous communities, which account for 5 million people, don't have access to water. And the consequences of the lack of water services affect specifically women and children, because they are the ones who have the responsibility of collecting water, often investing exorbitant amounts of time and energy. However, it's the men who decide the rights related to water and everything regarding decision-making in institutions (SDGF, 2017).

The strategy of the intervention revolved around three core ideas. First, enhancing water and sanitation services with a gender perspective, meant reading numerous studies and compiling and facilitating information related to water and sanitation with a gender perspective. Second, the institutionalization of the gender perspective in public policies and institutions related to water. Third, participation of women in water management, in some rural areas local committees were created (SDGF, 2017).

Reuse of Urban Wastewater

Figure 38: **Wastewater treatment station**

Source: SDGF (2023)

Climate change is putting increasing pressure on natural water resources, threatening habitats and biodiversity, especially in the most vulnerable regions, such as the Mediterranean. However, overuse of freshwater is exceeding replenishment levels, resulting in water shortages. Concomitantly, excessive groundwater extraction causes saline intrusion in several coastal areas, which puts constraints on agriculture, decreasing production and reducing crop yields. To deal with this situation, the sustainability of agriculture in more vulnerable regions, such as southern Portugal, where water scarcity is a common reality, depends on the choice of an alternative water source and more efficient irrigation systems, as well as crop selection. Faro has a Wastewater Treatment Plant (WWTP) is located in Faro, the capital of the Algarve, and was built in 1989, being upgraded in 2009 to serve 34,100 to 45,500 inhabitants. The WWTP is managed by the company responsible for urban wastewater treatment.

The following case studies are about SDG 8

Challenge Yourself, Sonae MC

Figure 39: **Sonae**

Launched in 2015, challenge yourself is an internal Sonae MC program that seeks career options for employees who, due to medical limitations, are unable to continue performing the duties for which they were hired. Employees can develop new professional skills, while recovering their physical health and feeling more confident and integrated into their host teams. The project offers professional alternatives for these employees, investing in their professional growth and incentive, through the acquisition of new qualifications and skills. The goal is to guarantee the collaborators' productivity, to get them involved, and to ensure their personal fulfillment in the work environment. Currently, the project is applied only in the logistics area, but there are plans to expand it to other areas of the company (BCSD, nd).

Refurbishment of the Multipurpose Tent at the Ilha da Culatra Fishing Center

Figure 40: **Ilha da Culatra**

Source: 2030 Culatra (2023)

During the storm "Barbara" that occurred on October 19, 2020, the Culatra Fish Nucleus lost its main community infrastructure, the multi-purpose tent at the Clube União Culatrense. This structure was the only place on the island where the community could safely gather, hold cultural events, and serve as a reserve for homelessness and shelter situations, including a possible field hospital during the pandemic. This project aims to rebuild this infrastructure and improve its safety conditions and accessibility, to cater to various activities that contribute to the community's well-being. In addition, the structure will be equipped with a photovoltaic energy production unit for its own consumption, demonstrating a commitment to the energy transition, respect for the ecosystem, and efficient resource management. This project intervened with people who are unemployed, lay-off or in precarious jobs, hence the importance of this project for SDG 8.

The following case studies are about SDGs 9 and 11

"Parque Aventura", Lipor

Figure 41: **Parque Aventura**

Source: Lipor (2023)

"Parque aventura", funded by Lipor, focused on environmental and landscape enhancement in correlation with the recovery of vacant spaces. The project took place in Valongo/Gondomar and contributed to the development of SDG 11 in Portugal. Lipor, Association of Municipalities for Sustainable Waste Management of Greater Porto, is committed to this type of initiative in northern Portugal and also manages 8 municipalities, some of which are part of the European circular cities.

The project, more specifically, focused on the recovery of an old landfill in the mentioned municipality, which was recovered and transformed into a playground, Parque Aventura. This park opened to the public in 2009 and has already had 34,491 visitors. The park, once made of garbage produced since the 70's, after its renovation is now a place for physical exercise, socialization, and in its essence, represents respect for the environment. In practice, the logistics of the project adopted mechanisms such as monitoring systems, capture, and drainage of gases and leachates.

Eight years later, in 2017, an ecological trail was created that is transversal to the outlying municipalities and that also passes through the park itself and promotes contact with nature and its preservation. Since, along the trail, it is possible to spot species of animals and plants that were planted to foster the spirit of sustainability and preservation.

More and better jobs in Cabo Delgado province and Nampula province - Harnessing the opportunities of the New Economy in Mozambique

Figure 42: **Harnessing the opportunities of the New Economy in Mozambique**

Source: SDGF (2023)

In Mozambique the population is growing rapidly, and the industry is not capable of meeting the expectations in the job and extractive sector._The fundamental objective of this project is to give people better jobs, good salaries and conditions. Supporting the local, to influence the global is one the purposes of this case study.

This case study had a great impact in transforming economic growth and making sure that the population can find an inclusive and sustainable job. The program discussed in the text aims to support the creation of local jobs and inclusion in Mozambique, particularly in the gas and coal extraction industries. It recognizes that although these investments are substantial for Mozambique's economy, the ability to generate local employment will be limited without strengthening local capacity. The program intends to address this issue by providing capacity development assistance to enhance the local workforce and business sector and simultaneously, the program will conduct a small enterprise development needs analysis, focusing on selected value chains and incorporating a gender awareness analysis. This project is in progress and 50% is being funded by the SDG-F, UN agencies, UN women. The program is focused on the cities of Nampula and Cabo Delgado and it is promoting support in small business, employment policies and workforce skills.

Overall, the program aims to bridge the gap between industry demands and local capacity, fostering skills development, business linkages, and an enabling environment for job creation and value chain development in the extractive industries.

Barcelona Superblock, Spain

Figure 43: **Barcelona Superblock**

Source: Anthropocene (2022)

Barcelona's Superblock project is an urban planning approach that transforms selected city blocks into pedestrian-friendly areas with reduced traffic and increased green spaces. The aim is to improve air quality, enhance community interaction, and promote sustainable mobility. By creating people-centered urban spaces, the initiative supports SDG 11's objectives of creating sustainable and inclusive cities.

This project consists in acting in six neighborhoods, focusing on enhancing public participation and promoting social cohesion. The city is also exploring flexible uses for terrace spaces to avoid excessive concentration of similar establishments and promote diverse and multipurpose utilization. By reducing vehicles and increasing pedestrian presence, the projects aim to support local businesses and enhance retail success. These projects aim to refine the process and encourage collaboration between regional governance and its inhabitants.

Create a sustainable city from scratch

Figure 44: **Sustainable City**

Source: Bloomberg (2021)

This project is unprecedented and world-renowned for its irreverence. Crown Prince Mohammed bin Salman is leading and financing a project called "The Line ", which consists of building a futuristic eco-city, completely sustainable, located in the Gulf of Agaba, by the Red Sea. It will house about 1.2 million people by 2030. This city under construction will have no cars, only renewable energy and non-polluting public transport. Mohammed adds that "we cannot ignore the crises in quality of life and the environmental crises facing the world's cities.

Photovoltaic UPAC Marina de Vilamoura

Figure 45: **Photovoltaic UPAC**

Source: ODSlocal (2021)

The text describes the implementation of a self-consumption photovoltaic power plant (UPAC), whose purpose is to generate electricity from renewable sources. The plant is equipped with an installed capacity of 60 kW and consists of 136 photovoltaic modules spread over an area of 840m.

The plant is expected to be able to produce about 93,500 kWh of electricity annually. This significant amount of electricity generated by renewable sources brings several benefits, such as reducing dependence on non-renewable sources and mitigating greenhouse gas emissions.

As far as emissions are concerned, the installation of this Self-Consumption Photovoltaic Power Plant will have a substantial impact on reducing the carbon footprint. It is estimated that the annual production of electricity from this plant can avoid the emission of approximately 12.31 tons of CO2.

This project was promoted by the municipality of Loulé and it is a great innitiative to promote sustainability and clean energy generation. This plant has the potential to considerably reduce CO2 emissions, contributing to a more sustainable and environmentally conscious future.

Requalification of Alameda da Praia

Figure 46: **Alameda da Praia**

Source: Inframoura (2019)

The intervention in the Marina Beach boulevard had the main objective of transforming the city into a more environment by implementing contemporary urban solutions for public space. This initiative was part of a larger urban revitalization project in downtown Vilamoura that began almost a decade ago under the guidance of Inframoura, with a strong emphasis on promoting sustainable modes of transportation.

This project, promoted by the municipality of Loulé, is aimed to create an interface between the hotel district and the boulevard, providing a pedestrian path that connects the downtown of Vilamoura and Marina Beach. The main goal was to turn the city more pedestrian-friendly and sustainable modes of transportation. Overall, this intervention improves the accessibility of pedestrians and bycicles and promotes sustainable practices. Was also took in consideration the landscape and environmental considerations because it remains the trees and vegetation in the surrounding areas. The revitalization of the boulevard also paved the way for future plans to develop a green corridor leading to the planned Tivoli Square, further enhancing the overall appeal of the area.

Inframoura's commitment to modernizing public spaces and improving the quality of life extended not only to the residents of Vilamoura but also to the local workforce and visitors who utilize the public spaces for leisure activities. The existing mobility conditions were no longer adequate to accommodate the increasing urban development, hence the need for requalification.

Overall, the intervention in the Marina Beach boulevard marked a significant milestone in the ongoing efforts to transform Vilamoura into a more pedestrian-friendly and sustainable urban environment. The project showcased a comprehensive approach to urban revitalization, focusing on the needs and well-being of the community while preserving and enhancing the natural and cultural aspects of the area.

The following case study is about SDG 14

Seabin Project

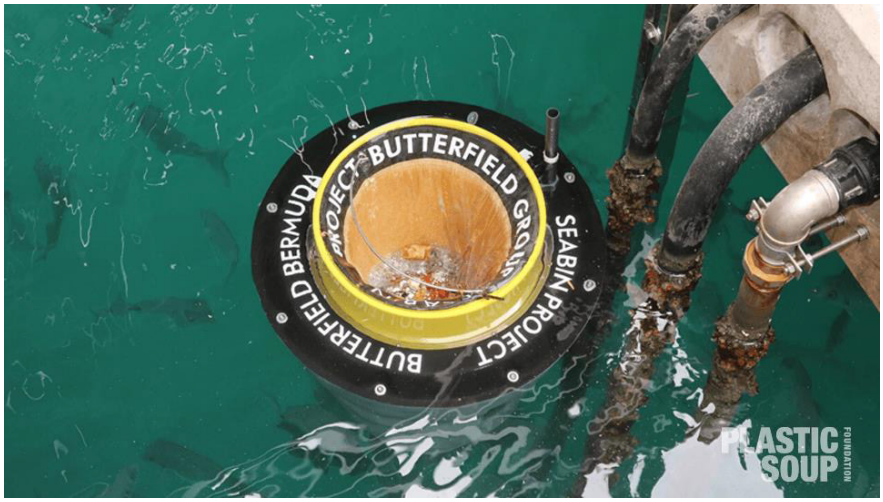


Figure 47: **Seabin Project**

Source: Plastic Soup Foundation (2023)

The case study is the "Seabin Project", created by two Australians Andrew Turon and Pete Ceglinski, refers to the implementation of the SDG 14. It consists of a device that works to collect trash along the shorelines. The seabin works like a fish tank filtration device, but instead of being to clean only a fish tank of water, it can clean entire harbors and marinas. It is connected to a water pump that sucks in any floating trash which then gets trapped inside a mesh bag, while the water is sent out on the other side of the pump, trash-free. It even has an oil removal system, since oil can deteriorate the ocean very fast, it's essential for it to be filtered out of the water (Flyandsea, 2019).

The Seabin can operate 24 hours a day, 7 days a week, and amazingly after over ten years of testing in Palma de Mallorca, Spain, the device has never sucked in or harmed a marine animal (Flyandsea, 2019).

5. Conclusion

The importance of Agenda 2030 is clear not only for developing countries but for the whole world. We are already past the midpoint of reaching the target date set by the UN Member States in 2015 to achieve the 17 goals and transform our world (UNDP, 2022). The SDGs are the best chance to achieve human rights, prosperity, and security for the whole world. Even though the headlines in the news showcase a grim world of conflict and inequalities, positive development exists too. The future is hopeful because more people are working together to meet these goals, for sustainable development. "Governments, international financial institutions, and businesses are unblocking new streams of SDG finance, such as through investor maps and tax reforms, and are already halfway to a moonshot goal of $1 trillion" (UNDP, 2022: 4)

Vila, Miotto and Rodríguez (2021) conducted a study to understand which SDGs were the most mentioned in the cultural policies of the European Union countries. The results indicate that the SDGs most mentioned in the cultural policies of the European Union countries are: in the first place, SDG 11 Sustainable Cities and Communities; in second place, SDG 4 Quality Education, and in third place, SDG 10 Reducing Inequalities. Immediately following, in descending order: SDG 17 Partnerships for Goal Implementation, SDG 16 Peace, Justice and Effective Institutions, SDG 13 Climate Action, SDG 8 Decent Work and Economic Growth, and finally SDG 5 Gender Equality. The remaining SDGs do not appear or are so insufficient that they cannot be considered. The most active countries in the EU regarding SDGs and cultural policies are: France, Belgium, Spain, Italy and Finland. In contrast, Hungary and Ireland have fewer SDGs. However, it is crucial to note that all evaluated countries meet the minimum number of SDG-related themes in their cultural policies. There is no country that does not incorporate some of the concepts present in the SDGs in its cultural policies.

Cardeira et al. (2021) refer that Portugal has defined as strategic priorities in the implementation of the 2030 Agenda the SDGs 4, 5, 9, 10, 13 and 14 (Ministry of Foreign Affairs, 2017). There are several studies, for example, Seixas, Dias and Pereira (2017) and Seixas and Lobner (2018) cited by Cardeira et al. (2021) that consider that for the 2030 Agenda to be truly transformational, it needs to be translated and adjusted according to the context in order to become an instrument of change. According to Araujo and Lozada (2019) cited by Canguço et al. (2021), the successful implementation of the goals of the 2030 Agenda depends on the awareness that it is a global commitment to improve the future of the planet, involving all countries. It is essential that all the goals are widely achieved, as they are interconnected in all spheres on a global scale. As stated in Agenda 2030 cited by Canguço et al. (2021) the goals are integrated in a balanced way in three dimensions: social, economic and environmental.

Urrea-Solano, Hernández-Amorós, and Merma-Molina (2021) argue that higher education institutions have a responsibility to promote sustainable development and gender equality among all members of the university community, which implies incorporating these objectives not only in institutional management but also in teaching and learning processes. The authors also add that research and knowledge creation are important in all areas, and universities have a key role in consolidating the Sustainable Development Goals through their research activities and skills. They can provide solutions and innovations needed to achieve the goals of the SDGs.

According to Mendonca (2018), we can see that there are enormous challenges to achieving sustainable development, mainly due to growing economic and social inequalities both within and between countries. Unemployment is a global concern, as is the increasingly frequent occurrence of natural disasters, the depletion of natural resources, and the negative impacts of environmental degradation, including desertification, droughts, soil degradation, freshwater scarcity, and biodiversity loss. All these challenges put at risk not only the survival of humanity but also of biological systems as a whole. We can understand that SDG 8 presents an opportunity to develop solutions that seek to combine work and economic and environmental sustainability. In this sense, it is necessary to have cooperation between the state, society, and the private sector to improve workers' rights and adjust the institutional environment, aiming to encourage investments in research and development that result in technological innovations, more jobs, and sustainable development. Thus, despite the great challenges faced, it is possible to see SDG 8 as an opportunity to promote positive changes and build a more just and sustainable future.

Lima (2019) reinforces the idea that the Sustainable Development Goals of the 2030 Agenda, seek solutions to the new challenges of work. Work is a human reality and, therefore, is affected by various vicissitudes, including technological, demographic, and environmental. These challenges increase the difficulty of addressing them and make solutions less effective, especially considering globalization.

Technological changes raise uncertainties about the impact on employment and the economy, especially in relation to new working conditions, contractual arrangements, working time, wages, and psychosocial risks. It is also important to consider the employability of workers affected by these changes. The author, Lima (2019), does not leave out his thoughts on the future of work, this author thinks that work faces demographic challenges, including cross-border migratory movements, aging populations, sociological changes around the institution of the family, and gender inequality in care. There are also challenges linked to climate change, especially in productive sectors that are the source of the environmental dilemma, such as the coal industry, extractive industries, and overfishing. These challenges will have different effects depending on different national realities and can have significant impacts on employment and working conditions, including issues such as informality or contractual irregularity, child labor and forced or exploitative labor, and new occupational risks of a psychosocial nature.

According to Mendonça (2018), which also goes along with Lima's (2019) thinking, we can see that there are enormous challenges to achieving sustainable development, mainly due to growing economic and social inequalities both within and between countries. Unemployment is a global concern, as is the increasingly frequent occurrence of natural disasters, the depletion of natural resources, and the negative impacts of environmental degradation, including desertification, droughts, land degradation, freshwater scarcity, and biodiversity loss. All of these challenges put at risk not only the survival of humanity, but also of biological systems as a whole.

The study of the SDGs 5, 6, 8, 9, 11 and 14 had its significative limitations. To start, there is not sufficient data to study the progress of an important number of the indicators. If there is not sufficient data, then it's complicated to confirm which countries are following the SDGs and where or how it's necessary to change the approach of each goal for them to be met by the target date. In addition to not existing sufficient data, a lot of the data that already exists is outdated, which also complicates the real measuring of each SDG. However, there were also positive points when doing this relatory, for example how the interconnectedness of the SDGs allowed us to be in contact with a big number of topics. The SDGs demonstrate the interdependence between the social, economic, and ecological dimensions for achieving a sustainable world.

AO (2021) quoted by Soares 2022 states that what was already lacking for 2030 was what was already lacking, now aggravated by a process of regression and, therefore, there is a work that must be naturally encouraged and strengthened in all areas that we already know are central, even because 2030 is just around the corner.

According to Soares (2022) the 2030 Agenda reaffirms the evidence that there can be no Sustainable Development without Peace and without Peace there can be no Development and, in this sense, with its creation, there was a clear recognition that political goals such as ensuring inclusion, consolidating good governance and ending violence and conflict should find a place alongside the social, economic and environmental goals, already provided for in the MDGs.

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