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BSc in Environmental Sciences and Engineering

"I would rather fail in faith than succeed in fear." – Sarah J. Roberts

Sustainability Laboratory – Anchoring Sustainable Development Goals at Local Level in Portugal

MASTER IN ENVIRONMENTAL SCIENCES AND ENGINEERING

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To my God, whom I trust.

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“Instead of shame and dishonour, you will enjoy a double share of honour. You will possess a double portion of prosperity in your land, and everlasting joy will be yours.” Isaiah 61:7 NLT

And He did it, not only for me but for my family. I THANK GOD FOR EVERYTHING, I would not succeed without HIM.

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“True faith means holding nothing back. It means putting every hope in Gods fidelity to His promise.” (Chan, F).

ABSTRACT

In 2015 the United Nations General Assembly adopted the 2030 Agenda for SDGs, commonly known as the Global Goals. The SDGs are a universal plan of action that presents a framework for people and the planet's dignity, peace, and prosperity today and in the future. The aim of this dissertation is to understand how to contribute to raising awareness, consciousness, and engagement of Portuguese citizens towards the SDGs. Thus, this research suggests the application of sustainability laboratories (LSLs) within the national project *ODSlocal*, in order to promote a greater application of the SDGs at local level, involving citizens and multigovernmental levels, as well as to foster wider application of LSLs. Therefore, it was sought to understand how *localizing* operates, its case studies and benefits, in addition as how the *ODSlocal* project is implemented in Portugal. It was feasible to verify that there are certain conditions to implement LSLs in the *ODSlocal* through a SWOT analysis, but there are also a lot of benefits, the operation of sustainability labs at local level contributes to a greater collaboration of the different stakeholders, overcoming traditional obstacles and developing new approaches to SDGs challenges. Furthermore, it allows the community to have broader knowledge and involvement of the SDGs, as well as to establish networks and exchange of experiences in order to achieve the SDGs. It was concluded that the application of LSLs promotes the development and empowerment of each stakeholder, contributing to a more efficient operation of the SDGs at the local level, making Portugal an example to follow by other countries. Localizing through working based on an efficient hands-on approach, contributes to an expanded outreach of the sustainability labs.

Keywords: SDGs, Localizing, Social Labs, LSLs

RESUMO

Em 2015, a Assembleia Geral das Nações Unidas adotou a Agenda 2030 para os ODS, comumente conhecida como os Objetivos Globais. Os ODS são um plano de ação universal que estabelece um quadro para a dignidade, paz e prosperidade das pessoas e do planeta, hoje e no futuro. O objetivo desta dissertação é compreender o como se pode contribuir para aumentar a sensibilização, a consciencialização e o envolvimento dos cidadãos portugueses no que concerne os ODS. Desta forma, esta pesquisa propõe a aplicação de laboratórios de sustentabilidade (LSLs) no âmbito do projeto nacional *ODSlocal*, de modo a promover uma maior atuação dos ODS a nível local, envolvendo os cidadãos e os diferentes níveis multigovernamentais, bem como incentivar uma maior aplicação dos LSLs. Portanto, procurou-se entender como funciona o *localizing*, seus casos de estudo e benefícios, bem como a forma como o projeto *ODSlocal* é desenvolvido em Portugal. Foi possível verificar que existem determinadas condições para implementar os LSLs no *ODSlocal* através de uma análise SWOT, bem como existem diversos benefícios, a operacionalização dos laboratórios de sustentabilidade a nível local contribui para uma maior colaboração dos diferentes *stakeholders*, o que permite ultrapassar obstáculos tradicionais e desenvolver novas abordagens aos desafios dos ODS. Adicionalmente, permite que a comunidade tenha um amplo conhecimento e envolvimento relativamente aos ODS, bem como se desenvolvam redes e trocas de competências que contribuam para concretização dos ODS. Concluiu-se que a aplicação de LSLs promove o desenvolvimento e a capacitação de cada *stakeholder*, permitindo um desempenho eficiente dos ODS à nível local, de modo que Portugal se torne um exemplo para outros países. *Localizing* baseado em uma abordagem eficiente "hands-on", contribui para uma maior visibilidade dos laboratórios de sustentabilidade.

Palavras chave: SDGs, Localizing, Social Labs, LSLs

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ACRONYMS

CSOs	Civil Society Organizations.
GHG	Greenhouse Gases.
LPR	Living Planet Report.
LSLs	Local Sustainability Laboratories.
MDGs	Millennium Development Goals.
SDGs	Sustainable Development Goals.
UN	United Nations.
VLR	Voluntary Local Reviews.
WWF	World Wildlife Foundation.

INTRODUCTION

1.1 Overall Framework

In 2015 the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development Goals (SDGs), commonly known as the Global Goals. The SDGs are a universal plan of action that presents a framework for people and the planet's dignity, peace, and prosperity today and in the future (Brown & Rasmussen, 2019; UNDP, 2023a; United Nations, 2022b). However, it has been observed that the SDGs have a faster development when implemented by subnational or local governments, which means “localizing” (P. D. Oosterhof, 2018a; Sustainable Development Goals Help Desk, 2020). With that said, there is no better tool to support localizing than Local Sustainability Laboratories (LSLs) proposed by a national project called *ODSlocal*.

The purpose of this research is to understand how to contribute to enhance the awareness, consciousness, and engagement of Portuguese citizens towards the SDGs. This will be accomplished by providing information about the SDGs at local level, precisely at municipal level, motivating citizens to become informed and actively participate in SDG-related activities, and ultimately, promoting the implementation of the SDGs. The goal of the research is to make a meaningful contribution towards the success of the SDGs through Local Sustainability Laboratories to be implemented in a national project.

1.2 Conceptual Framework

We live in an increasingly complex world that has changed tremendously over the past two decades. However, the eradication of extreme poverty and hunger worldwide, the long-term preservation of the planet and natural resources, the complexity of governance combined with

technological growth, in addition to inequalities between and within nations, are not just significant changes, but also the root of complexity (Rowling, 2015; SDSNYouth, 2023; WBCSD, 2021).

Most of the environmental challenges facing the world today are widely acknowledged, whether climate change, overconsumption, and inefficient production practices or the impact of waste on nature and seas (Prytz, 2020).

Human pressures have reduced global animal species by 60% over the past 40 years. A thousand species of plants and animals will be on the verge of extinction in the next decade (WBCSD, 2021). The World Wildlife Foundation (WWF) stated in its 2020 Living Planet Report (LPR) that biodiversity has decreased by an average of 68% since 1975 (Mulhern, 2021).

Within the last few decades, the planet has faced several environmental challenges. For example, more than 20% of the earth's land area was degraded between 2000 and 2015, while the world's tropical forests have been vanishing at an alarming rate, which is an equivalent of 30 football fields each minute (Morgan, 2016; WBCSD, 2021).

In 2019, Global CO₂ emissions and other greenhouse gases (GHG) levels in the atmosphere reached new highs, meanwhile sea levels are rising at the fastest rate in 3,000 years, at an average of three millimeters per year (Prytz, 2022; WBCSD, 2021).

According to WBCSD (2021), more than 800 million people are already susceptible to the impact of climate change. Over 22 million people were forced to flee their homes in 2013 due to the sudden appearance of hurricanes, earthquakes, and typhoons (EKU, 2020). A figure that is expected to rise as the planet warms, bringing extreme weather and rising seas. Nevertheless, more than 750 million people go to bed hungry every night, while approximately two billion people are overweight or obese (EKU, 2020; Rowling, 2015).

In 2021 about 689 million people continue to live in extreme poverty and hunger, with fragile and conflict-torn states having the highest poverty rates (Rowling, 2015; Suckling et al., 2021). These problems have become so common now and back in 2012, that over 1.8 billion people were exposed to contaminated water. Moreover, an estimated 821 million people were undernourished in 2017, consequently, over 6 million children died before reaching the age of five, as result of avoidable illnesses (SDSNYouth, 2023; UNICEF, 2021; WBCSD, 2021).

Furthermore, nowadays while eight men have the same wealth as the lowest 3.5 billion poorest individuals, which is almost half the entire population. Roughly 946 million people are still practicing open defecation and around 863 of them still live in slums (United Nations Human Settlements Programme, 2022a; WBCSD, 2021).

Notwithstanding exceptional economic growth and significant progress upon certain critical development concerns in recent decades, these accomplishments have obscured major flaws in our present development paradigm (WBCSD, 2021). These flaws are triggering an increasing number of social issues, which are endangering actual societal development and slowing it down (UN, 2023b).

Despite years of adaptation and improvement, some institutional prejudices and notions from the past continue to exist in the system. For example, lack of legal assistance to acknowledge and empower women (Wood, 2018).

Gender inequality remains, with 150 nations having at least one law that treats men and women differently, although more women being represented in parliaments and more girls attending schools (The World Bank Group, 2017). Nonetheless, there are just 12 countries all over the world that provide complete legal protections and equal rights to women, at least legally (Buchholz, 2022).

Husbands have the legal power to prevent their wives from working in 18 nations, while four countries forbid women from registering a corporation (Wood, 2018). On top of that, there are also deficiencies in the legal structure to safeguard women in the workplace, at home, and in schools. Currently, 123 nations have no laws prohibiting sexual harassment in schools, 59 do not safeguard them in the workplace, and 49 have no laws protecting women from domestic abuse (Buchholz, 2022; Wood, 2018).

In addition, social challenges in education are also a concern, with an estimated 263 million children out of school, including 61 million of primary school age (SDSNYouth, 2023). Some cases are due to poor working circumstances, while others are result of some form of forced labor in global supply chains (WBCSD, 2021).

According to what has been seen, the world faced and continues to confront various issues that needed and continue to require attention, there is a need to reset the direction of such (Ghorbani, 2019; WBCSD, 2021). Since if these issues are not addressed, they can escalate quickly and dangerously without radically change of course (UN Sustainable Development Solution Network - Youth Initiative, 2022). Therefore, it is necessary to reorient the global economy, address growing disparities, social exclusion, and significant environmental challenges to the course of sustainable development (Ghorbani, 2019; Halkos & Gkampoura, 2021).

To address and respond to all the aforementioned challenges ensuring the planet's health, without leaving anyone behind and without putting in jeopardy all the progress, in 2015 all 193 of the United Nations (UN) Member States unanimously endorsed the SDGs (WHO, 2022). After a broad and inclusive process of thematic and national consultation with national

parliaments of National Governments, local authorities, Civil Society Organizations (CSOs), citizens, researchers, and private sector actors worldwide (Jiménez-Aceituno et al., 2020).

The SDGs have been proclaimed as the international strategy that aims to tackle the world's social, economic, and environmental concerns by 2030, to make the planet greener, healthier, more peaceful, and equitable (Rowling, 2015; Sánchez, 2022; SDSNYouth, 2023).

These SDGs are an expanded version of the eight Millennium Development Goals (MDGs), which prompted global action from 2000 to 2015, to overcome extreme poverty. For the first time in history, the international community was able to develop a global and comprehensive sustainable development agenda that included both social (built on the MDGs) and environmental goals (in continuation with the Rio Declaration of 1992 and subsequent COP summits) (HEC Paris, 2022).

The Global Plan of action consists of an Agenda well known as "2030 Agenda", which was unveiled in a document entitled "Transforming Our World: The 2030 Agenda for Sustainable Development". The Agenda consists of 17 goals, which include 169 specific targets and 232 measurable indicators (HEC Paris, 2022; NTU International, n.d.; Rowling, 2015; WBCSD, 2021). It is important to notice that from here forward the "2030 Agenda" can be referred to as the "Agenda" and/or the "Global Agenda".

These Goals apply to every country in the world since they are considered people-centered, indivisible, and transformative (Philippine Commission on Women, 2022; UNESCAP, 2022). As a universal agenda, the 2030 Agenda, advocates for the inclusion of the SDGs in policies, procedures, and initiatives adopted at the national, regional, and global levels (Oliveira & Navega, 2017; United Nations, 2018).

Accomplishing the SDGs must be viewed as a new opportunity that allows today's innovative and ambitious solutions to be mainstreamed with the purpose of becoming tomorrow's guidelines in every community and jurisdiction throughout the world (ICLEI BRIEFING SHEET - Urban Issues, n.d.). It is critical to have a strong national commitment that includes proper legislative frameworks, institutional capabilities, and financial support (Global Taskforce, 2016).

Additionally, it is essential to unite different actors around common aspirations, which means new multistakeholder and cross-sectoral partnerships, launching new models of cooperation and participation (Global Taskforce, 2016; HEC Paris, 2022). This naturally leads to same different actors incorporating and aligning their strategies, programs, and initiatives to the SDGs (Katramiz & Okitasari, 2021; United Nations, 2022f).

In accordance with Gustafsson & Ivner (2018), strategies and plans ensure that the political agenda is translated into development objectives and tangible results, when providing a comprehensive framework for development, such as usage of resources to create a network, educate, services and balancing budgetary demands. They also strive to coordinate the activity of local stakeholders and other national governments (Movono & Hughes, 2022).

With less than a decade to achieve the 2030 Agenda for SDGs, nations must rebuild stronger and accelerate SDGs implementation (United Nations, 2022e; UNSDG, 2022). Throughout this context, each country, including governments, civil society, corporations, and representatives of different stakeholders, are required to review progress and performance using a set of indicators. These outcomes will be reported in a formal annual report “The Sustainable Development Goals Report” (United Nations, 2022f).

Thereupon, governments need to establish their own national targets appropriate for their own national context and priorities, and these targets must be included into their national planning, policies, and strategies (UNESCAP, 2022). This will further be discussed to identify the measures adopted in Portugal to attain the SDGs.

The integration of SDGs within subnational level planning is a crucial step in landing the new Agenda in regions and cities. Because many of the 2030 Agenda targets rely on the contributions and responsibilities of subnational governments (Sustainable Development Goals Help Desk, 2020).

This can contribute on system-alignment through multilevel governance and decentralization of goals at the national level (P. Oosterhof, 2020). System-alignment can be achieved when including local institutions in national SDG-related policy and review processes; ensuring the mandates and capacities of subnational governments are in place, tailoring local planning and budgeting systems (P. Oosterhof, 2020; UNDP, 2017).

Although the emphasis is mostly on budget allocations, subnational governments also play a vital role in local resource mobilization, covering endeavors such as property tax mobilization (U. Ite, 2018; P. D. Oosterhof, 2018a).

According to P. Oosterhof (2020), performance on the 17 SDGs was already considered unsatisfactory prior to the coronavirus disease (COVID-19) crisis, and the pandemic's far-reaching consequences have slowed development and made it more difficult to achieve (Alva, 2022).

Notwithstanding the fact that the prior pandemic had significant health and socio-economic challenges ahead, the impact of the COVID-19 pandemic lockdown restored the environment in a considerable extent that would not have been feasible otherwise (Parashar, 2020, Loh et al., 2022).

There was a reduction of both acoustic and air pollution, which globally improved the air quality due to lower anthropogenic emissions of GHG. There was also a significant improvement on global water quality, which restored aquatic life (Loh et al., 2022; Parashar, 2020).

Despite all positive aspects on the environment, the pandemic damaged different sectors of the global economy, which increased the number of challenges (social, economic, and political) during and after the lockdown, such as high levels of unemployment (Eslami & Namdar, 2022; Rath, 2022). Those numbers, consequently, result in several challenges that hinder the progress of SDGs. Such as poverty, hunger, inequality as well as slow economic growth (Eslami & Namdar, 2022; P. Oosterhof, 2020).

According to Alva, L. (2022), SDGs strategic decisions must be carefully designed to determine how subnational level will continue to respond to the challenges posed by the pandemic and how they intend to rebuild and improve their communities.

Local and regional governments must be the heart of the 2030 Agenda. Given that all of the SDGs have targets directly related to the responsibilities of local and regional governments, notably their role in providing basic services that underpin the quality of life (Alva, L. 2022; Sustainable Development Goals Help Desk, 2020).

Among other endeavors, to engage and harness the power of local culture, as well as to promote public awareness regarding the SDGs, interactive and content-focused activities could be promoted (Global Taskforce, 2016; OECD, 2020a). Such activities could include concerts, bike rides, campaign buses, fairs, events displaying success stories, award ceremonies, and partnership with well-known persons (e.g., actors, singers, athletes, authors, and photographers) or foundations that may act as ambassadors for the SDGs. Activities should be planned with a gender perspective to guarantee that women and girls are not excluded (Global Taskforce, 2016; Shannon & O'leary, 2020).

Nations that commit to collaborating with local governments and communities to revitalize and design cities and human settlements, fostering community cohesion and personal security while also stimulating innovation and employment, are taking a significant step towards meeting the SDGs (UNESCAP, 2022; Wehmer, 2021).

In this context, in accordance with UNDP (2023b), it is vital to have a creative know-how, technological, and financial resources (UNDP, 2022). With that said, nothing better than having a planning-based approach that attains sustainable development challenges, such as Sustainability Laboratories operating at local level. However, to comprehend these sustainability laboratories, one must initially understand Social Laboratories.

Social Laboratories refer to a process that gathers different stakeholders to address complex social problems involving research, experimentation, and prototyping (Hassan, 2014; McConnell Foundation, 2023). It is important to note that these laboratories are not conventional scientific laboratories designed for experimental research and/or controlled trial (Gaubatz & Hanink, 2020; Merriam Webster, 2023). Instead, they involve a collaborative and participatory process that engages stakeholders with different perspectives, knowledge, and experiences to develop innovative and sustainable solutions to the current challenges. Social Laboratories can provide a space for experimentation, empowerment, and learning, allowing stakeholders to test ideas, gather feedback, and refine their approach (Hassan, 2014; McConnell Foundation, 2023).

In this thesis the concept of Social Laboratories will be aggregated to Sustainability Laboratories, since LSLs answer to sustainable development main pillars (social, economic and environmental) (Sustainability Lab, 2023). Thus, henceforth, LSLs will be used as an approach that encompasses social labs.

For instance, in Portugal there is a national project called *ODSlocal*, that aims to monitor, empower, and assist local governments (municipalities) to aware and disseminate the SDGs on local and national scale. Through this project encompassed with LSLs, the application of LSLs throughout the world can increase, contributing to a wider application of sustainability labs on local level. In addition, the project provides an interactive website portal for tracking and visualizing each municipality's progress and contributions towards the SDGs (2adapt, 2022; Guerra et al., 2022).

Overall, Sustainability Laboratories can be an effective tool to assist SDGs by promoting innovation, collaboration, and community engagement.

1.3 Aims, Objective and Questions

Despite the 2030 Agenda being widely recognized around the world, there are still many individuals who are unaware of it, but also unsure of how to contribute to achieving the goals, as well as what is the purpose of the Agenda. The Portuguese population is no different from the others.

This research aims to understand how to raise awareness, consciousness, and engagement regarding the 2030 Agenda of the SDGs among the Portuguese citizens particularly in localizing it and, thus, contribute to the development of a methodology to promote Local Sustainability Labs as a way to achieve it bringing all to this movement toward the Agenda.

This way it is possible to assist citizens, local governments, and key stakeholders towards the SDGs. To promote this approach, LSLs are proposed, bringing a valuable contribution to social innovation at the local level. The overall methodology for the LSLs requires to follow a tailor-made customized approach to effectively mobilize and adapt the 2030 Agenda the specific context of each municipality, responding to its own distinct characteristics and needs.

LSLs are platforms of social experiment for addressing complex ground-breaking sustainability challenges on a systematic level. These forums of dialogue and collaboration work as learning spaces and promoters of innovation responding adequately to sustainability challenges in our growing, complex and uncertain society. This research intends to understand how municipalities have been building up a collaborative network of private and public local stakeholders, promoting local stakeholders to get engaged in this movement and work together towards the implementation of the SDGs. It aims to demonstrate the importance of community cohesion and collaboration approach to Global Agendas.

The literature review has allowed to identify gaps and shortcomings, that point to the challenges to be addressed by this thesis. Although the 2030 Agenda is widely covered in many studies and research, there is still some complexity in describing it in a consensual way, emerging out of the literature various definitions adjusted to each author's objectives. In fact, several authors have different goals and priorities to address, as well as they employ different approaches. There is a certain complexity in synthesizing the history of such a broad agenda, as well as its goals. Therefore, this research goal is to fill those gaps and shortcomings suggesting a "hands-on" approach that brings together multigovernmental levels and communities to support the 2030 Agenda.

To fulfill the purposes of this thesis, and to understand and explore the role of the LSLs, the following questions are posed:

- What is localizing in a municipality?
- Why localizing is so important?
- Are Local Sustainability Labs through *ODSlocal* project an efficient way to raise population awareness and consciousness towards the SDGs?
- What are the Strengths, Weaknesses, Opportunities, and Threats (SWOT) of LSLs within the national project *ODSlocal*?

1.4 Significance

The achievement of the SDGs within the given timeframe is posing several challenges and limitations. Additionally, national governments are not demonstrating enough commitment

and effort to overcome the obstacles to achieving the 2030 Agenda for the SDGs (Tiwari et al., 2021).

This research will contribute to the SDGs by raising awareness of the 2030 Agenda among Portuguese citizens, assessing the impact of the sustainability labs on raising local awareness and mobilization of local level agents. Moreover, it will critically reflect and illustrate how crucial it is to localize the Agenda, fostering collaborative governance at local level.

The results of this research will contribute to the *ODSlocal* project by fostering more engagement, diversifying partnerships, and promoting knowledge exchange and empowerment among all stakeholders at the municipal level, which translates to a wider operationalization of LSLs. By doing so, this research facilitates the UN in accomplishing this Global Goals, as well as it aligns with the UN Secretary-General statement that *says "Our struggle for Global Sustainability will be won or lost in cities"* (Dick, 2023; United Nations, 2012). It can also serve as a motivation or an incentive for other nations to implement sustainability labs (locally and globally) not only to achieve the SDGs, but also to contribute to sustainable development. The author got involved in the development of the methodology for the LSLs.

1.5 Structure of the thesis

The following chapters comprise the structure of this thesis:

1. **Introduction**: In this chapter, it is explained the research topic, from what is known to what is predicted to be done, and the research background. Afterwards it discusses the research's aims, objectives, and questions, and their significance.
2. **Literature Review**: The current literature points out the key concepts and the background of the research enhancing the previous agendas and contrasting with the Global Agenda. It synthesizes localizing case studies, their significance and the SDGs goals.
3. **Methodology**: It describes the research nature, type, and the methodology used. Additionally, it explains Social Laboratory framework and their principles.
4. **Case Study**: This chapter describes the case study project (*ODSlocal*) and how it operates.
5. **Results**: The results regarding the methodology designed presents the LSLs foundation, how it functions, and the implementation in Portuguese municipality,
6. **Discussion**: The chapter unfolds the major findings of the research, exposes the result interpretation regarding the LSLs, also presenting the limitations and constraints.

7. **Conclusion**: This chapter is intended to conclude the research by presenting the underlying key findings and highlighting the limitations and lessons for future research.
8. **Bibliography**: Every reference utilized in this thesis is listed throughout this chapter.

LITERATURE REVIEW

This chapter provides an overview regarding the 2030 Agenda SDGs, identifying the key concepts and gaps of the research, from history to current developments. It also outlines localizing case studies.

Sustainable development is defined as development that satisfies the requirements of the present without jeopardizing previous generation's ability to satisfy their own needs (United Nations, 2023). The concept of sustainable development is named after the Brundtland report, which also considers sustainable development based on three main pillars: social, economic, and environmental, as shown in the Figure 1.

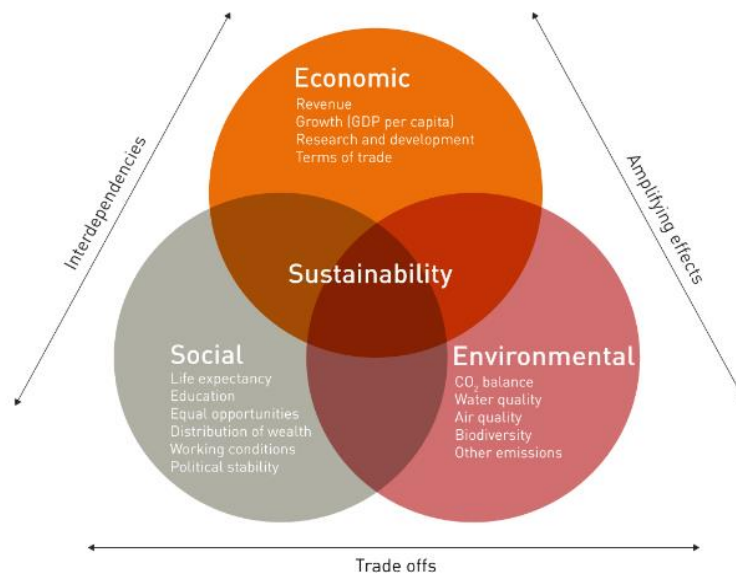


Figure 1: Sustainable Development pillars. (Source: Delubac, 2022)

Sustainable development is a part of every current international agenda, the world has been attempting to chart a more sustainable course, and multiple goals and targets have been developed for that purpose (Halkos & Gkampoura, 2021).

The commitment to balance economic, social, and environmental dimension of sustainable development across borders can be achieved by unifying different elements, which means collective effort with broad and varied partnerships and synergies (HEC Paris, 2022; Sengupta, 2021; UNESCO, 2021). In accordance with HEC Paris (2022), many actors such as governments, corporations, and CSOs must be involved in order to achieve the transformation of global society.

According to Prytz (2020), the key to foster sustainable development is actively engaging with communities and different stakeholders. Previous agendas demonstrated how sustainable development may improve the economic environment by offering possibilities for emerging markets as well as climate-smart investments (NTU International, n.d.).

Lise Kingo, executive director of the United Nations Global Compact, stated in 2017 that the private sector has potential to innovate, and ability to create answers to the challenges faced nowadays (Prytz, 2020). It is also stated that the private sector pursues and finances partnerships with governments and the general public (Prytz. Nicolai, 2020; SDSNYouth, 2023).

Considering that the Global Agenda for Sustainable Development Goals is committed to bring everybody to sustainability leaving no one behind, it is pertinent to learn more from it.

The history of the SDGs is explored in more detail in the next section, which will help the readers better grasp its background, previous agendas, and evolution.

2.1 Historical context and development

The concept of SDGs emerged at the 2012 Rio+20 Summit in Brazil as an evolvement from the MDGs, addressing all unfinished goals and considering additional challenges while benefiting from the knowledge gained during the MDGs implementation (Halkos & Gkampoura, 2021; UNESA, 2022b).

The SDGs result from decades of work by several nations and the UN, along with the contribution from organizations. The global plan of action is based on previous agendas and multiple UN conferences, where the core idea was to define goals to help orient the conduct of governments, both private and public organizations, researchers, activists, and individuals toward a common purpose (Awaworyi Churchill, 2020; Kumar et al., 2016; Sciberras et al., n.d.; United Nations, 2022e).

The history of the SDGs goes all the way back, more than 45 years, when a pivotal UN conference called the Conference on the Human Environment in Stockholm, in 1972 (SDG

Academy, 2019). This was the first summit of UN member states to acknowledge that combining economics and environment has a tremendous impact, because the rising weight of human activities on nature was leading to environmental concerns of unprecedented extent and scope (Ghorbani, 2019; SDG Academy, 2019).

That same year, the Club of Rome, through collaboration with the Massachusetts Institute of Technology (MIT), published the first widely recognized computer model, which explained how remaining with the economic growth with the then-existing technologies, the scale of the global economy would physically overwhelm the earth systems after a few decades of constant geometric growth (ITU, 2023; UNDP, 2010; Ghorbani, 2019).

The book, entitled "The Limits to Growth," stunned nations, since it forecast the probable collapse of society before 2100, if the human ecological footprint continued to rise (Ghorbani, 2019).

Therefore, the MIT publication and the UN summit set us a path towards the SDGs. That 11 years later a breakthrough was seen under the leadership of Dr. Gro Harlem Brundtland, when a commission was established with the prime minister of Norway and the Brundtland Commission to determine the idea of sustainable development (Ghorbani, 2019; SDG Academy, 2019).

In 1987 the commission published a report called "Our Common Future" where sustainable development was first defined as an idea of intergenerational justice and intergenerational sustainability, in which the current generation has a responsibility to manage the current demands without compromising the needs of future generations (Ghorbani, 2019; SDG Academy, 2019).

Afterward, during the "Earth Summit", in 1992, officially known as the UN Conference on Environment and Development, the concept of sustainable development was acknowledged as a universal principle (Ghorbani, S.).

Furthermore, at this summit, which took place in June in Rio de Janeiro, Brazil, more than 178 countries adopted the Agenda 21, that also shared three significant international environmental agreements, namely (United Nations (UN), 2012; Urban Management Programme et al., 2004; Ghorbani, 2019):

- The UN Framework Convention on Climate Change.
- The Convention on Biological Diversity for biological conservation.
- The UN Convention to Combat Desertification to stop the spread of deserts in the dryland regions of the world (SDG Academy, 2019).

The Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the UN System with the purpose to build a global partnership for

sustainable development to enhance human lives and protect the environment (Ghorbani, 2019; SDG Academy, 2019; United Nations, 2022c).

However, on the 20th anniversary of the Earth Summit in 2012, when the UN member states gathered in Rio for the "Rio +20 conference," there was a dispiriting realization that the concept of sustainable development had not been grasped or implemented, as well as the three wonderful treaties were not functioning properly (Ghorbani, 2019; SDG Academy, 2019).

Prior to that, in 2000, the Millennium Summit that took place at UN Headquarters in New York City led to the adoption of the United Nations Millennium Declaration which aimed to establish an international partnership in order to reduce global levels of extreme poverty and hunger, prevent deadly diseases, and expand primary education to all children, among other development priorities (UNDP, 2023a; United Nations, 2022d).

In this context, a set of eight goals was introduced, entitled "The 8 Millennium Development Goals", tackling the aforementioned challenge, as well as various social, economic, and environmental concerns by 2015. Member-states and other organizations assisted in the achievement of the Millennium Development Goals (MDGs) (Ghorbani, 2019).

The 2015 MDGs Evaluation Report (United Nations, 2015a) demonstrated that remarkable advancement had been made during the previous 15 years (Halkos & Gkampoura, 2021). The MDGs have driven progress in multiple critical areas, including reducing income poverty, providing much-needed access to water and sanitation, lowering child mortality, and dramatically improving maternal health. They also encouraged nations to invest in their future generations by launching a global campaign for free elementary education. Furthermore, the MDGs achieved substantial progress in combating HIV/AIDS and other treatable diseases including malaria and tuberculosis (Kumar et al., 2016; UNDP, 2023a).

As the first coordinated initiative to establish international development goals, the MDGs were mainstreamed at the national and subnational levels in several countries. However, despite many achievements, the lack of capacity of local stakeholders was identified as one of the key shortcomings in the delivery of the MDG targets (UNDP, 2023a; United Nations, 2022c; P. D. Oosterhof, 2018).

The legacy and achievements of the MDGs provide us with vital lessons and experience to begin work on the new goals (Halkos & Gkampoura, 2021).

In 2002, at the World Summit on Sustainable Development in Johannesburg, South Africa, a Political Declaration on Sustainable Development, and the Plan of Implementation were adopted, within which the global community's commitments to poverty eradication and the environment were reaffirmed, based on Agenda 21 and the Millennium Declaration, with a greater emphasis on multilateral partnerships (Tavanti, n.d.; United Nations, 2022d).

Since the MDGs were set to expire, member countries sought to work out a solution, with new goals and targets (Enel Américas, 2016; United Nations, 2022d). In this context, Member States adopted the outcome document "The Future We Want" at the United Nations Conference on Sustainable Development (Rio+20) in 2012, in which they decided, among other things, to launch a process to develop a set of SDGs to build on the MDGs and to establish the UN High-level Political Forum on Sustainable Development (Halkos & Gkampoura, 2021; United Nations, 2022c; SDG Academy, 2019).

During the process of crafting the set of SDGs, Rio +20 did not elaborate on specific targets, but stressed that the SDGs should be limited in number, aspirational, and simple to comprehend. As a result, the goals should cover all three components of sustainable development in a balanced way although with the bar even higher, as well as they should be coherent with and integrated into the UN development agenda beyond 2015 (Enel Américas, 2016; UNESA, 2022b; United Nations, 2022d).

Therefore, the General Assembly launched a 30-member Open Working Group (OWG) in 2013, to draft a proposal on the SDGs (UNESA, 2022a; United Nations, 2022d). The Member States have committed to utilize an innovative, constituency-based system of representation, which is new to the General Assembly's limited membership committees (UNESA, 2022b).

The OWG would deliberate on its working procedures, including adopting mechanisms to promote the full engagement of relevant stakeholders and experts from civil society, the scientific community, and the UN system in its work, in order to provide a broad range of perspectives and experience (UNESA, 2022b).

It is important to recall that the Member States initially had no clue what these SDGs should really be, just a glimpse of how they should be portrayed, which is why the UN undertook the largest-ever participatory process (Ghorbani, 2019; UNESA, 2022b). More than 10 million individuals from different parts of the world expressed their views in the consultation process in person and through online surveys, to help define the 2030 Agenda (Ghorbani, 2019). Governments, corporations, communities, universities, NGOs, and youth were all engaged during the consultation process (Guerra et al., 2022; SDSNYouth, 2023; The World Bank, 2017). Throughout more than three years of negotiating, prioritizing, and aggregating an original list of roughly 300 proposed goals, 17 high-priority goals for prosperity of the planet and people, as well as economic, social, and environmental universal goals emerged as the most appropriate by the middle of 2015 (Ghorbani, 2019; SDG Academy, 2019; Enel Américas, 2016). The General Assembly started to discuss the plan for the Post-2015 Development Agenda in January 2015. The process culminated in the following adoption of the 2030 Agenda for

Sustainable Development, centered upon 17 SDGs, at the UN Sustainable Development Summit on September 25th, 2015 (Ghorbani, 2019; United Nations, 2022d).

The SDGs became the roadmap for ensuring a better, more sustainable future for everyone. They are often referred to as a radical plan for humanity and a new approach of development as their commitment to address some of the most urgent problems the world is facing (UNDP, 2023a; United Nations Industrial Development Organization & United Nations Inter-Agency Task Team on Science, 2022).

Furthermore, the Rio+20 outcome also included different measures for achieving sustainable development, including requirements for future programs of work in development assistance, such as the Division for Sustainable Development Goals (DSDGs) (Ghorbani, 2019; United Nations, 2022c; SDG Academy, 2019).

The Division for Sustainable Development Goals (DSDG) of the United Nations Department of Economic and Social Affairs (UNDESA) provides substantive assistance and capacity-building for the SDGs and related thematic issues such as water, energy, climate, oceans, urbanization, transportation, science and technology, the Global Sustainable Development Report (GSDR), partnerships, and Small Island Developing States (SDG). Furthermore, the DSDGs portray a significant role in assessing the UN system wide implementation of the 2030 Agenda, as well as in advocacy and outreach initiatives related to the SDGs (UNDP, 2023a; United Nations, 2022b).

The year which SDGs were signed was considered a landmark for multilateralism and international policy shaping, with the adoption of several historic agreements, such as (United Nations, 2022c; UNDP, 2023a):

- Sendai Framework for Disaster Risk Reduction, signed in Japan in March 2015 aims to substantially reduce the risk of catastrophe and damage to people's lives, livelihoods and health, as well as to the economic, physical, social, cultural and environmental assets of individuals, businesses, communities and nations (UNDP, 2023a; UNDRR, 2015);
- Addis Ababa Action Agenda on Financing for Development, July 2015: it provides a new global framework for financing sustainable development by aligning all financing flows and policies with economic, social welfare and environmental priorities (UNDP, 2023a; United Nations, 2015a).
- “Transforming our World: The 2030 Agenda for Sustainable Development”: adopted at the UN Sustainable Development Summit in New York in September 2015. It builds on the interdependencies among multiple sectors and levels of government to promote radical transformation. Providing a global blueprint for dignity, peace and prosperity

for people and the planet, now and in the future (UNDP, 2023a; United Nations, 2022e; UNSSC, 2022).

- Paris Agreement on Climate Change, December 2015: adopted at the Conference of Parties 21 (COP 21) in Paris, with the purpose of increasing the effectiveness of the international response to the threat posed by climate change. Through limiting the global temperature rise this century to well below two degrees Celsius above pre-industrial levels and to pursue efforts to further limit the temperature increase to 1.5 degrees Celsius (Morgan, 2016; UNDP, 2023a; UNFCCC, 2022).

These agreements provide a set of common standards and realistic targets to lower carbon emissions, manage the risks associated with climate change and natural catastrophes, and to reestablish society after a crisis (P. D. Oosterhof, 2018a).

According to Ghorbani (2019), the 2030 Agenda and the Paris Agreement on Climate Change have an indivisible bound. Since both represent universally approved policy visions for sustainable development that signal a paradigm shift: from a "top-down" strategy with predetermined international mandates to a "bottom-up," country-driven implementation process (Alva, 2022; Dzebo et al., 2019; Ghorbani, 2019).

As expected, interested parties were eager to contribute to the achievement of the 2030 Agenda. The European Commission for example, in November 2016, published a statement on the "Next steps for a sustainable European future", outlining how the Agenda is to be implemented within the EU (Shulla & Leal Filho, 2022).

The document acknowledges that sustainable development has for long been at the heart of the European project. The EU Treaties recognize the economic, social and environmental dimensions, which should be addressed together, reflecting a commitment to development that answers to today's needs without jeopardizing future generations' capacity to satisfy their own (Oliveira & Navega, 2017).

2.2 Contrast between the MDGs and the SDGs

Substantial progress was made with the Millennium Development Goals (MDGs), and the world made quick progress in overcoming the challenges that were present at the time. (Vandemoortel; 17 GOALS), promoting worldwide awareness of international development issues (Awaworyi Churchill, 2020).

Despite the apparent success, progress has been uneven, and it was accompanied by shortcomings in many nations and sectors (Awaworyi Churchill, 2020). Such shortcomings are centered on their legitimacy, as well as how the goals and targets were defined and established. Their narrowness and understatement on certain aspects of development, such as

human rights, gender, and the environment as well as how the progress was reported and measured, showing a need for improvement (Kumar et al., 2016; Sachs, 2012).

Subsequently, the successor, Sustainable Development Goals (SDGs), had to embody specific targets and milestones that are universal, integrated, and transformative in order to cover the whole sustainability agenda (REPUBLIC OF THE PHILIPPINES, 2023; UNDP, 2023a).

In that context, the SDGs leverage the valuable lessons acquired from MDGs, carrying forward and consolidating the unfinished agenda of MDGs for continuity and sustain the momentum generated while tackling the additional challenges of equity, urbanization, and the aforementioned concerns. Increasing global collaboration through including the CSOs and private sector (Awaworyi Churchill, 2020).

In terms of development, the SDGs differ from the MDGs since their aims, conceptions, and politics are distinct. The MDGs were primarily concerned with developing countries and the issue of poverty, however the SDGs are a universal initiative applicable to all countries, regardless of their current development status (Halkos & Gkampoura, 2021; Wagle, 2019). The SDGs cover a broader framework and more aspects of sustainable development, since they incorporate additional goals and targets, not included in the MDGs (Halkos & Gkampoura, 2021).

The SDGs were thought to be exceptional since there had never been such broad global agreement on a common route, implementing new dynamic cooperative efforts from a wide range of stakeholders, including the cooperation between parliament, governments, regional and local authorities (Oliveira & Navega, 2017; WBCSD, 2021).

They also rely on methods such as long-term investment, scientific research and innovation, and monitoring and evaluation (WHO, 2022). Additional differences between the agendas may be seen in the table below.

Table 1: Contrast between MDGs and SDGs

Differences based on	MDGs	SDGs
Implementation Timeline	2000 to 2015	2015 to 2030
Number Goals	8	17
Targets	18	169
Indicators	48	232
Applicability dimension	Social	Economic development, social inclusion, and

Differences based on	MDGs	SDGs
		environmental conservation
Geographical Reach	Developing countries (particularly the poorest)	All counties
Articulation of Goals	Team of technological professionals	OWG 193 UN member states CSO and private sector Public consultation

2.3 The 2030 Agenda and The Sustainable Development Goals (SDGs)

The SDGs are a global call to action to address social, economic, and environmental issues in a way that will transform the world (Enel Américas, 2016; Rowling, 2015; WHO, 2022). These Global Goals were defined and developed through an unprecedented dialogue among UN Member States, local authorities, CSO, the private sector, and other stakeholders. (Global Taskforce, 2016; WBCSD, 2021).

According to Rowling (2015), since the beginning of the SDGs, the UN Member States have aspired to implement the so-called 2030 Agenda, which presents a global blueprint for shared prosperity in a sustainable world, in which all people can lead productive lives while living peacefully and on a healthy planet now and in the future (P. D. Oosterhof, 2018b, SDG Academy, 2019). The 2030 Agenda marks the first time in human history that different nations of the world have agreed upon a comprehensive vision, with precise goals and targets, for the development of our society (United Nations, 2022c).

Formally endorsed in September 2015 at a UN Summit of States, the 2030 Agenda advocates for the inclusion of the SDGs in policies, procedures, and initiatives adopted at the national, regional, and global levels (Fisher & Fukuda-Parr, 2019). Due to this, it is vital to use it as a benchmark for achieving the SDGs, since it offers recommendations on how nations should proceed in to attain goals (United Nations, 2022c).

The Global Agenda consists of 17 goals, comprising 232 measurable indicators and 169 specific targets (several targets under each Goal), that establish the interdependencies between multiple sectors and governmental levels to promote transformative change (P. Oosterhof, 2020; UNDP, 2023a).

These targets and indicators are used as instruments to measure progress and produce data in order to enable decision-making that is supported by evidence (FAO, 2022; Mulholland et al., 2018). According to SDSNYouth (2023), it further indicates that these enable nations to establish policies, monitor progress, identify gaps, and report the results to the international community.

It is worth mentioning that the progress of each SDGs assesses those areas that require further efforts and where target achievement must be enhanced (Halkos & Gkampoura, 2021). However, systemic relationships across goals must be considered for effective policy implementation and agenda execution (Alva, L. 2022).

Therefore, annually the UN Secretary General presents the Sustainable Development Goals Progress Report in collaboration with the UN System, based on the global indicator framework and data supplied by national statistics systems, as well as information collected at the regional level (United Nations, 2022d). In Portugal for example, the *Instituto Nacional de Estatística* (INE, or National Statistical Institute), contributes towards the report.

Furthermore, streamlining the 2030 Agenda into national strategies, plans, and policies is rooted in five thematic areas, which are considered the Agenda's guiding principles. These core principles are commonly referred to (Oliveira & Navega, 2017):

1. People: reflecting the commitment to eradicate poverty and hunger in all of their forms and dimensions, and ensuring that all humankind may realize their full potential in dignity, equality, and a healthy environment;
2. Planet: reaffirming the concept that in order to meet the needs of current and future generation, the planet must be protected from degradation, especially by sustainable consumption and production, sustainable management of its natural resources, and immediate action on climate change;
3. Prosperity: assuring that all humans may have successful and meaningful lives, and that economic, social, and technical advancement emerges in accordance with nature;

Inequality is one of this generation's defining challenges, and it requires a nearly equivalent emphasis, which so far has been lacking.

4. Peace: highlighting the commitment to promote a peaceful, equitable, and inclusive society free of fear and violence, while acknowledging that there can be no sustainable development without peace, and no peace without sustainable development;
5. Partnership: gathering the resources required to execute the 2030 Agenda through a revitalized Global.

As it is observed, the Agenda is established in a spirit of reinforced global solidarity, with a special emphasis on the needs of the poorest and most vulnerable, and with the participation

of all countries, stakeholders, and all people, leaving no one behind (Oliveira & Navega, 2017; Tremblay et al., 2020).

These “5P’s” have a vital role because they demonstrate how the SDGs are an integrated framework, rather than a set of isolated goals. Therefore, progress on one principle balances and supports development on another (Brown & Rasmussen, 2019).

Given that the SDGs are intended for all issues and for everyone, from government, CSOs, industries, research institutes to individuals (NTU International, n.d.). Although there is a lag in the implementation of the 2030 Agenda, some corporations around the world, however, are increasing their efforts to attain these goals (HEC Paris, 2022). The large corporations are keen to goals linked towards economic growth, sustainable industrialization, innovation, and production (Sengupta, 2021). Meanwhile, some companies and entrepreneurs are unknowingly contributing to achieve the SDGs (Akkuş & Çaliyurt, 2022; Sengupta, 2021).

It is important to mention that different SDGs are directly related to different subjects, thus, corporations must thoroughly assess, educate, and inform about such including their sub-goals, understand their significance for sustainable development and how to better implement and impact the objectives (Scharlemann et al., 2020; Sengupta, 2021).

In addition, goals related to human rights have also been highlighted (NTU International, n.d.). On political affairs, for example, the SDGs establish the framework for policymakers to act, and government delegations report annually on the progress of each goal to the UN High Level Political Forum (Sengupta, 2021).

Along with the governmental sector, the private sector and corporations are striving to accomplish the SDGs. In economic terms, they enhance the alignment of corporate strategies with the current society demands, recognizing areas of innovation, assisting the expansion of new markets, and proposing opportunities pertinent to the 17 Goals (Lanshina et al., n.d.; Sengupta, 2021).

The multinational corporation TOMRA, for example, is willing to be one of the private sector organizations that takes full responsibility and commits to delivering UN SDGs. The company asserts that sustainability is a leader of the resource revolution and a core of their business, in which with their solution for optimal resource product, it is possible to support the transformation to a circular, low-carbon, and more sustainable economy (Prytz, 2020).

The Company Enel Américas is also willing to commit to an increasingly sustainable business model, with the aim of meeting the 2030 Agenda. Therefore, the Company’s Strategic Plan for sustainable business, integrated six of the 17 SDGs into their business plan, in order to incorporate the SDGs in the investment decisions of each business line (Enel Américas, 2016).

According to Enel Américas, (2016), the company aspires to provide value to shareholders and society as a whole, through its activities related to innovation, infrastructure, and sustainable cities and communities, which in turn are intrinsically linked to climate action.

In addition, the United Nations Environment Program (UNEP) is available and committed to work with all concerned parties to support the achievement of the SDGs. They advocate for environmental sustainability as a critical enabler in achieving the SDGs and ensuring the health of our planet. Moreover, they ensure that the environment is integrated into all elements of sustainable development by building nations capacity to track their progress toward the goals (UN Environment Programme (UNEP), n.d.).

Furthermore, several European Union (EU) finance instruments reinforce European policies and initiatives while also contributing horizontally to the SDGs (European Commission, 2022; OECD, 2021c). It is clear that different actors are striving and have contributed to the SDGs.



Figure 2: The 17 Goals of Sustainable Development Goals (SDGs). (Source: United Nations, 2015)

These 17 wide-ranging, interconnected, and ambitious goals for the world to accomplish by 2030, redefine the concept of wealth, growth, and profit (HEC Paris, 2022; SDSNYouth, 2023; WBCSD, 2021). Below is a brief summary of the Goals:

- **Goal 1: End Poverty in all its forms everywhere.**

It attempts to provide social protection for the underprivileged and vulnerable (UNOOSA, 2023). Even though global poverty has been cut in half since 2000, efforts must continue to be directed toward increasing incomes, alleviating suffering, and strengthening the resilience and basic service of individuals who remain in extreme poverty (Resende, 2018; UNOOSA, 2023). In disaster-prone countries, which also tend to be the poorest, social protection systems must be enhanced and risks reduced (Resende, 2018).

- **Goal 2: End hunger, achieve food security and improve nutrition and promote sustainable agriculture.**

It pledges to guarantee all people have access to food that is secure, nourishing, and sufficient throughout the year (UNOOSA, 2023). However, ending hunger, malnutrition, and food insecurity will require continued and concentrated efforts, particularly in Asia and Africa (Resende, 2018).

This calls for resilient agricultural techniques, sustainable food production systems, and equal access to markets, technology, and land. Additionally, there should be increased public investment and global collaboration (The Global Goals, 2023; UNOOSA, 2023).

- **Goal 3: Ensure healthy lives and promote well-being for all at all ages.**

The goal considers all the major health concerns, such as illnesses that are communicable, non-communicable, and environmental, as well as reproductive, maternal, and child health. But to achieve the health targets in the SDGs, progress must be accelerated, particularly for regions with high disease prevalence rates (The Global Goals, 2023; UNOOSA, 2023; Resende, 2018).

Therefore, there is a need for more research and increased health financing (UNOOSA, 2023).

- **Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.**

To achieve inclusive and equitable quality education for everyone, additional efforts are needed, particularly among vulnerable groups such as people with disabilities, indigenous peoples, refugee children, and impoverished children in rural regions, mainly in Sub-Saharan Africa and Southeast Asia (Resende, 2018).

- **Goal 5: Achieve gender equality and empower all women and girls.**

Gender inequality persists across the world, depriving women and girls of essential rights and opportunities. To achieve gender equality and the empowerment of women and girls, more vigorous measures are required, including reforms in legislative frameworks, to address the deep-rooted discrimination that frequently emerges from patriarchal beliefs and related social standards (Resende, 2018; UNOOSA, 2023).

- **Goal 6: Ensure availability and sustainable management of water and sanitation for all.**

One in three people lack access to improved sanitation, this results in unnecessary illness and death (The Global Goals, 2023).

Access to potable water and sanitation, as well as proper management of freshwater ecosystems, are critical for human health, environmental sustainability, and economic development (Resende, 2018).

- **Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.**

Progress in all sectors of sustainable energy falls short of what is needed to achieve energy access for all, ensure renewable energy and energy efficiency targets. Therefore, to have significant improvements it is required to have higher levels of funding, bolder political commitments, and government's willingness to adopt innovative technology on a larger scale (Resende, 2018).

- **Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.**

Increasing labor productivity, lowering the unemployment rate, particularly among young people, and boosting access to benefits and finance services are all critical components of long-term and inclusive economic growth (Resende, 2018; UNICEF, 2023).

- **Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.**

Despite sustained increases in industrial production and employment, it is critical to renew investment in developing countries and ensure that industry's part of their Gross Domestic Product (GDP) doubles by 2030 (Resende, 2018).

- **Goal 10: Reduce inequality within and amongst countries.**

There has been uneven progress in eliminating inequality within and across nations (Resende, 2018). An immoderate amount of the world's wealth is concentrated in the hands of a small number of people. This frequently results in financial and social discrimination.

In order for nations to thrive, equality and prosperity must be available to all people, regardless of gender, race, religious beliefs, or economic background. While every individual is self-sufficient, the entire world benefits (The Global Goals, 2023; UNOOSA, 2023).

- **Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.**

Rapid urbanization has brought huge issues, such as an increase in slum areas, increased air pollution, insufficient basic services and infrastructure, and uncontrolled urban sprawl, which has turned cities more prone to disaster (Resende, 2018).

It is critical to develop contemporary, sustainable cities in order to accommodate everyone. There is a need for modern, intelligent urban design that provides secure, affordable, and resilient communities with green and culturally inspiring living conditions in order for all of us to thrive and develop (The Global Goals, 2023).

- **Goal 12: Ensure sustainable consumption and production patterns.**

Achieving this Goal requires strong national legislation aimed at sustainable consumption and production that integrates national and sectoral plans, business practices, and sustainable consumer behavior, as well as compliance with international standards on chemical and hazardous waste management (Resende, 2018; UNOOSA, 2023).

- **Goal 13: Take urgent action to combat climate change and its impacts.**

Climate change is an evident and genuine threat to the entire civilization. The consequences are already obvious and will be catastrophic unless there's a quick action (Resende, 2018).

It is possible to undertake the required adjustments to safeguard the world through education, innovation, and compliance to climate agreements. These developments also provide huge opportunities to modernize our infrastructure, which will generate new employment and promote greater prosperity across the globe (The Global Goals, 2023).

- **Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.**

Healthy oceans and seas are critical to human survival. They cover 70% of the earth's surface and supply food, energy, and water (The Global Goals, 2023; UNOOSA, 2023).

The increasingly adverse impacts of climate change, such as ocean acidification, overfishing, and marine pollution are jeopardizing recent improvements in ocean protection. It is critical to have competent management and to safeguard marine life worldwide (UNOOSA, 2023; Resende, 2018).

- **Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss.**

Progress in the conservation of species and the sustainable use of Earth's terrestrial ecosystems is uneven. The rate of forest loss has decreased, and progress is being made in sustainable forest management and the conservation of significant biodiversity regions.

However, deteriorating trends in land productivity, biodiversity loss, poaching, and wildlife trafficking are extremely concerning (The Global Goals, 2023; UNOOSA, 2023; Resende, 2018).

- **Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective accountable and inclusive.**

Despite the fact that certain high-intensity military conflicts result in a huge number of civilian deaths, compassion and a strong moral compass are vital in every democratic society (Resende, 2018).

Persecution, injustice, and abuse continue to be pervasive, pulling away the very fabric of civilization. It is vital to ensure strong institutions, global justice standards, and a commitment to peace everywhere (The Global Goals, 2023; UNOOSA, 2023).

- **Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.**

Despite some encouraging signs, a broader commitment to partnership and cooperation is required to attain the SDGs. This will require appropriate consistent policies, an enabling environment for sustainable development across all levels, such as international investments, innovative technological development, reasonable trade, and market access, particularly for developing countries, as well as a fortified Global Partnership for Sustainable Development (The Global Goals, 2023; Resende, 2018).

Following the descriptive explanation of the goals, it is possible to notice how goals and targets are inextricably linked as previously stated. For example, poverty (Goal 1) contributes to hunger and malnutrition (Goal 2), which can progress to health problems (Goal 3) that may jeopardize children's education (Goal 4) or thwart adults while seeking employment (Goal 8) (HEC Paris, 2022; SDSNYouth, 2023).

With all stated, it is evident that there is no separation between the goals. The links show dependency between them, which resembles a puzzle, since they cannot be completed without all the pieces (HEC Paris, 2022).

According to Oliveira & Navega (2017), escalating and interlinked crises are putting the 2030 Agenda for SDGs in grave danger, along with humanity's very own survival. The Report highlights the severity and magnitude of the challenges before us. The confluence of crises, dominated by COVID-19, climate change, and conflicts, are creating spin-off impacts that affect the Global Goals (United Nations, 2022a). Therefore, there is a need for bigger implementation and contribution.

Hence meaningful implementation and monitoring of the SDGs is accomplished whenever national and subnational governments, NGOs and educational institutions, private sector, and individuals engage together (Global Taskforce, 2016).

Lastly to promote engagement, as well as to make these goals recognized and achieved, it is essential to apply them at the local level (municipality), helping them to gain meaning for local actors and allowing them to contribute to their success. That said, the next section will go into more detail regarding localizing and how it contributes.

2.4 Localizing - role and evolution

The 2030 Global Agenda of SDG programs, initiatives and solution should not be seen as a universal to every country, it is important to acknowledge that each country has their own priorities and ambitions, which differ according to district, province and/or municipality (Richiedei & Pezzagno, 2022; UN, 2023a).

To acknowledge the urgent matters to answer, as well as to make major decisions, such as presidency, national governance requires broad meaningful consultation and participation by all citizens, especially vulnerable groups through representative political structures (UNDP, 2010; United Nations (UN), 2012).

Cities and regions have revealed to be ideally qualified to translate the broad and abstract 2030 Agenda into a specific and efficient agenda. Since they can tackle goals and targets in a pragmatic way, fit them into their own particular context and assist their citizens in understanding how local action contributes to their achievement (Global Taskforce, 2016; OECD, 2020a). By analyzing the bibliographic research, it was possible to notice how many of the 2030 Agenda goals and targets rely on the contribution and responsibility of subnational governments. As well as they have core competencies for policy areas supporting the SDGs (OECD, 2023).

According to United Nations (2022a) subnational governments bridge the gap between national and local governments, fostering the NGOs, the private sector (micro, small and medium enterprises), educational institutes and other community-based entities. These governments are in a great position to harness local resources, capacities, and potential to enable inclusive, sustainable growth that contributes to national prosperity, when given the necessary capabilities and resources (P. D. Oosterhof, 2018b; Global Taskforce, 2016). They are responsible to convey the SDGs to citizens directly through conventional media, such as training and programs for journalists utilizing their social media channels (Shannon & O'leary, 2020).

The remarkable impact of Covid-19 has demonstrated that the path for sustainable mindset will require a transformation towards a broader sense of empathy and acknowledgment of communities and societies interdependence, as well as a common feeling of solidarity (United Nations Human Settlements Programme, 2022b). Subnational governments have proven to be vital important in rapid crisis response, such as disease control and disaster relief operations, this consequently led to increasingly urgent need to localize the SDGs (Eslami & Namdar, 2022).

More than ever, the achievement of the SDGs, depends on the ability of local and regional governments to promote a broad, integrated, and sustainable territorial development through a collaborative governance process (P. D. Oosterhof, 2018b; United Nations, 2022e). Therefore, the UN adopted a strategy that translates the Global Agenda to local level known as "localizing". Furthermore, outstanding across nations coordination, multilevel governance, multistakeholder and partnership collaboration approaches are imperative (P. Oosterhof, 2020; Parashar, 2020; Beisheim & Silmon, 2016; Mariani et al., 2022).

Despite national legal and political frameworks having a long way acknowledging, national and international advocacy work on behalf of local and regional governments (Global Taskforce, 2016). Localizing has proven to be practical, efficient, and effective because it promotes the SDGs in a mobilizing, inclusive and systemic level (Guerra et al., 2022; Alva, L. 2022).

"Localizing" is considered as the process of considering the achievement of the 2030 Agenda, from the developing of goals and targets, to determining the means of implementation and using indicators to measure as well as to monitor progress, intending to adapt at the local level (Urban Management Programme et al., 2004; Sustainable Development Goals Help Desk, 2020).

It is important to refer that from here forward, this research defines localizing as the strategy that migrates national policies to local level with the purpose of empowering and promoting public participation in decision-making (Shannon & O'leary, 2020).

Localizing the SDGs has been increasingly acknowledged as a strong driver of the 2030 Agenda, since local data collection and monitoring are required to scale up SDG in recovery efforts. These make it easier to implement the top-down and bottom-up strategies necessary to fully grasp the potential of localizing the SDGs (P. Oosterhof, 2020). Furthermore, to have greater persuasion and dissemination of the SDGs, it is necessary to promote them more at local level (Cunha et al., 2022).

According Schiaretti (2029), a local SDG strategy can assist in consolidating a sustainable administration model based on justice, economic growth, and institutional strengthening (OECD, 2023).

The 2030 Agenda is not the first global movement where localizing is emphasized, this concept was first recognized on Local Agenda 21 (LA21) and Millennium Development Goals (MDGs), both have supported this sustainable initiative (Krantz & Gustafsson, 2021).

In accordance with Urban Management Programme et al. (2004), the concept was considered essential by the MDGs following World Bank policy paper which advocated the establishment of reasonable policies and governance structures at national, local and community levels in

order to ensure sustainable progress, as well as build capacity at local level to identify and understand the specific characteristics of poverty groups, and lastly establish mechanisms that respond to demand.

Whereas the Member States had the best intentions, there were a few limitations during the process of localizing, since the concept had different meaning to each country the strategy to implement was also different (Patole, n.d.). Nevertheless, localizing MDGs didn't succeed because of the following issues:

- Weak local capacity, in terms of lack of knowledge and competencies to implement the MDGs, as well as lack of consideration for local special characteristics (Patole, n.d.; UNDP, 2005);
- An inadequate distributed statistic, inconsistent baselines, and data gathering (Urban Management Programme et al., 2004);
- Disparities in politics between the national government and local administrations (Patole, n.d.);
- In many nations, there is a lack of participatory culture (UNDP, 2010);
- Shortage of fundings to provide to basic local services (UNDP, 2005);
- Weak local administration which leads to a lack of public participation and engagement in local decision-making (Patole, n.d.; UNDP, 2005);

Thus, the 2030 Agenda takes into consideration all the constraints of MDGs and transforms them to make them more effective and efficient. However, some of these constraints still hold weight on the current Agenda.

According to Global Taskforce (2016), localizing SDGs means enabling local governments and communities to be the catalysts of change to support the achievement of the 2030 Agenda, through innovative approaches and providing a framework for local development policy. Therefore, the Local 2030 emerged as the network and platform that supports the delivery of localizing SDGs, with focus on those furthest behind (Local 2030, 2017).

The Local 2030 provides easy access to a catalog of strategies and plans that can help localizing, it assists local leaders in collaborating to develop initiatives, share solutions and breakdown barriers at the local level (Local 2030, 2017).

Besides the Local 2030, the Organization for Economic Cooperation and Development (OECD) launched a program to support localizing SDGs called "A Territorial Approach to the SDGs" (OECD, 2023). This program has three main purposes:

- Assess where cities and regions are regarding the SDGs, as well as it helps compare their respective national benchmarks and counterparts;

- Evaluate how cities and regions are using the SDGs to redefine sustainable development from the scratch, including improve the communication between lower and upper levels of government;
- Share best practices and lessons from international experiences (OECD, 2023).

The OECD program also held a roundtable on cities and regions for the SDGs that culminated in a helpful report framework for cities and regions to enhance their strategies, plans and implementation. In this meeting nine cities and regions in Latin America, Europe and Asia were participating as pilot (OECD et al., 2019).

This summit featured several notable highlights, namely:

- It defined the path to support cities and regions to contribute to Voluntary Local Reviews (VLRs) and engage in Voluntary National Reviews (VNRs);
- Participants acknowledge the SDGs as a tool for advancing and implementing a development paradigm that supports sustainability in cities and regions;
- Regarding the measures of SDGs, participants said that SDGs indicators are an opportunity to foster and strengthen national and subnational statistical systems;
- Five of the pilots have introduced multiple plans and strategies based on the SDGs;
- Among the participant there were the first local government to present a VLR at the UN High Level Political Forum (HLPF)(OECD, 2023; OECD et al., 2019).

Other than the OECD program, the European Commission in collaboration with the Joint Research Centre (JRC) also contribute to localizing with the project named “URBAN 2030”. The project aimed to support SDGs accomplishments in European cities and regions by providing an appealing international reference for the design and execution of SDGs VLRs. These assessments assist cities and regions to maximize knowledge and practical actions associated with the localizing the 2030 Agenda (European Commission, 2021).

Along with the contribution for localizing the SDGs, another collaboration from the European Commission and the JRC culminated in the publishing of the “European Handbook for SDG Voluntary Local Reviews”. The Handbook offered a framework for cities to monitor SDG accomplishment at the local level, and it has been widely referred to as good practice by multiple international organizations (Siragusa et al., 2022).

The following chapter presents localizing case studies, which allows to better understand how localizing operates in different places.

2.5 Localizing - case studies

Both in the OECD program and their roundtable initiative it's seen that some of the approaches, strategies, and plans made a significant contribution for localizing SDGs, such as

(OECD, 2023; OECD et al., 2019). Below a list of case studies with contribution to the localizing issue are presented:

- The *Province of Córdoba, Argentina*, has developed a stakeholder engagement process with the purpose of including the private sector and civil society in the development of a *Vision 2030 for Córdoba*, and is creating a framework to identify social inclusion drivers (Gobierno de la Provincia de Córdoba, 2023; *Iniciativa Córdoba 20-30*, 2021; OECD, 2020c);
- Japan enhanced SDGs *Action Plan 2018 to Future Cities Initiative*. Thereupon, the *city of Kitakyushu* was designated a "model city" in the "SDGs Promotion Headquarters", with the purpose of promoting effective actions to achieve the SDGs and coordinate all government institutions under the leadership of the Mayor. In 2018 Kitakyushu presented Its VLR at the HLPF, in collaboration with the Institute for Global Environmental Strategies (IGES). Afterward, the city launched an *Eco-Town* project (OECD, 2020b, 2021a, 2023; Institute for Global Environmental Strategies, 2018);
- The OECD program supported the *county of Viken, Norway* in order to implement a territorial reform that merged the three countries of Akershus, Østfold, and Buskerud (OECD, n.d., 2020b, 2020c; Viken fylkeskommune, 2021);
- The initiative also assisted the *Southern Denmark region* in developing a new *Regional Development Strategy for 2020-2023* based on the SDGs, where regional and municipal level indicators support *localizing* of the SDGs. The Southern Denmark region also developed an initiative Education for Sustainable Development (ESD), which provides internship and employment opportunities for immigrants and long-term unemployed women within a framework for education (OECD, 2020c, 2021b; OECD et al., 2019);
- Municipalities in *Flanders, Belgium*, are incorporating the SDGs into their legislative planning processes and attempting to localize the SDGs in a way that breaks down government divisions. They're also adopting preliminary recommendations to enhance the execution of the *Focus 2030 Strategy*. However, there has been a constraint to coordinate indicators, between the regional and federal levels, due to each government's distinct strategies and set of goals (OECD, 2020c, 2021b);
- The *Brazilian state of Parana* is working towards the SDGs, with the Initiative **Paraná Keeping an Eye on the SDGs (*Paraná de Olho nos ODS*)**. The state intends to incorporate the SDGs into their budgeting process and improve financial support to municipalities to encourage SDG implementation. The private sector is eager to align its plans and targets with the SDGs to mitigate environmental consequences and foster social equity. The legal system has introduced a model that aims to analyze the relationship between public policies and SDGs targets, review budget expenditures, provide evidence to enhance better decision-making, and assess official indicators associated with budget planning instruments. Additionally, the initiative established an SDG webpage (*Boas Práticas ODS*) to broadcast best practices to the locals, alongside an art project (*ODS Arte*) to foster knowledge exchange and empower individuals to

engage to and undertake the 2030 Agenda (CEDES, 2023; Estratégia ODS, 2021; OECD, 2020c);

- Under its new Sustainability Plan (*SKEW*), the *city of Bonn, Germany*, has developed a comprehensive approach to localize the SDGs, "*Municipalities for Global Sustainability*" through a multilevel government framework. The Service Agency Communities in One World (*SKEW*) assists technically and financially municipalities in implementing the SDGs. The strategy not only assists the city in efficiently localizing the SDGs, but it also promotes Bonn's new status as a UN City. Bonn's new approach not only helps to efficiently implement the SDGs at the local level, but it also supports the city's new status as a UN City. In 2018, the city organized an event called "17 Days for 17 Goals" to raise awareness about the SDGs and encourage local action (DEval, 2023; OECD, 2020c).

In addition to assisting municipalities in Germany, Bonn also provides financial support to other countries to help them implement their own local sustainability initiatives. This approach demonstrates Bonn's commitment to global sustainability and its willingness to share its knowledge and resources with others (DEval, 2023; Engagement Global, 2023; OECD, 2020c);

- In *Moscow, Russian Federation*, the SDGs are considered instruments that may help Moscow to present itself as a desirable location to reside in the 21st century. Therefore, the government utilized the SDGs as a checklist to assess and recognize the contributions of numerous local programs and initiatives, notably through *three primary sustainable development strategies* that would be executed over the next 10-15 years: i) *Master Plan 2010-2035* tends to promote "balanced urban development" through access to green spaces, efficient transportation, and high-quality housing; ii) *Investment Strategy 2025* strives to establish a favorable investment climate for urban development; and iii) *Smart City 2030* which offers digital solutions to advance urban development, specifically to raise local living standards while guaranteeing more cost-effective management and service-provision solutions (OECD, 2020c, 2021b; OECD et al., 2019);
- The municipality of *Kópavogur, Iceland*, legally accepted the SDGs in 2018 as part of the municipality's master strategy. The government has set up the *Inter-ministerial Working Group for the SDGs*, which comprises members from all ministries, the Youth Council for Global Goals, and the Icelandic UN Association. Henceforth, the municipality promoted a project with the purpose of waging synergies across interlinked goals and diverge from sector-based planning. However, there would be some hurdles ahead, therefore Kópavogur established a Steering Group to raise internal awareness within the administration and work towards the design of strategic action plans to execute the strategy locally. The city has also established a child-friendly city index (OECD, 2023; OECD et al., 2019; OECD, 2020c).

As the SDGs encompass both developed and developing countries and considering that Portugal (the case study of this thesis) belongs to the Community of Portuguese Speaking Countries (CPLP), which is predominantly made up of African countries, it is pertinent for this work to also provide a perspective on localizing in Africa. Therefore, the following cases were selected from different publications, considering a range of diversity, and are presented here:

- In *Chimoio Mozambican city*, public-private partnership is strengthening since local businesses significantly contribute to local development initiatives. In 2018 the Ministry of Economy and Finance (MEF), in coordination with the Ministry of Foreign Affairs and Cooperation (MINEC) and the National Institute of Statistics (INE) created an *SDG National Reference Group (GNR-SDG)* to involve different sectors of the government, CSOs, educational institutions, private sector, cooperation partners, United Nations agencies, parliamentarians, the National Association of Mozambican Municipalities (ANAMM), the African Peer Review Mechanism (APRM) and citizens (Croese et al., 2021; ICLEI Africa, n.d.; Laíce & Croese, 2022).
- The *City of Cape town, South Africa* signed with different global alliances, networks and initiatives to localize the SDGs, such as the *C40 Cities Climate Leadership Group* and the *100 Resilient Cities (100 RC)* network, and participated in indicator programs and projects like the Mistra Urban Futures SDG (2014/2015) and the ISO 37120 certification process (2016/2017) (African voices for African's development, 2017; Croese et al., 2020; Global Taskforce, 2016; ICLEI, 2019);
- Accra and Lagos, largest cities in Ghana and Nigeria, respectively, built a research project *Standardizing City-Level Data-Gathering for Achieving SDG 11 in Africa (SCiLeD)* with the aim of generating city-level data regarding the proportion of urban population living in slums, in informal settlements, or with inadequate housing in the West African cities. In this context, the project Local Think Tank Group (LTTG) was created to bring together different stakeholder and indulge culture collaboration (Elias & de Albuquerque, 2022; Parnell, 2022).

Table 2 - Localizing case studies initiatives

	Continent	Space Unit	Aims	Time Range	Localizing	
					Highlights	Challenge
2030 Vision for Córdoba	South America	City	- Raise awareness; - Share good practices; - Boost collaborations.	2020 - 2030	- Open Government Roundtable; - Local platform; - Cooperation agreements between provinces.	- Absence of concrete policies; - Lack of data for the new reality.
Action Plan 2018: Kitakyushu Eco-town	East Asia	City	- Foster Green-Growth City; - Advice and direct on SDG implementation and multigovernance approach.	2018	- Green city Initiative; - Strengthen collaboration in policy implementation.	- Lack of policies structure for region-specific factors.
Regional Planning Strategy for a Sustainable Viken 2020 - 2024	Northern Europe	County	- Territorial reform;	2020 – 2024	- Inclusion of SDGs in regional and local planning; - “Knowledge Base”: responsible for analysis of existing trends, challenges and opportunities of SDGs strategy .	- Lack of established financial and technical support mechanism to support regions and cities; - Absence of cooperation between national and subnational level.
New Regional Development 2020 - 2023	Northern Europe	Regional-Municipal	- Provide internship and employment opportunities for immigrants.	2020 - 2023	- Participatory process of local stakeholders to develop the initiative; - Multistakeholder platform; - New business and job opportunity; - ESD.	- Misinformation about the goals.

	Continent	Space Unit	Aims	Time Range	Localizing	
					Highlights	Challenge
Focus 2030	West Europe	County	- Break policy silos; - Adopt multistakeholder approach; - Link explicit the framework to Vision 2050.	2030	- Collaboration between stakeholders	- Lack of locally adequate policy framework.
Paraná Keeping an Eye on the SDGs (<i>Paraná de Olhos nos ODS</i>)	South America	Municipal	- Build public sector competencies. - Design, Implement and monitor public policies.		- SDG portal: <i>Boas Práticas ODS</i>; - SDGs Award contest: more public participation; - Networking and coordination.	- Constraints in funding initiatives that contribute to SDG;
SKEW: Municipalities for Global Sustainability	Central Europe	City	- Encourage multilevel framework; - Promote network.		- Cross-sectorial networking; - 17 Days for 17 Goals.	- Policy instruments.
1. Master Plan 2010 - 2035 2. Investment Strategy 2025 3. Smart City 2030	Eastern Europe and Northern Asia	City	- Balance urban development - Assist Urban Development; (UD) - Digital solution for UD.	2010 - 2035 2025 2030	- Identify and manage synergies across different policy areas; - Urban regeneration programme;	- Identify the key challenges;
Inter-ministerial Working Group for the SDGs	Northern Europe and North America	Municipal	- Raise awareness within the administration; - Articulates plans and strategy		- Educational material to teach the SDGs; - Platform for climate issues; - Steering Group; - Bus Rapid Transit.	- Moving from inspiration to action
GNR - SDG	Southern Africa	City	- Strengthening public-private partnership; - Raise awareness; - Empower citizens.		- New IT system; - Sustainable fishing; - Partnership with external partners; - Stakeholders involvement.	- Uneven levels of decentralization; - Limited involvement of stakeholders; - Absence of data.

	Continent	Space Unit	Aims	Time Range	Localizing	
					Highlights	Challenge
1. C40 Cities Climate Leadership Group 2. 100 RC	South Africa	City - Municipal	Building greater awareness at a community level of shocks and vulnerabilities.	2022 - 2027	- University-city partnerships; - Roadmap for SDGs; - SALGA: consultation on municipalities.	- Weak organization structures; - Lack of engagement with actors.
SCiLeD	West Africa	City	- Standardizing City-Level Data-Gathering.		- Local Think Tank Group; - Urban data Governance; - Culture collaboration,	- Missing gaps in administrative records; - Lack of evidence in terms of accurate - Insufficient spatial and temporal datasets; - Inadequate involvement in decision-making.

Throughout localizing case studies initiatives, it was possible to notice that different space units, such as cities, districts, municipalities and even regions are concerned and eager to achieve the 2030 Agenda. Therefore, each space unit has its own unique way to migrate the Global Agenda to local level, with different strategies, initiatives, and plans each of which has their own time range and challenges. In addition, it is noted that different countries around the world are developing strategies, initiatives and plans for localizing approaches, and these are neither universal nor equal among them, which translates the different approaches of localizing throughout the world.

Despite the fact that certain nations are still in a developing stage and face a few well-known challenges including a lack of financial resources, political and social conflicts, these nations are making unrelenting efforts to attain the Global Agenda. It is also noted that some developed countries have alliances, networks and initiatives that assist in developing countries SDGs targets. Such as the city of Bonn, Germany that has an initiative “Municipalities for Global Sustainability” that supports different global municipalities to achieve the SDGs.

Additionally, it is feasible to notice how different space units are not limited by their own unit condition, consequently they adapt their unit condition working on their social, political, economic, environmental, and even technological matters in order to attain the SDGs at local level.

It is possible to notice how localizing process goes beyond migrating global goals to local level. This process is responsible for many significant changes and opportunities, namely:

- It brings together leaders from national, regional, and local governments, the UN, private sector, CSOs, educational and citizens to collaboratively develop and implement solutions to the SDGs (Beisheim & Silmon, 2016);
- Ensures the inclusion of a diversity of local stakeholders, by empowering human, economic and societal changes (ICLEI BRIEFING SHEET - Urban Issues, n.d.);
- Fosters and plan of new service areas integrating a sustainable environmental (UNDP, 2005);
- Promotes ownership, commitment, and accountability of local stakeholders (Alva, 2022);
- Raises public awareness, engagement, and empowerment of citizens (Global Taskforce, 2016);
- Ensures that diversity is embraced (Cunha et al., 2022);
- Creates network among local stakeholders (Guerra et al., 2022);

- Generates synergies with other agendas, such as the Paris Agreement and the National Determined Contribution (Alva, 2022);
- Promotes sustainable growths to municipalities, cities, and countries (Engagement Global, 2023);
- Provides practical direction in assessing, planning, implementing and monitoring local policies, in accordance with the SDGs strategies (UNDP, 2005).

Additionally, all these opportunities are much more effective and efficient when local governments gather forces with citizens, when they open themselves up to understand, influence and assist citizens beliefs and behavior. As a response, there is more knowledge and empowerment, which subsequently mobilizes and establishes partnerships among different local stakeholders (Alva, 2022; Global Taskforce, 2016).

Therefore, to have similar advance in local level Portugal launched an SDGs project *ODSlocal*, to support the Portuguese municipalities that embark in these endeavors, and one of the features of it is to localize the SDGs in municipalities mobilizing and engaging the local agents. This will be further discussed in the chapter 4.

3 METHODOLOGY

The purpose of this chapter is to characterize and describe the approach implemented to localize the SDGs in municipalities through sustainability laboratories in *ODSlocal*. Therefore, it includes a blueprint to address the research goals, the LSLs and their comprehensive framework which explains how Social Laboratories operate.

This chapter introduces a research methodological framework, which includes the research philosophy, type, and the research strategy. While research philosophy and type aim to describe the nature of the research and the approach implemented towards the achievement of goals. The research strategy is then discussed, as the roadmap to conduct the research systematically. Finally, a thorough overview of Social Laboratories through social innovation.

3.1 Research Design

Within the present thesis a combined interpretivism and pragmatic philosophy were used, to fulfill the aims and objectives previously presented, because it tackles pertinent issues and supports with a solution (Goldkuhl, 2012).

Considering that the concepts are new and well-known which makes them liable to subjectivity, the indicated philosophies were chosen because they interplay knowledge and action, resulting into the approach applied to engage with citizens (BRM, 2023).

Afterwards, it proceeded a qualitative research type based on case studies method, where it involved an in-depth examination regarding localizing the SDGs, Social labs and Social Innovation.

To conclude, a study of the project *ODSlocal* was conducted in order to understand how the project operates, and the initiatives that have been implemented in municipalities. The realization of this thesis and the research process are better portrayed in the subsequent section.

3.2 Research Strategy

In order to conduct this research, a primarily research regarding the SDGs was performed. Since the goal is to anchor the SDGs at the local level through *ODSlocal* encompassed with LSLs, a snowball method was employed to perform this research, whereby one initiates the research from the major topic to the "key point" (Nikolopoulou, 2022; Pryce et al., 2014). Therefore, to acquire relevant literature, a documental analysis was performed regarding the dissertation's aims and objectives starting with the SDGs and ending with the sustainability laboratories, which followed the sequence shown in the figure bellow:

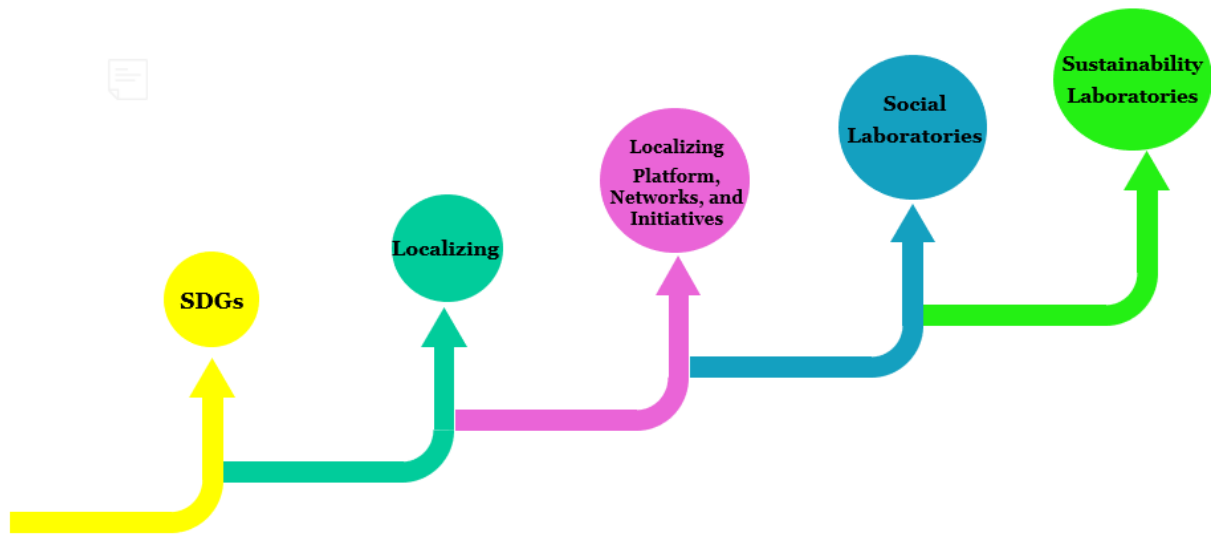


Figure 3: Research Sequence

Since the sequence of how the research is conducted is already known, to obtain the bibliographical documentation used in this thesis, as well as the relevant information from the convention reports to the convention documents (protocols and minutes), different bibliographic databases were used, such as Google Scholar and Science Direct.

Along with concepts in the sequence shown above, additional concepts were considered, including those from previous agendas like Local 21 and MDGs as well as related subjects like social laboratories and social innovation. As a result, the following online sources and bibliography database were used:



Figure 4: Bibliographic databases and websites, along with the subjects under study

Therefore, the theoretical and conceptual framework were developed based on bibliographic documentation from Figure 4.

A significant amount of documentation was combed through as well as platforms, initiatives, projects, and portals from different nations and/or cities were retrieved, to conduct the case studies associated with localizing. In addition, a workshop from the European Economic and Social Committee (EESC) held on April 4 of this year, was attended where the SDGs along with their performance and current status when localized were discussed.

Concerning the case study, the *ODSlocal* project was explored through both the official website and additional information provided by two project members of this project team.

Regarding sustainability laboratories, an initial study of both social laboratories and social innovation was conducted since LSLs hold the principles of both. The following section portrays how these Social Laboratories work.

3.3 Local Sustainability Laboratories (LSLs)

The Local Sustainability Laboratories are built through the principles of Social Laboratories, as stated in Section 1.2, hence this chapter explains the approach that has been adopted.

3.3.1 Comprehensive Framework: Social Laboratory

Social Laboratory represent a new approach: "They have been quietly brewing for almost twenty years" and refers to dialogue and collaborative spaces where issues as diverse as eliminating poverty, water sustainability, transforming media, climate change, or even social innovation are addressed. According to the sociologist, Ulrich Beck (2014) they have engaged a rapidly growing number of people who focus their "heads, hearts, and hands" on tackling complex social challenges in an attempt to find "individual solutions to systemic contradictions" (Hassan, 2014).

There are scientific and technical laboratories to solve difficult challenges, but there is an increasing need for social laboratories to solve social challenges, bringing the public not only to understand the importance of experimentation but also to engage in it (Hassan, 2014).

Social Labs are platforms built to address complex societal challenges, and have three key characteristics (Hassan, 2014), namely:

- **Social:** bring together different stakeholders among them government, civil society, and the business community, working as a team and acting collectively. This multistakeholder participation goes beyond consultation, unlike teams of experts or technocrats, and symbolizes the social nature of social labs;
- **Experimental:** these are not one-off experiences, but rather continuous and persistent attempts, supported by an iterative approach to challenges, "prototyping interventions and managing a portfolio of promising solutions", reflecting their experimental nature, avoiding one-off interventions characteristic of many social projects (Hassan, 2014);
- **Systemic:** concepts and initiatives resulting from social labs, launched as prototypes, strive to be systemic in nature, i.e., They seek solutions that go beyond the part, encompassing the whole and addressing the root of the problem instead of a portion (Hassan, 2014).

In an evolutionary process of attaining the correct response, the success of any lab, whether scientific, technological, or social, must be measured by multiple indicators rather than a binary logic of working or not working (Hassan, 2014).

Once the principles and targets of a social laboratory are grasped, the following section provides an overview of how a sustainability laboratory functions.

3.3.2 Fostering Sustainability Laboratories through Social Innovation

Integrating the broad agenda to local level is just a step forward towards the SDGs, in order to achieve to make communities more sustainable, inclusive and resilient to answer the challenges. Therefore, these goals become easier to achieve as the *ODSlocal* operates with Sustainability Laboratory along with Social Innovation techniques (Cunha et al., 2022; Sustainability Labs, 2022).

As stated before, both Sustainability Laboratory and Social Innovation are new ways of thinking and acting in response to urgent problems. Thus, both concepts are not ubiquitous, which means they do not have a unique definition (Cunha et al., 2022; SLCA, 2023).

According to SLCA, (2023), sustainability laboratories are labs interested in collaborating and exchanging knowledge and competencies regarding a wide range of topics from new technologies, planning principles to operational solutions that will make laboratories more sustainable.

To Dr. Michael Ben-Eli (2023), the sustainability laboratories address urgent sustainability challenges facing the planet by developing and demonstrating efficient instruments for catalyzing radical change. This involves utilizing worldwide expertise to achieve a planetary sustainability agenda, such as social innovation techniques (Sustainability Lab, 2023).

Social innovation is a practice that produces socially just outcomes by attempting to create novel solutions in cross-border learning communities, thereby yielding social value by fostering community development, hence forming wider collaborative networks and challenging current social institutions through this collaborative action (Cunha et al., 2022).

When it comes to contributing to the SDGs, especially at the local level there is no “tried-and-true” operational handbook to serve as a guidance, since each country, city and municipality has their own principles and customs which are not equal (Cunha et al., 2022; NewHorizon, 2020; Sustainability Lab, 2023). According to the Sustainability Labs Organization (2023), the sustainability labs have five core principles, namely:

1. **Material Domain:** constitutes the framework for managing the flow of materials and energy that underlie existence, guarantees that the flow of resources, through and within the economy, is as nearly non-declining as is permitted by physical laws;
2. **Economic Domain:** provides a guiding framework for creating and managing wealth, implementing an accounting system that is appropriate, totally connected with ecological processes on the earth, and reflects biospheric pricing;

3. **Domain of Life:** establish the acceptable conduct within the biosphere, by assuring that the fundamental diversity of all forms of life in the biosphere is maintained;
4. **Social Domain:** fosters the foundation for social interactions, enhancing human freedom and ability for self-realization without any individual;
5. **Spiritual or Values Domain** identifies, maintains and provides the necessary attitude for a universal code of ethics (Sustainability Lab, 2023).

The following section describes how the *ODSlocal* LSLs will operate.

4 CASE STUDY

Considering that the research purpose is to raise awareness, consciousness, and engagement regarding the 2030 Global Agenda among Portuguese citizens by localizing through national project (*ODSlocal*). This chapter covers the research's case study, allowing readers to comprehend the development of the *ODSlocal* project, how it works, its benefits and contributions, as well as how the platform and portal operate.

4.1 ODSlocal Overview

What exactly is *ODSlocal* and what are the benefits of this project?

The *ODSlocal* is a project supported by a Municipal Platform for SDGs (<https://odslocal.pt/>), whose main objective is to lead an ongoing process of localizing the SDGs and mainstreaming sustainability principles and strategies at the local level (2adapt, 2022; Guerra et al., 2022).

This project is considered an initiative that aims to mobilize municipalities and other relevant entities to achieve the SDGs proposed by the UN Global Agenda, at local level (2adapt, 2022; Guerra et al., 2022)..

The *ODSlocal* resulted of a partnership between the National Council for Environment and Sustainable Development (CNADS), OBSERVA (Institute of Social Sciences of the University of Lisbon), MARE (Nova University of Lisbon) and 2adapt, and is supported by the "la Caixa" Foundation (2adapt, 2022; Guerra et al., 2022).

Although *ODSlocal* already has a main goal to engage decision-makers and technicians of the municipality, the overall project also focusses on several other objectives, namely:

- Mobilization and empowerment of local communities (municipalities, stakeholders, citizens) for the goals of the 2030 Agenda;
- Fostering the participatory and collaborative preparation of "Municipal 2030 Agenda" with precise, specific and measurable goals;

- Monitoring the performance of Municipalities regarding the SDGs targets through indicators that respect the general perspective proposed by the UN, but also take into account the particular characteristics of each Municipality;
- Design and promotion of reference projects, broadcast of good municipal practices, and identification of their impacts on the SDGs;
- Fostering partnerships for sustainable development at the municipal and intermunicipal levels;
- Facilitation of the alignment between information related to the SDGs, as well as management and planning instruments of the municipalities;
- Assist in the preparation of Voluntary Municipal Review on the progress of the SDGs;
- Reflect and communicate the work Municipalities have accomplished;
- Publicly reward of the Municipalities with the best performances or with brighter evolution trajectories through three initiatives: i) holding an annual national conference, with high visibility (media projection), ii) awarding the *ODSlocal* Prize, and iii) awarding the *ODSlocal* Stamp.

Overall, the *ODSlocal* project purpose is to establish local objectives, priorities, and their integration into local policies, plans and strategies, through collaborative approaches that generate collaborative solutions built with the participation of all stakeholders.

Therefore, different local actors can work together to better adapt to current demands and expectations (2adapt, 2022; Guerra et al., 2022).

Furthermore, to achieve these goals, the initiative operates at three levels, where each has its own areas of intervention (2adapt, 2022; Guerra et al., 2022). These levels are as follows:

- **Monitoring** - Municipal Portal:
Municipal Portal is a dynamic website that allows tracking and monitoring of each municipality's progress and contributions towards the SDGs (2adapt, 2022; Guerra et al., 2022). The dynamic online portal with the slogan “leave no one behind” guarantees equitable access to the *ODSlocal* Project, except the unrestricted bandwidth. In other words, the *ODSlocal* Portal's operational system varies depending on the purchasing parity index of the municipalities, meaning that some services are free to every municipality, while others are only under subscription.
- **Empowerment** - Training program for local sustainability agents
 - I. The empowerment level is responsible for the engagement of local government, researchers, and key stakeholders of municipalities, which subsequently enables the creation of a national network of trainers on SDGs that fosters knowledge at the local scale.
 - II. In addition, this level focuses on the implementation of Dynamic Laboratories (Sustainability Laboratories) that ensure responsible participation of the diverse actors,

as well as it encourages partnerships for the development of sustainability networks (2adapt, 2022; Guerra et al., 2022).

- **Marketing-** Strategy for communication and dissemination on a national scale:
This final stage is dedicated to enhancing and promoting the practices and progress of each municipality, integrating a cycle of events to track progress, awarding prizes and distinctions for SDG projects, practices, and partnerships in the municipalities. Finally, it also recognizes the performance of positive dynamics (2adapt, 2022; Guerra et al., 2022).



Figure 5: ODSlocal overview (Source:Guerra et al., 2022)

It's also vital to note that the project overview can be visualized above.

4.2 ODSlocal benefits and contribution

As it can be seen, besides contributing to national development, the project contributes to the Portuguese community, as well as globally since it delivers the SDGs locally. Therefore, a few of the project's contributions are briefly outlined below, such as:

- Stakeholders engagement;
- Supports citizens participation;
- Diversity of point of views;
- Dynamic network;
- Encourages the exchange of knowledge and expertise
- Motivates communities to adopt sustainable lifestyle;
- Supports the SDGs (2adapt, 2022; Guerra et al., 2022).

RESULTS

This chapter presents the results and the discussion of this research. It is broken in three sections, beginning with LSL framework, the operation and implementation with the case study in Portugal.

The framework explains the purpose of LSLs, the subsequent section portrays how they are expected to operate through *ODSlocal* and finally it shows a pilot implementation in the municipality of *Odemira*.

5.1 LSLs Framework

As previously stated, Social Labs serve as the foundation for the Local Sustainability Laboratories (LSLs) that are here proposed. These labs aim to work on behalf of the *ODSlocal* in order to promote the SDGs at the local level.

These LSLs seek to leverage the skills of municipalities and civil society to mobilize the 2030 Agenda in the territory, thereby supporting its implementation, bringing everyone into the pro-SDGs movement. The LSLs are focused on local agents, ensuring a strong mobilization of young people, and a multigenerational, effective approach - involving schools (students & educators), Senior Universities, Associations - supporting the involvement of everyone in the process. It operates as the starting point to prioritize the dialogue on the 2030 Agenda of the SDGs and the territory, enhancing solutions - existing or to be developed - for local sustainability.

Furthermore, these LSLs intend to act surgically at the municipality level, working "hands on" with local agents, face-to-face, empowering, encouraging and mobilizing, for a more familiar use of all the fronts offered by the *ODSLocal* projects and initiatives.

When the dialogue on the 2030 Agenda SDGs and the territory are prioritized, these LSLs disseminate existing solutions, building networks and partnerships for projects and actions that contribute to enhance local sustainability.

The mobilizing dynamics are based on ensuring collaborative and interactive learning spaces, deconstructing the complexity of macro politics - 2023 Agenda, preparing everyone for issues

related to the SDGs and for the effective implementation of the SDGs in all areas of life. These Labs aim to educate at the municipal level about the SDGs, promoting an effective understanding of them, and relating to indicators of change critically reflected on by those involved through collaborative learning processes using recreational forms and gamification, in order to motivate and mobilize local agents.

Despite these labs being focused to work locally in municipalities, when replicated these labs can operate in cities or regions.

5.1.1 LSLs Operationalization

One of the main challenges is to design LSLs of success to bring all the 2030 Agenda SDGs, leaving no one behind. The *ODSlocal* Platform team design the collaborative process to support these LSLs.

The LSLs will consist of four interactive stations each with a mandatory introductory stop: (1) Overview - SDGs Platform, (2) Portal, (3) Indicators, (4) LIVING THE SDGs. The first three will be permanent stations available throughout the day, allowing participants to visit them whenever they are available. The last one will effectively be the Social Lab for Sustainability, with planned structuring and phasing.

When registering, the participant will receive a passport which will be stamped for each action to be completed. Each group of five will be escorted by an *ODSLocal* ambassador to make known the workspace where they will perform during the session.

With the exception of the interactive station - (4) LIVING THE SDGs - all the others - Overview - SDGs Platform, (2) Portal, (3) Indicators - can be visited during the day of the session by the participants on a voluntary basis, in order for them to gain more in-depth knowledge about the respective functions and facilities offered, gaining familiarity with these different elements according to their individual preferences.

The first three (1,2,3) Permanent Stations will have 1 to 2 permanent members at each station who will individually support each participant who expresses interest in the component, addressing inquiries and demonstrating the potential to be explored, while tailoring the presentation to the participant's profile. In multiple ways, this interactive format aims to help participants overcome "fears," raise awareness and conscious about the SDGs, learn how to leverage the available tools - Platform/Portal/Indicators - and, hopefully, mobilize and make them active agents for the SDGs and contributions to the local SDGs.

The interactive station - **LIVING THE SDGs** - will be central and with a collaborative, structured, and phased program, involving all participants. This station will include four vital components:

1. Deconstructing complexity - the Climate Mural;
2. "Build" the SDGs Core - identify the main challenges and opportunities of the municipality facing sustainability (SWOT) - SDG charts;
3. Explore the most relevant SDGs for the municipality regarding sustainability;
4. Outline "From here onwards" - action and commitment group(s).

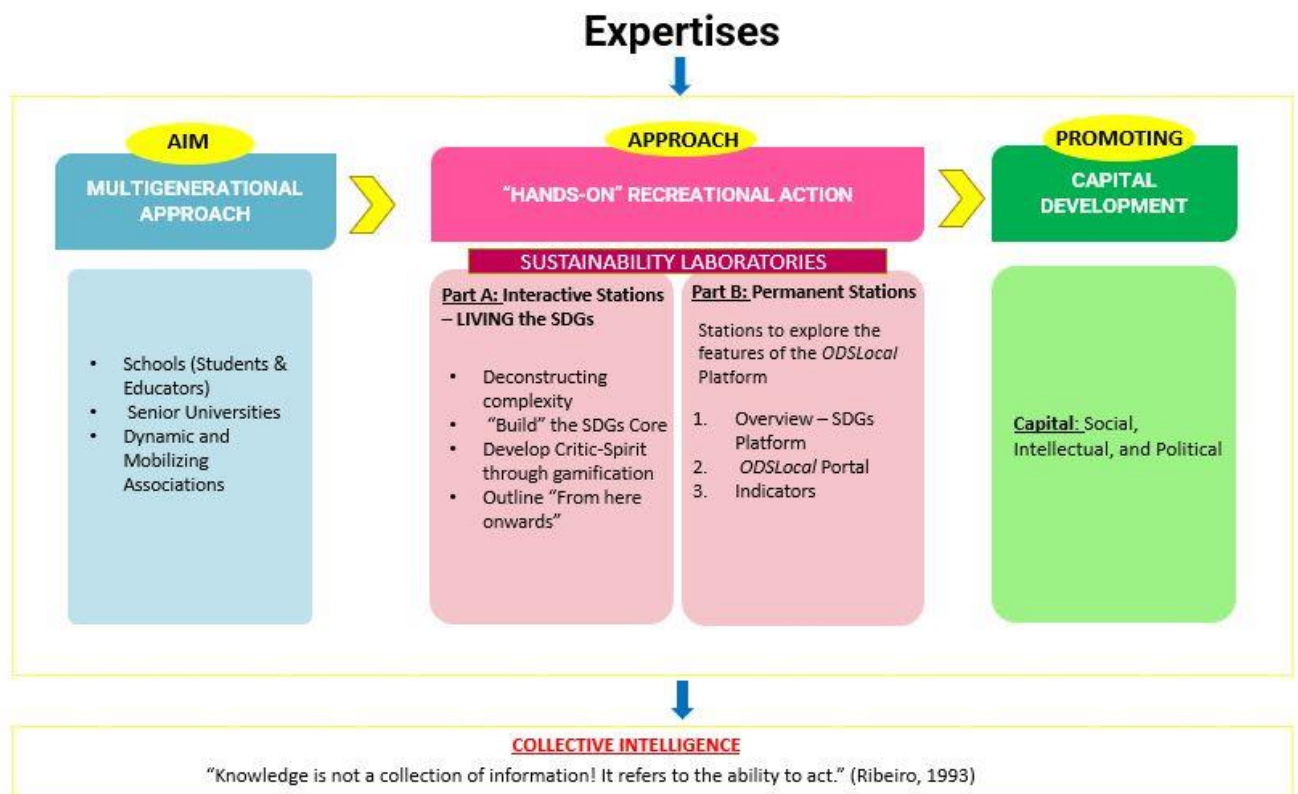


Figure 6: LSL Implementation Overview

5.1.1 LSLs Implementation

The first pilot LSLs was implemented on May 31st, in Municipal Library *José Saramago*, in *Odemira*. The LSL aimed to mobilize civil society to the 2030 Agenda.

The in-person session involved municipal representatives, such as civil society, decision-makers, and technical specialists. In addition, it assembled 31 participants working between 2pm to 5pm. The initiative transitioned from deconstructing complexity with the "Mural of the Climate" towards the building up of the key municipal SDGs. Participants were challenged

to reflect on two local SGD's with both great and low dynamics - as shown in the reference Indicators in the SDGlocal Platform - as departure point. At the end participants registered in the Action Groups they had identified during the session. The Permanent Stations - Platform/Portal/Indicators - this session was assembled in one.

On the figure below (Figure 7), it is presented the LSL program conducted in *Odemira* municipality.



Laboratório de Sustentabilidade Local
Odemira

31 de maio de 2023 – 14h às 17h

Esta sessão tem em vista a mobilização da sociedade civil para agenda 2030 no território, trazendo todos para o movimento pro-ODS através do diálogo, promovendo a redes e parcerias para projetos e ações que contribuam para potenciar a sustentabilidade local.

A sessão será presencial no município de Odemira, na Biblioteca Municipal José Saramago – Odemira.

Inscrição através da ligação: <https://forms.gle/Lybq4JR2TMeadb6NA>

14h00 – Receção dos participantes
14h15 – Sessão de boas vindas
14h30 – Viver os ODS
 14h30 – 15h30: Mural do Clima-Desconstruir a complexidade
 Pausa dinâmica
 15h30 – 16h15: “Construir” os ODS Chave
 16h15 – 17h00: “Daqui para a frente”
17:00 Encerramento

Mais informações: www.odslocal.pt
Contacte-nos através de info@odslocal.pt

Figure 7: LSL Program held in Odemira Municipality

The Action Groups identified in this first round were:

1) Municipal Council of Education; 2) Local Commission for the inter-commerciality; 3) Working Group for the concertation of interests between the state, the business sector, and NGOs in order to promote fair and dignified work; 4) Business association participatory forum; 5) Working Group for the development of industry, innovation and infrastructure; 6) local development association.



Figure 8: Group dynamics of the LSLs

Most participants registered in the evaluation form that what they liked the most were the different dynamics created and the reflections raised, the group dynamics, the exchange and sharing of ideas, the discussion, the interaction. They also mentioned that they enjoy the leisure features of the activities and the presentation of the project platform. Besides the room temperature (which was excessively hot), when the participants were asked what they disliked the most, they generally agreed that time was an issue and emphasized the need for additional time for debate.

Overall, the methodology is deemed to be appropriate, although it needs some adjustments such as making LSLs a daylong session, giving more space and visibility to the Stations, creating a specific dynamic that makes participants familiar with the stations, as well as it encourages them to explore further.

Despite the fact it requires adjustments, such as making LSLs a full-day program, providing the Stations greater room and visibility, and developing a particular dynamic that familiarizes participants with the stations and motivates them to explore deeper.

In sum, this thesis have contributed to the systematization of a wide range of literature in area with a growing interest, a critical reflection on case studies particularly on the dimension of "localizing" - a key factor for success, a structure for a methodology for engagement of the local public administration and civil society, and a preliminary assessment of the operationalization of a collaborative session - LSL

DISCUSSION

Given that the purpose of this research is to localize the 2030 Agenda for the SDGs through national project (*ODSlocal*) encompassed with LSLs, in order to raise the awareness, consciousness, and engagement of Portuguese citizens towards the SDGs. Considering that the implementation of the sustainability labs in the *ODSlocal* project has already been described on previous chapter (5), this chapter explains, explores, and discusses the findings in the previous chapter.

The following questions were asked on the section 1.3 based on the previously stated aim:

- What is localizing in a municipality?
- Why localizing is so important?
- Are Local Sustainability Labs through *ODSlocal* project an efficient way to raise the population awareness and conscious towards the SDG?
- What are the Strengths, Weaknesses, Opportunities, and Threats (SWOT) of LSL within the national project *ODSlocal*?

This chapter begins by summarizing the major conclusions of this thesis that immediately address the research questions, followed by a thorough and in-depth explanation of the findings, a SWOT analysis will next be used to examine the LSLs, and at the end the limitations and constraints found throughout the research will be presented.

6.1 Major finding

Through an extensive bibliographic review of documentation, workshop participation, and LSL of *Odemira*, it was feasible to verify that to address the outlined questions, it is important to narrow towards the local the broad 2030 Agenda for the SDGs.

Localizing allows nations to tackle goals and targets in a pragmatic way, adapt them into their own context, incorporating them into local policy. This strategy attempts to establish a

multilevel government framework by breaking the bridge between national and local governments.

Portugal is already making progress through different initiatives including the project *ODSlocal*, to attain and disseminate the SDGs, throughout the country.

Municipalities are already being coordinated under the *ODSlocal* to support the SDGs, several NGOS, and CSOs. Significant initiatives and projects have and are already being accomplished towards the Global Agenda through the *ODSlocal*, as well as several communities were acknowledged.

Although there have been a few initiatives being taken to localize, such as VLRs, localizing handbooks, projects, portals and platforms. There are not many laboratories that function as LSLs internationally. However, even the similar labs that were observed operate using various strategies with most of them concentrating on young and experienced stakeholders with different expertise. Furthermore, it was noted that there are not many facilities similar to LSL in Africa (Buralli, 2018; Ondiek & Moturi, 2019; Purcell et al., 2019).

This research design intends to contribute with a methodology of a "tool" to promote the localizing of the SDG, using the social labs to support it.

Nonetheless, it was possible to observe that although some labs operate with different strategies, they all have the same goal of networking and collaborating with each other in order to disrupt traditional ideas and bring new solutions to sustainable development challenge.

This LSLs coupled to social innovation does not come to operate over the *ODSlocal* but to be aggregated to the *ODSlocal*. These do not come just to bring answers to existing problems, but solutions that are examined from the root of the problem to the testing point.

Despite having some room, for improvement, the LSLs to assist Portuguese municipalities to deconstruct complexity on the SDGs, as it was seen in the case study of *Odemira*. To better grasp its contributions, a SWOT analysis will be provided in the following section where it is possible to evaluate the project's strengths, constraints, risks, and opportunities for improvement.



Figure 9: SWOT analysis

Based on this analysis it is possible to compare the performance of LSL laboratories against similar laboratories.

6.2 Results interpretation

It is found that the implementation of these LSLs does cover the questions and the aims of this research. Adopting the LSLs within the *ODSlocal* not only promotes the 2030 Agenda in municipalities, but also enhances the skills of local government and civil society, which therefore contributes to the SDGs and the citizens.

Assessing LSLs to similar laboratories suggests that LSLs go further than an environment just for students and researchers. LSLs enable the pursuit of sustainable solutions and initiatives with multiple stakeholders. The SWOT following is shown to better understand the LSLs contribution, as well as the similarities and differences with similar laboratories.



Figure 10: LSL SWOT analysis

It is evident that the LSLs can significantly contribute not only to the project, the Portuguese municipalities, the nation, but as well to the 2030 Global Agenda, as well as similar global agendas. However, it is evident that as with any new approach, there are some constraints and opportunities for improvement, and risks that may arise. Nevertheless, as far as it was seen, these labs are necessary for an efficient and dynamic change.

It is important to refer that these LSLs do not come to hinder the existence solutions to achieve the SDGs but to contribute to the progress of the Agenda engaging different stakeholders of the municipality on the process.

Due to the possibility of new participants misinterpreting the concept of sustainable labs, as well as the fact that it may bring them some concern. In order to make LSLs successful, it is essential to have a strong mobilization of the different stakeholders, as well as an active participation from stakeholders and communities. Encouraging a creative mindset, raising

awareness and engagement of different stakeholders which consequently fosters dynamic networks. From what was observed on the pilot laboratory, by preserving these steps these LSLs successfully contribute to the SDGs.

These LSLs come to demonstrate the contribution and power of fostering a multilevel governance engagement, where all work together for a common goal with different mindset and points of views involved. They serve as a strategy that breaks the bridge between the different government levels, disrupting the complexity of the 2030 Agenda educating the municipalities and all the other parties involved. Consequently, they support a collaborative network among different stakeholders, from governmental, private to public.

This strategy, as previously stated, mostly focuses on municipal operations, although when replicated there is an opportunity to improve some settings to other desired levels.

Considering that there are not requirements to participate in these labs, it is possible to have a diversity of stakeholders involved which is a challenge to make the most of the diverse ideas and interests through the LSL methodology. Taking also in consideration that the stakeholders have different areas of expertise, and the aim of these labs is to get them to actively contribute to the SDGs with those expertise, these labs develop new gamification strategies, not only to break the ice in large gatherings, but also to encourage the participation and engagement of the different stakeholders.

Even though some procedures require the use of the internet to operate, such as the ODSlocal Portal, the answers discussed and decided upon by the different participants not only facilitate exchange of knowledge, as well as it builds a network between them. In addition, these strategies might be publicly accessible online. Although one of the goals of these LSLs is to foster cross-sectoral partnership, these partnerships can take time considering that each stakeholder can already come with an agenda to the gatherings.

Although only one pilot laboratory was conducted, comparing the insight and outcomes of the LSLs to similar laboratories, it was seen that LSLs and other sustainability labs all aim to promote community engagement and cohesion, bringing everyone to work on a common goal, having the opportunity to learn and gain experience from a new area, additionally having the opportunity to exchange knowledge among stakeholders. However, the possibility to have a lower engagement of stakeholders and disagreement between them, was a common challenge

found in both LSLs and similar labs. Additionally, it was noted that different from similar labs, the LSLs can be more inclusive given the fact that it has no expertise, age or even gender requirement to cooperate.

Overall, through these labs, it is possible to see the importance of subnational level, as well as the power of municipalities and different stakeholders on the process of contributing to the progress of global agendas.

In conclusion, the implementation of these labs makes a significant contribution in different contexts. In the following section the foreseen and verified limitations and constraints of the research are noted.

6.3 Limitations and constraints

Throughout the process of developing this thesis, there were some limitations and constraints, well expected since this thesis focus on contexts of great complexity. These pitfalls establish the departing point for the challenges to be answered by the research. Therefore, this section offers a discussion of the limitations and constraints of the thesis and the methodology employed, and strategies used to overcome when necessary.

Despite this research having potential to contribute to personal, local development, and the UN Global Goals, at the initial phase of the research some potential limitations were identified, such as:

- Time constraints: since the thesis is being developed with the assistance of the *ODSlocal*. Due to the deadline of the thesis, it was not possible to do a further follow up with the methodological implementation (LSLs).
- Ambiguity in the concept of localizing: because the concept is new and has different approaches and methods to be applied, the concept may differ within itself.
- Ambiguity in the concept of sustainability labs: since the concept can be understood differently.
- Approach used: considering that the primary focus of this thesis is to localize SGD at the local level, namely at municipal and city level, though the approach may differ. It is worth noting that the approach to localizing at the local level within a municipality may vary significantly, depending on the administrative division of each country. Therefore, it is essential to take these differences into account and tailor the approach, accordingly, depending on the specific context of each municipality.

Although these potential limitations and constraints were found, during the research it was possible to overcome them all. As previously stated, the focuses of this thesis have great

complexity, a couple of the concepts here covered are new, which somewhat restricts the amount of information available. On the other hand, some of them are well known and covered, in that order, there were plenty and different sources of information that caused some sort of difficulty on the comprehension and summarization of them, such as the SDGs. However, by synthetizing the core ideas, it was possible to turn into comprehensive and explanatory research.

Considering that the information came from multiple sources of documentation, when attempting to cover the chronological evolution process of the SDGs a few obstacles were posed. In addition, when noticed that previous agendas also attempted to localize, identifying localizing case studies also proved to be a challenge.

Given the fact that the SDGs are universal, and each nation has its unique features and specific priority goals to attain, the approach and methodology employed for localizing differs from nation to nation, and even within the same country, each city can embark on different methods, this means that framing the SDGs to a local level can cause some constraints.

Throughout the case studies presented in the chapter 2 it was possible to notice that each nation and/or author has its own territorial delimitation and priority goals for localizing the SDG, offering a wide range of diversity, and making it a challenge to systematize it, but even though it was feasible to carry out. In addition, compared to other continents, it was particularly easy to find European literature and case studies regarding localizing initiatives and measures. On the other hand, there were considerable obstacles to acquiring specific and thorough research on localizing within the African continent.

Furthermore, the presence of distinct terminology associated with the novel ideas adds another layer of complexity. Terms like "localizing," "territorializing," and "SDGs at the local level" were employed during the analysis of bibliographic data, highlighting the contextual variations of these concepts. However, it is important to mention that the actual significance of localizing used in this research is the one presented on section 2.4.

Localizing within Portuguese municipalities may not be universally applicable to all municipalities worldwide. However, it provides valuable insights that can serve as a source of inspiration for similar studies in other locations. By following the suggested methodology, it is possible to identify key lessons and opportunities to replicate successful cases in other contexts. Therefore, this approach offers useful guidance for researchers seeking to explore similar issues in different regions at local level and provides a framework for further investigation.

CONCLUSION

Being this the last chapter of this research, the chapter will wrap up the dissertation by outlining the overall conclusions regarding the aims and questions that were initially stated, as well as the contribution of the research.

Taking into account the primary goals of this research, it is determined that this thesis's goal has been successfully attained, according to the inquired question and the significant findings outlined in the previous section.

In spite being up to the national governments, lawmakers, policies, NGOs, and communities to enact an effective change, in order to attain the SDGs requires an interconnected and interdependent approach to provide greater outcomes. The 2030 Agenda transformation process cannot be accelerated with individualistic thinking or with conventional solutions. Throughout this thesis it was seen the importance of localizing the SDGs in order to have this significant impact.

Localizing has proven to be one of the most crucial strategies to attain the SDGs. It is possible to notice through localizing case studies that localizing goes beyond conveying the Global Agenda to a local level. It is an effective approach that ends with conventional stigmas, and makes people aware of global agendas, allowing them to engage with each other collectively learning and collaborating for sustainable solutions.

Considering the limitations foreseen previously, the research addressed and had to systematize a set of new concepts, despite the lack of information available, as well as explore and finding case studies targeting localizing.

Most of the information available found was mainly from the European and American continents, and not as much for the African countries. Therefore, assessing how localizing operates, as well as how sustainability labs and localization platforms and/or initiatives may

function, did not go as far as expected, thought extrapolation on the base of what was found is quite valuable for the ones working in these areas.

Given that the LSLs have only now been launched it is still difficult to evaluate potential risks and opportunities for improvement. However, in the previous chapter, it was possible to identify those that were foreseen and result in successful cases, that can be replicated.

7.1 Contributions

Initially this research allowed for personal growth in addition it also contributed to the *ODSlocal*, which consequently contributed nationally and to the SDGs. As well as it fosters a wider application of sustainability laboratories on local level.

The mainstreaming of LSLs ensures that more of these labs can emerge, which enables more sustainable development agendas and approaches to couple these labs. Additionally, the implementation of LSLs allows people to perceive and acknowledge that the solution for the transformation of the 2030 Agenda, as well as other sustainable development agendas, is effective when operated at the local level, and with a collaborative and dynamic approach.

This research contributes to the acknowledgment of the significance of both top-down and bottom-up approaches to achieve global agendas goals, such as the SDGs.

7.2 Future work

For future researchers, it is primarily suggested to do a field study on the different municipalities since they have different characteristics. Considering these specific characteristics of each municipality may allow the LSLs to have more definitions according to the characteristics of each municipality.

In addition, as previously noted, when replicated to municipal level, the LSLs can be operationalized with the same proposed definitions. However, it may be subject to some adjustments as the delimitation of municipalities changes from nation to nation and each administrative unit has its own characteristics. Particularly, when replicated at the city level, the approach may also change in a considerable way.

The operationalization and implementation of LSLs were the primary concerns in the initial considerations, to the extent that the impact of the surrounding environment (room temperature and location) may affect participatory levels. In this context, it is imperative for future studies to recognize the environment and accessibility as critical requirements and duly prioritize the comfort of participants.

Initially the purpose of this research was not only to analyze the importance of localizing the SDGs and to suggest the implementation of the LSLs in the ODS project, but there was also an interest in operationalizing the LSLs in Portugal through the *ODSlocal*. However, given the time constraint, it was not possible to develop the research until that point. Therefore, the assessment of the operationalization process is an area with potential for future research.

Another point that is proposed for future researchers, is to put the LSL into operationalization at the regional level.

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