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Human Rights and Multi-level Governance

Empowering Children and Youth in a Multilevel Governance Perspective: Climate Action and the Role of Education in Building Sustainable Societies

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ABSTRACT

Climate change constitutes a profound global crisis, disproportionately affecting nearly one billion children due to their unique physical, developmental, and social vulnerabilities. The changing climate poses serious threats to children's health, safety and overall wellbeing.

Addressing the climate crisis through the lens of children's rights requires coordinated action across all levels of governance. Multilevel Governance (MLG) provides a valuable framework for aligning responses across local, national, and international actors, promoting coherence, inclusivity, and context-sensitive solutions. Integrating children's rights into climate governance enhances both the legitimacy and effectiveness of climate action.

Education for Sustainable Development (ESD) emerges as a transformative approach, fostering critical thinking, civic engagement, and resilience among young people. It equips them with the tools to understand complex environmental challenges and advocate for their rights.

A comparative analysis of Germany's and Uganda's approach to ESD reveals that while national priorities and resources differ, successful outcomes depend on strategies that are inclusive, participatory, and responsive to local needs. Structural barriers persist, but opportunities exist to strengthen governance systems, financing frameworks, and legal protections.

Integrating MLG and ESD within a child-rights framework offers a powerful pathway to more equitable, inclusive, and sustainable climate governance – one that protects children today while empowering them to shape tomorrow.

CONTENTS

ACRONYMS

CBDR - Common But Differentiated Responsibilities

CESA 16-25 - Continental Education Strategy for Africa 2016-2025

CFCI - Child Friendly Cities Initiative

COP - Conference of the Parties

COY - Conference of Youth

ECCE - Early Childhood Care and Education

EE - Environmental Education

ESD - Education for Sustainable Development

GAP - Global Action Programme

HLPF - High-Level Political Forum on Sustainable Development

ICCPR - International Covenant on Civil and Political Rights

ICESCR - International Covenant on Economic, Social and Cultural Rights

LNOB - Leave No One Behind principle

MDGs - Millenium Development Goals

MLG - Multilevel Governance

NAP on ESD - Germany's National Action Plan on Education for Sustainable Development

NAPs - National Adaptation Plans

NDCs - Nationally Determined Contributions

NESD for 2030 - Uganda's National Education for Sustainable Development for 2030 Framework

OHCHR - Office of the United Nations High Commissioner for Human Rights

SDGs - Sustainable Development Goals

TVET - Technical and Vocational Education and Training

UDHR - Universal Declaration of Human Rights

UNCRC - United Nations Convention on the Right of the Child

UNDESD - United Nations DEcade of Education for Sustainable Development

UNDP - United Nations Development Programme

UNFCCC - United Nations Framework Convention on Climate Change

VNRs - Voluntary National Reviews

INTRODUCTION

This thesis is driven by the need to understand how the rights and wellbeing of children can be safeguarded within the broader context of environmental sustainability and climate governance. Climate change is one of the most pressing and complex crises of our time, with profound implications for societies, economies, and ecosystems across the globe. Among the most vulnerable to its impacts are children – whose physical, developmental, and social characteristics place them at particular risk. From extreme weather events and food insecurity to the spread of disease and displacement, the consequences of a changing climate threaten the health, safety, and overall wellbeing of children worldwide (UNICEF, 2023, the climate-changed child, 11-14). According to UNICEF, nearly 1 billion children – almost half of the world's child population – live in countries at high risk of climate and environmental hazards (UNICEF, 2024, SOWC, 14). These risks are not abstract: from July 2023 to June 2024, an estimated 766 million children – one-third of the global total – were exposed to extreme heatwaves, while 344 million experienced record-high temperatures in their regions (Save the Children, 2024, Record-breaking one third of children worldwide exposed to extreme heatwaves, new report reveals).

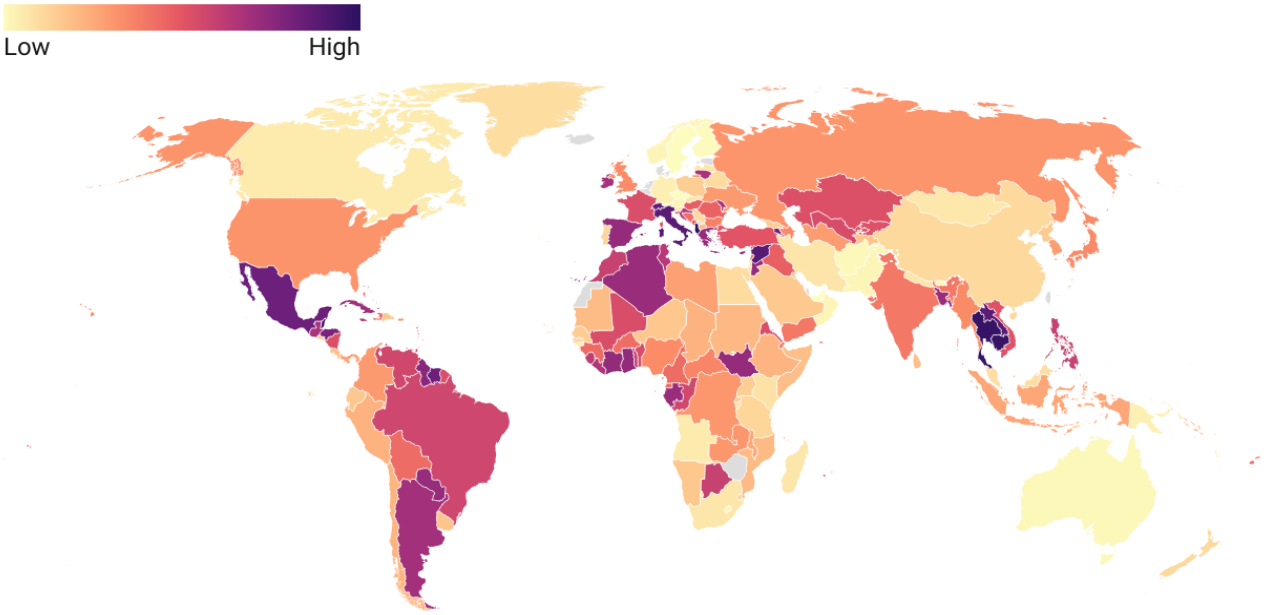

Figure 1. Children affected by extreme heatwaves (%), July 2023 to June 2024
Source: Save the Children

Climate change impacts vary widely across regions, with children in the Middle East and North Africa facing the highest increases in lifetime exposure to extreme events – at least seven times more for those under 25 in 2020 (Thiery et al, 2021, 159). In sub-Saharan Africa, the 2020 birth cohort is expected to experience 5.9 times more extreme events, compared to 3.7-5.3 times in other regions (*ibidem*). In Africa, 39 out of 49 countries are classified as high or extremely high risk, with Northern Africa affected by water scarcity and air pollution, and Western and Eastern Africa by vector-borne diseases, heatwaves, and flooding (UNICEF, 2023, the climate-changed child, 15). The East Asia and Pacific region, particularly Pacific Island countries, are also highly vulnerable, having experienced a sixfold increase in extreme weather events over five decades (*ibidem*).

Children are not simply "small adults" – they experience climate change differently and more acutely. They are more susceptible to heat-related illnesses, waterborne diseases, and environmental toxins. Their ability to adapt or respond to such risks is limited, and the long-term developmental consequences can be devastating (UNICEF, 2021, the climate crisis is a child rights crisis, 19-20). This aligns with the concept of children's vulnerability, which posits that young people are more exposed to risks compared to their peers. Such vulnerability can manifest in various forms, including deprivation, exploitation, abuse, neglect, and violence (Arora et al., 2015, 194). Additionally, children are highly dependent on others to meet their basic needs, making them particularly vulnerable (Bagattini, 2019, 1). Lacking self-sufficiency, understanding and wisdom, they require protection. In contrast, adults, while also needing protection of their freedoms, are generally more capable of managing risks (Herring, 2022, 1).

In the context of climate change, the Intergovernmental Panel on Climate Change defines vulnerability as "the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity." (Brooks, 2003, 5). When these concepts are integrated, it can be understood that children's vulnerability to climate change arises from their increased exposure to its harmful effects, as they are more prone to risks than other age groups. This heightened vulnerability is exacerbated by their reliance on caregivers for essential needs, limited independence, and an inability to fully grasp or address climate-related challenges. Unlike adults, who are typically better equipped to handle such risks, children need extra protection due to their diminished capacity to cope with the consequences of climate change.

Climate change disproportionately affects children who experience intersectional vulnerabilities, including those in poverty, indigenous, minorities, migrants, and children with disabilities (Human Rights Council, Analytical study on the relationship between climate change and the full and effective enjoyment of the rights of the child, 2017, 6-7). Girls are particularly at risk, as they may be pulled from school to help with household chores, or in extreme cases, sold into child marriage or trafficking. Climate change also exacerbates gender inequalities, leading to higher mortality rates for women and girls during natural disasters (*ibidem*, 7). Indigenous children are also heavily impacted, as their livelihoods depend on climate-sensitive ecosystems, making them vulnerable to environmental degradation. Many live in impoverished communities, which hinders their ability to adapt to climate change. They may also be displaced by climate change mitigation projects without proper consent (*ibidem*). Children with disabilities face compounded challenges, as climate change exacerbates existing inequities. They are more likely to live in poverty, experience exclusion, and have limited access to education and healthcare. In emergencies, children with disabilities are more vulnerable to abuse, neglect, and inadequate support, especially in evacuation and relief efforts (*ibidem*, 8). Finally, climate change is a key driver of human migration. Disasters force millions of people to move, and children on the move often face separation from their families, cultural heritage, and access to essential services. They are at higher risk of violence, abuse, and poor health outcomes due to overcrowded shelters, inadequate sanitation, and lack of security (*ibidem*).

At the same time, children and youth represent a vital force for change, possessing the creativity, resilience, and determination necessary to drive solutions toward a more sustainable future (Bentz et al., 2019, 1). This duality – children as both victims and agents of change – is recognized by the UN Convention on the Rights of the Child. Article 24 guarantees the right to the highest attainable standard of health and calls on states to combat disease and environmental pollution, while Article 12 ensures the right of children to be heard in all matters affecting them, including environmental decision-making (UNCRC, 1989, Articles 24, 12).

The urgency of protecting children's rights in the context of climate change is further emphasized in the 2030 Agenda for Sustainable Development, which identifies climate change as "one of the greatest challenges of our time" and calls for inclusive, equitable action to ensure that no one is left behind – especially children and other marginalized groups (UN 2030 Agenda, 2015, paras. 2, 4, 14, 53). However, realizing these ambitions requires more than declarations – it demands concrete, coordinated responses across all levels of governance.

In this context Multilevel Governance (MLG) offers a valuable framework for addressing the complexity of climate-related challenges. It highlights that effective climate action cannot rest solely on national governments, but requires the active participation of local, regional, national, and international actors – including public institutions, civil society, and the private sector – working together in vertical and horizontal partnerships (UN, 2024, Policy Brief No. 162, 1). By aligning policies, resources, and expertise, MLG enables more coherent, inclusive, and context-sensitive responses to the climate crisis, particularly when it comes to protecting the rights of vulnerable groups such as children and youth. Because the impacts of climate change vary across regions and communities, MLG allows for tailored solutions that reflect local vulnerabilities and priorities, while still upholding shared global commitments to children's rights and sustainable development.

Among the most powerful tools for enabling long-term, transformative change in this context is Education for Sustainable Development (ESD). It equips children and young people with the knowledge, competencies, values and attitudes necessary to understand complex sustainability issues and act as change agents in their communities (Aada, 2024, 9; Rieckmann, 2017, 7). It promotes critical thinking, civic engagement, and interdisciplinary learning – preparing learners not only to adapt to climate change but also to shape solutions. This is in line with SDG 4, Target 4.7, which commits states to integrating sustainable development and climate change education into learning environments (UN 2030 Agenda, 2015, SDG 4, Target 4.7). Actions in this direction are really necessary, since climate change is already disrupting children's right to education. Since 2022, more than 400 million school-aged children worldwide have had their learning interrupted due to extreme weather events – such as floods, droughts, and heatwaves – which have destroyed, damaged, or forced the closure of schools (UNICEF, 2024, SOWC, 16). In April and May 2024 alone, more than 210 million children missed school days due to extreme heat (Save the Children, 2024, Record-breaking one third of children worldwide exposed to extreme heatwaves, new report reveals). These alarming trends highlight the urgent need for transformative changes in education, which can offer fresh perspectives on both the challenges and solutions related to climate change and sustainability. A fundamental shift in education is essential for advancing sustainable development, as it can provide new frameworks for understanding and addressing sustainability issues (Bentz et al., 2019, 3).

At its core, the research explores how multilevel governance structures coordinate their efforts to ensure that the specific needs and rights of younger generations are both recognized and protected in the formulation and implementation of climate policies. A further dimension of this research focuses on the transformative potential of education, and more specifically, ESD. The study examines how educational frameworks and initiatives can serve as powerful tools for equipping children and young people with the knowledge, skills and agency necessary to advocate for their own rights in the face of environmental challenges. It offers a focused, real-world example of how MLG principles can be operationalized in the specific domain of education. Therefore, while the main question explores governance structures broadly, the sub-question provides a case-specific insight into one of the mechanisms – education – through which children's rights are protected and enhanced. By exploring the intersection of education, governance, and rights, the research seeks to highlight both the opportunities and barriers to fostering child-centered climate action.

To address these issues, the thesis employs a qualitative methodology that allows for a comprehensive and in-depth exploration of policy frameworks, governance models, and educational practices. The first part is grounded in policy analysis, which involved a critical review of existing governance structures and policy documents at multiple levels. The second part, instead, combines policy analysis with a comparative case study to offer a more nuanced understanding of how different contexts integrate children's and youth rights with sustainability in education. The policy analysis provides a framework for examining how ESD frameworks incorporate children and youth in climate change education, while the comparative case study of Germany and Uganda allows for an in-depth exploration of ESD implementation. These two countries enable a meaningful comparison between two distinct socio-economic and political contexts – one from the Global North and one from the Global South. Germany, with its long-standing commitment to ESD and decentralized education system, contrasts with Uganda's centralized governance and high climate vulnerability, offering valuable insights into how different countries integrate sustainability and children's rights into education. This comparative lens enriches the analysis by revealing how cultural, institutional, and policy differences shape the ways in which education supports the protection and empowerment of children in the context of climate change.

This thesis is organized into three chapters, each addressing a key dimension of the relationship between climate change, children's and youth rights, and multilevel governance.

The opening chapter lays the conceptual foundation by examining how children's and youth rights intersect with environmental challenges and introduces Multilevel Governance (MLG) as an essential framework for addressing complex global issues such as climate change. It also analyzes how children's rights, as articulated in the UNCRC, are integrated into governance processes, and considers the role of the Sustainable Development Goals (SDGs).

Building on the conceptual groundwork, the second chapter moves from theory to practice by investigating how climate change affects the realization of children's rights, analyzing key international, national, and local policy frameworks. It applies the MLG approach to assess the extent to which these governance systems address the specific vulnerabilities and rights of children and identifies both gaps and opportunities in current policy responses.

The final chapter focuses on the transformative role of education, particularly ESD, in empowering children and youth to address climate challenges. This section includes a comparative case study of Germany and Uganda, examining how different educational systems integrate sustainability and rights-based approaches, and evaluating the effectiveness of their ESD strategies. Through this analysis, the chapter identifies best practices, structural limitations, and context-specific challenges, ultimately demonstrating the power of education as a tool for advancing child-centered climate action.

CHAPTER 1 – THEORETICAL FRAMEWORKS

1.1 Introduction

This chapter lays the groundwork for understanding the relationship between governance, children's and youth rights, and sustainability, with a specific focus on Multilevel Climate Governance. It introduces the concept of Multilevel Governance (MLG) as a fundamental approach to tackle complex global challenges, such as climate change, emphasizing its role in fostering collaboration across different levels and actors. The chapter argues that cohesive and inclusive systems are essential for creating equitable and sustainable solutions to climate crises, particularly in safeguarding the rights of vulnerable populations like children and young people.

The chapter's primary objective is to demonstrate how MLG principles can enhance climate governance, protect children's rights, and advance sustainable development. It explores MLG through its two key models – Type I, characterized by structured and tiered governance, and Type II, defined by flexible and polycentric networks. These models are analysed in the context of their ability to address governance challenges by fostering coordination across levels and actors.

Building on this foundation, the chapter examines the intersection of governance and human rights, with a particular focus on children's rights as outlined in the UN Convention on the Right of the Child (UNCRC). It explores how these rights, including the principles of non-discrimination, the best interests of the child, survival and development, and the right to participation, are integral to creating inclusive governance frameworks. The discussion underscores the disproportionate impact of climate change on vulnerable populations like children and youth, while also recognizing their potential as agents of change.

The chapter further explores the relationship between governance and the Sustainable Development Goals (SDGs), emphasizing how these global objectives serve as a roadmap for addressing interconnected challenges of equity, sustainability, and environmental protection.

In sum, the chapter affirms the importance of cohesive and inclusive governance systems for addressing global challenges while safeguarding fundamental rights. By integrating the principles of MLG, human rights, and sustainability, it provides a conceptual foundation for understanding how effective governance frameworks can respond to the complexities of an interconnected world and contribute to a more equitable and resilient future.

1.2 Multilevel Governance: definition, structures, and implications in climate change

The Multilevel Governance (MLG) theory aims to explain and analyse political processes related to the rise of supranational institutions, like the European Union, alongside the growing influence of decentralized decision-making processes. Within these processes, sub-national governments and civil society increasingly play prominent roles in shaping policies. As the term "multilevel" suggests, Multilevel Governance involves a wide range of both state and non-state actors operating across distinct levels - local (sub-national), national and global (supranational) (Saito-Jensen, 2015, 2). The central idea behind MLG is the alignment of these different governance levels to facilitate the definition of shared goals. In this framework, states are no longer the sole or central actors in policy-making; rather, governmental authority is shaped by and shared among different actors working across multiple levels. Consequently, MLG is defined as the dispersion of authority across jurisdictions both within and beyond national boundaries (Hooghe et al., 2020, 197). This means that the power to make binding and legitimate decisions is no longer confined to central governments but is distributed among subnational entities and international institutions.

MLG can be classified into two distinct categories: Type I governance and Type II governance (Hooghe et al., 2003, 236). The first, Type I (Figure 2), refers to a clearly defined, vertically tiered structure where decision-making power is concentrated in a limited number of authorities. This model encompasses a restricted number of jurisdictions spread across a limited number of levels - international, regional, national, and local – that serve broad, general-purpose functions. In essence, these jurisdictions combine multiple functions and policy responsibilities, typically including a court system and representative institutions, with decision-making powers distributed across them but bundled into a few structured layers. Indeed, the intellectual foundation of Type I governance lies in federalism, which emphasizes power-sharing between a limited number of governments operating across a small number of levels. It is primarily focused on the relationship between the central government and a tier of non-overlapping sub-national governments. Under this model, governance operates like a "Russian Doll", where each citizen is located within nested jurisdictions, ensuring that there is one, and only one, relevant jurisdiction at each territorial scale (*ibidem*). The boundaries of these jurisdictions are durable, non-overlapping, and stable over long

periods. Reforming these territorial jurisdictions is rare and costly, often involving the redistribution of policy function across existing governance levels (*ibidem*, 237).

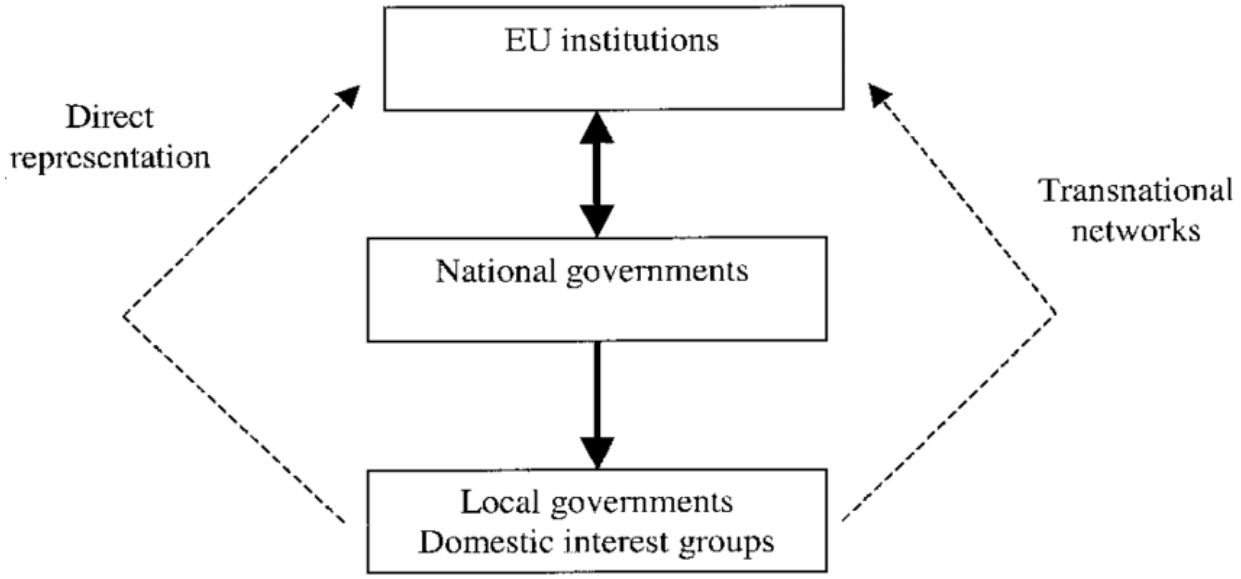

Figure 2. 'Type I' (nested) multilevel governance (adapted from Fairbrass & Jordan 2001, p. 501).
This figure is extracted from Moeko Saito-Jensen 2015.

In contrast, the second type, Type II governance (Figure 3), also known as "polycentric" governance, breaks away from the clear structures and hierarchies seen in the previous model. In this approach, boundaries between governing bodies and actors become blurred or may even disappear due to their interactions. This blurring occurs not only across different governance levels, but also between various forms of governance, such as state and non-state actors. Instead of operating with clearly defined levels, polycentric MLG is characterized by "spheres of authority" or "complex overlapping networks" (Rosenau, 1997, Bache and Flinders, 2004, as cited in Saito-Jensen, 2015, 3). These networks emerge in situations where territorial and non-territorial entities negotiate, collaborate, or disagree on agendas and decisions.

Type II governance structure consists of multiple specialized jurisdictions, each dedicated to specific tasks. This task-specific focus contrasts with the general-purpose approach of Type I governance. Furthermore, the jurisdictions within Type II governance are more flexible than durable. These "quasi-public" entities are typically created by local or regional governments and supervised by designated boards, commissions, or committees. Consequently, this model produces

a governance system where citizens access services through various public entities rather than a single government. Overlapping jurisdictional boundaries are common, resulting in a more fluid and adaptable framework; instead of a rigid hierarchy, each public good or service is managed by the jurisdiction best suited to addressing its associated costs and benefits (Hooghe et al., 2003, 237-238).

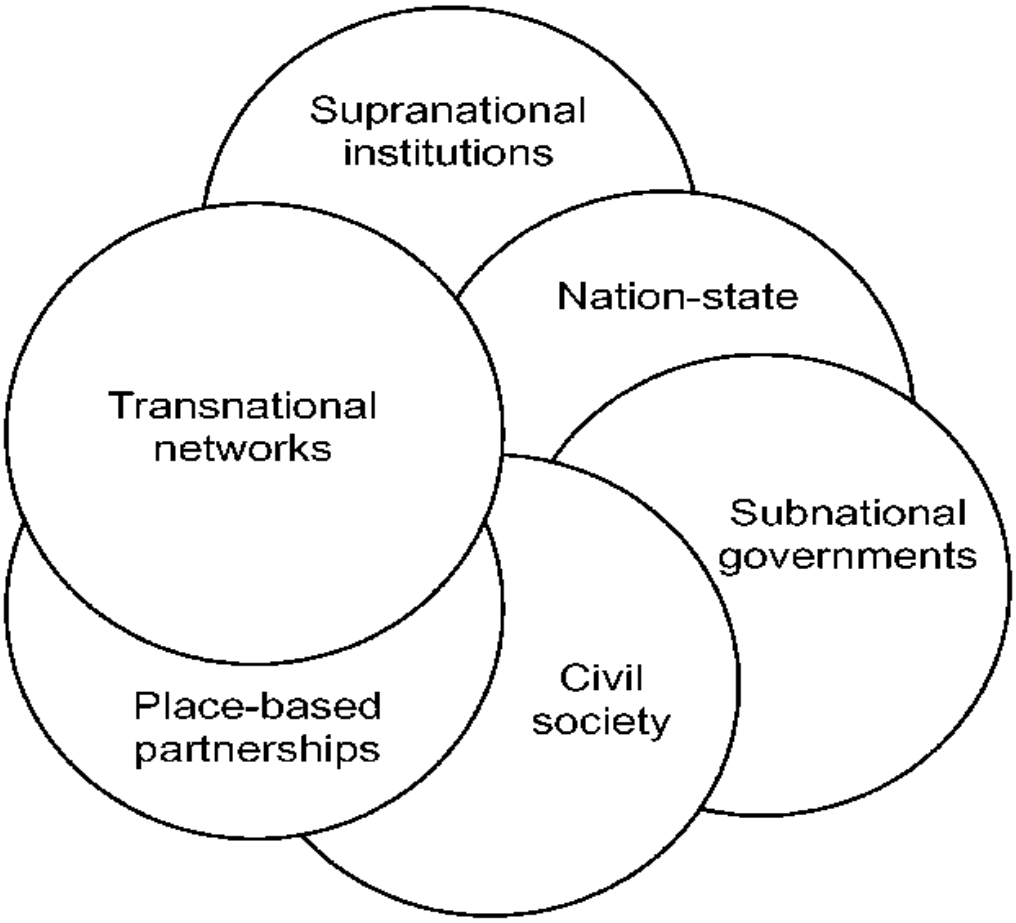

Figure 3. 'Type II' (polycentric) multilevel governance.
This figure is extracted from Moeko Saito-Jensen 2015.

1.2.1 Multilevel Climate Governance

Environmental challenges are classified among the most pressing global issues, demanding coordination across multiple levels of governance. MLG plays a critical role in addressing climate change, recognizing that successful action depends on collaboration among governments at all levels, as well as with non-state actors.

The origins of the concept of Multilevel Global Governance can be traced back to the 1992 UN Conference on Environment and Development (the "Earth Summit") in Rio de Janeiro. This event marked a significant milestone in global sustainability governance, introducing MLG as a model for promoting sustainable development (Jänicke, 2017, 109). The "Rio model" of global sustainability governance was integrated into Agenda 21, one of the key outcomes of the Earth Summit, alongside the Rio Declaration on Environment and Development, and the Statement of Forest Principles. Agenda 21 was a comprehensive action plan for sustainable development, which outlined strategies for achieving sustainability across local, national, and global levels and operationalized MLG by encouraging multisectoral and multilevel collaboration. It mobilized stakeholders across the political system, recognizing that achieving sustainability requires integrated efforts from governments, the private sector, international organizations, and civil society (*ibidem*). The objective of Agenda 21 was to promote sustainable development globally, focusing on economic, social, and environmental dimensions. It aimed to integrate environmental protection with development goals, addressing key issues such as poverty, biodiversity, pollution, and climate change. Its goal-oriented framework underscored the necessity of mobilizing these diverse actors to address environmental, economic, and social challenges in an inclusive manner, ensuring that development meets the needs of the present without compromising the ability of future generations to meet their own needs. In the context of global climate governance, MLG is particularly relevant for several reasons (*ibidem*, 110-111):

1. Global nature of challenges: climate protection and sustainable development are inherently global objectives. However, effective global governance requires the integration of intermediate levels within the political system to ensure comprehensive action.
2. Specific roles of governance levels: each level of governance carries distinct responsibilities, challenges and opportunities. Horizontal dynamics increasingly position sub-national and regional entities as key players in climate governance.
3. Vertical and horizontal interactions: vertical coordination enables the upscaling of successful local practices through higher-level supportive policies, while horizontal interactions foster cooperation and knowledge-sharing across regions and sectors. These dynamics promote rapid learning and dissemination of innovative technical and policy solutions essential for addressing climate challenges.

By integrating vertical and horizontal dimensions, MLG provides a robust mechanism for navigating the complexities of global climate governance, enabling the alignment of different efforts toward shared sustainability goals. Therefore, effective multilevel climate governance demands both strong vertical and horizontal coordination among policymakers across all levels (Figure 4). Vertical coordination refers to connections between higher and lower government levels. It "recognizes that national governments cannot effectively implement national climate strategies without working closely with regional and local governments as agents of change" (Corfee-Morlot et al., 2009, 10). The need for vertical coordination emerges from two interrelated factors: first, addressing climate change requires significant financial resources and technical expertise. In many cities, particularly in developing countries where such resources are limited, the participation of national governments and other actors, including the private sector, is crucial. Moreover, decision-making at higher levels often shapes the pathways for climate-related initiatives. For example, while regional and local policies define the finer details of land use, settlement patterns, and transport planning, the scope for action and potential for change are typically governed by national policies (Amin et al., 2018, 22). Second, national governments cannot successfully plan and implement all climate change actions on their own from the centre. As a result, horizontal coordination is also essential. This refers to collaboration across borders among regions, local governments, or municipalities, often involving partnerships with NGOs and civil society. In climate governance, cities and local governments engage their communities to create future visions addressing local needs while combating climate change. Such cooperation within and among governments at the same level is important for ensuring policy coherence. In this way, actors work across organizational boundaries to shape outcomes: the rapid urbanization has led to the expansion of cities beyond their traditional borders, creating settlements that extend across multiple municipalities. To address this, collaboration between local governments – through bilateral and multilateral agreements, or metropolitan governments – is necessary to tackle climate-related challenges effectively (*ibidem*, 23).

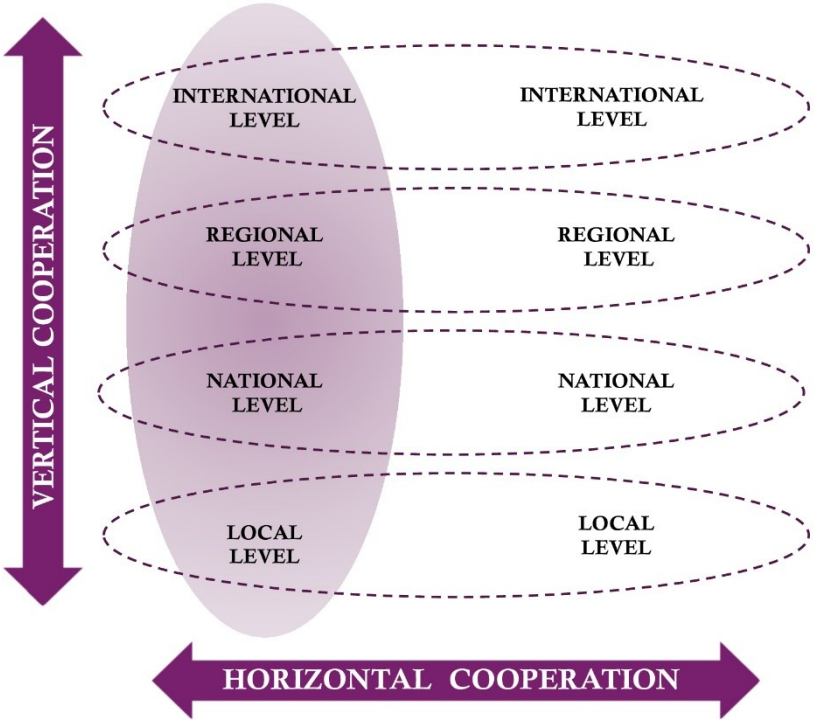

Figure 4. Vertical and horizontal cooperation.
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1.3 UN Convention on the Rights of the Child and climate change: a conceptual framework

In 1989, two critical issues concerning children emerged in international law: the first regarded their inherent vulnerability which was perceived as requiring protection, while the second referred to the recognition of their rights which was satisfied with the adoption of the UN Convention on the Rights of the Child (UNCRC). This followed earlier efforts like the 1924 League on Nations' Declaration of Geneva and the 1959 UN Declaration on the Rights of the Child, which focused mainly on the need for special protection, education, healthcare, shelter and good nutrition for children (United Nations, Children, n.d.). The UNCRC expanded these concepts by integrating civil and political rights, shifting the focus from solely protective care to recognizing children and young people as rights-holders. Save the Children defines child protection as "measures and structures to prevent and respond to abuse, neglect, exploitation and violence affecting children" (Save the Children, Child Protection, 2007, 1). This definition emphasizes that child protection is

both proactive and responsive, ensuring children are shielded from harm before it occurs while also providing interventions when harm has already taken place. The "measures and systems" referred to in the definition are the tools, institutions, and frameworks established to safeguard children. These systems include child protection laws, educational activities, and community support programs, all aimed at creating a safe and nurturing environment for children. Child protection is divided into two main aspects: prevention and response. Prevention involves proactive actions that aim to stop harm from occurring in the first place. Response, on the other hand, refers to the actions taken once harm has occurred. The risks addressed by child protection systems - abuse, neglect, exploitation, and violence - can have severe consequences for a child's development and wellbeing. The goal of child protection systems is to mitigate these risks and ensure that children are not only safe but also supported in a way that allows them to thrive. This approach aligns with the UNCRC, which identifies children and young people as active subjects rather than objects of rights (Ippolito, 2023, 76). Being an active subject means that children are not just passive recipients of rights, but individuals who actively participate in the exercise and protection of those rights. In practical terms, this means that children have the right to express their views on matters affecting them, and those views must be given due consideration in decision-making processes. For instance, Article 29 of the UNCRC[1], which focuses on the right to education, emphasizes that children should not only receive education, but also be involved in shaping their learning experiences (UNCRC, 1989, Article 29). By actively participating in this process, children can contribute to the development of an education system that reflects their rights and interests. This perspective connects with child protection efforts, as it emphasizes the need to not only shield children from immediate harm but also to actively promote their rights. The UNCRC also acknowledges the importance of the

[1] 1. States Parties agree that the education of the child shall be directed to:
(a) The development of the child's personality, talents and mental and physical abilities to their fullest potential;
(b) The development of respect for human rights and fundamental freedoms, and for the principles enshrined in the Charter of the United Nations;
(c) The development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own;
(d) The preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin;
(e) The development of respect for the natural environment.
2. […]

environment for children's wellbeing, acknowledging that both natural and human-made environments directly impact children's rights. This is particularly relevant in the context of child protection, as effective systems should be sensitive to the social, cultural, and environmental factors that shape children's lives. For instance, the risks children face are often intertwined with the environments they live in – whether it is the social fabric of their communities, the economic conditions they experience, or the environmental challenges they face. Therefore, child protection goes beyond immediate interventions and integrates a comprehensive approach that recognizes that interrelationship between children's rights and protection.

Adopted in 1989 by the United Nations General Assembly in New York, the UN Convention on the Rights of the Child (UNCRC) has become the most widely ratified international human rights treaty, with 196 State Parties. It provides a framework for addressing environmental challenges through a child rights lens. Almost all of these states are also bound by the United Nations Framework Convention on Climate Change (UNFCCC)[2], support the Paris Agreement[3] and the UN 2030 Agenda for Sustainable Development[4], which emphasize a more integrated approach to human rights and environmental issues (Arts, 2019, 220). Together, these normative frameworks make children's and youth rights central to conceptualizing and operationalizing responses to climate change. This includes the implementation of climate adaptation and mitigation measures, as prescribed by Article 4 of the UNCRC, which requires that states "shall undertake all appropriate […] measures for the implementation of the rights recognized" (UNCRC, 1989, Article 4), including addressing environmental threats that disproportionately affect children.

While the UNCRC does not explicitly recognize a right to a healthy environment, it acknowledges environmental protection as essential for children's rights. Articles 24[5] and 29 link healthy environment to children's right to health and education, pointing out the importance of

[2] The UNFCCC was adopted in 1992 at the Earth Summit in Rio de Janeiro, Brazil, by 197 countries.

[3] The Paris Agreement was adopted in 2015 by 196 countries at the UN Climate Change Conference (COP 21) in Paris, France.

[4] The UN 2030 Agenda for Sustainable Development was adopted in 2015 by 193 countries at the UN Sustainable Development Summit in New York, USA.

[5] 1. States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services.
2. […]
3. […]
4. […]

safeguarding environmental conditions that directly affect children's development (GNHRE, White Paper on the Right of the Child to a Safe, Clean, Healthy and Sustainable Environment, 2022, 8). Such relationship between climate crisis and the realization of children's and youth rights is shaped by three key dimensions:

1. Impact on children's and youth rights: climate change has severe, immediate and long-term implications for all children's and youth rights, particularly their rights to health, life, education, and development. It is commonly known that children are disproportionately affected due to their unique physical and developmental needs. The crisis also exacerbates existing inequalities, intensifies poverty, and impacts marginalized children – such as children with disabilities, indigenous children, and girls – more severely. Furthermore, because children generally have longer lives ahead of them than adults, they will be the ones dealing with the longest and the worst effects of the climate crisis, including greater food insecurity, diseases and poverty (Sheffield, 2010, 291-292).
2. Failure to include children and young people in climate action: excluding children and young people from climate policy-making processes denies them their right to participate and can lead to measures that may harm children and exacerbate their vulnerabilities (OHCHR, realising children's rights in a changing climate, 2023, 5). Climate policies should focus not only on protecting the environment, but also on ensuring that children's and youth rights are prioritized, considering both the immediate and long-term consequences of climate change. Therefore, by incorporating children's rights into climate policies, decision-makers can not only prevent harm but also improve children's wellbeing and enhance the overall effectiveness of climate action.
3. Children and young people as agents of change: despite being among the most vulnerable to climate inaction, children and youth can drive positive change at all levels, from the community, national, to international arenas (*ibidem*, 6). Article 12 UNCRC affirms that "States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child." (UNCRC, 1989, Article 12).

   The involvement of children in climate action and their efforts to raise awareness about the intersection of human rights and the climate crisis is shaping how their rights are understood

in the context of environmental degradation. In 2023, the Committee on the Rights of the Child released General Comment No. 26 on Children's Rights and the Environment, with a special focus on climate change. This document, developed through global participatory consultations, received input from over 16,000 children on how environmental harm and climate change are impacting their lives.

Since 2001, the UN Committee on the Rights of the Child[6] has regularly adopted General Comments, urging a child-rights based approach to environmental protection. General Comment No. 26 emphasizes the need for children's best interests to be prioritized in environmental decisions and calls for their active participation in climate policy-making. In essence, it recognizes children as active human rights defenders, whose voices and perspectives should play a critical role in shaping climate policies.

Children's and youth rights, like all other human rights, are indivisible, interdependent and interrelated. Some rights are particularly threatened by environmental degradation, while others play a role in safeguarding children's rights in relation to the environment. The UNCRC's implementation principles provide a useful and practical framework that should inform all relevant climate change related action. The Convention's explicit and implicit references to the environment are interpreted in the light of these principles, which serve as inspiration and guidance for states parties when implementing the UNCRC. These principles include:

1. The right to non-discrimination - Article 2[7]: it establishes a non-discrimination principle, encompassing all aspects of children's rights. It obliges states to incorporate this principle into domestic legislation and take proactive measures to combat discrimination while

[6] The Committee on the Rights of the Child was created in 1989 by the UN General Assembly and plays a critical role in monitoring the implementation of the UNCRC and its Optional Protocols. One of its key functions is to monitor state compliance with the UNCRC by reviewing the periodic reports submitted by state parties and issuing concluding observations and recommendations. The Committee also publishes General Comments, which provide authoritative interpretations of specific provision of the UNCRC, offering guidance on how states should implement and apply children's rights in different contexts. In addition to these tasks, the Committee considers individual complaints, conducts inquiries into grave violations, promotes awareness of children's rights, advises on legal and policy reforms, collaborates with other UN bodies, international organizations, and civil society, and provides guidance on budgeting for children's rights.

[7] 1. States Parties shall respect and ensure the rights set forth in the present Convention to each child within their jurisdiction without discrimination of any kind, irrespective of the child's or his or her parent's or legal guardian's race, colour, sex, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.

2. States Parties shall take all appropriate measures to ensure that the child is protected against all forms of discrimination or punishment on the basis of the status, activities, expressed opinions, or beliefs of the child's parents, legal guardians, or family members.

promoting equality in every aspect of children's lives. This principle is particularly relevant in the context of environmental challenges, as climate change poses significant risks to children's and youth rights. States have a duty to prevent, address and remedy both direct and indirect environmental discrimination; this includes ensuring that environmental policies do not disproportionately harm specific groups, such as indigenous children, children with disabilities, or those in climate-vulnerable regions. States must collect detailed data to assess the varied impacts on different groups of children and implement targeted measures to safeguard those most at risk. Additionally, they must ensure that environmental legislation, policies, and programs are free from both explicit and implicit discrimination against children (Committee on the Rights of the Child, General Comment No. 26, 2023, 3).

2. The best interests of the child - Article 3)[8]: the principle serves as a procedural tool, meaning that states have to prioritize the child's best interest when formulating environmental policies, programs and projects, as well as when drafting legislation or conducting administrative and judicial proceedings related to environmental issues. This approach safeguards children's and youth rights, including their right to a healthy environment, while addressing future risks. To achieve this, all measures should undergo a child rights impact assessments to verify their alignment with children's rights. In cases of conflict between the best interests of the child and other interests, decision-makers must prioritize the wellbeing of children, considering the long-term consequences of environmental harm (*ibidem*, 3-4).
3. The right to survival and development - Article 6[9]: it calls for special protection for children against environmental degradation, which poses a significant and immediate threat to their life and development. States should take preventive and precautionary

[8] 1. In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.
2. States Parties undertake to ensure the child such protection and care as is necessary for his or her well-being, taking into account the rights and duties of his or her parents, legal guardians, or other individuals legally responsible for him or her, and, to this end, shall take all appropriate legislative and administrative measures.
3. States Parties shall ensure that the institutions, services and facilities responsible for the care or protection of children shall conform with the standards established by competent authorities, particularly in the areas of safety, health, in the number and suitability of their staff, as well as competent supervision.

[9] 1. States Parties recognize that every child has the inherent right to life.
2. States Parties shall ensure to the maximum extent possible the survival and development of the child.

measures to protect children from premature death and environmental harm caused by human activities, including the establishment of environmental standards for air and water quality, food safety and greenhouse gas emissions. Consequently, states must avoid serious environmental hazards or risks to life and establish monitoring and early-warning systems to anticipate and respond to such threats. These risks may not always result in immediate harm, but must be understood in terms of long-term development, which inherently involves future considerations (*ibidem*, 4-5).

4. The right to participation - Article 12[10]: this article guarantees children and young people the right to express their views and recognizes them as a powerful global force in environmental protection. Their input can enhance environmental solutions, and their voices should be actively sought and respected in decision-making processes at all levels. States must establish safe, age-appropriate platforms for children to engage in environmental decisions, providing them with the necessary education, information and support. They should ensure that children receive feedback on how their views are considered and provide access to complaint mechanisms if their voices are ignored. Furthermore, international organizations and states should encourage children's involvement in environmental decision-making processes (*ibidem*, 4-5). The UN Committee on the Rights of the Child establishes child participation as a fundamental right, serving multiple purposes: it enables children to voice their opinions on matters affecting them, ensures they are heard in judicial or administrative proceedings, provides them with access to information, and allows them to challenge decisions that deprive them of their liberty. In General Comment No. 12[11], the Committee refers to "the right of the child to be heard" as a comprehensive term for the rights affirmed in Article 12. However, the effective participation of children requires the support of both state and non-state actors responsible

[10] 1. States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.
2. For this purpose, the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child, either directly, or through a representative or an appropriate body, in a manner consistent with the procedural rules of national law.

[11] The Committee on the Rights of the Child adopted General Comment No. 12 in 2009 with the objective of supporting State Parties in the effective implementation of article 12 of the UNCRC.

> for actions that impact children and young people. These actors have a duty to create opportunities for children to be heard and to give due weight to their expressed views.

As seen, the UNCRC incorporates environmental concerns into children's rights, particularly through Articles 24 and 29, which underscore the importance of education in fostering respect for the environment and safeguarding children's health.

Article 24 asserts that states should ensure children's access to health services, nutritious food, clean drinking water, and adequate sanitation (UNCRC, 1989, Article 24.2c). Moreover, it requires education on child health, nutrition, hygiene, and accident prevention, with a specific focus on environmental sanitation and pollution risks (*ibidem*, Article 24.2e). These provisions highlight the growing recognition that health rights are closely connected to environmental conditions. The integration of environmental concerns into children's health rights was not part of the original draft of the UNCRC but evolved through a negotiation process; initially, the UNCRC focused primarily on medical care for children's physical, mental, and moral development, without considering environmental factors. However, by 1988, environmental issues were explicitly addressed in the context of child health education, laying the foundation for their formal inclusion in Article 24. This development reflected the UNCRC's proactive stance on recognizing the role of environmental issues in children's rights, particularly as climate change and other environmental crises intensify.

Article 29 further emphasizes the importance of environmental education by requiring that children are taught to respect the natural environment. This article stresses the role of education in promoting sustainable development fostering environmental responsibility. The Committee on the Rights of the Child has highlighted the need for environmental education that links ecological issues with socio-economic, cultural, and demographic contexts, equipping children to participate in environmental initiatives at local, regional, and global levels. In line with these provisions, General Comment No. 1 on the Aims of Education suggests that environmental education should be comprehensive, covering both national and global challenges and empowering children to actively engage in conservation efforts.

Furthermore, two other rights can be mentioned as impacted by the consequences of climate change: the right to an adequate standard of living - Article 27[12] - and the right to rest, leisure and play - Article 31[13]. The environment plays a vital role in ensuring a child's standard of living, as outlined in Article 27(1) of the UNCRC. This standard includes access to housing, sanitation, clean water, food, and a safe environment. The UNCRC emphasizes that factors as housing, clean water, sanitation, and pollution-free air are key to a child's standard of living. It also highlights the importance of the preservation of cultural heritage, particularly for indigenous communities, which includes protecting natural resources. In this way, the UNCRC links children's right to an adequate standard of living to their ability to enjoy leisure and recreation (Article 31). Poor living conditions, such as overcrowded or unsafe environments, can restrict or eliminate a child's ability to engage in such activities. If environmental issues are not addressed in underprivileged areas, they can violate children's rights to an adequate standard of living, affecting their health, development, and enjoyment of their rights. The right to leisure, play, and recreation for children is a key element of various international human rights instruments. Prior to the UNCRC, the Universal Declaration of Human Rights at Article 24[14] and the International Covenant on Economic, Social and Cultural Rights at Article 7[15] recognized the right to rest and leisure; similarly, the Declaration on the Rights

[12] 1. States Parties recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development.
2. The parent(s) or others responsible for the child have the primary responsibility to secure, within their abilities and financial capacities, the conditions of living necessary for the child's development.
3. States Parties, in accordance with national conditions and within their means, shall take appropriate measures to assist parents and others responsible for the child to implement this right and shall in case of need provide material assistance and support programmes, particularly with regard to nutrition, clothing and housing.
4. States Parties shall take all appropriate measures to secure the recovery of maintenance for the child from the parents or other persons having financial responsibility for the child, both within the State Party and from abroad. In particular, where the person having financial responsibility for the child lives in a State different from that of the child, States Parties shall promote the accession to international agreements or the conclusion of such agreements, as well as the making of other appropriate arrangements.
[13] 1. States Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts.
2. States Parties shall respect and promote the right of the child to participate fully in cultural and artistic life and shall encourage the provision of appropriate and equal opportunities for cultural, artistic, recreational and leisure activity.
[14] The Universal Declaration of Human Rights (UDHR) was adopted on December 10, 1948, by the UN General Assembly in Paris, France. It set the foundation for subsequent international human rights law.
Article 24: "Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay."
[15] The International Covenant on Civil and Political Rights (ICCPR) was adopted by the UN General Assembly in 1966, in New York, USA. It was adopted alongside the International Covenant on Economic, Social and Cultural Rights (ICESCR) as part of the International Bill of Human Rights.

of the Child of 1959[16] stressed the importance of play and recreation for children's development. The most comprehensive statement of this right is found in Article 31 of the UNCRC, which asserts that children have the right to rest, leisure, and engage in play and recreational activities (UNCRC, 1989, Article 31). In the context of sustainable development, the right to play should be integrated into international development and humanitarian efforts that aim to ensure children's well-being. The UN Committee on the Rights of the Child has pointed out that play spaces for children, particularly in urban areas, are often compromised by pollution, noise, and poor housing conditions (Committee on the Rights of the Child, General Comment No. 7, 2005, 15). The Committee urges states to eliminate barriers to children's play and leisure as part of efforts to reduce poverty, advocates for environments free from hazards such as pollution and traffic and calls for accessible and inclusive play areas, especially for marginalized groups such as girls, children with disabilities, and those in conflict zones or poverty (*ibidem*). The Committee stresses that the child's best interest should guide policies related to play and recreation, and that states must ensure these rights are fully realized, considering the child's evolving capacities.

It is also important to highlight that both the UNCRC and General Comment No. 26 emphasize the necessity of international cooperation, as stated in the Preamble of the Convention. In this context, states must collaborate both individually and collectively to ensure the protection of children's rights, as outlined in Article 4 of the Convention. Addressing global challenges such as climate change requires widespread international cooperation, with each state's responsibilities shaped by its contribution to environmental problems and its capacity to address them. Developed countries, which are more responsible for environmental damage, have a duty to provide technical and financial assistance to developing nations. These countries should support global environmental initiatives by sharing technology and resources, ensuring that children's rights are prioritized in these efforts. International environmental projects must include safeguards to protect children from harm, and states must cooperate to provide redress for violations of children's rights. Ultimately,

Article 7: "The States Parties to the present Covenant recognize the right of everyone to the enjoyment of just and favourable conditions of work which ensure, in particular: […] (d) Rest, leisure and reasonable limitation of working hours and periodic holidays with pay, as well as remuneration for public holidays"

[16] The Declaration on the Rights of the Child was adopted by the UN General Assembly in 1959, in New York, USA. It marked a significant milestone in recognizing and promoting the rights of children globally. While it was a non-binding declaration, it laid the groundwork for future legally binding instruments, such as the UNCRC.

global cooperation should focus on protecting the most vulnerable children from environmental risks, particularly in the context of climate-related disasters and conflicts.

Finally, children's rights are fundamentally tied to social progress, which must include all members of society. However, this progress, and the protection of human rights, is increasingly under threat due to unsustainable and inequitable patterns of development that contribute to environmental degradation, climate instability, and related crises. The UNCRC remains an essential tool for promoting sustainable development, as it recognizes the importance of the environment for children's well-being and requires states to consider the risks posed by environmental degradation.

1.4 Understanding the linkage between children's rights and climate change through the UN 2030 Agenda for Sustainable Development

In 2015, the United Nations Member States adopted a comprehensive new action program for people, the planet and prosperity: Transforming our World: The 2030 Agenda for Sustainable Development. It sets out 17 Sustainable Development Goals (SDGs), which are part of a broader program of action consisting of 169 associated Targets to be achieved by 2030 across environmental, economic, social and institutional domains. The 17 SDGs refer to a set of important development issues that take account of the three dimensions of sustainable development – economic, social, and ecological – in a balanced way and aim to end poverty, reduce inequality, tackle climate change, and build peaceful societies that respect human rights. All countries are expected to define their own sustainable development strategies to achieve the objectives pursued, and report progress within a process coordinated by the United Nations. Each country is evaluated annually at the United Nations through the work of the High-level Political Forum, responsible for assessing progress, results and challenges for all countries, and by national and international public opinion.

Figure 5. Sustainable Development Goals.

The UN 2030 Agenda builds on the achievements and shortcomings of the Millenium Development Goals (MDGs)[17]. While the MDGs successfully mobilized efforts to reduce poverty and promote social development, they were criticized for deepening inequalities at global, regional, national and sub-national levels (Hujo et al, 2019, 8). Urban populations generally benefited more than rural communities, thanks to urban economies of scale and the logistical challenges of providing services in sparsely populated areas. As a result, the overall progress towards the MDGs often concealed disparities between countries and within them, particularly neglecting vulnerable groups such as children. The SDGs aim to address these gaps by building on the strengths of the MDGs while overcoming their limitations through a universal, integrated approach that applies to all countries, regardless of their level of development. This new framework shifts from the traditional North-South dynamic into a shared global responsibility for sustainable growth (*ibidem*). It calls for systemic, structural changes that consider the needs of all individuals and communities, with a

[17] The United Nations MDGs were a set of 8 goals established by the UN Member States in 2000. They aimed at addressing key global challenges with a target completion date of 2015. The 8 goals were: eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability; global partnership for development. The MDGs were succeeded by the SDGs in 2015, which expanded and deepened the development Agenda with 17 goals set for 2030.

particular focus on children and young people, who are both agents and beneficiaries of sustainable development. As the generation that will reach adulthood during the Agenda's realization, their inclusion is essential for ensuring long-term global security, sustainability, and human progress.

In the UN 2030 Agenda, governments committed to implement the SDGs universally for all children and young people and to inspire action to safeguard the needs of present and future generations. A key commitment expressed in the Agenda is that no one will be left behind and those furthest behind will be reached first; therefore, governments commit to prioritize reaching all children and young people by focusing on those most excluded and at risk of having their rights denied (United Nations, Protection of the rights of the child in the implementation of the 2030 Agenda for Sustainable Development, 2016, 3-4). The Agenda reaffirms states' obligations under international law, including the Universal Declaration of Human Rights (UDHR) and the Convention on the Rights of the Child (UNCRC), emphasizing that no target can be pursued at the expense of children's rights (*ibidem*). This commitment aligns with the human rights imperative to combat inequality and discrimination, which hinders the realization of children's rights worldwide. The concept of equity is central to the SDGs, framed as equal access to resources, services, and opportunities necessary for fulfilling human potential. Rooted in human rights frameworks, the SDGs align closely with the UNCRC, portraying equity as a foundational principle for sustainable development within and between nations. The SDGs' integrated and indivisible nature reinforces the need for global cooperation and collective action to ensure a sustainable future. This transformative vision of development positions children and young people at the heart of global efforts, promoting their wellbeing and rights as essential to achieving a sustainable, equitable world for all.

Although not all 17 SDGs and 169 Targets explicitly reference children, every goal impacts their wellbeing, potential, and human rights, reflecting the indivisible and mutually reinforcing nature of these rights and sustainable development. The interconnected SDGs form a framework that integrates social, economic, and environmental goals, creating pathways for systemic change that benefit children and future generations.

Several SDGs are particularly relevant to the link between children's rights and climate change:

- SDG 1 - No Poverty - and SDG 10 - Reduced Inequality: SDG 1 aims to eradicate every form of extreme poverty for all people everywhere, by ensuring equal access to economic resources, services, and opportunities (UN 2030 Agenda, 2015, SDG 1 and SDG 10).

Indeed, poverty limits access to resources that are essential for resilience in the face of climate issues. SDG 10 focuses on reducing inequalities within and among countries, in terms of income, social status, and access to essential services. Climate change is an important factor in increasing inequality, as it disproportionately affects marginalized and vulnerable people, including children, who have less capacity to respond to climate-related risks (Islam et al., 2017, 7). Both SDG 1 and 10 are directly impacted by climate change as vulnerable communities suffer from its consequences more intensely. Children are at a greater risk of being displaced, suffering from malnutrition, and losing access to education, health, and other essential services.

- SDG 2 - Zero Hunger - aims to eliminate hunger by 2030, ensuring that everyone – particularly the poor and vulnerable, including infants – has access to safe, nutritious, and sufficient food throughout the year. Additionally, it seeks to end all forms of malnutrition, with a focus on meeting the nutritional needs of adolescent girls and other vulnerable populations (UN 2030 Agenda, 2015, SDG 2). Nevertheless, climate change poses a significant threat to food security, as it impacts agricultural productivity and exacerbates hunger. Events such as droughts, floods and desertification are making it harder to produce sufficient food, reducing, for example, crop yields, leading to an even decreased access to adequate nutrition (United Nations, the Sustainable Development Goals Report, 2024, 10; Tchonkouang et al., 2024, 2).
- SDG 3 - Good Health and Wellbeing - and SDG 6 - Clean Water and Sanitation: SDG 3 focuses on ensuring healthy lives and promoting the wellbeing for all, emphasizing the need to reduce illnesses and premature deaths cause by environmental issues, and the spread of climate-sensitive diseases (UN 2030 Agenda, 2015, SDG 3). SDG 6 aims to ensure the availability of clean water and sanitation for all (*ibidem*, SDG 6). However, climate change directly affects water resources by reducing their accessibility and increasing their contamination. This makes it even harder for children to access safe water and sanitation, thus increasing the risk of waterborne diseases, malnutrition and dehydration (United Nations, the Sustainable Development Goals Report, 2024, 20-21).
- Climate change also affects access to education, undermining SDG 4 - Quality Education. It aims to ensure inclusive, equitable, and quality education for all, focusing on making

education accessible at all levels, from early childhood to tertiary education (UN 2030 Agenda, 2015, SDG 4). In the context of climate change, SDG 4 becomes even more critical, as climate shocks disrupt children's education both directly and indirectly (UNICEF, the climate-changed child, 2023, 12). Extreme weather events like floods, droughts or hurricanes can damage school infrastructure and disrupt education, and illness caused by climate impacts keep children out of school. Even where schools remain open and children continue to attend, the impacts of climate change can affect children's ability to learn. Scorching heat and inadequate drinking water supplies are not conducive to concentration. In times of environmental crises, children are also often forced to leave school to assist their families in coping with the challenges of survival (*ibidem*).

- SDG 8 - Decent Work and Economic Growth - focuses on promoting inclusive and sustainable economic growth, employment, and decent work for all (UN 2030 Agenda, 2015, SDG 8). Climate change affects economic stability, often resulting in lost livelihoods, particularly in sectors like agriculture, which many children and their families depend on. By promoting sustainable economic practices and creating green jobs, SDG 8 helps build resilience against climate change, reducing poverty and offering children better prospects for the future.
- Natural disasters driven by climate change also threaten children's and young people's safety and security, as highlighted by SDG 11 - Sustainable Cities and Communities. It aims to make cities and human settlements inclusive, safe, resilient and sustainable (UN 2030 Agenda, 2015, SDG 11). This goal highlights the importance of addressing environmental risks, including those exacerbated by climate change. As climate-related disasters become more frequent and intense, they can hardly impact children and young people by putting them at risk of displacement. Displacement caused by such disasters often forces children and their families to leave their home and communities, which can expose them to a range of vulnerabilities, such as exploitation, abuse, and trafficking indirectly (UNICEF, the climate-changed child, 2023, 19).
- SDG 13 - Climate Action - underscores the urgent need for measures to protect children's right to a healthy environment, as environmental degradation and air pollution jeopardize their future opportunities. Since climate change impacts intensify, protecting children's

future requires ambitious climate action. This includes reducing emissions, transitioning to renewable energy, and building infrastructure resilient to climate-related disasters. Climate change, considered the single greatest threat to development, poses far-reaching challenges and intersects with nearly every other SDGs.

- Finally, SDG 16 - Peace, Justice and Strong Institutions - stresses the importance of inclusivity and transparency in decision-making processes (UN 2030 Agenda, 2015, SDG 16). This goal underscores the need to ensure children's participation in decision-making processes related to climate policies and sustainable development, in accordance with the UNCRC.

With just five years remaining to achieve the SDGs, Save the Children's report Racing Against Time evaluates global progress toward meeting the Targets. According to the 2024 UN Sustainable Development Report, the world is seriously off course, with only 17% of progress aligned with achieving the goals by 2030 (United Nations, the Sustainable Development Goals Report, 2024, 4). This slow progress is particularly concerning for children, whose rights and futures are deeply affected by SDG outcomes. The following are some child-focused indicators highlighting the extent of this challenge (Figure 6).

SDG 2 - Zero Hunger: hunger levels have increased globally since 2015, pushing the target further out of reach. Stunting, caused by inadequate nutrition, continues to affect children's growth and development, with long-term consequences. While global stunting rates declined from 33% in 2020 to 22.3% in 2022, only 40 countries are on track to eliminate stunting and malnutrition. Without faster progress, over 20% of children under five could still be stunted by 2030 (Save the Children, Racing Against Time, 2024, 11).

SDG 3 - Good Health and Wellbeing: reducing under-five mortality has seen the most significant success among key-child related indicators. Global child mortality dropped from 76.4‰ in 2000 to 37.1‰ in 2022. However, 58 countries require substantial or very high efforts to meet this goal, making it unlikely for them to achieve the target without significant intervention (*ibidem*).

SDG 4 - Quality Education: despite improvements in access to education, many countries still face significant challenges in achieving universal primary school completion. Meeting SDG 4's broader aim of equitable, quality education for all children – resulting in meaningful learning outcomes –

remains far off. Data gaps on learning outcomes further hinder efforts to assess and improve educational quality globally (*ibidem*).

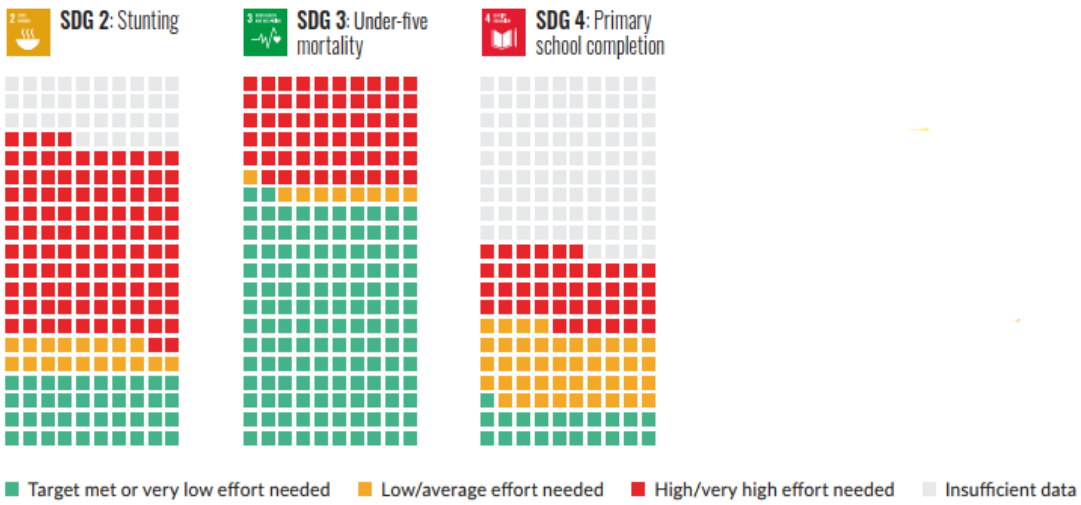

Figure 6. Inadequate progress toward 3 key SDG indicators for child rights.
The figure is extracted from Save the Children's report Racing Against Time (portion removed).

1.5 Conclusion

This chapter has explored the theoretical foundations of Multilevel Governance (MLG), its implications for climate governance, and its connection to children's rights as articulated in the Convention on the Rights of the Child (UNCRC). These elements collectively show a complex but essential framework for addressing the interconnected challenges of climate change, governance, and human rights, particularly those of the most vulnerable populations – children and youth.

The analysis of MLG demonstrates its capacity to connect actors at different levels - local, national, and global – through its double categories: Type I and Type II governance. While Type I governance provides a structured, tiered approach, with a limited number of authorities, Type II governance offers flexibility and adaptability, enabling for the creation of specialized jurisdictions to address specific challenges. This dual approach allows MLG to respond to the multifaceted nature of global environmental challenges, ensuring both coordination and innovation. Also, these governance models highlight the importance of both vertical (across levels) and horizontal (across sectors and actors) coordination, which are essential for aligning policies and actions across governance levels, promoting collaboration among different actors.

The 1992 Rio Earth Summit and the subsequent international frameworks have reinforced the need for the integration of MLG systems in the fight against environmental degradation. These international frameworks also provide a foundation for addressing the vulnerabilities of children, whose rights are disproportionately affected by climate change.

In this context, the UNCRC serves as a practical document for understanding and operationalizing the intersection between human rights and environmental governance. Its principles of non-discrimination, the best interests of the child, survival and development, and the right to participation are closely linked to the main ideas of effective climate governance. The importance of child participation is further reinforced in General Comment No. 26, which calls for the active inclusion of children in environmental decision-making processes. This fits with the UNCRC's focus on participation, making children active agents of change within MLG systems. Their voices, experiences, and dreams are vital in shaping policies that are equitable and sustainable, making the protection of children's rights both a moral imperative and, above all, a necessary element of effective climate governance.

The integration of the UNCRC with the SDGs provides a coherent and robust framework for addressing the intersection of children's rights and environmental sustainability. The UN 2030 Agenda for Sustainable Development embeds child rights within a vision of universal, integrated progress, where climate-related goals such as SDG 13 - Climate Action -, intersect with those addressing poverty - SDG 1 -, health - SDG 3 -, education - SDG 4 -, and inequality - SDG 10 -, highlighting and also reinforcing the indivisibility of children's rights. As climate change exacerbates environmental degradation, it directly impacts access to essential resources and opportunities, deepening inequalities for vulnerable populations, especially children and youth.

The SDGs further emphasize that children are not only disproportionately impacted by climate change, but also uniquely positioned to drive positive change. Their participation in MLG systems, as emphasized by General Comment No. 26, is critical to achieving sustainable development.

This chapter ultimately highlights the connection between governance, human rights and environmental sustainability. The challenges posed by climate change demand a cohesive and inclusive approach, one that strengthens MLG system while remaining rooted in the principles of the UNCRC and aligned with the goals of the UN 2030 Agenda.

CHAPTER 2 – MULTILEVEL GOVERNANCE IN ADDRESSING CHILDREN'S AND YOUTH RIGHTS IN THE CONTEXT OF CLIMATE CHANGE

2.1 Introduction

The urgency of the climate crisis has brought children's rights to the forefront of global policy discussions, highlighting the need for their explicit consideration in climate-related treaties and agreements. Despite increased attention to the disproportionate impact of climate change on children, the integration of their rights and needs into climate policies still faces some obstacles. This chapter critically examines how multilevel governance frameworks address climate change while prioritizing children's rights, analyzing the roles of international, national, and local actors, as well as identifying the persistent gap between acknowledging children's vulnerability and translating this recognition into concrete, actionable commitments.

First, this chapter analyzes how children's rights are addressed in key international climate agreements – such as the UNFCCC, the Paris Agreement and the UNICEF Sustainability and Climate Change Action Plan 2023-2030. While these agreements lay the groundwork for global climate action, their provisions for safeguarding children's rights are often generalized and lack specific, enforceable mechanisms. These frameworks guide collective climate action by urging countries to integrate human rights, including children's rights, into their policy frameworks.

Second, the chapter explores the critical role of national governments in implementing these global agreements. National governance mechanisms, including instruments like Nationally Determined Contributions, National Adaptation Plans and Voluntary National Reviews, translate the global principles into domestic strategies. However, many national policies still fall short of fully acknowledging or addressing the unique vulnerabilities and potential contributions of children and youth. This chapter critically examines these gaps and highlights how child-sensitive policies can be embedded into national climate strategies.

Third, at the local level, governance is where policy meets practice. Local governments have the unique opportunity to adapt and implement international and national directives in ways that directly address community needs. Initiatives such as Child-Friendly Cities exemplify how local

policymaking can create inclusive environments where children and youth are not only protected but also empowered to participate in climate action.

By exploring these interconnected governance layers and identifying gaps, the chapter demonstrates that a robust multilevel governance approach is essential for achieving coherent and effective climate policies that serve both present and future generations.

2.2 Global Governance Frameworks: Addressing Climate Change and Protecting Children's Rights

International climate negotiations are processes designed to establish agreements among nations to drive and secure strong actions against climate change and its impacts. These negotiations play a crucial role within the global framework, as they define guidelines to be implemented worldwide based on the principle of Common But Differentiated Responsibilities (CBDR), ensuring sustainable development. This principle, a cornerstone of the United Nations Framework Convention on Climate Change (UNFCCC), acknowledges the varying capacities and obligations of countries in addressing climate change. The outcomes of climate negotiations influence both the present and the future, making it essential for young people to engage in these discussions. Their voices, insights, and contributions can help shape policies and decisions by actively participating in debates on key issues. However, youth participation in climate governance remains largely symbolic, with significant barriers limiting their direct influence in decision-making. While young activists play a visible role through protests and advocacy, they often face exclusion from formal negotiations (Gasparri et al., 2021, 98-99).

The following sections delves into the intersection of global climate governance and children's rights, highlighting the frameworks addressing climate change. Central to these discussions are the UNFCCC and its guiding principle of Common But Differentiated Responsibilities, the Paris Agreement establishing ambitious goals for mitigating climate change, promoting adaptation and enhancing resilience, the concept of intergenerational equity, emphasized in both the UNFCCC and the Paris Agreement, which underscores the responsibility of present generations to safeguard the planet for future ones, and the UNICEF Sustainability and Climate Change Action Plan 2023-2030 which outlines a strategic approach to climate actions by focusing on protecting essential services

for children and empowering youth as climate leaders. Collectively, these frameworks stress the importance of inclusive, equitable, and sustainable climate governance, with an emphasis on youth involvement, intergenerational fairness, and human rights. However, their effectiveness is contingent on governments moving beyond rhetoric and implementing concrete, enforceable policies. Without stronger accountability mechanisms, there is a risk that climate negotiations will continue to produce ambitious declarations with little real-world impact, leaving younger and future generations disproportionately vulnerable to climate change.

2.2.1 United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC), signed in 1992, is a cornerstone of international climate governance. It guides global efforts to address climate change through treaties and agreements like the Kyoto Protocol[18] (1997) and the Paris Agreement (2015). The Convention's primary objective is to achieve the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC, 1992, Article 2), thereby allowing ecosystems to adapt and supporting sustainable economic development.

While the Convention does not set specific targets, it provides a framework for future climate agreements and policies. It also embraces the principle of Common But Differentiated Responsibilities (CBDR) in Article 3, acknowledging that countries have varying levels of responsibility and capacity to address climate change. This principle ensures that global action is equitable, considering each state's unique capabilities, in line with the idea that efforts should be "equitable and appropriate" (UNFCCC, 1992, Article 4).[19]

[18] The Kyoto Protocol implements the UNFCCC by requiring industrialized nations to limit and reduce greenhouse gas emissions based on agreed targets. Unlike the Convention, which only urges policy adoption and reporting, the Protocol imposes binding commitments on developed countries. It also upholds the principle of "Common But Differentiated Responsibilities," acknowledging that developed nations bear greater responsibility for current emissions levels.

[19] The principle of Common But Differentiated Responsibility acknowledges that all states share a common responsibility to protect the environment at national, regional, and global levels. However, it also recognizes differentiated responsibilities based on each state's specific circumstances – particularly its contribution to environmental degradation and its capacity to address and mitigate the issue. This principle ensures that while all nations must take action, those with greater historical contributions to environmental problems and more resources have a higher obligation to lead efforts in prevention, reduction, and control.

The UNFCCC provides the mechanisms and institutions for climate-related decision-making at the international level. It serves as the foundation for shaping climate actions globally, nationally, and locally.

Formal negotiations occur during the plenary sessions of the Conference of the Parties (COP), the UNFCCC's highest decision-making body. All Parties are represented at the COP, which meets annually with two main objectives:

1. To review the implementation of the Convention, the Kyoto Protocol, and the Paris Agreement.
2. To adopt decisions that further the development and implementation of these agreements.

However, despite the prominence of COP in shaping global climate governance, there are legitimate concerns regarding the accessibility and inclusivity of these decision-making processes. One critical issue is the limited involvement of young people in the negotiation processes. Youth participation in climate governance aligns with the UNCRC's fundamental principles, particularly the right to be heard (Article 12). Young people have actively contributed to the UNFCCC process through plenary interventions, web-based submissions, contributions to subsidiary bodies, and direct lobbying of delegates. Their involvement provides a crucial avenue for advancing holistic approaches to climate change and sustainable development. This engagement also resonates with the principle of the child's best interests (Article 3), as addressing climate change directly impacts their well-being and future survival (Article 6). However, despite their dedication to advocating for urgent, ambitious, and equitable climate action, significant obstacles remain to meaningful youth engagement.

One of the primary challenges is the complexity and the often-technical nature of climate governance, which can limit the actual influence of young people. Nonetheless, COP26 marked a pivotal moment in youth climate leadership. The UK COP26 Presidency implemented a youth engagement strategy aimed at amplifying youth voices globally. The Glasgow Climate Pact, the official outcome document at COP26, explicitly acknowledges the crucial role of both youth and children in addressing climate change, calling for multilevel and cooperative action while providing avenues for sustained youth participation.

To maximize opportunities for meaningful change, young people must engage at multiple levels of governance while recognizing the different roles they can assume. At the global governance level, youth climate movements have highlighted the role of young people as powerful agents of change,

challenging stereotypes that portray them as passive victims of climate change or indifferent to the issues shaping their future (Han et al., 2020, 15). Nevertheless, on the one hand, there is a need for increased youth representation within decision-making arenas. This includes ensuring that youth negotiators are present in every national delegation and that young people are meaningfully included in domestic policymaking processes. On the other hand, a vibrant youth movement outside formal institutions is crucial to advocating for radical change, holding decision-makers accountable, and ensuring commitments translate into action. A dual approach – working both within official structures and through grassroots activism – can be most effective in driving systemic change.

Despite these opportunities, challenges persist. Many key decisions in UNFCCC negotiations, and in global climate change negotiations in general, continue to be made behind closed doors, limiting transparency and youth influence (Gasparri et al., 2021, 101). Additionally, not all national delegations include youth representatives, and those that do often fail to provide them with the necessary capacity, knowledge, and tools to move beyond an observer role.

Furthermore, youth input is often welcomed during agenda-setting but marginalized in later stages of policy cycles, such as decision-making, implementation, and evaluation. When consulted, youth voices are frequently confined to so-called "soft" issues, despite having valuable insights on a wide range of substantive policy areas (Global Governance Institute, Climate Governance and Youth Engagement, n.d., 2).

To align with the UNCRC's principle of non-discrimination (Article 2), youth must be granted equal access to influence policy across all aspects of climate governance. Their meaningful inclusion ensures that the best interests of both present and future generations are safeguarded, reinforcing their fundamental rights to participation, survival, and development. By institutionalizing youth engagement at all levels and across all policy domains, decision-makers can uphold their commitments to intergenerational justice and create a more inclusive and effective response to the climate crisis.

2.2.1.1 YOUNGO: the official Youth Constituency of the UNFCCC

YOUNGO is the official children and youth constituency of the UNFCCC. It serves as a dynamic, global network of youth activists (up to 35 years old) and youth-led organizations working to influence intergovernmental climate policies and empower young people to bring their voices into

UNFCCC processes. Indeed, it is described as having "the strongest institutional link between youth organizations and multilateral climate negotiations" (Rahmaty et al., 2021, 2). However, while this perspective highlights its positive impact, it also obscures some underlying challenges regarding its inclusivity and the genuine influence of youth perspectives on climate policies.

Youth engagement with the UNFCCC began in the early 1990s when young activists organized independently, held external conferences, and presented statements to the COPs (Thew et al., 2021, 371). Yet, for a long time, young people attending the COP had no formal space for representation, sparking the creation of the first Conference of Youth (COY) before COP11 in Montreal, where they initiated the process of securing an official youth space at UNFCCC events. It was at this event that youth activists began the long process of securing an official space for youth within the UNFCCC, culminating in 2009 when the UNFCCC Secretariat granted constituency status to admitted youth NGOs, with full recognition in 2011.

Operating as a Transnational Advocacy Network (TAN), YOUNGO brings together large transnationals with small voluntary organizations (Thew, 2018, 371), fostering diverse participation in climate governance. Since its official recognition, YOUNGO has established around twelve policy working groups addressing crucial issues such as climate adaptation and the implementation of Article 6 of the UNFCCC[20], which focuses on climate change education and public awareness, training, public participation, public access to information and international cooperation on these issues (the so-called "six ACE elements").

YOUNGO actively engages in climate action throughout the year by:

[20] In carrying out their commitments under Article 4, paragraph 1 (i) [promotion and cooperation in education, training and public awareness related to climate change], the Parties shall:

(a) Promote and facilitate at the national and, as appropriate, subregional and regional levels, and in accordance with national laws and regulations, and within their respective capacities:
    (i) The development and implementation of educational and public awareness programmes on climate change and its effects;
    (ii) Public access to information on climate change and its effects;
    (iii) Public participation in addressing climate change and its effects and developing adequate responses; and
    (iv) Training of scientific, technical and managerial personnel;
(b) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies:
    (i) The development and exchange of educational and public awareness material on climate change and its effects; and
    (ii) The development and implementation of education and training programmes, including the strengthening of national institutions and the exchange or secondment of personnel to train experts in this field, in particular for developing countries.

- Organizing the Conference of Youth (COY) in the COP host country, empowering young people worldwide to take climate action.
- Participating in COP negotiations, attending plenary and negotiation sessions, organizing and contributing to side events with countries and non-state actors, and advocating for youth priorities in negotiation meetings.
- Capacity development efforts, including organizing webinars and participating in climate events year-round.

Despite these achievements, YOUNGO faces significant barriers, including:

- Limited inclusive participation of young people from the Global South in climate negotiations, coupled with a perception that their concerns hold less significance (Kolleck et al., 2022, 7). For instance, 45% perceived their involvement as merely symbolic and not taken seriously (Ofodile et al., 2024, 184).
- The absence of meaningful inclusion of youth input in final climate decisions, which hinder the possibility of creating "policy with youth rather than for youth" (Thew et al., 2021, 4).
- Structural barriers such as language and connectivity issues, which hinder effective engagement.

According to the toolkit for Young Climate Activists in the Middle East and North Africa Region/Arab States Region (Volume III, 26), since 2009, YOUNGO has empowered nearly 30000 young people from over 130 nationalities. Key achievements include:

- Recognition in the Katowice Rulebook[21], which acknowledges the crucial role of young people in implementing Action for Climate Empowerment (ACE) and YOUNGO's participation in the ACE Youth Forum.
- Consultation in multiple decision-making processes, ensuring the youth agenda is represented in climate policies.

YOUNGO's mission is to equip children and youth with the skills and capacity to drive ambitious climate policies and action at all levels. Its representatives continue to make official statements, provide technical and policy inputs, engage with decision-makers, and advocate for inclusive,

[21] The Katowice Rulebook, adopted at the 2018 COP24 in Katowice, Poland, sets detailed guidelines on how countries should implement the Paris Agreement, ensuring transparency in emissions reporting, climate finance, and adaptation efforts.

youth-led climate action. However, challenges remain – financial limitations, accessibility issues, and barriers to meaningful participation continue to restrict youth involvement. The annual COY, while a critical space for shaping YOUNGO's position, requires participants to cover their own costs, further limiting accessibility. Indeed, 72% of young people reported having difficulties in covering costs associated with attending COP events (Ofodile et al., 2024, 183). Moreover, youth represent a political position; however, despite their formal recognition within YOUNGO as key actors, their influence is constrained by the power of dynamics imposed by other stakeholders, which shape the informal rules of participation in the UNFCCC (Thew et al., 2020, 2).

Despite these obstacles, YOUNGO remains a driving force in the UNFCCC, ensuring that young people play a central role in global climate governance and policy-making. Yet, it should address the systemic inequities within the organization to maximize its potential and ensure that youth involvement is not merely symbolic but substantively integrated into the policy-making process. Bringing together both moderate and radical voices, YOUNGO is able to create a space where young people can receive training and adopt responsible attitudes, including attempts to bring different perspectives to the negotiation process (Thew, et al., 2021, 5)

2.2.2 Paris Agreement

The Paris Agreement, adopted under the UNFCCC, is a historic international treaty aimed at strengthening global efforts to combat climate change. By reducing greenhouse gas emissions and limiting the rise in the Earth's average temperature, it seeks to mitigate climate-related threats while ensuring a sustainable future. The Agreement commits countries to ambitious climate actions centered on mitigation, adaptation, and addressing loss and damage.

Adopted during the 21st session of the Conference of the Parties (COP21) in Paris on December 12, 2015, the Agreement marked a turning point in global climate governance. It brought nations together to implement strong measures against climate change, adapt to its impacts, and provide essential support to developing countries. The treaty aims to reinforce the global response to climate change within the broader framework of sustainable development. As stated in Article 2, the Agreement seeks to "strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty" (Paris Agreement, 2015, Article 2).

The Paris Agreement sets some ambitious objectives to guide global climate action. The Toolkit for Young Climate Activists in the Middle East and North Africa Region/Arab States Region (Volume IV) offers an overview on the contents and objectives of the Paris Agreement. Its core goals include:

- Limiting the global temperature rise this century to well below 2°C while striving to keep it within 1.5°C, as outlined in Article 2(1)(a), which states that Parties aim to "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change" (Paris Agreement, 2015, Article 2.1a).
- Strengthening national capacities for climate adaptation and resilience, as noted in Article 7(1), which establishes that "Parties hereby establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2" (Paris Agreement, 2015, Article 7.1).
- Achieving a balance between greenhouse gas emission and their removal from the atmosphere, as set forth in Article 4(1), which states that "Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty" (Paris Agreement, 2015, Article 4.1).

Beyond setting ambitious targets, the Agreement takes a comprehensive approach by promoting both mitigation and adaptation. It emphasizes enhancing resilience, reducing vulnerability, and protecting natural ecosystems that absorb carbon. Additionally, it encourages innovation and the transfer of climate-friendly technologies to support long-term sustainability. Recognizing the irreversible impacts of climate change, especially where adaptation is no longer possible, the Agreement underscores the need for international solidarity and financial support to assist affected

nations. By establishing mechanisms for international cooperation, it facilitates the implementation of Nationally Determined Contributions (NDCs), allowing countries to work together toward their climate commitments.

A crucial aspect of the Paris Agreement is its acknowledgement of human rights as integral to climate action. The Preamble, indeed, affirms that "Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights" (Paris Agreement, 2015, Preamble), emphasizing:

- The right to health, sustainable development, and gender equality.
- The empowerment of women and intergenerational equity.
- The protection of vulnerable communities, including indigenous peoples, local populations, migrants, persons with disabilities, and children.

The Paris Agreement is the first binding multilateral climate treaty to reference human rights explicitly - indeed, the UNFCCC does not contain references to human rights in its preamble. However, this reference appears only in the Preamble rather than in the operative sections of the text, leading to concerns that it does not fully address the scale of climate-related threats to human rights (Adelman, 2018, 18).

The Preamble specifies that Parties "should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights", citing "the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity" (Paris Agreement, 2015, Preamble). The reference to the need for State parties to "respect, promote and consider" human rights in climate action reflects the growing attention to the overlap between climate change and human rights protection (Venn, 2023, 8). Despite this recognition, "the absence of legally binding human rights provisions or any complaints mechanisms empowered to offer remedies to affected populations […] further illustrates the need to look to international human rights law to provide better recourse to justice to climate-vulnerable states, groups and individuals" (*ibidem*, 3). Therefore, while the Agreement marks the first occasion in which states were formally urged to consider children's rights in climate action, this obligation remains non-binding. As a result, states are not held directly accountable for ensuring the protection of children's rights, nor does the Agreement recognizes the

potential role of children in contributing to climate action. Furthermore, this non-binding approach fails to place adequate emphasis on ensuring future generations' rights and needs.

In drafting the Paris Agreement, Parties sought to align it with other relevant international treaty obligations. Of particular relevance are the obligations under the ICESCR, ICCPR, the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), and the UNCRC. The integration of human rights law into climate governance reinforces the expectation that states must align their domestic legal and institutional frameworks with existing human rights obligations. This may require new legal and policy measures to ensure that mitigation and adaptation efforts safeguard fundamental rights. Yet, there remains a gap between the human rights rhetoric in the Preamble and the practical implementation of these rights within the Paris Agreement's operational framework.

To conclude, the Paris Agreement represents a critical milestone in global climate governance, with profound implications for children and future generations. The link between the Agreement and children's rights lies in its recognition of intergenerational equity and the need for inclusive climate action. While not explicitly binding, the Paris Agreement preamble acknowledges that climate change threatens children's fundamental rights. By urging states to consider human rights in climate policies, the Agreement creates an opportunity to align climate action with the UNCRC and other international obligations. However, to bridge the gap created by the absence of binding provisions, states should actively incorporate child-sensitive approaches into their mitigation and adaptation strategies, ensuring that climate policies safeguard the wellbeing and future of younger generations. Without stronger accountability measures and legal integration, the promise of the Paris Agreement may remain largely symbolic.

2.2.3 Intergenerational Equity

The principle of intergenerational equity is essential in the discourse on climate change governance and children's rights. However, while the UNFCCC and the Paris Agreement incorporate the concept of equity, they often fall short of explicitly recognizing children's rights within their legal frameworks, a gap that raises concerns about the actual implementation of these principles. The UNFCCC implicitly refers to intergenerational equity in Article 3(1), stating that "The Parties should protect the climate system for the benefit of present and future generations of humankind,

on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. […]" (UNFCCC, 1992, Article 3.1). The Paris Agreement explicitly refers to intergenerational equity in its Preamble, emphasizing that "acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, […] as well as gender equality, empowerment of women and intergenerational equity" (Paris Agreement, 2015, Preamble).

The theory of intergenerational equity, as formulated by Edith Brown Weiss in 1989, posits that sustainability can only be achieved if the Earth and its resources are regarded not merely as economic assets but as a trust inherited from past generations and meant to be preserved for future ones. This "planetary trust" (Weiss, 1992, 7) entails both rights and responsibilities, underscoring that future generations have inherent rights that must be safeguarded by the present generation. However, "uncertainty surrounding the identities and preferences of future generations is a major point of criticism made of Weiss' theory" (Gul Scholar et al., 2022, 214). Since future generations do not yet exist and cannot voice their interests, it becomes difficult to define that their exact needs and priorities will be. This uncertainty complicates the implementation of intergenerational equity principles in law and policy.

Intergenerational equity is based on two fundamental relationships:

1. The relationship between different generations, recognizing that all share the Earth's common heritage, and
2. The relationship between humans and the natural world, emphasizing the intrinsic link between humanity and the environment.

Weiss identifies three core principles of intergenerational equity (Weiss, 1992, 10-14):

1. Conservation of options: each generation should preserve the diversity of natural and cultural resources to ensure future generations retain the flexibility to address their own challenges and values. A diverse resource base enhances adaptability and resilience.
2. Conservation of quality: the environmental and cultural quality of the planet must be maintained so that it is passed down in no worse condition than it was received. This aligns with sustainable development, recognizing that while change is inevitable, it should not lead to irreversible harm.

3. Conservation of access: equitable access to the Earth's resources must be ensured for all generations. Present use should not unduly limit availability for the future, balancing economic and social wellbeing with sustainability.

A significant challenge is that future generations lack representation in current decision-making, despite being profoundly affected by present-day choices. While they may one day value conservation efforts, they have no voice to advocate for them now. This highlights the ethical duty of the present generation to act as responsible stewards of the planet. In recent years, an increasing number of cases have been brought before national courts to uphold the constitutional rights of children and future generations in relation to environmental protection. This trend is largely driven by a growing awareness of the intergenerational impacts of climate change and the profound implications for those most affected at the "hard end" of the temporal spectrum of climate change impacts (Nolan, 2024, 2).

The recognition of children's rights and those of future generations to a sustainable future dates back to 1987, when the UN World Commission on Environment and Development (WCED) – commonly known as the Brundtland Commission – published the report Our Common Future[22]. This report laid out long-term environmental strategies for sustainable development, emphasizing the need to meet the essential needs of the world's most vulnerable populations while upholding intergenerational fairness. Indeed, this report outlines that "humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (Our Common Future, 1987, 16, para. 27). The rights of both present and future children were subsequently reinforced through the UNCRC, particularly in Articles 1 to 42.

Although Article 3(1) of the UNFCCC incorporates intergenerational fairness, equity, and differentiated responsibilities, it does not explicitly mention children or youth. However, terms like "humankind" and "present and future generations" inherently include children, implying their rights within the broader concept of inter- and intra-generational equity. The Paris Agreement, by

[22] In 1987, the WCED published the report "Our Common Future", which developed guiding principles for sustainable development. For the purpose of this section, the report explicitly linked sustainable development to intergenerational and intragenerational equity, affirming that "social equity between generations (is) a concern that must logically (also) be extended to equity within each generation" (Our Common Future, 1987, p. 41, para. 3).

contrast, explicitly refers to children only in its Preamble, clarifying the treaty's purpose but not imposing obligations on signatories.

Intergenerational equity is foundational to sustainable development, as climate justice requires balancing the human rights and development needs of current populations with the responsibility to protect future generations. While the SDGs do not explicitly reference intergenerational equity, they do include references to "future generations". The section on Planet expresses a commitment "to protect the planet from degradation […] so that it can support the needs of the present and future generations" (UN 2030 Agenda, 2015, 3). This phrasing suggests that environmental protection benefits both current and future populations rather than being pursued for the planet's intrinsic value.

The SDGs also emphasize implementing the 2030 Agenda "for the full benefit of all, for today's generation and for future generations". However, while these references suggest an implicit recognition of future interests, they do not establish intergenerational equity as a guiding principle. Instead, the SDGs focus more explicitly on human rights, predominantly addressing the needs of individuals within the present generation. Most references to equity center on intragenerational concerns, ensuring fairness within the current population. For instance, Target 1.4[23] and Target 5.a[24], emphasize "equal rights to economic resources" for marginalized groups, prioritizing those who are "poorest, most vulnerable, and furthest behind". This raises the question of whether future generations qualify as a "vulnerable group" due to their inability to assert rights in the present. Although the SDGs might be interpreted as implicitly recognizing intergenerational rights, this remains open to debate. The framework primarily prioritizes intragenerational equity, emphasizing equitable access to resources such as education, water, and sanitation. The broader call for "a just, equitable, tolerant, open, and socially inclusive world" (UN 2030 Agenda, 2015, para. 8) further reinforces this focus on present-day populations.

In sum, while the SDGs promote sustainability, they do not explicitly define intergenerational equity as a core principle. Instead, they concentrate on ensuring fair opportunities within the current

[23] By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.

[24] Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.

generation, leaving the rights and interests of future people largely implied rather than explicitly addressed. As Spijkers affirmed, the SDGs contain numerous references to equity; however, no one explicitly acknowledges intergenerational equity. Instead, they focus solely on intragenerational equity, emphasizing fairness and justice within the present generation (Spijkers, 2018, 9).

Moving to the UNCRC, it does not explicitly refer to intergenerational equity. Children's rights are a crucial component of intergenerational justice within the broader international human rights framework. While legal instruments such as the ICCPR and ICESCR address environmental rights, frameworks such as the UNESCO Declaration on the Responsibilities Towards Future Generations [25] further develop obligations towards future generations. Within the evolving landscape, the children's rights framework serves as a bridge, grounded in widely accepted legal principles like the best interest of the child (Daly, 2023, 145). Despite this, there is limited exploration of the UNCRC's potential in advancing intergenerational equity. Although General Comment No. 26 references intergenerational equity, it does not define future generations or clarify their relationship with children. However, emphasizing children's rights within intergenerational equity provides a strong legal foundation for integrating these principles into climate litigation and governance. The best interests of the child principle is particularly promising, as it mandates that children's welfare be a primary consideration in all matters affecting them. Given that decision, this principle offers a compelling legal tool for advancing climate justice.

In sum, intergenerational equity serves as a crucial link between sustainable development, climate governance, and children's rights, emphasizing the responsibility to protect both present and future generations. Both the UNFCCC and the Paris Agreement refer to intergenerational equity, either implicitly or explicitly. The SDGs implicitly recognize intergenerational concerns by committing to sustainability for "future generations", but focus primarily on intragenerational equity. The UNCRC, while not explicitly mentioning intergenerational equity, provides a strong legal foundation for integrating children's rights into climate governance, particularly through the best interests of the child principle.

[25] The UNESCO Declaration on the Responsibilities of the Present Generations Towards Future Generations, adopted in 1997, is a soft law instrument that outlines the ethical duty of present generations to safeguard the well-being and rights of future generations. It emphasizes the responsibility to protect the environment, cultural heritage, human rights, and peace for future generations, ensuring they inherit a healthy environment and access to cultural, scientific, and linguistic diversity. The Declaration advocates for sustainable development and the importance of education and global cooperation to address global challenges.

By aligning all these frameworks, intergenerational equity emerges as a legal and ethical imperative, reinforcing the need for climate policies that safeguard children's rights today while ensuring a sustainable and just world for future generations.

2.2.4 The UNICEF Sustainability and Climate Change Action Plan (2023-2030)

The UNICEF Sustainability and Climate Change Action Plan addresses the challenges that children and young people face worldwide by mobilizing global efforts to protect them. It provides a strategic framework for fostering collaboration among governments, communities, and international organizations, while reinforcing commitments to the SDGs. By prioritizing the needs of the most vulnerable children, the Plan establishes a clear roadmap for transforming how stakeholders work together to ensure their protection and wellbeing. In response to today's rapidly changing climate, UNICEF's Plan outlines a comprehensive strategy centered on three key objectives: safeguarding essential services that children rely on, empowering the next generation to lead environmental action, and reducing the environmental footprint of both UNICEF and its partners. This section explores these objectives and the role of multilevel governance in driving effective and inclusive climate solutions.

Objective 1: Protect

Children's survival and wellbeing depend on critical services – access to healthcare, nutritious food, quality education, safe drinking water, and proper sanitation, among others. However, the increasing frequency of extreme weather events, rising temperatures, and other climate impacts disrupt these services and exacerbate challenges such as environmental pollution and biodiversity loss. To mitigate these risks, it is essential to strengthen social services by focusing on three key factors:

- Resilient infrastructure: develop and upgrade community assets like healthcare centers, schools, water systems, and nutrition services to withstand climate shocks while remaining environmentally sustainable. As Liu states, infrastructure resilience refers to the capacity of a system to recover across the entire networks after disasters, particularly when infrastructure systems experience localized damage due to extreme natural events (Liu et al., 2022, 2).

- Informed and prepared local leadership: equip community members and service professionals with the knowledge, skills, and data needed to address and respond to emerging threats. It is possible to refer here to "community resilience", defined by the National Institute of Standards and Technology (NIST) as "the ability to prepare for anticipated hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. Activities, such as disaster preparedness—which includes prevention, protection, mitigation, response and recovery—are key steps to resilience".
- Robust public systems: integrate child-sensitive policies, adequate budget allocations, and effective coordination mechanisms into government systems to support the continuous delivery of essential services.

These strategic interventions are fundamental investments that ensure the continuity of critical services without compromising environmental sustainability. UNICEF's mechanisms further emphasize:

1. Integrating development and humanitarian efforts: embedding climate adaptation measure into disaster risk reduction, recovery, and humanitarian responses to protect children before, during, and after emergencies.
2. Expanding sustainable energy access: ensuring that healthcare facilities, schools, and water, sanitation, and hygiene (WASH) services benefit from reliable, eco-friendly energy, which is crucial for their uninterrupted operation.
3. Accelerating sustainable WASH initiatives: enhancing water and sanitation infrastructure in areas vulnerable to climate change to prevent disease, malnutrition, and other health hazards among children.

Objective 2: Empower

For millions of children and young people, the environmental crisis is not an abstract threat. Rather than waiting for others to solve these challenges, they are ready to take action. Empowering young people to lead environmental changes involves:

1. Comprehensive education on climate and environment:
    - Curriculum integration: making environmental sustainability a core component of educational curricula and training educators in disaster risk reduction.

- Early childhood and parenting programs: implementing initiatives that foster environmental awareness from a young age.
- Skill development for the green economy: partnering with public and private sectors to provide training and resources that prepare youth for sustainable careers.
- Accessible learning resources: expanding informal, online, and community-based learning tools.
- Governmental support: encouraging policies and budget priorities that embed environmental sustainability in education plans.

2. Promoting direct environmental action:
    - Local initiatives: supporting youth-led volunteer projects such as tree planting, urban gardening, and energy efficient ventures.
    - Safety and resilience assessments: training young people to evaluate and improve the safety of their schools and communities in the face of climate threats.
3. Fostering effective advocacy:
    - Capacity building: equipping children and youth with advocacy skills, including negotiation and campaign management.
    - Engagement with decision makers: facilitating direct interactions between young advocates and policymakers to influence public policy.
    - Sustained support: investing in youth-led programs that drive systemic change and amplify the voices of young environmental champions.

Objective 3: Reduce

Recognizing that reducing greenhouse gas emissions and environmental degradation is essential to addressing the planetary crisis, UNICEF is committed to transforming its internal operations and supply chains. Key initiatives include:

1. Reducing internal emissions: aligning with the UN Secretariat Climate Action Plan[26] by setting targets – such as a 45% reduction in internal greenhouse gas emissions by 2030 – and implementing robust tracking, reporting, and offsetting strategies.
2. Driving sustainable procurement and infrastructure:
    - Local sourcing and production: revising procurement practices to prioritize locally sourced, sustainable materials.
    - Green construction: adopting sustainable building techniques for social service infrastructure and piloting innovative practices in remote areas.
    - Market influence: using UNICEF's purchasing power to signal the need for sustainable products in essential sectors like healthcare, nutrition, water, and sanitation.
    - Innovation support: nurturing and supporting new products and service innovations that enhance sustainability.
3. Collaborative partnerships: working closely with partners, especially in the private sector, to leverage resources and networks for broader sustainability impacts across humanitarian aid and social service delivery.

This Plan highlights the urgent need for coordinated global action to protect children and young people from the impacts of climate change. By focusing on strengthening essential services, empowering youth as agents of change, and promoting sustainable practices, the plan offers a comprehensive and actionable framework for ensuring children's rights in an increasingly volatile world. However, without addressing the systemic and structural issues driving climate vulnerability – such as global inequality, insufficient political will – UNICEF's efforts may be limited. Achieving these objectives requires strong multilevel governance, where collaboration between international organizations, governments, and communities is key to fostering resilience and long-term sustainability. As noted, "the complexity and multilevel nature of climate change requires governance systems able to manage and resolve conflicts of interests across multiple scales and among diverse policy actors" (Di Gregorio et al., 2019, 73). As climate challenges continue to

[26] The United Nations Secretariat Climate Action Plan 2020-2030 is a comprehensive strategy aimed at transforming the UN Secretariat's operations to address climate change effectively. Launched in 2019 by Secretary-General Antonio Guterres, the Plan sets ambitious targets to reduce greenhouse gas emissions and promote sustainability within the organization's activities.

evolve, sustained commitment and innovation will be crucial in securing a safer and more sustainable future for children worldwide. The success of these efforts will depend on a substantial shift in how global systems prioritize both the immediate and long-term needs of children in the face of climate crisis.

2.3 National Governance Frameworks: Addressing Climate Change and Protecting Children's Rights

Effective climate action requires strong governance frameworks also at the national and subnational levels, where policies, regulations, and programs are designed and implemented. These governance structures are essential for aligning climate strategies with development priorities and ensuring that climate goals are achieved across diverse sectors. National governments are the primary leaders in climate policy. They possess the greatest legitimacy, command the most public attention, and have more capacity and resources than any other actors in the multi-level governance system (Jänicke, 2017, 113). National governments play a pivotal role in shaping public policies, establishing legal frameworks, and allocating resources for climate action. These institutions also oversee the implementation of international climate agreements, such as the Paris Agreement, ensuring that national strategies reflect global commitments. Key mechanisms, such as Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), and Voluntary National Reviews (VNRs) facilitate this alignment by guiding countries in setting measurable targets and tracing progress. These tools are integral to the global effort to combat climate change, ensuring that national policies contribute effectively to global climate goals while considering local and regional needs. The following sections explore the importance but also the limits of these mechanisms in the context of national climate governance, with a particular focus on how they incorporate (or not) the needs and rights of vulnerable groups, such as children and youth, into climate action frameworks.

2.3.1 Nationally Determined Contributions

Nationally Determined Contributions (NDCs) were established in 2014 under the Lima Call for Climate Action [27] to allow countries to define their independent contributions to reducing greenhouse gas emissions. These contributions form the foundation of the Paris Agreement, serving as essential instruments for achieving national climate goals. Under the Paris Agreement, NDCs represent commitments by ratifying countries to contribute to global climate objectives, including limiting global temperature rise to 1.5°C and achieving net-zero emissions through carbon reduction and sequestration by 2050. NDCs serve not only as a means for countries to communicate their domestic contributions to addressing climate change, but also as a tool for engaging with the international community about their role withing the global context (Goritz et al., 2024, 1962). These documents outline specific actions nations commit to, such as mitigation objectives like emissions reductions and enhancing natural carbon sinks. They also detail measures to strengthen implementation and include transparency actions like measurement, reporting, and verification of climate initiatives.

However, a critical evaluation of NDCs reveals significant gaps in addressing the needs of children and youth in climate policy. The lack of child-sensitive commitments in many NDCs undermines the potential for comprehensive, inclusive climate action that addresses the needs of the most vulnerable populations. According to the UNICEF Are climate change policies child-sensitive guide, despite the societal benefits of incorporating children and young people into climate policies, the data on NDCs presents a largely negative picture regarding the inclusion of children's rights and needs in national climate policies: only 42% of NDCs mention children or youth, and just 20% explicitly reference children under 18. This means that more than half of all NDCs fail to acknowledge children at all. Even in cases where children are mentioned, the references are often passive or superficial, with no clear commitments to integrating child-sensitive measures. This omission reflects a broader failure to integrate children's rights as a core element of climate policy. Only three countries (<2%) specifically refer to children's rights, and just five countries reference intergenerational equity. Additionally, 23% of NDCs make no mention of children, youth, or related

[27] The Lima Call for Climate Action was adopted at the COP20 held in Lima, Peru, in December 2014. This document marked an important step in international climate negotiations, laying the groundwork for the Paris Agreement in 2015.

terms like education, further highlighting the widespread neglect of children's issues in climate mitigation policies (UNICEF Are climate change policies child-sensitive, 2020, 12).

These findings indicate that NDCs are not sufficiently child-sensitive. They fail to recognize children as rights-holders and active participants in climate action. Therefore, integrating children and young people throughout national and subnational policies – starting with NDCs as a foundational strategic document – is imperative.

A child- and youth-sensitive policy acknowledges the unique strengths, vulnerabilities, and roles of children and young people in addressing the climate crisis by prioritizing their rights. This includes safeguarding essential services such as health, education, nutrition, water and sanitation, social protection, and child protection. It also involves recognizing children and youth as key stakeholders and establishing platforms for their meaningful participation. Failure to do so perpetuates the marginalization of children in climate policy, thus depriving them of opportunities to be heard and empowered in shaping the future of the planet. By crafting child- and youth-sensitive climate policies, governments can enhance the overall quality of life for everyone, both now and in the future.

According to the previously cited UNICEF guide, the child- and youth-sensitivity of NDCs is evaluated based on four key principles, comprising 22 child-specific indicators. A NDC must meet at least three of these criteria to be classified as child- and youth-sensitive:

1. Principle 1- ambitious and urgent: a child-sensitive climate policy must set ambitious mitigation and adaptation measures to protect children's rights and best interests from foreseeable climate harm. Current NDC commitments, even if fully implemented, would lead to a catastrophic 3°C global warming by 2100, violating the Paris Agreement's goal of staying well below 2°C. At just 1°C of warming, millions of children already suffer from climate impacts. The Intergovernmental Panel on Climate Change (IPCC)[28] warns that even the 1.5°C target poses significant risks, but the consequences at 1.5°C would be far less severe than at 2°C. To limit warming to 1.5°C, global greenhouse gas emissions must be reduced by 45% by 2030 and reach net zero by 2050, requiring rapid and unprecedented

[28] The Intergovernmental Panel on Climate Change (IPCC) is a scientific body established by the United Nations (UN) and the World Meteorological Organization (WMO) in 1988. Its main role is to assess the scientific knowledge on climate change, its impacts, and potential future risks, as well as to provide policymakers with clear, evidence-based information to guide climate action.

societal transformations. Despite the Paris Agreement's goal of balanced climate finance between mitigation and adaptation, funding remains heavily skewed toward mitigation. Adaptation finance has historically accounted for only about a quarter of total climate finance, far below what is needed to protect children from climate-related risks.

2. Principle 2 – rights-based: a child-sensitive climate policy must explicitly reference children and youth as rights-holders and key stakeholders. The failure to prioritize children's rights across the NDCs highlights a fundamental gap in recognizing the disproportionate impacts of climate change on children. Climate change affects children differently than adults, and policies that incorporate children's perspectives tend to be more effective and prevent unintended harm. Child-sensitive policies must prioritize children across all sectors and recognize their differences based on age, gender, and socioeconomic factors throughout development, implementation, monitoring, and evaluation.
3. Principle 3 – holistic and multi-sectoral: a child-sensitive climate policy must address children's specific risks and vulnerabilities through integrated, cross-sectoral interventions. Simply referencing children in policies is insufficient; targeted actions must address their needs and rights in the national context. Given that children face unique and heightened risks from climate change, policies must include measures to mitigate these risks through a comprehensive approach to low-carbon climate resilience that encompasses education, health, food security, water and sanitation, housing, and social protection. Policies that fail to address the intersectionality of children's vulnerabilities are unlikely to effectively reduce the harm climate change causes to children.
4. Principle 4 – inclusive: a child-sensitive policy must ensure systematic consultation and meaningful participation of all children, including those of different ages, genders, and social backgrounds, at every stage of the policymaking process. While climate policies must acknowledge children's vulnerability and implement protective measures, they must also recognize children's agency and the right to be heard. The lack of meaningful youth participation in decision-making processes means that climate policies often fail to harness the full potential of children and young people as active participants in climate action. Inclusive policies must be shaped by and involve children in meaningful ways. Equipping children with the tools to address climate change is a vital investment in national resilience,

wellbeing, and prosperity. It is also one of the most effective strategies for strengthening mitigation and adaptation efforts and advancing sustainable development.

NDCs are central to national climate action, but their current lack of child- and youth-sensitivity undermines their effectiveness. By integrating children's rights, perspectives and needs into NDCs, governments can build a more just, resilient, and sustainable future. Nevertheless, the failure to do so exposes children, particularly in marginalized communities, to disproportionate risks and perpetuates cycles of inequality. Ensuring child-sensitive climate policies requires ambitious commitments, a rights-based approach, multi-sectoral interventions, and inclusive decision-making processes.

2.3.2 National Adaptation Plans

The National Adaptation Plan (NAP) process is a strategic process that enables countries to identify and address their medium- and long-term priorities for adapting to climate change. Led by national governments, the NAP process involves analyzing current and future climate change scenarios and assessing vulnerabilities to its impacts.

The ultimate goal is to enhance the resilience of people, places, ecosystems, and economies while integrating adaptation into standard development practices. This ensures that adaptation needs are embedded in national planning, resource allocation, and progress tracking.

Formally established in 2010 under the Cancun Adaptation Framework[29] as an outcome of the 16th COP, the NAP process was designed to integrate adaptation into core development decision-making. It moves beyond short-term, project-based interventions to more strategic and programmatic approaches that address adaptation in the medium and long term.

While the NAP process is primarily national, it also includes crucial sub-national actors. Successful NAP processes establish strong and intentional linkages between national and subnational efforts (vertical integration) (Dazé et al., 2016, 4), ensuring the local realities inform national planning and that national frameworks support adaptation at regional, municipal, and community levels.

[29] The Cancun Adaptation Framework, established at COP16 in 2010, focuses on supporting vulnerable countries in adapting to the impacts of climate change. It encourages the development of national adaptation plans (NAPs) and highlights the need for climate finance, capacity building, and technology transfer to enhance adaptive capacity. The framework also emphasizes the importance of monitoring and evaluating adaptation progress and promotes international cooperation to ensure a coordinated global response to climate challenges.

Sub-national actors, including local authorities and civil society organizations, are essential for implementing adaptation measures and achieving broader climate resilience.

NAPs should not be confused with NDCs. NDCs are country commitments under the Paris Agreement, detailing targets, policies, and actions to limit global temperature rise and, optionally, to adapt to climate change. While information on mitigation is mandatory in NDCs, adaptation components are voluntary. The NAP process predates the Paris Agreement and serves a different purpose: to systematically identify, address, and review adaptation priorities while embedding adaptation in national decision-making. However, NAPs and NDCs can complement each other, with the NAP process providing a means to operationalize adaptation commitments included in NDCs (Terton et al., 2024, 2).

The NAP process is indeed part of the Paris Agreement. Article 7 is dedicated to adaptation, and paragraph 9 explicitly mandates that each party "shall, as appropriate, engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies, and/or contributions" (Paris Agreement, 2015, Article 7.9). This makes the NAP process central to achieving the adaptation goals outlined in the Paris Agreement, reinforcing its significance in global climate action.

According to the UNICEF Are climate change policies child-sensitive guide, in relation to children and young people, the data on NAPs provides a slightly more positive overlook compared to NDCs, but gaps still exist. Out of the 13 NAPs, analyzed, 11 explicitly reference children or youth. The two NAPs that do not mention children still include related terms such as "school" or "education" policies (UNICEF Are climate change policies child-sensitive, 2020, 14).

Most NAPs recognize children as a vulnerable group, particularly in relation to health risks such as air pollution, water quality, and respiratory diseases. However, despite this recognition, only two NAPs explicitly acknowledge children as rights-holders, and only one refers to intergenerational equity.

Education is a key theme in NAPs, appearing in 12 out of 13 plans. It is often linked to climate resilience, either through strengthening school infrastructure or incorporating climate education into curricula. However, the majority of references frame children as passive beneficiaries rather than active stakeholders.

In conclusion, while NAPs show some progress, the limited scope of child-sensitive policies remains a concern. Further improvements are necessary to ensure that adaptation planning considers children's rights, agency, and long-term well-being in a meaningful way.

2.3.2.1 Bangladesh: National Adaptation Plan and the Inclusion of Children and Young People

Bangladesh, recognized as one of the most climate-vulnerable nations globally, faces severe risks from climate change, including rising sea levels, extreme weather events, and increased salinity in coastal areas. These challenges not only jeopardize the country's economic and environmental stability but also threaten the wellbeing of its most vulnerable populations, particularly children and youth. In response, Bangladesh has developed its National Adaptation Plan (NAP) for 2023-2050, which aims to bolster climate resilience by aligning national policies with international frameworks such as the Paris Agreement and the SDGs, and ensuring the inclusion of disadvantaged groups, including children, throughout the NAP process (National Adaptation Plan of Bangladesh 2023-2050, III).

Children and youth are particularly vulnerable to the adverse effects of climate change. Their extended exposure to climate-related stressors affects their nutrition, increases the prevalence of waterborne diseases, and disrupts access to education. For instance, children may experience significant disruptions due to rising temperatures and natural disasters, exacerbating intergenerational cycles of poverty and reducing future opportunities for sustainable livelihoods. These vulnerabilities call for targeted adaptation measures that prioritize children's rights and their active participation in climate resilience strategies.

The NAP acknowledges both the vulnerability and the potential of children and youth as active agents of change. By embedding child-sensitive adaptation measures, the NAP ensures that climate policies contribute to a future where children's rights are protected from climate-related risks. Bangladesh's NAP incorporates a range of child- and youth-focused strategies:

1. Education and awareness: the NAP integrates climate change education into school curricula to raise awareness and promote proactive adaptation skills among children. By incorporating climate science, disaster risk reduction, and sustainability practices, young learners are equipped with the knowledge and skills needed to navigate and mitigate

climate-related challenges, fostering a generation capable of leading future resilience efforts.

2. Health and nutrition: the NAP acknowledges the heightened risk of malnutrition and disease among children due to climate change. It proposes initiatives to strengthen healthcare infrastructure, improve surveillance of climate-induced diseases, and ensure access to clean water and sanitation facilities, particularly in disaster-prone regions. Climate-resilient healthcare facilities are being established to protect child health during extreme weather events, aligning with SDG 3 - Good Health and Wellbeing.
3. Social protection and safety nets: to address economic vulnerabilities, the NAP supports expanding social safety net programs targeting children and their families. This includes ensuring that disaster preparedness measures consider children's specific needs, such as safe shelters with child-friendly spaces, access to food, and psychosocial support during and after disasters, in line with SDG 10 - Reduced Inequalities.
4. Participation and leadership: youth engagement in adaptation planning is a key focus of the NAP. The Youth-Led Adaptation Plan (YLAP) empowers young people to take leadership roles in climate resilience initiatives. Youth networks are actively involved in climate risk assessment, local adaptation planning, and monitoring and evaluation processes. Through initiatives like the Local-Level Youth Leadership Programme and the Accelerated Youth Innovation Programme, young people are encouraged to develop and implement climate solutions.
5. Infrastructure and Urban Resilience: urban areas, where a significant proportion of Bangladesh's youth population resides, are increasingly vulnerable to extreme heat, flooding, and air pollution. The NAP calls for child-friendly urban planning, including the expansion of green spaces, climate-resilient school infrastructure, and early warning systems to safeguard children from extreme weather events, aligning with SDG 11 - Sustainable Cities and Communities.

Bangladesh's NAP takes a participatory, multi-sectoral, and rights-based approach, ensuring that children and youth are not only protected but also actively contribute to climate adaptation efforts. Its formulation involved extensive consultations with youth, civil society, and vulnerable communities, ensuring that their perspectives are integrated into national adaptation strategies. Furthermore, the NAP aligns with the broader National Development Framework and the SDGs,

particularly Goal 13 (Climate Action), Goal 3 (Health and Wellbeing), Goal 4 (Quality Education), and Goal 10 (Reduced Inequalities), reinforcing the government's commitment to intergenerational equity.

Despite these progressive measures, challenges remain. The integration of children's rights in climate adaptation is still evolving, and gaps persist in financial resources, expertise, and implementation capacity. Limited international pressure on the explicit incorporation of children's rights in climate adaptation frameworks has resulted in slower progress in this area. Additionally, funding constraints have hindered the ability to conduct widespread consultations with younger children, a critical gap in ensuring their voices are represented. Moreover, while significant strides have been made in adopting locally led adaptation strategies, their implementation at the grassroots level remains inconsistent. One of the major obstacles to scaling up these interventions nationally and subnationally is the lack of coordination between ministries and relevant adaptation bodies. The overarching challenge, however, in achieving the adaptation goals set forth in the NAP remains financial constraints (Huq et al., 2024, 13).

Nevertheless, Bangladesh's NAP sets a strong precedent for child-inclusive climate adaptation planning. Through continued investment in education, health, and participatory governance, the country can further strengthen its resilience while upholding the rights of children and young people. The ongoing development of Bangladesh's NAP communication strategy, which prioritizes youth engagement, is expected to enhance the involvement of future generations in climate action, fostering a more sustainable and inclusive future.

2.3.3 Voluntary National Reviews

The adoption of the 2030 Agenda for Sustainable Development marked a global commitment to achieving a more inclusive, equitable, and sustainable future. In this context, world leaders pledged to establish robust mechanisms for tracking progress on the SDGs. These mechanisms are vital in enabling civil society, including children, to hold governments accountable for their commitments. At the heart of SDG accountability lies the Voluntary National Reviews (VNRs), which are government-led assessments of a country's progress in implementing the SDGs. Ideally, these reviews should involve collaboration with diverse stakeholders, including civil society, children and youth, national human rights institutions, and the private sector. This participatory approach

strengthens the alignment of SDG commitments with other international frameworks, such as the UNCRC, reinforcing a rights-based approach to development.

VNRs are an essential part of the Follow-up and Review Process of the 2030 Agenda, tracking annual progress, assessing challenges, sharing knowledge, strengthening policies and institutions, and mobilizing partnerships. The VNRs are voluntary, multi-stakeholder, and State-led processes that include national consultations and State reports, culminating in presentations at the High-Level Political Forum on Sustainable Development (HLPF). The HLPF serves as a platform where governments share their experiences and lessons learned, with SDG reviews occurring on a four-year cycle, with five to six SDGs – along with SDG 17 on Global Partnership – being examined each year.

While VNRs have evolved since their inception in 2016, with an increased focus on implementation, some concerns remain regarding their effectiveness in demonstrating a comprehensive approach to the SDGs. According to the 2020 OHCHR Child Rights and the 2030 Agenda for Sustainable Development report, the Committee for Development Policy (CDP) has found that many VNRs focus too narrowly on specific goals, neglecting the indivisible and integrated nature of the 2030 Agenda. Furthermore, while the Leave No One Behind (LNOB) principle is frequently mentioned, there is often a lack of concrete implementation strategies. The report highlights that in 2017, for example, only 19 of 43 VNRs included explicit strategies for implementing LNOB, and in 2018, only 20 of 46 reviews reference concrete implementation plans (Child Rights and the 2030 Agenda for Sustainable Development, 2020, 5). This discrepancy between rhetoric and reality raises concerns about the genuine commitment to achieving the LNOB principle, especially in countries with limited resources or political will to implement comprehensive strategies. This lack of detailed reporting indicates a potential gap in transformative and structural implementation at the national level, especially in lower-middle-income countries where disaggregated child-related data can be difficult to collect.

The report also emphasizes that children and youth are frequently identifying in VNRs as being at risk of being left behind. In 2018, 43 of 46 VNRs mentioned children, an increase from 31 of 43 in 2017 (*ibidem*). Several 2019 VNRs focused specifically on children, including orphans, child soldiers, and trafficked children, addressing actions to prevent them from being left behind due to violence, poverty, malnutrition, and lack of access to education. OHCHR's analysis of the key messages in the VNR reports from 2016-2019 highlighted the need for a more systematic,

integrated child rights approach within the SDG framework. This would ensure that children's rights are recognized as universal and indivisible, in line with the principles of the 2030 Agenda.

2.3.3.1 Voluntary National Reviews and Child Poverty

With the adoption of the SDGs, children have been explicitly included in global targets and indicators, solidifying a mandate for reporting on child poverty. SDG Target 1.2 commits countries to "reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions" (Agenda 2030, 2015, Target 1.2). Addressing child poverty is imperative, as children are disproportionately affected. Beyond income-based assessments, multidimensional poverty data reveal high deprivation rates among children, highlighting the necessity of comprehensive strategies.

Poverty in childhood has long-term consequences, both for individuals and societies. Unlike adult poverty, child poverty entails severe developmental consequences that can lead to irreversible deficits. As outlined in the UNCRC, every child has the right to an adequate standard of living and freedom from deprivations that hinder development. Failing to address child poverty represents not only a violation of rights, but also a significant economic and social cost. Societies that neglect child poverty jeopardize future economic productivity and social stability, making its elimination a critical investment.

Climate change exacerbates child poverty by intensifying food insecurity, displacing communities, and increasing exposure to disease. Children in poverty are disproportionately affected by climate-related disasters, as they often live in vulnerable areas with inadequate infrastructure. The intersection of climate change and child poverty underscores the need for multilevel governance approaches that integrate environmental, social, and economic policies. The Decade of Action, launched in 2021, aims to accelerate solutions toward achieving the SDGs, but the COVID-19 pandemic has hindered progress, emphasizing the need for resilient and adaptive governance strategies. As Hörisch notes, "The pandemic has been found to severely threaten the achievement of the SDGs" (Hörisch, 2021, 1). Similarly, Martìn-Blanco observes that "The COVID-19 pandemic has had a significant impact on almost all the Sustainable Development Goals (SDGs), leaving no country unaffected" (Martín-Blanco et al., 2022, 1).

The Global Coalition to End Child Poverty[30] has been instrumental in supporting national efforts to address child poverty within the SDG framework. Its guide, A World Free from Child Poverty, provides a framework for measuring and addressing both monetary and multidimensional child poverty. VNRs presented annually at the HLPF serve as accountability tools, assessing progress, sharing challenges, and reinforcing commitment to the SDGs at national and global levels.

According to the Are countries committed to ending child poverty by 2030 report, which reviewed VNRs from 2017 to 2021, at the 2021 HLPF, 42 countries submitted VNRs on their SDG implementation, with 40 reports publicly available for analysis[31]. The theme focused on "Sustainable and resilient recovery from the COVID-19 pandemic that promotes the economic, social and environmental dimensions of sustainable development: building an inclusive and effective path for the achievement of the 2030 Agenda in the context of the decade of action and delivery for sustainable development", emphasizing the need for transformative action across economic, social, and environmental dimensions. SDG 1 was a key focus, yet child poverty reporting remained inconsistent. Of the 40 available VNRs:

- 14 countries reported on monetary child poverty,
- 5 reported on multidimensional child poverty, and
- 31 outlined policy efforts to combat child poverty.

VNRs varied in their approach, from recognizing children as a vulnerable group to outlining national strategies. However, despite progress, significant gaps remain, particularly in the reporting monetary and multidimensional child poverty, both essential indicators for SDG Target 1.2.

[30] The Global Coalition to End Child Poverty is a worldwide initiative dedicated to raising awareness about the millions of children living in poverty and driving action to eradicate it. The coalition works to influence policies, strengthen social protection systems, and promote evidence-based solutions that address both the income-based and multidimensional aspects of child poverty. Aligned with the SDGs – particularly SDG 1.2 – the Coalition collaborates with national, regional and global decision-makers, international organizations, civil society, and other institutions to end child poverty as part of the SDGs.

[31] The 40 countries included are: Afghanistan, Angola, Antigua and Barbuda, Azerbaijan, Bhutan, Bolivia, Cabo Verde, Chad, China, Colombia, Cuba, Cyprus, Czech Republic, Democratic People's Republic of Korea, Denmark, Dominican Republic, Egypt, Germany, Indonesia, Iraq, Japan, Lao People's Democratic Republic, Madagascar, Malaysia, Marshall Islands, Mexico, Namibia, Nicaragua, Niger, Norway, Paraguay, Qatar, San Marino, Sierra Leone, Spain, Sweden, Thailand, Tunisia, Uruguay and Zimbabwe. The 2 countries not included are Bahamas and Guatemala.

Countries reporting on monetary child poverty

Monetary child poverty refers to children living in households below a set poverty line, either determined nationally or through international standards. A poverty line is the line below which it is difficult, if not impossible, to afford basic needs. SDG indicator 1.2.1 tracks this proportion, disaggregated by age and sex, and referring to national poverty line, defined as the income threshold set by a country's government to determine the minimum amount of income needed for an individual or household to meet basic needs. It varies by country in reference to factors such as cost of living, economic conditions, and policy priorities.

Among the 40 VNRs analyzed in 2021, 14 explicitly referenced child poverty rates, compared to 11 out of 45 reports in 2020 (Are countries committed to end child poverty by 2030?, 2021, 8).

Despite improvements, the overall number of countries reporting on monetary child poverty remains low. As the Decade of Action progresses, only about one-third countries are tracking and reporting baseline data and progress on this issue.

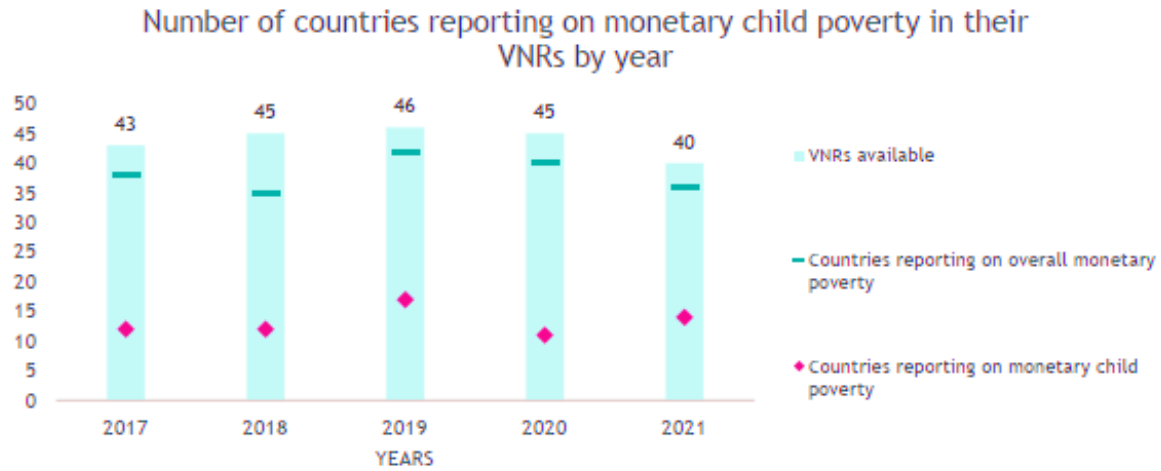

Figure 7. Number of countries reporting on monetary child poverty in their VNRs by year.
The figure is extracted from the Global Coalition to End Child Poverty's report Are countries committed to ending child poverty by 2030?

Countries reporting on multidimensional child poverty

Multidimensional child poverty refers to children deprived across multiple domains, including health, education, nutrition, water, sanitation, living conditions, and protection. This approach acknowledges that poverty extends beyond income, incorporating broader socio-economic

deprivations. However, in 2021, only 5 out of 40 VNRs reported on multidimensional child poverty (*ibidem*, 10). While some countries continue to monitor national multidimensional poverty, the lack of child-specific data remains concerning. Given that measuring and monitoring multidimensional child poverty is an SDG requirement, the limited reporting reflects a gap in policy prioritization.

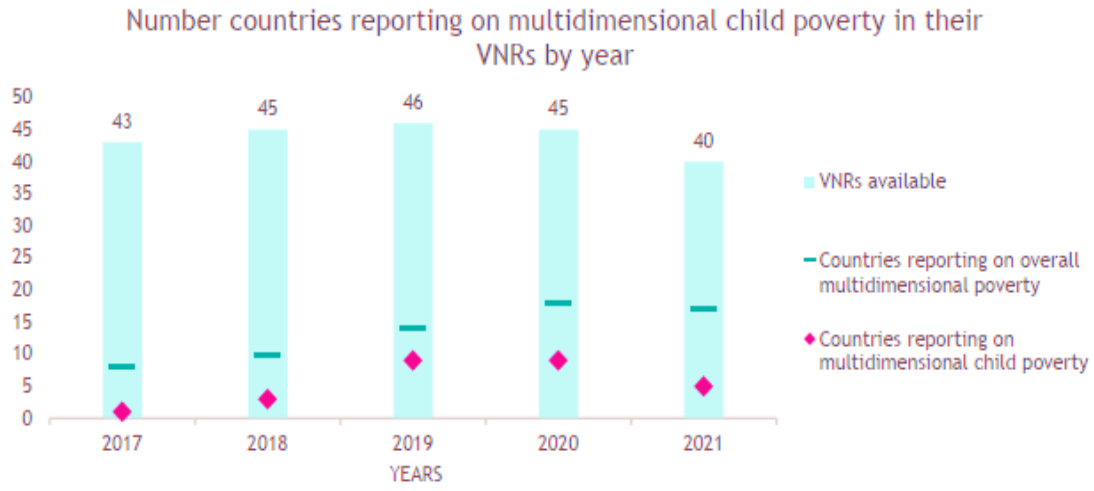

Figure 8. Number countries reporting on multidimensional child poverty in their VNRs by year.
The figure is extracted from the Global Coalition to End Child Poverty's report Are countries committed to ending child poverty by 2030?

Countries reporting on policies and programmes addressing child poverty

Achieving SDG 1 requires significant national action, encompassing policies, programs, and budgets. SDG Target 1.3[32] emphasizes the role of social protection in reducing poverty, while SDG Target 1.4[33] highlights access to essential services for poor families. Additionally, SDG indicator 1.b.1[34] focuses on government spending for vulnerable groups. The Are countries committed to ending child poverty by 2030 report (p. 11) shows that among the 40 VNRs analyzed, 31 reported efforts to tackle child poverty through policy initiatives, which can be categorized as follows:

1. Building and expanding child-sensitive social protection systems: many governments emphasized cash transfer programs targeting poor and vulnerable families with children.

[32] Target 1.3: "implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable".
[33] Target 1.4: "By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance".
[34] Indicator 1.b.1: "Pro-poor public social spending"

Some countries also mentioned labor market policies aimed at reducing child poverty by supporting working families. While social protection is one of the most effective tools against child poverty, many VNRs failed to recognize it as a key strategy, revealing a critical gap in national responses.

2. Improving access, quality, and utilization of public services by people and families who are poor: child poverty is multidimensional, requiring strong education, healthcare, and social service systems. Several countries reported implementing policies to improve access to essential services, helping ensure children's survival, development, and long-term wellbeing.
3. Prioritizing child poverty in national development plans and strategies: high-level political commitment to ending child poverty is reflected in national development plans and poverty reduction strategies. However, despite an increase in policy mentions, only 4 countries included coordinated and comprehensive national plans to address child poverty.

In conclusion, significant gaps remain in measuring, reporting, and addressing child poverty within the SDG framework. Climate change further complicated these efforts, as environmental instability exacerbates poverty-related vulnerabilities. Governments must adopt integrated strategies that can link climate resilience with child poverty reduction, ensuring that policies are both sustainable and effective.

To meet this goal, governments should:

- Improve child poverty data collection, ensuring both monetary and multidimensional indicators are tracked.
- Expand social protection programs to protect children from economic and environmental shocks.
- Integrate child poverty reduction into broader development and climate adaptation strategies.

2.4 Local Governance Frameworks: Addressing Climate Change and Protecting Children's Rights

While national policies set the foundation for climate governance, local governance frameworks are essential for translating these policies into tangible actions. Local governments play a crucial

role in ensuring that climate initiatives are effectively implemented at the community level. These frameworks provide opportunities for inclusive participation, where young people can engage in decision-making processes that directly affect their environments and livelihoods. As the closest level of public administration to citizens, they have the authority to adapt national and international climate commitments to local contexts.

Climate protection is fundamentally an urban issue, both in terms of the vulnerability of cities to climate change and their role in greenhouse gas emissions (Sippel et al., 2009, 3). Urban areas, especially in developing countries, are particularly susceptible to climate change impacts, including rising sea levels, melting glaciers, and extreme weather events. Simultaneously, cities contribute significantly to greenhouse gas emissions through energy use, transportation, industrial processes, and waste management.

Despite the urban dimension of climate change, policy debates have largely focused on the international level. Strengthening climate governance at the city level is critical because local governments manage land use planning and public transportation, directly impacting mitigation strategies. However, fragmented and uncoordinated responses in urban planning often exacerbate climate risks, particularly for vulnerable populations like children. Cities, being the closest level of government to the people, can mobilize societal support for economic and social transformations that reduce emissions and promote inclusive adaptation. Localized mitigation and adaptation strategies allow for tailored and context-specific actions. As hubs of population and business activity, cities can drive technological and policy innovations.

A diverse range of stakeholders contributes to local climate governance, including citizens, civil society organizations, businesses and scientists. Cities are increasingly recognized as key actors in climate governance, especially in light of geopolitical instability that threatens global climate action. However, cities do not operate in isolation, but they are embedded within multilevel governance structures, influenced by national and international policies. This is particularly true when it comes to urban climate governance, which can be defined as “the ways in which public, private, and civil society actors and institutions articulate climate goals, exercise influence and authority, and manage urban climate planning and implementation processes” (Van der Heijden et al., 2019, 367).

In climate governance, cities are typically assumed to empower citizens and marginalized groups, balancing social, environmental, and economic goals. This is particularly relevant for children who,

despite often having better access to healthcare and education in urban areas remain highly vulnerable – especially those living in overcrowded slums and informal settlements. Poor urban planning and governance can exacerbate health risks, threaten survival, and hinder long-term prospects for children. In low- and middle-income countries, weak infrastructure and low adaptive capacity heighten these risks, making it essential to integrate child-focused considerations into urban adaptation strategies.

A child-centric adaptation approach ensures climate policies address social and human concerns alongside environmental and economic priorities. By prioritizing children's rights, climate adaptation strategies can enhance social resilience and strengthen community support systems. Various actors, including local governments, NGOs, and international agencies, must consider key principles when addressing children's needs in climate governance (Bartlett, 2008, 47-48):

1. Children's lived experiences must inform decision-making, rather than assumptions made by adults.
2. Broadening the definition of disasters can help develop more effective adaptation strategies.
3. Children's needs should be integrated into policies from the outset, not treated as an afterthought.

Adaptation strategies that incorporate children's rights should focus on four key areas (*ibidem*, 51-58):

1. Protection: climate-related disasters often result from developmental failures that could have been anticipated and mitigated. Children, particularly in low-income urban areas, face severe risks such as health threats and displacement. Strengthening healthcare services, infrastructure (e.g. sanitation and water supply), and preventive programs can reduce these risks. However, international responses often prioritize short-term relief over long-term resilience, and the failure to address long-term needs undermines the ability of children to thrive in the aftermath of disasters. A child-focused approach ensures both immediate protection and lasting empowerment.
2. Disaster preparation: effective governance enhances disaster preparedness through early warning systems, resilient infrastructure, and community involvement. However, fragmented and uncoordinated responses may exacerbate risks. Preparedness strategies must safeguard children's routines, particularly schooling, and prevent the use of schools

as emergency shelters. Children should actively participate in risk reduction planning to strengthen resilience and adaptation efforts, but their participation is often insufficient in practice.

3. Post-disaster response: following climate-related disasters, children require immediate access to healthcare, nutrition, and secure environments. While maternal and child health services are prioritized in major disasters, they should also be extended to smaller-scale emergencies. Response efforts must be culturally sensitive, community-driven, and address both physical safety and mental health. Psychological support should reduce stigma and maintain stable routines to support children's recovery, but this often lacks comprehensive implementation.
4. Long-term rebuilding and risk reduction: reconstruction efforts should not only address short-term recovery but also prioritize long-term child welfare. Including children's perspectives in planning processes ensures that rebuilding efforts create safer, more inclusive, and resilient urban environments. Sustainable development strategies must integrate children's rights to foster equitable and effective climate adaptation solutions, but this integration remains inconsistent across different urban contexts.

Despite increasing community-driven climate responses, children's participation in adaptation planning remains limited. Given rapid urbanization, engaging urban children in climate governance is more important than ever.

As urbanization accelerates, the concept of "child-friendly cities" has emerged to challenge traditional urban development from an environmental and human-rights perspective. Rooted in the UNCRC, this concept emphasizes the importance of providing children with opportunities to have their voices heard. Horelli defines child-friendliness as "a complex multi-dimensional and multi-level concept. It refers to settings and environmental structures that provide support to individual children and groups who take an interest in children's issues so that children can construct and implement their goals or projects" (Horelli, 2007, 283).

The UNICEF-led Child Friendly Cities Initiative (CFCI) was launched in 1996 as a voluntary engagement strategy supporting local governments and stakeholders in realizing children's rights at the local level, using the UNCRC as its foundation. According to UNICEF, a child-friendly city is a system of local governance committed to fulfilling children's rights, ensuring that their voices, needs, priorities, and rights are central to public policies, programs and decisions. As such, a child-

friendly city is one that is fit for all. However, it is important to recognize that the concept of a child-friendly city can be interpreted and implemented differently across various contexts, and there is no singular, universally accepted definition. This variation in interpretation may undermine the consistency and impact of child-focused urban planning.

The CFCI is built upon the four principles of the UNCRC:

- Non-discrimination (Article 2)
- Best interests of the child (Article 3)
- Right to life, survival, and development (Article 6)
- Right to be heard (Article 12)

Key objectives of the CFCI include ensuring child participation in local planning and budgeting through mechanisms such as child and youth councils, institutionalizing child-friendly policies that address the needs of marginalized groups, including children with disabilities and migrants, and strengthening multi-sectoral and integrated local governance to ensure children's rights remain central in urban development. The CFCI also contributes to UNCRC reporting, helping local governments document their progress in implementing children's rights. By embedding children's rights into local governance, cities create environments that support child development while addressing broader social and environmental challenges.

The UNCRC identifies a child's wellbeing as an indicator of a healthy environment and good governance, and a goal of sustainable development. The global CFCI plays a significant role in four key areas of the post-2015 sustainable development agenda (Malone, 2015, 417-421).

1. Equitable child-friendly cities: addressing issues of equity and representation is recognized as a crucial component of the modern sustainability agenda. This focus has long been central to the work of the CFCI globally. The 2012 UNICEF's State of the World's Children (SOWC) report highlighted that "underpinning child-friendly urban planning and programming is a human-rights based governance model that embodies the principles of non-discrimination, survival and development, and participation" (UNICEF SOWC Report, 2012, 56).

   While equity challenges are not new for many countries, what is needed now are innovative participatory design methods that can be implemented on a large scale. With approximately 600 million rural residents migrating to cities each year in developing countries, it is

essential to develop equitable approaches that foster collaboration between communities, children, and city authorities. By incorporating child participation into urban planning and governance, cities can be designed to ensure all children have access to services, protection, and opportunities for development.

2. Child-friendly cities monitoring: the 2030 Agenda emphasizes the importance of rigorous data collection, reporting, and monitoring. A key challenge for the United Nations, and UNICEF in particular, is determining how to effectively monitor and address sustainability issues at national, city, and neighborhood levels. Reliable data and analysis capturing the complexities of urban life have always been essential to the CFCI, particularly in ensuring that children with the greatest needs are reached.

   The Child Friendly Cities and Communities Handbook issued by UNICEF provides an overview on the monitoring and evaluation framework. The effectiveness of the CFCI depends on strong monitoring and evaluation systems that measure its impact on children at local, national, and individual levels. This process helps track progress, identify challenges, and refine strategies to ensure meaningful improvements in child rights. Effective monitoring enables stakeholders to measure both positive and negative outcomes, ensuring accountability and evidence-based decision-making. CFCI monitoring consists of process tracking (ensuring the timely and coordinated implementation of the Action Plan) and impact evaluation (measuring concrete results based on predefined indicators). To ensure legitimacy, UNICEF or independent experts conduct evaluations, supported by diverse review committees that may include civil society, academia, and children themselves (UNICEF, Child Friendly Cities and Communities Handbook, 2018, 33-36).

3. Child-friendly local governance: supporting transparent, multi-sectoral, and integrated local governance systems has always been a fundamental principle of the CFCI. Cities striving for child-friendly status are typically assessed through country-level accreditation or recognition programs, which evaluate the core principles guiding local authorities' operations. A key feature of CFCI is its emphasis on integrated, multi-level approaches to local governance, ensuring collaboration across different levels of government and stakeholders.

The model of child-friendly local governance focuses on ensuring the availability and quality of essential services for children by promoting inclusive governance structures. To be recognized as a child-friendly local government, authorities must:

- Develop a local development and investment plan for children.
- Formulate and, where necessary, amend strategies and policies for child development.
- Prepare and publish a status report on children's wellbeing.
- Collect and provide data on key service indicators, demonstrating that at least 80% of the required standards have been met.

By integrating governance at multiple levels and engaging communities in decision-making, this approach ensures that children's rights remain a central focus in urban development and policy implementation.

4. Child-friendly child and youth participation: a key contribution of the CFCI to the post-2015 sustainability agenda is its emphasis on authentic and meaningful participation of children and young people in decision-making. Recognizing children and youth as critical and active partners is essential for driving sustainable change. CFCI has played a pivotal role in shaping theoretical and practical discussions on child and youth participation in sustainable urban development. Through structured engagement, young people are not only consulted but also empowered as agents of change in their communities. This approach highlights the importance of equity, rigorous social impact monitoring, transparent governance, and active participation in urban planning.

By integrating child and youth voices into policymaking and urban development, the CFCI contributes to achieving the goals of sustainable development and ensuring cities are designed to meet the needs of all children. Through equitable governance, rigorous monitoring, and inclusive participation, child-friendly cities set the foundation for a sustainable, resilient, and just urban future.

2.5 From Global Frameworks to Local Realities: the Strength of MLG in Climate Governance

A key strength of MLG is its ability to foster dynamic interactions between different levels of governance, ensuring more coherent, inclusive, and responsive climate policies that address the

specific needs of children and youth. As noted by Hooghe, MLG is characterized by "dispersion of authority away from central government—upwards to the supranational level, downwards to subnational jurisdictions, and sideways to public/private networks" (Hooghe et al, 2007, 3). MLG emphasizes the interconnectedness of these levels and how they can work together to reinforce policies, facilitate coordination, and enable cross-sectoral cooperation. In the context of climate governance, international institutions, such as the UNFCCC and the Paris Agreement, provide overarching frameworks that promote guidance for climate actions, guiding national and local policies towards sustainable and rights-based climate responses. These principles are then operationalized through national mechanisms, including NDCs and NAPs, which translate global climate commitments into state-specific policy measures. However, these commitments only achieve tangible results when they are effectively adapted and implemented at the local level, where policies intersect with the lived realities of children. Local governance structures play a critical role in bridging this gap by ensuring that climate policies are aligned with national and international frameworks but are also adapted to the specific needs of communities. Initiatives such as UNICEF's Child-Friendly Cities provide concrete examples of how city-level governance can integrate children's rights into climate adaptation and mitigation strategies. By institutionalizing mechanisms for youth participation, local governments serve as essential intermediaries, transforming top-down climate policies into actionable strategies that empower young people as stakeholders in decision-making. Moreover, the ability of local actors to innovate and tailor climate responses to regional realities highlights the bottom-up strengths of MLG. This means that instead of governance being exclusively state-driven, climate actions benefit from the active engagement of non-state actors, including NGOs, private sector organizations, and grassroots movements. As noted, "the participation of NGOs and private sectors increased substantially, particularly in the local-level adaptation" (Ishtiaque, 2021, 176).

The strength of MLG also lies in its ability to create a governance ecosystem where different actors contribute according to their capacities. In climate governance, national governments have traditionally played a role in shaping country-specific adaptation and mitigation strategies. However, "supranational bodies act as platforms to accelerate, coordination, and support adaptation efforts" (*ibidem*), ensuring that national policies align with global goals while enabling broader cooperation between governance levels.

Furthermore, by facilitating these interactions, MLG ensures that climate governance is not only more effective but also more democratic. The involvement of youth organizations and civil society in climate governance exemplifies how MLG fosters participatory policymaking, addressing the frequent exclusion of children and young people from formal decision-making spaces. While young activists have increasingly played a visible role in climate movements, their participation in formal governance structures remains limited. MLG frameworks help institutionalize youth engagement, ensuring that their perspectives are integrated into both policy design and implementation. This is particularly relevant given the long-term nature of climate challenges, where intergenerational justice and sustainability must be at the core of decision-making.

Therefore, MLG helps creating a system where decision-making is shared across multiple levels, mitigating the risk of fragmented climate policies and strengthening the capacity of local actors to implement effective, child-sensitive responses to climate change. This dynamic and interconnected approach is essential to bridging the persistent gap between policy formulation and implementation. As climate challenges continue to escalate, strengthening MLG frameworks will be crucial in ensuring that governance structures remain flexible, responsive, and capable of securing a sustainable future for present and future generations.

2.6 Conclusion

This chapter has underscored the critical role of multilevel governance in addressing climate change while ensuring the protection of children's and youth rights. It has emphasized the need for a well-integrated approach that connects international, national, and local governance structures to create policies that are both effective and inclusive of the needs of vulnerable populations, particularly children and young people. However, the integration of children's rights into climate policies is a work in progress. To make real progress, it should be necessary having stronger international agreements, a better implementation at the national and local level, and to truly empower young people's voices.

On the global stage, frameworks such as the UNFCCC, the Paris Agreement, the Common But Differentiated Responsibilities and intergenerational equity principles play a key role in shaping climate governance. These frameworks set the foundation for international cooperation and policy development while recognizing the importance of youth engagement in climate negotiations.

Organizations like YOUNGO exemplify the growing demand for meaningful youth participation in decision-making processes. Yet, these agreements reveal limitations in their capacity to ensure that children's rights are not just acknowledged but actively safeguarded.

At the national level, climate governance relies heavily on implementing policies such as Nationally Determined Contributions, National Adaptation Plans and Voluntary National Reviews. However, despite their significance, these frameworks often fail to adequately include children and youth. The analysis of NDCs and NAPs across various states has highlighted disparities and inconsistencies in how different nations address children's rights, reflecting varying levels of commitment and capacity.

Locally, governance structures are instrumental in transforming climate policies into concrete actions that directly impact communities. Initiatives such as UNICEF'S Child-Friendly Cities highlight the ability of local governments to create child-centered environments that align with sustainable urban development. Increasing youth participation at municipal and community levels ensures that climate policies reflect their lived experiences and concerns. Despite the efforts of NGOs and youth movements to advocate for children, they struggle to influence important policies. This shows the system needs to change to let them have a real impact.

Therefore, the complexity of climate governance can hinder the influence of young people, and issues such as gaps in funding, institutional support and accessibility limit the full integration of child-sensitive climate policies. While the journey to embed children's rights into the core of climate policies has started, the path ahead is still full of obstacles.

CHAPTER 3 – BUILDING SUSTAINABLE FUTURE FOR CHILDREN AND YOUTH: SDG 4 AND EDUCATION FOR SUSTAINABLE DEVELOPMENT IN GERMANY AND UGANDA

3.1 Introduction

Education stands as a fundamental human right and a cornerstone for building peaceful, inclusive, and sustainable societies. In an era defined by interrelated global challenges - most notably climate change, with its complex environmental, social, and economic implications – there is an increasing need for holistic, interdisciplinary approaches to education. Within this context, Education for Sustainable Development (ESD) emerges as a critical tool, empowering individuals with the knowledge, skills, values, and attitudes necessary to make informed decisions, adopt sustainable lifestyles, and engage meaningfully in collective climate action (Aada, 2024, 9).

Originating from earlier movements in Environmental Education (EE), ESD has developed into a comprehensive framework that promotes critical thinking, civic participation, and a sense of global responsibility.

The 2030 Agenda for Sustainable Development underscores the transformative potential of education, particularly through SDG 4, which seeks to ensure inclusive, equitable, and quality education and promote lifelong learning opportunities for all (UN 2030 Agenda, 2015, SDG 4). In particular, Target 4.7 calls for the integration of themes such as sustainable development, human rights, gender equality, and global citizenship into education systems (UN 2030 Agenda, 2015, Target 4.7) - an essential step toward fostering intergenerational equity, resilience, and long-term sustainability, with a strong emphasis on empowering children and young people.

Crucially, the rights-based foundation of education is reinforced by the UNCRC. Article 28 affirms the right of every child to education, while Article 29 specifies that education should be directed to the respect for the environment (UNCRC, 1989, Articles 28-29). This obligation is further reinforced in General Comment No. 26, which underscores the role of education in equipping children with environmental values and skills necessary for sustainability (General Comment No. 26, 2023, para. 52).

Beyond its direct aims, education serves as a catalyst across all SDGs. It may contribute to breaking the cycle of poverty, improving health and nutrition, and encouraging sustainable practices. However, the successful implementation of ESD could depend on effective multilevel governance, involving coordinated actions at the local, national, and international levels (Fien, 2012, 5).

This chapter offers a comprehensive overview of ESD and its indispensable role in advancing global sustainability goals. It begins with a historical overview, tracing the evolution of ESD from its roots in Environmental Education to its current centrality within the 2030 Agenda. The discussion then shifts to the broader impact of education in achieving the SDGs, focusing on its role in empowering children and linking across goal areas. Next, the chapter delves into the specifics of ESD, Target 4.7, and climate change, exploring how education can address interconnected sustainability challenges and support urgent climate action. Finally, to ground the analysis in practice, the chapter presents case studies from Germany and Uganda, comparing their policy approaches and governance strategies for integrating ESD into their national education systems.

3.2 SDG 4 and Target 4.7: Integrating Sustainability into Education for Global Transformation

Education has long been recognized as a cornerstone of sustainable development, providing individuals and societies with the attitudes, skills, and values necessary to address complex environmental, social, and economic challenges (Rieckmann, 2017, 7). Over time, the concept of Education for Sustainable Development (ESD) had evolved, building upon earlier efforts in Environmental Education (EE) and expanding to encompass a more holistic approach to sustainability.

The adoption of the 2030 Agenda for Sustainable Development has further reinforced the transformative power of education, particularly through SDG 4 on Quality Education, which aims to ensure inclusive and equitable education for all while promoting lifelong learning opportunities (UN 2030 Agenda, 2015, SDG 4). Within this framework, Target 4.7 emphasizes the need to integrate sustainable development, human rights, gender equality, and global citizenship into education systems (UN 2030 Agenda, 2015, Target 4.7). By integrating these principles, it

underscores education's fundamental role in fostering resilience, intergenerational equity and a just and sustainable future for all.

At the international level, several policy frameworks have shaped the integration of education into sustainability efforts. The Incheon Declaration for Education 2030 serves as a guiding framework for the implementation of SDG 4, outlining commitments to free, quality primary and secondary education, inclusive learning environments, and lifelong learning pathways (Incheon Declaration, 2015, 7-8). Furthermore, UNESCO has played a central role in advancing ESD, notably through its 2021 initiative "Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030)". This initiative emphasizes the need for education systems to be adaptive and responsive to global challenges, ensuring that learners acquire the competencies necessary for meaningful participation in sustainable development.

Importantly, the rights-based foundation of education is also reflected in the UNCRC, which affirms education as a fundamental right in Article 28, but also outlines in Article 29 that education should be directed to "the development of respect for the natural environment" (UNCRC, 1989, Article 29). The UNCRC stands out among human rights instruments for explicitly acknowledging the responsibility to preserve nature for future generations, thereby reinforcing the environment dimensions of children's rights and linking them directly to education (Dost, 2021, 5).

Beyond SDG 4, education is a key enabler for multiple SDGs: this interconnected nature underscores the necessity of integrating education into broader sustainability strategies, ensuring that learning institutions cultivate informed, engaged, and responsible global citizens (UNESCO, ESD: a Roadmap, 2020, 8).

A particularly urgent dimension of ESD is climate change education, which equips individuals with scientific knowledge, ethical awareness, and practical skills needed to understand, mitigate, and adapt to climate-related challenges (UNESCO, GEM Report 2024, 2024, 1). Although climate education is not explicitly mentioned in Target 4.7, its integration within sustainability curricula is increasingly seen as essential, particularly given that Target 4.7 is recognized as one of the most aspirational and ambitious of the education-related targets, focusing on the transformative purpose of education to create a more just and sustainable world (McKenzie et al., 2024, 2). The 2021 Berlin Declaration on ESD reaffirmed these commitments, advocating for climate action as a core component of education systems and emphasizing youth empowerment as central to societal transformation (UNESCO, Berlin Declaration on ESD, 2022, 3).

The following sections will explore the historical evolution of ESD, the role of SDG 4 -and Target 4.7 - in achieving other SDGs, and the growing significance of climate change education. They will examine international policy frameworks, challenges in implementation, and the need for a forward-looking, action-oriented approach that empowers individuals to contribute meaningfully to sustainable development.

3.2.1 History: from Environmental Education to Education for Sustainable Development

The adoption of the UN 2030 Agenda has revitalized global efforts toward Education for Sustainable Development (ESD), creating a supportive environment for its growth. Agenda 2030 includes an ambitious global education initiative, encapsulated in SDG 4. Within this Goal, Target 4.7 is recognized as "one of the most ambitious, interesting and challenging targets" (Leicht et al., 2018, 25). While the SDGs reaffirm the essential role of education in achieving sustainability, this recognition is not new. UNESCO has long been a leading advocate for Environmental Education (EE) since its inception.

The historical development of EE and ESD can be traced back to the mid-to-late 1960s, when environmental problems caused by industrialization, consumerism, and urbanization became more apparent (Hume et al., 2015, 733). One of the major international acknowledgments of human-environmental problems came during the 1972 UN Conference on the Human Environment in Stockholm[35], which led to the creation of the United Nations Environment Programme (UNEP)[36]. UNESCO and the newly created UNEP co-led the International Environmental Education Programme (IEEP) 1975-1995[37], which was instrumental in fostering environmental awareness (Blackburn, 1983, 2).

[35] The 1972 UN Conference on the Human Environment in Stockholm was the first global summit to prioritize environmental issues. It resulted in the Stockholm Declaration, which brought environmental concerns to the forefront of international discussions and initiated a dialogue between industrialized and developing nations on the connection between economic growth, pollution of the air, water, and oceans and the human well-being.

[36] UNEP is the leading global authority on environmental issues, uniting 193 Member States to address climate change, biodiversity loss, and pollution. It supports scientific research, policy development, and global coordination to promote climate stability, protect nature, and reduce pollution, in line with the 2030 Agenda.

[37] The aim was to promote awareness of economic, social, political, and ecological interdependence in urban and rural areas. It helped individuals gained the knowledge, values, and skills to protect the environment, encouraged new behaviors, and supported sustainable development through networking and information sharing.

A major milestone in EE was the 1975 Belgrade Charter, developed during the International Workshop on Environmental Education held in Belgrade. This Charter built upon the principles established in the 1972 Stockholm Declaration, further advancing the global agenda for environmental awareness and action. The Belgrade Charter clearly situated EE within a framework acknowledging global inequality and the need for a holistic approach to addressing environmental problems (Hume et al., 2015, 734). The Charter defined the goal of EE as "to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitude, motivations and commitment to work individually and collectively toward solutions to current problems, and the prevention of new one" (Belgrade Charter, 1975, Article IIb). This foundation was further reinforced at the 1977 First Intergovernmental Conference on Environmental Education in Tbilisi, Georgia, which produced the Tbilisi Declaration. The Declaration defined the aim of environmental education as "to enable people to understand the complexities of the environment and the need for nations to adapt their activities and pursue their development in ways which are harmonious with the environment" (Tbilisi Declaration, 1977, para 9). It also highlighted the responsibility of the present generation to safeguard the environment for future generations (Tbilisi Declaration, 1977, para 2).

By the mid-1990s, the emphasis on EE began shifting toward the broader concept of Education for Sustainable Development, with the aim to incorporate values that reflect social and economic aspects of sustainable development in addition to the more traditional environmental focus of environmental education (Vladimirova et al., 2016, 255). This transition was further strengthened at the UN Conference on Environment and Development held in Rio de Janeiro in 1992, also known as the Earth Summit. Here, the outcome document, Agenda 21, assigned UNESCO responsibility for Chapter 36 on education. This chapter explicitly called for "reorienting education towards sustainable development, increasing public awareness, and promoting training" (Agenda 21, 1992, Chapter 36, para 2). Education was recognized as critical for "promoting sustainable development and improving the capacity of people to address environmental and development issues" (*ibidem*, para 3).

The UN Decade of Education for Sustainable Development (UNDESD) 2005-2014 marked another significant milestone, reinforcing the role of education in sustainability efforts. The UNDESD aimed to integrate sustainable development principles into all aspects of education, promoting

changes in knowledge, values, and attitudes to create a more sustainable and just society for present and future generations (Brunold, 2006, 227).

The UNDESD mobilized a wide range of stakeholders, including Member States, UN agencies, the education sector, the private sector, and civil society, to collaborate in reorienting education systems towards sustainable development (Buckler et al, 2014, 9). By the end of the decade, the concept of education supporting all three sustainability pillars – environmental, social, and economic – was widely accepted. The Fourth International Conference on Environmental Education held in Ahmedabad, India, in 2007, reviewed EE's role in addressing sustainability challenges and advancing the UNDESD, and created opportunities to establish sustainability partnerships across all sectors (Sarabhai, 2007, 112).

The Rio+20 Earth Summit held in Rio de Janeiro in 2012 reaffirmed education's role in sustainability. The summit's outcome document, The Future We Want, reinforced education's role in promoting a green economy, employment, social protection, and sustainability (United Nations, The Future We Want, 2012, 2).

At the end of the UNDESD, UNESCO launched the Global Action Programme (GAP) 2015-2019, with the aim of "generating and scaling up ESD action at all levels and in all areas of education, and in all sustainable development sectors" (UNESCO GAP on ESD, 2018, 3). The GAP identifies five Priority Action Areas: Advancing Policy; Transforming Learning and Training Environments; Building Capacities of Educators and Trainers; Empowering and Mobilizing Youth; Accelerating Sustainable Solutions at Local Level. The GAP also made a substantial contribution to the UN Agenda 2030 process (UNESCO Roadmap for Implementing the GAP on ESD, 2014, 32).

In the lead-up to the SDGs in 2015, extensive discussions took place on education's role. The Open Working Group on SDGs ranked education among the top four priorities - alongside food, water, and energy (UNGA Initial input of the Secretary-General to the Open Working Group on Sustainable Development Goals, 2012, para. 14). Discussions ultimately led to the establishment of SDG 4, a dedicated goal for education, and its integration into other SDGs. The aim was to focus on: "a) Equitable and inclusive access to quality education for all (children, youth and adults) at all levels of education […]; b) Quality of education […] c) Equity in particular for disadvantaged groups and continued attention to gender equality; d) Skills for life and work in particular for young people and adults (UNESCO Concept Note on the Post-2015 Education Agenda, 2013, 2).

In 2020, UNESCO Member States adopted a new ESD for 2030 Roadmap 2020-2030, which was followed by the Berlin Declaration on ESD in 2021. This reaffirmed the five GAP priority areas, while placing greater emphasis on the active involvement of member states.

The transition from EE to ESD marks a significant shift in the conceptualization and objectives of education in the context of sustainability. While EE initially emerged with the aim of raising awareness and fostering concern for environmental issues, ESD broadened this scope to incorporate economic and social dimensions, reflecting a more holistic understanding of sustainable development (Hofman, 2015, 215; UNESCO, International Implementation Scheme, 2005, 8).

This transition reoriented educational goals to include themes such as poverty reduction, social justice, and human rights alongside environmental concerns (UNESCO, International Implementation Scheme, 2005, 8). However, this broadening has not been without criticism. Scholars argue that the environmental focus of EE has been marginalized in ESD discourse, resulting in conceptual tensions and ambiguities within educational policy and practice. For instance, while curriculum documents often adopt the language of ESD, the content still frequently reflects the environmental concerns characteristic of EE, creating confusion in implementation (Gough, 2025, 643-645).

Kopnina argues that ESD, with its strong emphasis on human welfare, rights, and equitable resource distribution, represents a marked departure from the original intentions of EE as outlined in the 1975 Belgrade Charter. The Charter promotes an ecocentric approach, urging individuals to actively engage in solving environmental issues and preventing further degradation (Kopnina, 2011, 4). In contrast, ESD often frames the environment as a resource for economic development or as a shared asset for sustainable living, reinforcing anthropogenic perspectives (Sauvè, 2005, 34; Kopnina, 2014, 73).

From a conceptual standpoint, the shift from EE to ESD reflects a movement from problem-oriented, environment-first education toward a more integrated, triple-bottom-line approach – People, Planet, and Profit (Kopnina, 2020, 281). Yet, this triad has been critiqued for implicitly subordinating ecological integrity to economic and social priorities (*ibidem*, 282-284). EE, as rooted in the Belgrade Charter, acknowledged both the intrinsic value of nature and the need for environmental protection as a foundation for sustainable living. In contrast, mainstream ESD tends

to adopt a more anthropocentric stance, focusing on the environment insofar as it supports human wellbeing (*ibidem*, 283).

Hofman highlights that this broader framing of sustainability under ESD entails a transformation in educational methods as well. ESD is no longer seen as simply delivering environmental facts but as a means to cultivate critical thinking, systems thinking, and action competence. It emphasizes participatory, learner-centered pedagogies that enable students to envision and co-create sustainable futures (Hofman, 2015, 218-226). The goal is to develop learners' capacity to reflect ethically, question societal norms, and engage in transformative action.

However, Hofman also warns that the transformative promise of ESD is often undermined by gaps in implementation. In practice, policy rhetoric frequently outpaces actual integration into teacher education and classroom practice, casting doubt on the practical realization of ESD's goals (Hofman, 2015, 214).

Overall, while the evolution from EE to ESD has expanded the educational mandate to embrace a more comprehensive view of sustainability, it has also generated conceptual dilution and practical tensions. The challenge ahead lies in balancing ESD's social and economic aims with a strong commitment to ecological sustainability, ensuring that the environmental origins of this educational movement are not eclipsed in the pursuit of broader development goals.

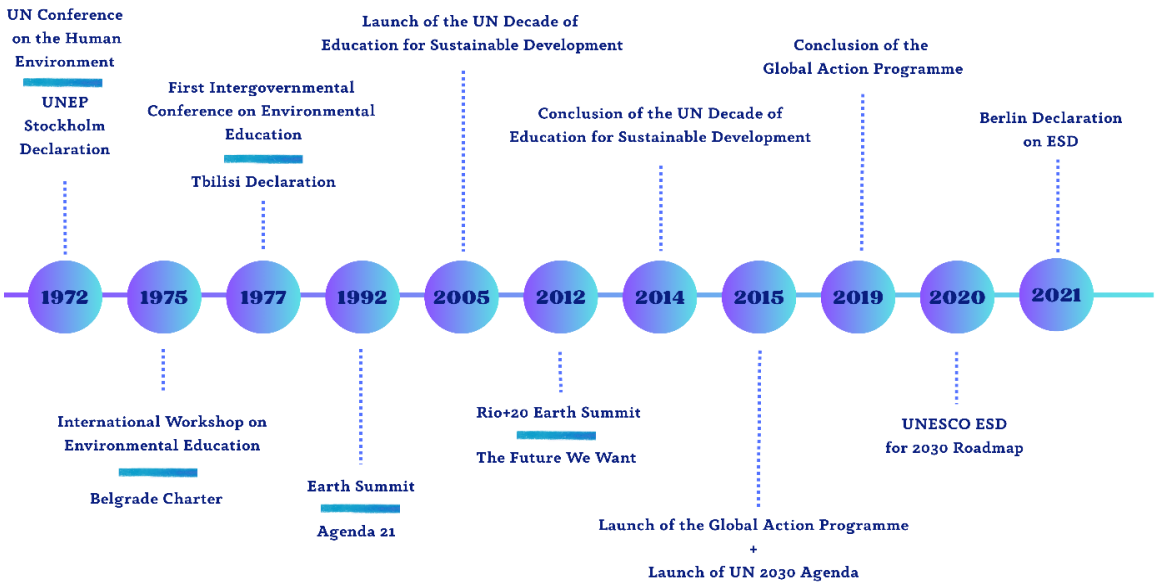

Figure 9. From Environmental Education to Education for Sustainable Development.
Self-produced image.

3.2.2 The Role of Education in Achieving Sustainable Development Goals

SDG 4 seeks to provide inclusive, equitable, and quality education for all children and to ensure lifelong learning opportunities (UN 2030 Agenda, 2015, SDG 4).

The Incheon Declaration for Education 2030[38] outlines a comprehensive vision for achieving SDG 4 by 2030. One of its core commitments is to ensure access to and completion of quality education for all children and youth. This includes providing at least 12 years of free, publicly funded, inclusive and equitable quality primary and secondary education. Additionally, learning opportunities must be made available for all youth and adults to acquire functional literacy and numeracy, thereby fostering their full participation as active citizens (Incheon Declaration, 2015, para 12).

To achieve equitable education, the Incheon Declaration calls for policies that ensure equity and inclusion. This means tackling disparities in access, participation, retention, and learning outcomes. Ensuring inclusive education requires transformative public policies that respond to diverse learning needs while combating discrimination and emergencies that hinder educational rights (*ibidem*, para. 13).

An integral aspect of the right to education is quality. Education must be of sufficient quality to ensure relevant, equitable, and effective learning outcomes at all levels and in all settings. Foundational literacy and numeracy skills serve as building blocks for further learning, complemented by the development of higher-order skills (*ibidem*, para. 14). SDG 4 recognizes that the right to education begins at birth and continues throughout life. Lifelong learning is central to the SDG 4-Education 2030 Agenda, requiring flexible and accessible learning opportunities beyond formal schooling. This includes non-formal pathways supported by adequate resources and mechanisms, as well as informal learning environments that encourage continuous personal and professional development (*ibidem*, para 15).

SDG 4 consists of seven core Targets aimed at promoting quality and equality in education across all levels. The first three Targets[39] focus on ensuring that all children and adults have access to

[38] The Incheon Declaration was adopted in 2015 at the World Education Forum in Incheon, South Korea. Its main goal is to ensure inclusive, equitable, and quality education for all by 2030, aligning with SDG 4.

[39] Target 4.1: "By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes".

quality education, from early childhood through primary, secondary, technical, and university levels. Target 4.4 [40] seeks to enhance skills for youth and adults to improve employment opportunities. Target 4.5[41] addresses disparities in education access, emphasizing the needs of people with disabilities, indigenous peoples, and vulnerable groups. Target 4.6[42] aims to achieve universal literacy and numeracy for youth while significantly reducing adult illiteracy. Target 4.7 uniquely focuses on educational content, aiming to develop knowledge and skills related to sustainable development, human rights, gender equality, and cultures of peace and non-violence (UN 2030 Agenda, 2015, Targets 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7).

Additionally, three supporting Targets - 4A, 4B, 4C - focus on implementation. Target 4A calls for the development of safe, inclusive, and effective learning environments that are child-, disability-, and gender-sensitive. Target 4B aims to expand access to higher education by increasing scholarships for developing states and African countries. Finally, Target 4C seeks to increase the supply of qualified teachers, ensuring a well-trained education workforce (UN 2030 Agenda, 2015, Targets 4A, 4B, 4C).

In this context, the UNCRC offers a critical rights-based perspective that complements the development-focused framework of SDG 4. With regard to children's rights to both education and a healthy environment, the UNCRC acknowledges a fundamental paradox: while the right to education is increasingly threatened by environmental degradation, education itself is a vital instrument for safeguarding children's rights in relation to the natural world (Right to Education, New UN CRC General Comment on Children's Rights and the Environment, 2023). The Convention emphasizes that education is a powerful tool not only for protecting the environment but also for upholding children's rights amid growing ecological threats. It is central to raising awareness and preparing children for the impacts of environmental harm (*ibidem*). General

Target 4.2: "By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education".

Target 4.3: "By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university".

[40] Target 4.4: "By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship".

[41] Target 4.5: "By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations".

[42] Target 4.6: "By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy".

Comment No. 26, adopted in 2023, reinforces this perspective by elaborating on the aims of education as defined in Article 29(1) of the UNCRC. It calls on States to ensure that education fosters respect for the natural environment, while underlining that Article 29(1) must be read in conjunction with Article 28. Together, these provisions require that "every child has the right to receive an education that reflects environmental values" (General Comment No. 26, 2023, para. 52). The Committee on the Rights of the Child further outlines the essential characteristics of a rights-based environmental education, stating that it "should be transformative, inclusive, child-centered, child-friendly and empowering" (*ibidem*, para. 53). Moreover, it advises that environmental values should be reflected in the training and education of all educational professionals (*ibidem*, para. 54). These recommendations highlight the vital link between SDG 4 and the broader children's rights framework, advocating for an education that equips children with the competencies and ethical foundation necessary to live sustainably and protect their future.

SDG 4 is not only about individual achievement but also about fostering broader social and economic progress. Education is a catalyst for sustainable development, equipping children and youth with the knowledge and skills to shape their futures and contribute to a more just and equitable world. "The lack of chances for learning (also education) stymies social, economic and sustainable development and longterm stability and peace" (Küfeoğlu, 2022, 255).

However, it is important to recognize that this perspective exists within a complex policy landscape where contemporary educational policy reflects a tension between two dominant approaches: the utilitarian approach, which views education primarily as a tool to equip individuals for participation in the established socioeconomic order and to drive economic growth, and the transformative approach, which conceives education as a means to challenge and rectify societal inequalities and injustices. The latter echoes the ideals behind education for sustainability and envisions education as a catalyst for broader social and ecological transformation (Brissett et al., 2017, 195). While frameworks such as the Incheon Declaration stress a holistic, inclusive and humanistic vision for education, promising a shift beyond traditional economic-centric paradigms, the actual implementation under SDG 4 reveals a more complex and contradictory reality (*ibidem*, 196). Although the Incheon Declaration articulates education's cross-cutting role in fostering sustainable development, peace, and social justice, in practice SDG 4 remains largely rooted in a utilitarian, pro-growth agenda. While Target 4.7 uniquely incorporates transformative objectives – such as human rights, gender equality, global citizenship, and sustainable lifestyles – it does so in a vague

and fragmented manner. By clustering a wide range of ambitious goals into a single, poorly defined target place toward the end of the education goal list, Target 4.7 reduces transformative education to a peripheral concern (*ibidem*, 198-199). Thus, despite rhetorical commitments to transformation, SDG 4 largely subordinates transformative aims to utilitarian imperatives, reflecting broader contradictions within the 2030 Agenda (*ibidem*, 200).

Despite these contradictions, education can be seen as a driver for all the other SDGs. As Vladimirova affirms, "the recognition of interdependencies, trade-offs and synergies among the various goals, and their integration into policy design, is recognized as critical for going forward towards sustainable development", and "education has a well-recognized role of enabler for many areas under the SDGs" (Vladimirova et al., 2015, 1).

The 2016 UNESCO Global Education Monitoring Report affirmed education's role across all SDGs, stating that "each of the 17 goals has a set of targets. In each set, at least one target involves learning, training, educating or at the very least raising awareness of core sustainable development issues. Education has long been recognized as a critical factor in addressing environmental and sustainability issues and ensuring human well-being" (GEM Report, 2016, 9). This highlights the critical connection between education and sustainability, underscoring that education is not only integral to environmental and social progress but also central to achieving the broader SDG agenda.

ESD plays a crucial role in supporting all the other 16 SDGs. Its primary aim is to equip learners with cross-cutting sustainability competencies that enable them to address complex global challenges. ESD empowers individuals to drive societal, economic, and political change, fostering a generation that actively contributes to sustainable development. By transforming personal behaviors and decision-making processes, ESD helps create a more informed, engaged, and responsible global community, directly contributing to the realization of the SDGs (Rieckmann, 2017, 7).

For the purpose of this thesis, it is crucial to remember the linkages between education and other SDGs related to children and youth, as outlined in the table below.

SDG 1 – No Poverty	Education can break the cycle of poverty by increasing income opportunities, reducing vulnerability, and promoting entrepreneurship (UNESCO, Sustainable Development begins with Education, 2014, 1). It

	also prevents poverty from being passed to future generations, since it is "one of the strongest and most effective pro-poor and gender-sensitive development strategies" (Lawrence et al., 2020, 1187).
SDG 2 – Zero Hunger	Education enhances food security and nutrition by equipping individuals with knowledge for healthier diets and sustainable agriculture. It can reduce malnutrition, support sustainable lifestyles (Valin et al., 2021, 17), and empower parents to make better dietary choices (UNESCO, Sustainable Development begins with Education, 2014, 2). Schools contribute through nutrition education, hygiene awareness, and meal provision, fostering children's health and learning (US Aid, The Impact of Education Across Sectors: Food Security, 2011, 1).
SDG 3 – Good Health and Well-being	Education improves health outcomes by promoting disease awareness, healthier behaviors, and access to healthcare. It reduces child and maternal mortality and increases vaccination rates (UNESCO, Sustainable Development begins with Education, 2014, 3). Educated individuals adopt safer practices and seek timely medical help. Access to education and information is essential for promoting health and wellbeing, with expanded health financing and workforce development reinforcing this connection (Kushnir et al, 2022, 14).
SDG 6 – Clean Water and Sanitation	Education supports the sustainable management of water and sanitation by raising awareness and encouraging efficient water use, especially in water-scarce regions (Michelsen, 2015, 109). Integrating water education into curricula fosters responsible habits from an early age, contributing to environmental sustainability and the achievement of SDG 6 (UNESCO, Sustainable Development begins with Education, 2014, 7).
SDG 8 – Decent Work and Economic Growth	Education enhances productivity and income generation, contributing to sustainable economic growth and poverty reduction (UNESCO, Sustainable Development begins with Education, 2014, 8). Education is a key factor in economic prosperity, employment opportunities, and income generation, sustainability and development. Ignoring its economic

	dimension could undermine the wellbeing of future generations (Grant, 2017, 2; Coetzer et al., 2023, 5).
SDG 10 – Reduced Inequalities	Education is a key tool for reducing inequality, since it can boost social mobility for children from both low-income and wealthier families (Haskins, n.d., 11). It also offers intergenerational benefits, as children of educated parents are more likely to achieve better life outcomes, promoting both upward and intergenerational mobility (Grawe, n.d., 1).
SDG 11 – Sustainable Cities and Communities	Education drives inclusive urban development by promoting environmental protection, social equity, and economic sustainability (Chitereka et al., 2023, 4). While urbanization can widen educational disparities, cities prioritizing lifelong learning improve public health, economic growth, and reduce crime (*ibidem*, 6). Education equips individuals with skills to address urban challenges like pollution and resource management, and equitable access reduces inequality and crime (UNESCO, Sustainable Development begins with Education, 2014, 10).
SDG 13 – Climate Action	Education empowers individuals to address climate change through knowledge, skills, and behavior change, supporting climate adaptation and mitigation (Anderson, 2010, 5; Ferguson, 2019, 2). ESD promotes resilience and sustainable practices, while fostering critical thinking and environmental stewardship (Anderson, 2010, 7). Climate education drives awareness, encourages youth involvement, and strengthens community resilience economies (World Bank, Education and Climate Change, 2022,1). As Kagawa notes, "formal, non-formal, and informal education have a potentially crucial role to play. In both school age and adult learning communities, learners of all ages can be invited to take up the challenge of understanding and rethinking the world" (Kagawa et al., 2010, 5).
SDG 16 – Peace, Justice and Strong Institutions	Education is crucial for promoting democracy, reducing discrimination, and strengthening institutions. It empowers individuals to understand their rights, engage in governance, and hold leaders accountable, leading to stronger democratic systems (UNESCO, Sustainable Development begins

	with Education, 2014, 12). Education fosters tolerance, social cohesion, and reduces violence in conflict-prone areas. It also promotes justice by enhancing literacy and legal awareness, enabling individuals to claim their rights (Kowkas et al., 2024, 8).

Table 1. Link between education and SDGs related to children.

Education is a powerful driver of sustainable development, essential for achieving global goals beyond 2015. As a fundamental human right, it empowers individuals—especially women—to lead healthier, more fulfilling, and resilient lives. It amplifies voices in local and global decision-making, expands job opportunities, and fosters social mobility. Its impact spans multiple development sectors, making it a cornerstone of progress. To maximize these benefits, strong political and financial commitments to education must be upheld and renewed. Greater cross-sector collaboration is crucial to harnessing education's full potential and creating lasting change (Bowser, 2024, 3).

3.2.3 Education for Sustainable Development, Target 4.7 and the Challenges of Implementation

Education for Sustainable Development is a fundamental component of the global education agenda, enshrined in SDG 4. Specifically, Target 4.7 states "By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development" (Agenda 2030, 2015, Target 4.7). While ESD contributes to all 17 SDGs, it holds a distinct place in SDG 4, highlighting its significance within the global education framework.

UNESCO, as the leading UN agency for ESD, has developed key initiatives to promote its implementation. In 2021, the UNESCO World Conference on Education for Sustainable Development launched a new global framework - Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030). The primary objective of ESD for 2030 is to "build a more just and sustainable world through strengthening ESD and contributing to the achievement

of the 17 SDGs" (UNESCO, Framework for the Implementation of Education for Sustainable Development -ESD- beyond 2019, 2019, annex II, 7). This framework reinforced the role of ESD in addressing pressing global challenges and fostering sustainable development worldwide.

UNESCO defined ESD as an approach that "empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability, and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning and is an integral part of quality education" (UNESCO Roadmap, 2020, 8). ESD positions education as a driver of progress across all global development objectives, enabling individuals to make well-informed choices and take action to transform society and protect the planet. It equips learners of all ages with the necessary knowledge, competencies, and values to address issues such as climate change, biodiversity loss, resource depletion, and environmental health. Given its multidimensional nature, ESD covers crucial aspects of sustainable development, including climate change, biodiversity, sustainable production and consumption, and poverty reduction, relying on education stakeholders to integrate sustainability principles into education systems (Leicht et al., 2018, 26).

A key focus of ESD is addressing climate change by fostering awareness, shifting attitudes and behaviors, and empowering individuals to take meaningful action. Climate change education, an essential component of ESD, ensures that climate-related issues are effectively integrated into diverse learning environments. Despite the importance of climate education, the relative absence of climate change in SDG 4 is striking. It is impossible to conceive of quality education that does not address the problem of climate change, yet Target 4.7 makes no explicit mention of it (Roemhild et al., 2021, 105). However, the goal does provide room for its inclusion, emphasizing the need to integrate climate change and its consequences into education for future generations.

As Brunold highlights, the future of education must move beyond a state-centric focus and recalibrate to incorporate a global perspective – one that acknowledges shared challenges, with climate change at the forefront. In this context, education systems must evolve to empower learners with the skills and knowledge necessary to engage meaningfully with these challenges (Brunold, 2006, 106).

Building on Target 4.7, it is essential to advance ESD to equip learners with the ability to take active, responsible, and effective roles in addressing climate issues at local, national, and global

levels. Leaners must become active global citizens – well-informed about global diversity and committed to driving change for the common good (Raveendran, 2019, 8).

The significance of ESD was further reinforced with adoption of the Berlin Declaration on Education for Sustainable Development in 2021. The Declaration emphasizes commitments such as ensuring that "ESD is a foundational element of our education systems at all levels, with environmental and climate action as a core curriculum component, while maintaining a holistic perspective on ESD that recognizes the interrelatedness of all dimensions of sustainable development" (Berlin Declaration on Education for Sustainable Development, 2021, para 6a). Additionally, it highlights the importance of "empowering young people as change agents for sustainable development, by creating opportunities for learning and civic engagement, and providing them with the competencies and tools to participate in ESD as co-creators of individual and societal transformation" (*ibidem*, para 6i). The Berlin Declaration also supports alignment at global, regional, and national levels to enhance the effectiveness of ESD initiatives (*ibidem*, para 6n).

Climate change education plays a significant role in fostering eco-social competences and inspiring both personal and collective action to combat climate change. The primary goals of climate education should be to promote a sustainable future, develop the capacity to influence attitudes and behaviors, and instill a deeper understanding of climate change that leads to concrete behavioral changes. Ultimately, effective climate change education must go beyond imparting knowledge, but should cultivate a transformative shift in mindset and action, ensuring that future generations are equipped to mitigate and adapt to the climate crisis (Baarova et al, 2022, 35).

In spite of its significance, ESD faces considerable criticism regarding its practical effectiveness, conceptual framing, and the challenges involved in its implementation. Despite global emphasis on ESD – especially following the UNDESD – there remains a significant gap between the intended contributions of ESD and its real-world outcomes, with the translation of educational policies into measurable sustainability progress being inconsistent and often insufficient (Abd Elkhalek, 2021, 181). The wide-ranging objectives of SDG 4, which include fundamental education, lifelong learning, vocational skills, global citizenship, and sustainable development, add another layer of complexity to its realization (Edwards Jr, et al., 2024, 2). While this comprehensive approach is deemed crucial for addressing urgent global issues, its breadth presents practical challenges, particularly in maintaining focus and measuring meaningful progress (*ibidem*, 3). The complexity

of ESD, combined with the lack of specificity in many targets, makes it difficult to gauge its success (*ibidem*, 2).

One critical concern is the tendency to frame ESD primarily through its economic benefits, such as poverty alleviation and increased productivity (Abd Elkhalek, 2021, 183). While these aspects are important, an overemphasis on them risks overshadowing the equally vital social and environmental dimensions of sustainability. ESD has often been criticized for failing to adequately address the complex interplay between social justice, cultural values, and environmental protection (*ibidem*, 184). While education can empower marginalized groups and promote gender equality, these outcomes are not guaranteed by educational access alone. Structural inequalities and cultural barriers can persist despite increased educational attainment, limiting the transformative potential of ESD. Furthermore, the focus on expanding access to education, particularly in terms of quantity, without equal attention to the quality and relevance of the education provided, poses another significant challenge (*ibidem*, 183). Merely increasing the number of years of schooling does not necessarily equate to the acquisition of sustainability-oriented knowledge, skills, or values. There is a risk that ESD could become a superficial exercise rather than a meaningful driver of social and environmental change. Additionally, the lack of coherent policy frameworks and challenges in integrating ESD into existing educational systems remain persistent issues (*ibidem*, 182). Many countries struggle to move beyond rhetorical commitments to sustainability and face practical obstacles in curriculum reform, teacher training, and resource allocation. Without systemic change, ESD risks remaining a peripheral concern rather than becoming a central pillar of education policy.

Despite some limited advancements in ESD-related targets within SDG 4, the literature highlights sluggish and inconsistent progress. Since 2015, an additional 110 million children, adolescents, and youth have enrolled in school, but reaching those who remain out of school proves increasingly difficult, resulting in stagnation and, in conflict zones, even a regression in educational development. Enrollment rates for five-year-olds have plateaued at approximately 75% over the last decade, yet globally, 251 million children and youth remain out of school, with a mere 1% decrease since 2015 (GEM Report, 2024, 140).

The expansive nature of ESD, coupled with the challenges in translating its objectives into specific, measurable actions, underscores the need for a shift toward more focused and effective implementation. Without a concerted effort to address these challenges, the potential of ESD to drive meaningful social and environmental change remains limited.

3.3 Analysis of ESD Implementation in Germany and Uganda: National Strategies and Regional Frameworks

This section presents an analysis of key elements of ESD implementation in Germany and Uganda, supporting a comparative inquiry into how different national contexts shape the role of ESD in advancing children's and youth rights amid environmental challenges. The comparison is situated within the broader regional policy frameworks developed by the European Union and the African Union, which have respectively provided strategic impetus for embedding sustainability in education systems.

In Germany, a highly industrialized country with robust institutions, a comprehensive education system, and a longstanding tradition of environmental education, ESD is implemented through a mature, well-resourced governance framework. The National Action Plan on ESD functions as the central policy instrument, guiding the integration of sustainability into formal education and fostering multi-stakeholder cooperation. This provides valuable insights into how structured governance systems can institutionalize ESD to promote the rights and participation of children and youth in climate-related initiatives. Uganda, by contrast operates within a context marked by significant environmental vulnerabilities, socio-economic constraints, and more limited institutional capacity. Its NESD for 2030 framework emphasizes community engagement, youth empowerment, and the alignment of education with national development priorities. Examining Uganda's approach allows for an understanding of how ESD can be adapted to resource-constrained environments through localized strategies, partnerships, and context-responsive solutions.

To better understand the broader developmental context in which these ESD frameworks operate, it is useful to consider international indicators such as the Human Development Index (HDI). The United Nations Development Programme (UNDP) regularly publishes the Human Development Index (HDI), a composite indicator designed to assess average achievements in three fundamental dimensions of human development: a long and healthy life, knowledge, and a decent standard of living. One key component of the HDI is the Education Index, which provides comparative insights into educational development across countries. The Education Index itself is composed of two indicators: expected years of schooling, which reflects the number of years a child entering the education system in anticipated to complete (aligned with SDG Target 4.3), and mean years of

schooling, which represents the average number of years of education received by adults aged 25 and older (linked to SDG Target 4.4). The other two components of the HDI are life expectancy at birth and gross national income (GNI) per capita (UNDP, 2024, Human Development Report 2023/2024, 278).

According to the most recent Human Development Report, Germany ranks 7th out of 193 countries, with a high HDI value of 0.95 (ibidem, 274), reflecting a high level of human development and strong educational performance. In contrast, Uganda is positioned at 159th, with a significantly lower score of 0.55 (ibidem, 276), pointing to persistent challenges in access to education, infrastructure, and socio-economic equity.

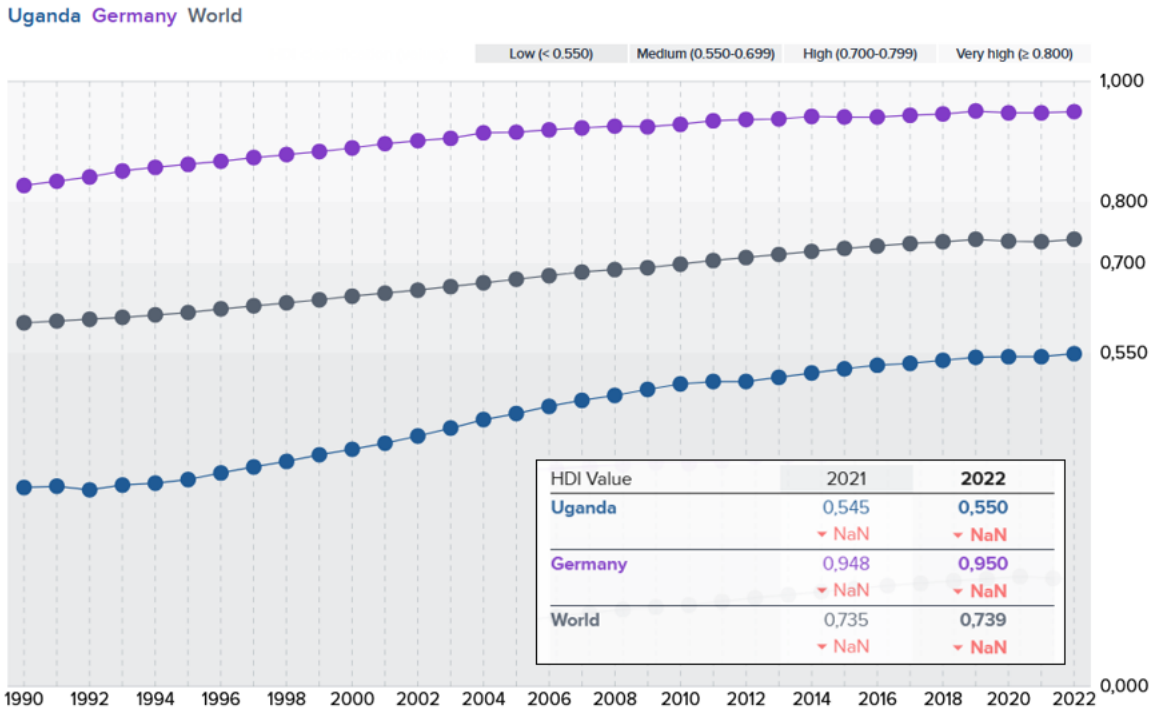

Figure 10. HDI in comparison: Germany and Uganda.
Source: UNDP

By highlighting both commonalities and contrasts in policy frameworks and educational strategies, this comparative analysis reveals the diverse pathways to integrating children's rights into environmental sustainability efforts. It underscored both the possibilities and limitation of ESD as a governance mechanism and offers a deeper understanding of how contextual factors influence its effectiveness in promoting equitable and inclusive climate action.

Both the priority areas of Germany's National Action Plan (NAP) – Early Childhood Care and Education, School Education, Technical and Vocational Education and Training, Higher Education, Non-formal and Informal Learning/Youth, Local Authorities - and those of Uganda's National Education for Sustainable Development 2030 Framework (NESD for 2030) - Advancing Policy, Whole Institution Approach, Building Capacities of Educators, Empowering and Engaging Youth, Accelerating Sustainable Solutions at Local Level – are grounded in the five key goals established in UNESCO's GAP – Advancing Policy, Transforming Learning and Training Environments, Building Capacities of Educators and Trainers, Empowering and Mobilizing Youth, Accelerating Sustainable Solutions at Local Level.

The first goal - Advancing Policy - focuses on integrating ESD into education and sustainability policies at all levels – international, regional, national, sub-national. Ministries of Education are key in embedding ESD into curricula, quality standards, and learning outcome frameworks, recognizing it as essential to educational quality. ESD should also support broader sustainability strategies, such as disaster risk reduction and low-carbon development, and be included in international cooperation efforts. Expected outcomes include ESD being systematically incorporated into policy frameworks, plans, and programmes across sectors and governance levels (UNESCO, 2014, Roadmap for Implementing the Global Action Programme on ESD, 16-17).

The second goal - Transforming Learning and Training Environments - emphasizes that ESD goes beyond teaching – it involves practicing sustainability through whole-institution approaches. Sustainable learning environments, like eco-schools and green campus, integrate sustainability into daily operations, governance, and community partnerships. The goal is to transform institutions holistically, encouraging both educators and learners to engage in sustainable practices and reduce ecological footprints. Expected outcomes include the implementation of sustainability plans in schools, training institutions, and other public and private sector organizations (*ibidem*, 18-19).

The third goal - Building Capacities of Educators and Trainers - focuses on building the capacity of educators and trainers as key drivers of sustainable development. To effectively promote ESD, they need the necessary knowledge, skills, values, and motivation. Actions include integrating ESD into pre-service and in-service teacher education, as well as training across all levels – from early childhood to TVET and higher education. Professional development in both public and private institutions should also adopt a sustainability lens. Expected outcomes include ESD embedded in

teacher training programmes and strengthened institutional capacity to support educators through targeted training and workshops (*ibidem*, 20).

The fourth goal - Empowering and Mobilizing Youth - highlights the crucial role of youth in shaping a sustainable future. As the generation most affected by unsustainable development, they are key to driving change. Youth in emerging countries are increasingly demanding a voice in shaping their societies, and their consumption habits will significantly influence future patterns. Actions include providing youth with access to information and communication technologies, such as e-learning on ESD and online platforms for sharing ideas on sustainable lifestyles. Empowering youth with information on the impacts of their choices and encouraging their creativity are essential for mobilizing them towards sustainable development. Expected outcomes include increased e-learning opportunities, active youth participation in ESD advocacy and policy development, and a rise in youth-led ESD initiatives (*ibidem*, 22-23).

The fifth goal - Accelerating Sustainable Solutions at Local Level - emphasizes the critical role of local communities, both urban and rural, in addressing sustainable development challenges. Cities, as home to half the world's population, and rural areas, with their own sustainability solutions, are key to driving change. Actions include strengthening multi-stakeholder networks, enhancing local platforms for learning and cooperation, and increasing the involvement of diverse stakeholders. Local authorities and leaders are encouraged to expand learning opportunities for communities through formal, non-formal, and informal channels, while empowering civil society as change agents. Expected outcomes include the integration of ESD into community planning and decision-making processes, an increase in multi-stakeholder networks at the local level, and the expansion of these networks to involve a broader range of stakeholders (*ibidem*, 24-25).

3.3.1 Embedding Sustainability in Education: Germany's National Action Plan for ESD (2017-2030) and European Frameworks

The following sections explore the evolution of Environmental Education and Education for Sustainable Development in Germany, tracing its development from early curricular initiatives in the 1970s to the adoption of the National Action Plan on ESD in 2017. It examines how Germany has progressively embedded sustainability across all educational sectors, influenced by global and European frameworks. The analysis will show that despite notable progress, challenges remain in

ensuring consistent implementation across the 16 federal states, particularly in curricula, teacher training, and educational policies. Germany's experience offers valuable insights into systemic ESD integration as a driver of sustainable development, highlighting both advancements and persistent obstacles in the ongoing process.

3.3.1.1 The Evolution of Environmental Education and ESD in Germany: from Early Initiatives to the NAP on ESD

Germany has a long-standing tradition of environmental education; its origins date back to the 1970s, with a primary focus on integrating environmental topics into subjects such as biology and geography (Müller et al., 2021, 2; Seybold et al., 2006, 49). At that time, the main focus was to examine the extent to which environmental topics were included in the curricula of various states within the Federal Republic and integrated into schools' textbooks. These efforts were driven by the belief that making environmental topics mandatory in curricula and embedding them in educational materials would significantly enhance the implementation of environmental education in schools (Seybold et al., 2006, 49). The need for environmental education has been seen as urgent by both government and schools, and it has been rated higher on the importance scale than many other interests proposed for inclusion in teaching programmes. Tangible evidence for this is provided by the inclusion of environmental topics and projects in many curricula, the presence of relevant materials in schools, and the number of initiatives launched by both public and private institutions (Bolscho et al., 2006, 12). For instance, the "Kultusministerknoferenz (KMK)" – a conference of the ministries of education of all German states – held in 1980 was instrumental in the introduction of environmental education in curricula and school books (Dempsey, 1998, 261).
Following the Rio Earth Summit, discussions emerged on transitioning from environmental education to ESD. However, significant momentum was only gained after the Johannesburg Summit in 2002 and throughout the UNDESD 2005-2014. To support this transition, the German Federal Ministry of Education established the ESD Committee for the UN Decade. This Committee, composed of experts from various fields, engaged stakeholders from the private sector, research institutions, and civil society through a round-table approach. As a result, the Committee played a key role in shaping Germany's National Action Plan on ESD. During the UNDESD, over 1900 projects received official recognition, further embedding ESD principles into educational

practices (German Commission for UNESCO, UN Decade with Impact. 10 Years of Education for Sustainable Development in Germany, 2014, 23).

Building on these efforts, the Global Action Programme (GAP) on ESD 2015-2019 initiated a multi-stakeholder process that led to the further development of the National Action Plan, which was officially adopted in 2017. The National Action Plan on ESD (NAP ESD) serves as the strategic framework for implementing ESD in Germany, aiming to integrate ESD structurally across the German education system for the long term (German National Action Plan on ESD, 2017, Preamble 8). The Plan outlines 130 objectives and 349 specific recommendations for action spanning six educational sectors.

The Plan builds upon the five priority areas established in UNESCO's Global Action Programme, adapting and distributing them across six specific educational areas - Early Childhood Care and Education (ECCE), School Education, Technical and Vocational Education and Training (TVET), Higher Education, Non-formal and Informal Learning, and Local Authorities.

Educational area of the German's NAP	GAP Priority Areas Addressed
ECCE School Education TVET Higher Education	Advancing Policy Transforming Learning Environments Building Educator Capacities
Non-formal and informal learning	Transformative learning environments Empowering and mobilizing youth Accelerating local solutions
Local authorities	Advancing policy Accelerating local solutions

Table 2. Alignment of German NAP ESD Educational Areas with GAP Priority Areas

3.3.1.2 European Strategies for ESD

The EU is encouraging and supporting the education and training sectors to take action for a greener, more sustainable future and to build the sustainability competences of learners. Among all European initiatives on sustainable education, three stand out for their strategic and transformative role: the Council Recommendation on Learning for the Green Transition and Sustainable Development, the European Sustainability Competence Framework – GreenComp -, and the Education for Climate Coalition. Together, these initiatives provide a coherent and comprehensive policy and practice framework that guides Member States, educators, and learners in embedding sustainability into all dimensions of education.

Adopted in 2022, the Council Recommendation on Learning for the Green Transition and Sustainable Development underscores the essential role of education in building a climate-resilient and environmentally sustainable future. It calls on Member States to embed ESD across all levels and forms of education—from early childhood to adult learning—while ensuring equitable and inclusive access for learners of all ages and backgrounds (Council of the EU, Recommendation on learning for the green transition and sustainable development, 2022, 1, 4). The Recommendation encourages the prioritization of sustainability in education strategies, investments in green learning environments and resources, and the empowerment of educators to address climate and sustainability topics. It promotes experiential, hands-on learning that is interdisciplinary and anchored in local contexts (European Commission, n.d., Learning for the green transition and sustainable development). Aligned with the vision of Target 4.7, it supports the development of diverse learning opportunities across formal, non-formal, and informal settings to enable all individuals to actively contribute to just, climate-neutral societies (Council of the EU, Recommendation on learning for the green transition and sustainable development, 2022, 4).

In line with this vision, the European Commission has developed GreenComp, the European Sustainability Competence Framework, to provide a shared and comprehensive reference for integrating sustainability competences into teaching and learning. Published in 2022, GreenComp defines what sustainability as a competence entails and offers educators and institutions guidance for transforming curricula and pedagogical approaches accordingly (Bianchi et al., 2022, 6). It introduces twelve key competences - valuing sustainability, supporting fairness, promoting nature, systems thinking, critical thinking, problem framing, futures literacy, adaptability, exploratory

thinking, political agency, collective action, individual initiative – grounded under four competence areas: embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability (*ibidem*, 14-15). Designed to be applicable to all learners - regardless of age, educational background, or learning context – GreenComp supports the development of systemic and critical thinkers who are committed to shaping sustainable futures. It complements and enhances ongoing sustainability competence initiatives at international, national, regional, and local levels (*ibidem*, 7). Within the broader framework of the European Green Deal, GreenComp contributes to the EU's transformative educational vision by promoting interdisciplinary teaching, reimagining subject boundaries, and fostering an integrated, future-oriented understanding of sustainability (Adami, 2023, 9; Ilardo et al., 2024, 11).

Supporting these efforts is the Education for Climate Coalition, launched by the European Commission in 2020. This community-driven initiative was created to engage students, teachers, and other education stakeholders across Europe in the green transition. Its aim is to "mobilize pupils, students, teachers, and stakeholders and connect them across local and national borders to take actions in their institutions, neighborhoods and regions through projects and initiatives supporting sustainability and climate change adaptation" (Zotti, 2022, 5). A key feature of the Coalition is its participatory approach: learners, educators, and institutions are encouraged to co-create the initiative and shape it according to their local realities and needs. Its online platform serves as a collaborative space for sharing practices, initiating "community challenges," and building cross-border partnerships. Through this networked and grassroots structure, the Education for Climate Coalition empowers the education community to take ownership of climate action and embed sustainability meaningfully within everyday educational practice (*ibidem*).

When Germany adopted its NAP on ESD in 2017, EU-wide frameworks like GreenComp and the 2022 Council Recommendation had not yet been introduced. However, ESD was already supported at the European level, as well as internationally through UNESCO's Global Action Programme, in which Germany was actively engaged. Despite being developed earlier, the NAP's goals—promoting systemic change, curriculum integration, and cross-sector collaboration—align closely with these newer EU efforts.

The German NAP promotes a whole-system approach to integrating ESD across all sectors of formal, non-formal, and informal education, emphasizing institutional transformation, curriculum development, and multi-stakeholder cooperation. These principles resonate strongly with the

Council Recommendation's emphasis on inclusive, lifelong, and interdisciplinary education for sustainability, offering a renewed policy impetus that can support and strengthen the NAP's continued implementation.

GreenComp, with its comprehensive set of sustainability competences, provides a practical and conceptual tool for operationalizing many of the NAP's learning goals. Its framework can help educators structure and assess learning in areas such as systems thinking, climate justice, and civic engagement – core elements of Germany's ESD vision. Likewise, the Education for Climate Coalition complements the participatory and network-oriented ethos of the German strategy by offering platforms for learner-driven initiatives, teacher collaboration, and community-based projects.

3.3.1.3 Analysis of the German's NAP on ESD

The following part will analyze how the German NAP integrates ESD across different educational levels.

Early Childhood Care and Education (ECCE)

Early Childhood Care and Education (ECCE) plays a fundamental role in establishing the foundation for lifelong learning and sustainable development. UNESCO defines it as the "holistic development of a child's social, emotional, cognitive and physical needs in order to build a solid and broad foundation for lifelong learning and wellbeing" (Early Childhood Education and Care, 2021, 1). ECCE settings, such as child day-care centers, are often the first educational environments children encounter outside of their homes. These settings provide essential opportunities for early learning and shape children's educational paths (German National Action Plan on ESD, 2017, 11). Introducing ESD at this stage offers children from birth to age sex opportunities for playful, inquiry-based learning on topics such as water conservation, food security, energy sustainability, and social equity, laying the groundwork for sustainable futures.

ECCE adopts a holistic approach, considering not only children's physical and cognitive development, but also the social, cultural, economic, and environmental dimensions of education (*ibidem*, 14). This broad approach ensures that sustainability is integrated across all areas of early childhood education, beyond specific subject areas. Research indicates that early childhood is a

critical period when children form core values and attitudes that will guide their future behavior, especially concerning environmental issues (Siraj-Blatchford et al., 2010, 6). By introducing sustainability topics early on, children begin to develop a sense of responsibility and awareness, which is crucial for fostering lifelong learning. To support this, the Expert Forum on Early Childhood Care and Education within the NAP plays an important role in defining objectives and measures to integrate ESD into early education. These measures include creating ESD criteria for child day-care facilities, incorporating sustainability principles into educator training, and promoting collaboration between ECCE institutions and local sustainability initiatives (German National Action Plan on ESD, 2017, 17). As a result, ESD becomes a central aspect of ECCE, ensuring that sustainability is not only taught but is embedded within the entire educational environment.

In ECCE, education specialists are essential in helping children engage with sustainability topics through playful, age-appropriate activities, encouraging critical thinking and curiosity about environmental and social issues. These educators receive ongoing training in ESD to ensure they can incorporate sustainable practices into their teaching (Ministry of Education and Research, simply improving the world ESD, 2023, 10). Furthermore, ESD in early education extends beyond the classroom. It involves collaboration with parents, staff, and childcare providers, all of whom help create a supportive learning environment that integrates sustainability principles into every aspect of education and social settings (Siraj-Blatchford et al., 2010, 8).

Childcare providers, in particular, play a key role in embedding sustainability into curriculum development and the design of learning spaces. By integrating ESD throughout early childhood education, children not only learn about sustainability but also develop the skills and mindset needed to make informed, responsible decisions in the future (*ibidem*, 7). Ensuring access to quality early childhood education for all children remains a priority, as it is fundamental to achieving SDG 4 on quality education.

Through structured policy measures and active stakeholder engagement, Germany's NAP aims to establish a strong framework for integrating ESD into early childhood education (German National Action Plan on ESD, 2017, 21), setting the stage for a sustainable future in which young learners are empowered to contribute to the global effort for sustainable development.

School

Schools serve as both learning and living spaces, exerting a significant influence on individuals. Formal education plays a fundamental role in shaping the citizens of tomorrow by equipping students with interdisciplinary skills rooted in sciences, humanities, and critical thinking (Fronza et al., 2020, 156). In this context, ESD is essential, not only for empowering young people to actively shape their future but also for contributing to broader school improvements processes. By addressing critical global challenges, such as climate change, ED promotes innovative methods, approaches and practices that cultivate the necessary skills and visions for a sustainable future (Mogren et al., 2019, 509).

To achieve this, ESD must be embedded across all aspects of both general and vocational education. This involves integrating ESD into curricula, lesson plans, and teaching materials while ensuring its application in everyday school life.

The National Action Plan underscores the importance of fostering participatory learning environments and strengthening collaboration with local and regional stakeholders (German National Action Plan on ESD, 2017, 23). A key objective of ESD is to ensure that children and adolescents actively contribute to shaping their learning environments and promoting sustainability. As stated in the Plan, "pupils should be involved in the shaping and further development of schools as learning spaces and social spaces, having due regard to local and regional sustainable development challenges" (*ibidem*, 39). This means that students should participate in co-developing school policies and projects, engage in student councils, and contribute to local sustainability initiatives. Moreover, participatory education is reinforced through "the use of participative formats and testing of innovative forms of participation", enabling students to have an active role in shaping their schools' sustainability policies (*ibidem*, 38).

Beyond the classroom, ESD should be actively practiced throughout the entire school environment. This is achieved through the involvement of both learners and teachers in school clubs and social initiatives, and cooperation with local non-school partners. The goal is to make sustainable development a visible and integral part of all school learning and living spaces. Teachers, in particular, play a crucial role in supporting learners and ensuring that ESD is both implemented and effectively communicated. Making ESD a mandatory component of teacher and (educational)

specialist training is a key step toward its successful integration (Ministry of Education and Research, simply improving the world ESD, 2023, 13).

Technical and Vocational Education and Training

Technical and Vocational Education and Training (TVET) plays a crucial role in ESD by equipping individuals with sustainability-oriented skills essential for both their professional and personal development. As an integral part of lifelong learning, TVET serves as an effective tool for fostering a culture of peace, promoting environmentally sound sustainable development, strengthening social cohesion, and encouraging global citizenship (Bagale, 2015, 16). The relationship between TVET and the SDGs is fundamental, as vocational education contributes to building the skilled workforce necessary to achieve global sustainability objectives (Lei et al, 2024, 592).

A key objective of TVET is to empower young people, providing them with the tools they need to lead independent and responsible lives. By focusing on poverty alleviation and employment opportunities, vocational education helps sustain youth livelihoods and supports broader sustainable development efforts (Bagale, 2015, 17). To ensure its effectiveness, the German Plan emphasizes that TVET must be "suitably established in the structure of the system" to prepare individuals for a rapidly evolving labor market where sustainability is a core principle (German National Action Plan on ESD, 2017, 41).

One of TVET's strengths lies in its emphasis on practical, hands-on learning. Through experiential training in workplaces and vocational schools, apprentices learn to independently plan, execute, and monitor sustainable practices. This real-world approach allows learners to engage with pressing environmental challenges, such as climate change mitigation, energy efficiency, and responsible resource management (*ibidem*, 42). Recognizing the importance of participatory education, the Plan advocates for transforming vocational schools and workplaces into "open, democratic spaces", where students are actively involved in shaping sustainability policies and practices (*ibidem*, 44). TVET's role in achieving the SDGs extends beyond initial education to include lifelong learning and professional development. Initial and continuing vocational education and training are essential for securing the skilled workforce and fostering innovations required to meet sustainability challenges (Ministry of Education and Research, simply improving the world ESD, 2023, 15). Companies and workplaces that provide training in collaboration with industry

experts play a vital role in ensuring that workers acquire sustainability-oriented competencies. The integration of UN SDGs into higher vocational curricula has been shown to transform education, providing teachers with a broader perspective on global challenges and enabling them to pass on essential knowledge, skills, and values to students (Lei et al, 2024, 599).

By embedding sustainability principles into vocational education, TVET not only prepares individuals for an evolving job market but also fosters a workforce that actively contributes to sustainable innovation across industries. Its emphasis on real-world application, social responsibility, and environmental awareness makes TVET a key driver in achieving long-term sustainability goals.

Higher Education

Higher education institutions are central to advancing ESD. The Plan emphasizes the need for systemic transformation in higher education, ensuring sustainability is integrated into research, curricula, governance, and institutional strategies (German National Action Plan on ESD, 2017, 51). As centers of knowledge and innovation, universities play a critical role in equipping future educators, policymakers, and professionals with the skills necessary to incorporate sustainability and climate action into their respective fields. Through this process, higher education institutions help share curricula and policies that foster environmental awareness, critical thinking, and global citizenship.

A key component of this transformation is the active participation of students and youth in sustainability initiatives. The Plan stresses that "students and graduates are key architects of sustainable development", highlighting their essential role in institutional decision making (*ibidem*, 62). This involvement extends beyond academic settings, as universities act as hubs for interdisciplinary collaboration, where knowledge is shared across disciplines and with external stakeholders such as industry, policymakers, and social organizations. This collaborative approach not only strengthens sustainability initiatives but also enhances their impact on local, regional, and global scales (Ministry of Education and Research, simply improving the world ESD, 2023, 18).

Moreover, higher education institutions bear a social responsibility to support marginalized communities, including children and youth from disadvantaged backgrounds. In line with Target 4.7, higher education helps equip educators and future professionals with the necessary knowledge

and skills to integrate sustainability into education systems (Kioupi et al., 2022, 1). Through programs like teacher training, interdisciplinary research, and community engagement, these institutions prepare students to address climate change challenges and contribute to sustainable development, indirectly influencing the educational experiences of future generations.

Non-Formal and Informal Learning/Youth

Non-Formal and Informal Learning play a crucial role in ESD, extending beyond traditional educational institutions to engage children, youth, and adults in diverse learning spaces such as cultural initiatives, media, and digital platforms (German National Action Plan on ESD, 2017, 69). Informal education is a lifelong process through which individuals acquire knowledge, skills, attitudes, and insights from everyday experiences, including family interactions, travel, and media exposure (Coombs et al., 1974, 8). Non-formal education, on the other hand, refers to organized and systematic educational activities conducted outside the formal system to provide targeted learning opportunities for both children and adults (*ibidem*). In Germany, it is estimated that around 60-70% of all educational processes take place outside formal schooling, highlighting the importance of non-formal education in shaping societal learning (Lüdtke et al., 2024, 3). The Federal Ministry of Education defines non-formal education - *Außerschulische Bildung* - as structured and goal-oriented learning that occurs outside formal curricula, often in settings such as museums, training programs, and environmental education centers (BMBF, n.d.). Unlike informal education, which is self-directed and based on individual interests, non-formal education aims to enhance personal and social development by improving specific skills and competencies (Lüdtke et al., 2024, 3).

A major focus within these learning environments is the active involvement of young people in shaping sustainability efforts. The Plan emphasizes that "young people must be involved in ESD in an age-appropriate manner, with effective participation and a proper say" to foster new approaches to sustainable development (German National Action Plan on ESD, 2017, 70). In response, the Federal Ministry of Educations and Research has committed to establishing a Youth Forum where members contribute to Expert Forums and the National Platform on ESD, ensuring youth have a voice in decision-making (*ibidem*, 71).

Non-formal learning spaces also serve as platforms for promoting youth leadership. Programs like the Media Partner Network and the Collegium for the Management and Design of Sustainable Development (KMGNE) offer blended mentoring initiatives aimed at developing "transformative literacy and participatory skills in young leaders and change agents" (*ibidem*). This ensures young people gain valuable leadership experience while working on sustainability projects, empowering them to take an active role in driving societal change.

In addition to fostering leadership, the Plan recognizes the importance of inclusivity in ESD. It stresses that "all learners must be able to actively and structurally participate in ESD; obstacles to access must be removed" (*ibidem*, 72). To make ESD more accessible, efforts are focused on eliminating barriers to participation, ensuring that all individuals, regardless of their background, can engage in sustainability initiatives.

The Plan further highlights the necessity of providing youth with the freedom to lead and create. It asserts that "young people need opportunities for freedom of action and expression to develop creative solutions and actively shape sustainability efforts" (*ibidem*, 85). This includes creating platforms for youth to initiate and manage their own microprojects, such as community sustainability initiatives, research projects, and creative media campaigns.

However, one of the key challenges faced by non-formal education is the lack of sufficient funding and institutional support. The National Action Plan calls for the establishment of long-term funding models to sustain non-formal ESD initiatives, ensuring their continued impact (*ibidem*, 87).

Non-formal and informal learning also play a significant role in lifelong learning, as they engage various stakeholders, including associations, museums, and adult education centers, in providing accessible ESD opportunities to the public (Ministry of Education and Research, simply improving the world ESD, 2023, 21). These learning formats foster networking, knowledge acquisition, and empowerment, all of which are fundamental to engaging individuals in the societal transformation necessary for sustainable development. Collaboration with formal education systems can further enhance ESD by creating synergies, promoting interdisciplinary exchange, and connecting knowledge across different sectors of society.

Local Authorities

Local authorities play a pivotal role in implementing ESD at the community level by integrating sustainability principles into local governance, education systems, and civil society initiatives. The Plan emphasizes that sustainable transformation can only be successful when municipalities and regional governments commit to embedding ESD in their development strategies (German National Action Plan on ESD, 2017, 89). Education, in this context, is essential for developing citizens' knowledge and skills in sustainable development while fostering interest in community participation (Kioupi et al., 2022, 2). Through ESD, people can connect with their local realities and engage with their communities to discuss, debate, and discover shared visions, values, and innovative solutions, thus complementing the socially critical orientation of education (*ibidem*).

To institutionalize ESD, municipalities are encouraged to adopt local resolutions that formally establish sustainability education as a key objective. For instance, one of the key measures outlined in the Plan is the appointment of a local liaison officer for ESD. This officer would be responsible for coordinating sustainability education initiatives across different sectors, ensuring that ESD is consistently implemented throughout the community (German National Action Plan on ESD, 2017, 97). Additionally, the creation of education advisory boards or round tables, which bring together local stakeholders such as schools, universities, NGOs, and businesses, is another essential step. These collaborative forums are designed to facilitate the joint implementation of ESD programs at the local level (*ibidem*, 90).

Recognizing the critical role of young people in shaping sustainable communities, the Plan underscores the importance of increasing youth participation in local decision-making processes. It asserts that "young people must have structured opportunities to shape sustainability policies and projects within their own communities" (*ibidem*, 95). Moreover, municipalities are encouraged to establish networks for knowledge-sharing and best practices in ESD implementation. The Plan calls for horizontal networking between municipalities and local authorities to exchange experiences and strategies, promoting collaboration across regions (*ibidem*, 91). Additionally, vertical collaboration between local governments, federal agencies, and international organizations is essential to align local sustainability efforts with global ESD goals (*ibidem*, 90). These collaborative efforts are crucial for ensuring that local initiatives contribute effectively to the broader global sustainability agenda.

The structured approach outlined in the National Action Plan underscored the importance of stakeholder collaboration, participatory learning environments, and systemic integration of ESD principles (German National Action Plan on ESD, 2017, 104). The focus on engaging young learners, empowering educators, and fostering cross-sectoral cooperation highlights the crucial role of education in equipping future generations with the skills and knowledge necessary to address global sustainability challenges. Despite these advancements, challenges remain, particularly in securing long-term funding, ensuring widespread accessibility, and fostering stronger partnerships between formal and informal education sectors. Nevertheless, Germany's comprehensive strategy provides a model for integrating ESD into education systems, reinforcing its role in shaping a sustainable future. By continuously refining policies, fostering innovation, and enhancing participatory frameworks, Germany's commitment to ESD positions education as a powerful tool for achieving broader sustainability goals and driving societal transformation.

3.3.1.4 Challenges in Implementing ESD across Germany's Federal States

Integrating ESD across Germany's educational sectors presents some challenges, particularly in achieving consistent implementation across the country's 16 federal states. A comprehensive study conducted by Singer-Brodowski analyzed key educational documents from early childhood education, school education, and higher education. Their findings indicate that, despite progress, substantial disparities persist in how ESD is integrated into educational policies and practices across the federal states. They note, "overall, the main results indicate that […] the goal of a broad implementation of ESD is not yet achieved, while there are considerable differences among the federal states" (Singer-Brodowski et al., 2019, 492). As an example, among the 90 study programs in the field of early childhood area, 45,55% incorporated elements of ESD or related concepts (*ibidem*, 499).

The study reveals that while ESD is increasingly referenced in more recent educational documents, its integration varies significantly across regions and educational sectors. This is a significant challenge because ESD requires a systemic approach to effectively address the complex issue of sustainability. Germany's education system, characterized by a high degree of autonomy among the 16 federal states, contributes to inconsistencies in how ESD is addressed in curricula, teacher

training, and educational policies. In early childhood education, the discussion about ESD has become prevalent recently in Germany and internationally (*ibidem*, 494). In school education some federal states have adopted ESD as a cross-disciplinary perspective and central strategic guideline, while others incorporate ESD-related concepts only within specific subjects, especially those inherently linked to sustainability themes. In higher education, ESD is more prevalent in certain universities or programs but not yet a universal focus (*ibidem*, 501-502). This heterogeneity highlights the need for a more coordinated national strategy to ensure uniform and effective ESD integration across all federal states (*ibidem*, 500-501).

Another problem concerns teacher training. As Christoforatou affirms "it must be noted that although the concept of education for sustainable development (ESD) has been discussed in the academic community for some two decades, German teachers have not yet been fully prepared for the enormous challenges that this entails, whether during their initial teacher education or in their in-service training" and "there is currently no jointly supported approach in Germany to structurally implement ESD in teacher education and training" (Christoforatou, 2021, 1-2). According to findings from the Third Monitoring Report on the Mainstreaming of ESD in Germany, 69% of teachers reported having had no exposure to ESD during their teacher education, while only 9% of practicing teachers had participated in ESD-specific in-service training within the previous five years (Christoforatou, 2021, 2).

Despite the implementation of ESD in German's educational system "still has a far way to go if the aim is an integration of ESD as an important cross-sectional topic in educational contexts" (Singer-Brodowski et al., 2019, 503), some positive outcomes are present. In early childhood education, the findings align with international trends showing a growing awareness of ESD. Similarly, school education demonstrates a shift towards ESD as a guiding concept, moving beyond isolated projects. Even in higher education, certain universities and programs are integrating ESD, indicating a gradual move towards its inclusion within the educational framework.

3.3.2 Embedding Sustainability in Education: Uganda's National Education for Sustainable Development for 2030 Framework (NESD for 2030) and African Frameworks

The following sections trace the development of Environmental Education and Education for Sustainable Development in Uganda, from early initiatives in the 1970s to the launch of the National ESD Framework for 2030. It examines how international and regional influences – including UNESCO's ESD strategies and the African Union's Agenda 2063 and CESA 16-25 – have shaped Uganda's policy evolution. The NESD for 2030 aims to mainstream ESD across all sectors of education, with a focus on policy integration, institutional transformation, educator training, youth engagement, and local-level solutions. Despite progress, challenges such as limited funding, infrastructure gaps, and educator capacity continue to hinder effective implementation.

3.3.2.1 The Evolution of Environmental Education and ESD in Uganda: from Early Initiatives to the NESD for 2030

Environmental education in Uganda dates back to 1970 with UNESCO's Basic Education Integrated into Rural Development (BEIRD) project at Namutamba Primary Teachers College[43]. This initiative aimed to integrate students with their physical and biological environments, leading to the formal teaching of environmental science in Ugandan schools.

A significant shift occurred in the 1980s when the National Environment Action Planning (NEAP) process began, following the International Union for Conservation of Nature's (IUCN) proposal for a National Conservation Strategy (NCS). The NEAP process, officially initiated in 1991, emphasized environmental conservation, sustainable policies, and community sustainability (Akiyode et al., 2018, 4).

International influences further shaped Uganda's environmental education. Agenda 21 promoted stronger environmental policies, leading to the National Environmental Management Statute No. 4 of 1995. This Statute was a key piece of legislation in Uganda that established the National

[43] The BEIRD project was part of UNESCO's broader efforts to link education with sustainable rural development, emphasizing practical learning that would help students understand and address local environmental and socio-economic challenges. This initiative contributed to the early foundations of ESD in Uganda.

Environment Management Authority (NEMA) [44] to oversee environmental governance. It mandated Environmental Impact Assessments (EIA) for development projects, emphasized public awareness and education on environmental issues, and introduced regulations on pollution control and resource conservation. It also laid the foundation for Uganda's environmental laws and policies, shaping the country's efforts towards sustainable development and natural resource management. It was later updated in 2019 to address emerging environmental challenges (*ibidem*). The 2002 Johannesburg World Summit reinforced the need for environmental awareness as a key pillar of sustainable development.

From 1995 onward, Uganda enacted various laws supporting environmental management and education. With the launch of the UNDESD 2005-2014, Uganda aligned its policies with global efforts to integrate ESD into formal and non-formal education, with the development of an ESD implementation strategy 2010-2014. Following the end of the UNDESD, the UNESCO GAP on ESD took over in 2014 and Uganda responded by developing a National Action Plan (NAP) for ESD 2015-2020. Following the conclusion of the GAP and Uganda's NAP, the country introduced the National Education for Sustainable Development for 2030 framework (NESD for 2030). As one of the first countries to localize the global ESD for 2030 framework, Uganda aims to align its education system with the global priorities established by the GAP.

The NESD for 2030 framework provides a national roadmap for accelerating ESD implementation, ultimately contributing to the achievement of the 17 SDGs.

Differently from Germany, which has adapted the five priority areas of UNESCO's GAP to fit its national context, the Ugandan Plan presents these areas exactly as originally framed by the GAP.

3.3.2.2 African Strategies for ESD

In the regional context, African Union has introduced two pivotal frameworks that serve as foundations for national strategies like Uganda's NESD for 2030 – the Agenda 2063 Framework Document: The Africa We Want, and the Continental Education Strategy for Africa 2016-2025 (CESA 16-25).

[44] The NEMA, established in 1995 as a semi-autonomous institution, serves as Uganda's lead agency responsible for coordinating, monitoring, regulating and overseeing environmental management across the country.

These transformative frameworks outline a shared Pan-African vision for sustainable development and ESD, and function as regional responses to the SDGs, particularly SDG 4 on education (Tikly, 2019, 224).

Adopted in 2015, Agenda 2063 sets out a 50-year development agenda framed around Pan-Africanism, inclusive growth, and self-reliance. It envisions "an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the international arena" (Agenda 2063, 2015, para. 4). This vision centers on eradicating poverty through economic and social transformation, prioritizing people-driven development and the empowerment of women, youth, and children, while ensuring sustainable stewardship of natural resources. It advocates for political unity, good governance, and respect for human rights, and also stresses the importance of preserving and promoting African cultural identity and shared values (Agenda 2063, 2015, 2; Addaney, 2017, 183).

Education is considered a cornerstone in achieving Agenda 2063. It is not only key to solving Africa's challenges but also instrumental in executing the agenda's goals (Addaney, 2017, 182). However, this depends on addressing gaps in human capacity. For effective implementation, Agenda 2063 must be integrated into national education strategies, curricula, and pedagogies to produce informed, capable citizens aligned with Africa's aspirations (*ibidem*, 187–190).

The Continental Education Strategy for Africa (CESA 16–25) builds directly on Agenda 2063's educational vision. It proposes a roadmap for African-led ESD, offering twelve strategic objectives aimed at revitalizing the teaching profession, enhancing equity, promoting peace education, and strengthening all levels of education—from technical and vocational to higher education. It also emphasizes regional integration, the use of information and communication technologies, and the development of lifelong learning systems (Tikly, 2019, 225). CESA interprets ESD as both a development strategy and a vehicle for promoting African values, cultures, and languages (*ibidem*). As a medium-term response to SDG 4, CESA 16–25 aspires to develop high-quality, context-sensitive education systems capable of nurturing African citizens equipped with the skills and values needed for sustainable development (Nwokeocha, 2022, 3). Its development was shaped by both continental priorities and global post-2015 education agendas, positioning it as Africa's key implementation framework for the Education 2030 initiative (Okonkwo, 2019, 33). Nevertheless, CESA acknowledges enduring challenges, including disparities in access, quality, and inclusivity across all education levels (CESA 16–25, 2015, 13; Okonkwo, 2019, 34).

In alignment with these continental frameworks, Uganda's NESD for 2030 demonstrates a clear commitment to integrating Agenda 2063 and CESA 16-25 into national education policy. The NESD for 2030 emphasizes inclusive and equitable access to quality education, skills development, and competency-based learning, mirroring the key priorities of CESA. It also promotes lifelong learning, vocational and technical education, and digital literacy – areas that are central to both CESA 16-25 and the broader sustainable development goals outlined in Agenda 2063.

Uganda's NESD for 2030 also reflects the people-centered approach of Agenda 2063 by prioritizing the empowerment of youth and the development of human capital for national and regional transformation. Its focus on aligning education with labor market needs and fostering innovation directly supports the Agenda's vision of a self-reliant, prosperous Africa.

Through its implementation of NESD 2030, Uganda is not only advancing its national goals but also contributing to continental ambitions, making it a vital actor in realizing the shared African vision for 2063.

3.3.2.3 Analysis of the Ugandan's NESD for 2030

The following part will analyze how the NESD integrates ESD across different educational levels.

Advancing policy

ESD is not merely an add-on but an essential component of quality education. To ensure that children and youth benefit fully from ESD, it should be integrated into national and local policies, plans, and programmes. Advancing ESD policy is a primary mechanism to ensure the inclusion of ESD in education systems (Didham et al., 2018, 92). ESD is not defined by generic education on the specialized topic of sustainable development; rather, it is constructed from a series of specialized education pedagogies that aim to integrate and address a wide variety of topics through the sustainable development lens (*ibidem*. 89). A dedicated ESD policy is necessary to accommodate specific interventions while complementing broader policy initiatives.

To achieve transformative action, structural change, and a technology-driven future, NESD 2030 emphasizes the importance of fast-tracking the approval of the national ESD policy. Mainstreaming ESD across all government institutions, private sector policies, and strategic plans is also a priority. Regular policy and intervention audits are needed to assess the effectiveness of the ESD framework

and related regulations. Additionally, the development and operationalization of localized policies will ensure that ESD interventions are contextually relevant and widely implemented (Uganda's NESD for 2030, 2022, 14).

During the NESD period, the approval of the existing ESD policy remains a key priority, as it provides the necessary regulatory framework to establish ESD as a "key vehicle for quality education" (*ibidem*). Beyond ESD, it is equally important to support complementary policies related to climate change, energy efficiency, and urbanization, which contribute to a more sustainable and resilient society.

The National ESD framework also encourages the development of local and community-based policies that address critical areas such as school feeding programs, practical teaching, the integration of informal education, and increased parental involvement. The adoption of the parish model is expected to drive ESD interventions at the local level, extending beyond traditional learning environments. In situations where national policies face delays or bureaucratic obstacles, local-level policies and resolutions become a "feasible option" (*ibidem*) to ensure that sustainable development efforts continue uninterrupted. By establishing strong foundations for ESD at all levels, these efforts contribute to a more inclusive and sustainable future.

Whole institution approach

Whole school approaches are highly effective in providing multiple entry points for ESD activities, enabling the involvement of large numbers of learners. As emphasized in the NESD for 2030, this approach fosters a complete transformation of an individual's perspective, behavior, values, and lifestyle towards sustainability, both within and outside the formal learning environment (*ibidem*, 15). The 'whole school' or 'whole system' approach is a highly effective strategy for embedding ESD across an entire learning community. Its goal is to ensure that schools, universities, and other institutions serve as role models for sustainable development in all its forms, incorporating these practices into their daily operations. This approach shifts ESD from being an "add-on" to becoming a core element of the educational experience (Whitby et al., 2019, 48). The ultimate goal is for learners to acquire real-time, action-based competencies that contribute to sustainable development.

Uganda's ESD National Action Plan 2015-2020 had already prioritized transforming learning and teaching environments by focusing on key action areas such as mobilization and sensitization on ESD, curriculum review, the publication of best practices, and engaging learners in innovative ESD projects. Building on this, NESD 2030 recommends that country partners support educational institutions and expand curricula to incorporate emerging issues. These include climate change resilience through mitigation and adaptation, disaster, emergency, and pandemic management, as well as considerations for migrants, displaced persons, and refugees. To further strengthen transformative learning approaches, there is a need to integrate and expand learning environments beyond traditional settings. These should include informal education, life skills, and values education; digital citizenship and transformative education; personalized learning; competence-based learning and assessment; parental and community-school interactions; and assistive education for persons with disabilities. During the NESD 2030 period, communities themselves will serve as schools and centers of learning, reinforcing the importance of collaboration between institutions and local communities. (Uganda's NESD for 2030, 2022, 15).

In addition to these initiatives, the private sector, manufacturing industries, and workplaces should be recognized as Centres of Experience and Skilling (CES), providing practical exposure and training opportunities. Institutions of learning must also review and redesign curricula to ensure that learners acquire relevant skills and can replicate projects within community settings. The whole school approach, in practice, entails integrating sustainable development into both the curriculum and the school's overall operations. This includes adopting sustainable governance structures, engaging stakeholders and the community, implementing long-term planning, and establishing systems for monitoring and evaluating sustainability efforts (Hargreaves, 2008, 69). Its goal is to transform the entire institution into an innovative, democratic environment that is attuned to the needs of both society and the local community (Whitby et al., 2019, 48).

This revised approach should fully integrate extracurricular and co-curricular activities, making them an essential part of the learning process rather than a mere add-on. Through these efforts, education systems can foster a deeper commitment to sustainability and ensure that learners are equipped to address the challenges of the future.

Building capacities of educators

Teachers and trainers are central to advancing the ESD agenda, serving as a vital link between learners and content. To strengthen their role, stakeholders are encouraged to provide comprehensive support and training that fully integrates ESD. Teacher education institutions (TEIs) and professional development programs must align with ESD expectations to ensure that educators can effectively deliver sustainability-focused curricula. Building capacity in core ESD pedagogies is essential, as it enables teachers to instill in learners the knowledge, skills, and values necessary for sustainable development (*ibidem*, 40).

Effective educational transformation depends on inspiring teachers to drive change not just in their teaching methods, but also in the broader school and community environments (Qablan, 2018, 133). The pivotal role of teachers and educators in this process necessitates that teacher education institutions reassess the competencies required by teachers and redesign their training programs to align with these needs (*ibidem*, 134).

At the national level, several key efforts must be undertaken to enhance the capacity of educators and trainers. There is a need for advocacy and provision of support to ensure that "all formal educators and trainers at all levels possess a bachelor's degree as a minimum" (Uganda's NESD for 2030, 2022, 16). In addition, attracting and retaining highly qualified professionals in the teaching field should be prioritized, while ensuring the standardization and improvement of pay for educators with similar qualifications across different levels. Continuous professional development will also be crucial in keeping educators up to date with evolving sustainability challenges and pedagogical methods. Furthermore, recognizing the contributions of non-formal, informal, and experienced trainers can reinforce existing education systems and enhance the learning experience.

During the NESD 2030 period, teacher training, development, and management will remain at the core of sustainability education. A variety of strategies will be implemented, including supporting teachers' social dialogue, establishing a network of NESD for 2030 champions and experts, facilitating exchange visits, mentorship programs, scholarships, and upgrade opportunities. The COVID-19 pandemic has further underscored the necessity of flexible and innovative teaching approaches, presenting "an opportunity for trainers to reach out to more learners, particularly through virtual connectivity" (*ibidem*, 17). To maximize the potential of online and remote

learning, educators and trainers will require adequate support to effectively utilize digital education systems. The teacher's primary role is to guide students in developing the knowledge, skills, values and perspectives necessary to build a lasting and sustainable future (Qablan, 2018, 138). Strengthening teacher capacity through these initiatives will ensure that sustainability education remains accessible and impactful, empowering both educators and learners to contribute meaningfully to sustainable development.

Empowering and engaging youth

Youth make up approximately 21% of the population, and when combined with individuals under 18, they account for over 75% of the total population (Uganda's NESD for 2030, 2022, 17). Given this demographic reality, "any meaningful intervention to catalyze ESD thus requires targeting this age group" (*ibidem*). During the NESD 2030 framework period, efforts must focus on providing opportunities for youth engagement through training, mentoring, and empowerment. ESD priorities for youth are shaped by the specific contexts in which they live, reflecting the unique social, cultural, and environmental factors of their communities. The actions taken, the reasons behind them, the individuals and groups involved, and the methods used to implement ESD initiatives are all deeply embedded in these diverse and complex realities (Vallabh, 2018, 159).

It is essential to create and expand platforms that allow young people not only to raise their voices but also to actively participate in all 17 SDG programs. This is particularly relevant as youth have historically been underrepresented in previous ESD plans and strategies. To address this gap, NESD 2030 proposes key interventions aimed at strengthening youth participation. A dedicated ESD for 2030 country initiative will be developed with a strong focus on youth engagement. Additionally, a network of youth change agents and influencers will be established to drive NESD initiatives through lobbying, advocacy, and communication efforts. Expanding the youth priority area partners network by supporting youth clubs, groups, and associations focused on ESD will further amplify young people's role in sustainability efforts. Moreover, integrating key ESD themes, including climate change and peace education, into youth programming will ensure that emerging global challenges are addressed from a youth-centered perspective (Uganda's NESD for 2030, 2022, 17). By highlighting young people's contributions to sustainability, these efforts will inspire broader participation and encourage a culture of innovation. Strengthening youth engagement in ESD will

not only empower the next generation but also ensure that sustainability efforts are driven by those who will inherit the future.

Accelerating sustainable solutions at local level

The community plays a dual role in ESD serving both as a key participant and the ultimate beneficiary of sustainability initiatives. Local actors, residents, and authorities are essential in ensuring the uptake, replication, and practical application of ESD programs. Solutions generated at the local level are more likely to reflect specific values, aspirations and capabilities, while those developed at national or global levels tend to be more general in nature (Pesanayi et al, 2018, 177). Uganda's 2015-2020 ESD NAP identified four key action areas to accelerate sustainable solutions at the local level: the formation and strengthening of local networks, mobilization of cultural and indigenous communities, ESD advocacy and community engagement, and the research and documentation of indigenous knowledge.

These priorities remain highly relevant for the NESD 2030 framework. However, despite previous interventions, "community participation and ownership, as well as the connection between schools and communities, have remained low" (Uganda's NESD for 2030, 2022, 18). To address these gaps, NESD 2030 encourages stakeholders to integrate community engagement into their broader ESD efforts, with special attention given to children, youth, women, and marginalized groups. Emphasis on local solutions is essential, as ESD at the local level involves various forms of formal, non-formal, and informal learning, all of which aim to accelerate the development and implementation of sustainable solutions (Pesanayi et al, 2018, 184).

Supporting the creation and expansion of community groups and associations will further enhance grassroots involvement. Furthermore, leveraging media platforms for collecting, popularizing, and relaying information and feedback to the community will strengthen awareness and engagement. ESD plays a critical role in helping local communities reflect on and validate their diverse cultures and practices, ensuring that local development strategies align with sustainability values (Whitby et al., 2019, 56). By prioritizing local ownership and action, NESD 2030 aims to create a strong foundation for sustainable development, driven by those who are most directly affected by environmental and social challenges. This localization approach ensures that the experiences and

realities of learners are central to exploring key sustainability concepts and theories, making education more meaningful and applicable to real-life situations (*ibidem*, 57).

By prioritizing a holistic and inclusive approach, Uganda is positioning ESD as a fundamental pillar of its education system. The emphasis on policy advancement ensures that sustainability principles are embedded at all levels of governance, while the whole-school approach transforms learning environments into models of sustainable practice. Strengthening teacher training and capacity-building further guarantees that educators are equipped to deliver quality ESD, fostering knowledge and skills among learners. Moreover, empowering youth as key drivers of sustainability and expanding community engagement at the grassroots level enhance the long-term impact of these efforts.

As Uganda continues to implement its NESD for 2030 framework, ongoing collaboration among governments agencies, educational institutions, civil society, and local communities will be essential. The success of ESD depends not only on policy frameworks but also on active participation, continuous innovation, and a shared commitment to sustainability. By integrating ESD into all aspects of education and society, Uganda is paving the way for a more informed, resilient, and environmentally conscious generation capable of addressing the complex challenges of the 21st century.

3.3.2.4 Challenges in Implementing ESD in Uganda

The implementation of Target 4.7 in Uganda faces numerous challenges. These obstacles stem from various factors, including limited resources, insufficient infrastructure, and the need for capacity building. While these challenges are not unique to Target 4.7, they reflect broader issues within the education system, which affect the achievement of SDG 4 in Uganda.

One of the primary obstacles is teacher training and capacity building. Many educators in Uganda have limited exposure to ESD concepts, making it difficult to them to effectively incorporate sustainability themes into their teaching. Comprehensive professional development programs are necessary to equip teachers with the necessary skills and knowledge. For example, environmental education in Ugandan secondary schools does not adequately advance environmental justice, as it fails to foster critical thinking about the structural causes of global warming and the unequal

distribution of power and responsibility among local and global actors in addressing climate change and biodiversity loss (Wilder et al., 2024, 2).

Financial constraints further hinder the implementation of Target 4.7. The NESD framework requires substantial financial investment, yet Uganda's education sector is already underfunded. Allocating resources for curriculum development, teacher training, and the provision of necessary material remains a challenge. This general lack of funding affects not only Target 4.7, but also SDG 4 as a whole. According to Actionaid (Financing the future: delivering SDG 4 in Uganda, 2020, 2), Uganda's education sector suffers from chronic underfunding, which inevitably impacts the quality of education and limits the ability to implement ESD initiatives effectively. According to the ActionAid Report Progressive Tax Reforms for Education Financing in Uganda, public spending on education in Uganda has averaged just 2,04% of the country's GDP over the past decade – well below the UNESCO-recommended benchmark of 4% to 6%. This chronic underfunding, exacerbated by a rapidly expanding population and inconsistent donor support, has placed significant strain on the education system (ActionAid Progressive Tax Reforms for Education Financing in Uganda, 2023, 9).

Another major challenge is the lack of adequate school infrastructure and resources. Uganda faces significant disparities in school infrastructure, with differences based on location, type of school, and regional factors. Many schools lack essential resources, and the allocation of available funding does not necessarily align with actual needs (Mathe et al., 2016, 2-3). For instance, in the Masaka district, more than 60% of primary schools operate in overcrowded conditions, with some classrooms accommodating over 80 students. Additionally, 55% of these schools lack adequate sanitation facilities, and 40% do not have access to safe drinking water. These deficiencies significantly hinder teachers' ability to provide quality education and incorporate sustainability-oriented content into the curriculum (Ahumuza et al., 2024, 538-539).

Public awareness and engagement also pose significant challenges. These is a general lack of understanding of sustainable development among the Uganda population, which affects both student engagement and broader community participation in ESD initiatives. Without fostering critical thinking about the causes of climate change, students lack the knowledge and motivation to engage in collective behavioral change (Wilder et al., 2024, 2). Raising awareness and encouraging active participation from communities and stakeholders is essential for the success of Target 4.7, yet this remains an ongoing challenge.

Overall, while environmental education is recognized as a key element of sustainable development in Uganda, significant barriers hinder its effective implementation. Efforts by the government, NGOs, and local communities aim to integrate ESD into the formal education system, promote awareness, and encourage sustainable practices. However, addressing the challenges of teacher training, financial constraints, infrastructure gaps, and public engagement will be critical to achieving SDG 4.7 and ensuring meaningful progress in sustainability education.

3.3.3 Comparative Analysis of ESD Implementation: Insights from Germany and Uganda

The comparison between Germany and Uganda in the implementation of ESD reveals how different historical, political, and socioeconomic contexts shape national strategies for sustainability education. This comparative approach allows for the examination of both shared principles and context-specific adaptations in ESD implementation. By analyzing these contrasting cases, it is possible to highlight the influence of factors such as historical development, policy frameworks, educational structures, and socioeconomic conditions on ESD strategies. The comparison can reveal variations in the emphasis on formal versus non-formal education, the balance between systemic and community-driven approaches, and the prioritization of ESD objectives, contributing to a nuanced understanding of ESD implementation.

Both Germany and Uganda demonstrate a strong commitment to ESD, acknowledging its crucial role in fostering sustainable development and integrating it into their respective educational frameworks. Germany aims to embed ESD structurally across its education system through its National Action Plan, while Uganda seeks to align its education system with global priorities via the NESD for 2030 framework.

A key similarity lies in the emphasis both countries place on policy frameworks to advance ESD. Germany's National Action Plan outlines objectives and recommendations for ESD integration across various educational sectors. Similarly, Uganda prioritizes the approval and mainstreaming of its national ESD policy to ensure the inclusion of ESD within its education systems. Furthermore, both countries recognize the importance of teacher training for effective ESD implementation. Germany advocates for making ESD a mandatory component of teacher training.

Uganda emphasizes the provision of comprehensive support and training to equip teachers with the necessary skills and knowledge for ESD.

The role of non-formal and informal learning in promoting ESD is also acknowledged by both countries. Germany emphasizes the importance of engaging various stakeholders in diverse learning spaces. Uganda aims to integrate informal education and community engagement into its ESD efforts.

Despite these similarities, notable differences exist. The historical context and evolution of environmental education, as a base of ESD, has distinct trajectories in each country. Germany's environmental education has a long-standing tradition dating back to the 1970s, initially focusing on integrating environmental topics into subjects like biology and geography. In contrast, Uganda's environmental education evolved from projects like the BEIRD project in the 1970s, with a growing emphasis on community sustainability and policy development.

There are also differences in implementation focus. Germany's approach is characterized by structured ESD integration into its formal education system, with specific strategies for Early Childhood Care and Education, schools, Technical and Vocational Education and Training, and Higher Education. Uganda's framework prioritizes systemic change within the educational environment, with a strong emphasis on community engagement, youth empowerment, and addressing contextual realities.

Finally, there is a difference in the balance between systemic versus community-centered approaches. Germany focuses on the systemic integration of ESD principles across all levels of the education system and the role of local authorities in implementation. Uganda places a stronger emphasis on community-centered approaches, empowering youth, and addressing local needs and priorities.

Germany and Uganda face distinct challenges in integrating ESD. Germany struggles primarily with policy fragmentation due to its decentralized education system, while Uganda contends with financial constraints, inadequate infrastructure, and limited teacher training.

Germany's federal education structure results in disparities in ESD adoption across its 16 states. Some states fully integrate ESD, while others limit it to specific subjects. Additionally, teacher training lacks a unified national strategy, leaving many educators unprepared to implement ESD effectively. Despite progress in awareness and policy discussions, achieving consistent national implementation remains a challenge.

Uganda faces more fundamental challenges in ESD implementation. Teacher training on sustainability concepts is minimal, limiting effective curriculum integration. Chronic underfunding hampers curriculum development and infrastructure improvements. Besides, public awareness of sustainability remains low, reducing engagement in ESD initiatives.

These differences illustrate that empowering youth in climate action and sustainable development is deeply influenced by a complex interplay of structural, political, and resource-based factors that vary significantly across countries. These contextual differences profoundly affect how young people are empowered to engage in climate action and sustainable development. Nations differ in their socio-political priorities, the forms of democracy that shape their educational institutions, and a wide away of historical, socio-cultural, ecological, and economic factors that inform how ESD is conceptualized and applied (Kopnina, 2013, 194). The diversity of institutional settings can also be interpreted within the broader socio-cultural environments in which both formal and informal learning processes take place (*ibidem*). As ESD is inherently interdisciplinary, its effectiveness depends largely on how it is localized and adapted to the specific cultural contexts, educational traditions, and developmental needs of each region (Permanasari, 2021, 1). This underscores the importance of a flexible and content-sensitive approach to ESD, one that supports meaningful youth participation while remaining responsive to the unique challenges and opportunities within different national settings.

3.4 Conclusion

This chapter has explored the pivotal role of ESD in equipping individuals and societies with the knowledge, skills, values, and attitudes needed to navigate the complexities of sustainable development. By tracing the evolution of Education for Sustainable Development from its early foundations in Environmental Education to its present holistic and interdisciplinary approach, the chapter illustrated the growing recognition of education as a transformative force for a just and sustainable future.

The analysis emphasized the centrality of SDG 4, particularly tits mandate to ensure inclusive, equitable, and quality education for all. It also underscored the profound interconnectedness of education with all other SDGs, particularly those focused on children's wellbeing. Within this framework, Target 4.7 emerges as a cornerstone, calling for the integration of ESD, human rights,

and global citizenship into education systems. The chapter explored how this Target is not only aspirational but essential for empowering young people to actively engage with and respond to the realities of climate change and social injustice.

In this context, the participation of children and youth in ESD is particularly crucial. ESD is fundamentally rooted in the inseparability of education and participation. As Corcoran emphasizes, education almost never appears without reference to participation, underscoring that the two concepts are intrinsically linked (Corcoran et al., 2009, 329). ESD seeks to actively involve young people in creating a sustainable future, recognizing that participation itself is the most effective form of education. From the earliest stages of their education, young people are ready to take on roles as active citizens, learning best when they are entrusted with increasing responsibility for the world around them. Through active engagement and decision-making, they gain a deeper and more meaningful understanding of sustainability challenges (*ibidem*). In a rapidly changing world, ESD must prioritize the development of critical thinking skills, encourage reflection, and build young people's competence to act collaboratively as agents of transformation. Beyond transmitting knowledge, ESD empowers youth with the ability to think critically, reflect independently, and drive change (*ibidem*, 332). Young people are thus positioned as key actors, not only in shaping their own education but also in determining the future of the planet (ibidem, 333). It is essential to involve children in the development of policies and programs that address educational risks to ensure that governments create child-centered solutions and allocate resources efficiently (Save the Children, build forward better, 2021, 5).

Integrating environmental education into school curricula is crucial for equipping children and youth with the knowledge, attitudes, and skills necessary to understand and address environmental challenges (Kumar, 2023, 262). This education fosters informed decision-making and motivates sustainable behaviors in daily life. However, young people's environmental attitudes and actions are shaped not only by formal education but also by the influence of family practices and social networks. Parents and peers serve as important role models, reinforcing or undermining the sustainability values imparted through education (*ibidem*). Developing empathy and critical thinking is essential for engaging youth in solving local environmental problems (*ibidem*, 263). By fostering a sense of connection with nature and empathy for the environment, ESD strengthens young people's motivation to act and cultivates a deep sense of stewardship. Meaningful participation, however, must go beyond symbolic involvement. It is vital to provide young people

with genuine opportunities to have a voice in decision-making processes, collect youth-inclusive data, and create safe spaces that encourage their active engagement (*ibidem*, 264). Overcoming systemic barriers, including adult-centric decision-making structures and gender disparities, is crucial for ensuring authentic and transformative youth participation in sustainability efforts.

The comparative case study of ESD implementation in Germany and Uganda provided critical insights into how diverse cultural, political, and institutional contexts shape educational strategies. It revealed both the opportunities and constraints faced by countries at different stages of development, emphasizing that effective ESD requires not a one-size-fits-all model but adaptive, context-sensitive approaches supported by multilevel governance and cross-sector collaboration.

In conclusion, this chapter reaffirms that education is an indispensable tool for empowering individuals, particularly children, to build a sustainable and equitable future. Effective ESD implementation necessitates collaborative efforts at all levels of governance, ensuring that education systems are equipped to foster a generation of informed, engages, and responsible global citizens capable of addressing the complex challenges of the 21st century.

CONCLUSIONS

The thesis demonstrated that MLG plays a foundational role in guiding effective climate action by bringing together diverse actors and resources across local, national, and international arenas. By coordinating policies and practices both vertically (across government tiers) and horizontally (among sectors and stakeholders), MLG creates inclusive, adaptive systems capable of addressing the complex, evolving risks of climate change. Chapter 1 lays the conceptual foundation for understanding how MLG can be leveraged to confront the interconnected challenges of climate change, sustainable development, and the protection of children's rights. It links MLG to children's rights through the UNCRC, emphasizing the principles of non-discrimination, the best interests of the child, survival and development, and participation. It is only through this blend of clear coordination and networked collaboration that children's and youth rights can be integrated and protected within environmental sustainability frameworks. The Chapter also integrates the UN 2030 Agenda for Sustainable Development as a global framework that reinforces the connection between children's rights and environmental sustainability.

By embedding the principles of the UNCRC and the SDGs into governance structures, MLG ensures that young people are recognized not as passive beneficiaries but as active stakeholders and agents of change.

Chapter 2 demonstrates that while the vulnerability of children and young people to climate change is increasingly acknowledged in international discourse, their rights remain insufficiently integrated into climate governance frameworks. At the international level, agreements such as the UNFCCC and the Paris Agreement reference intergenerational equity and human rights, but their provisions on children are vague, non-binding, and lack enforcement mechanisms. Youth participation is often symbolic and hindered by structural barriers. At the national level, policies like NDCs and NAPs rarely include child-sensitive measures, with most failing to recognize children as rights-holders. At the local level, municipalities and cities are key to translating global and national commitments into practice. Initiatives like UNICEF's Child Friendly Cities demonstrate the potential of inclusive, child-centered governance but reveal variation in implementation and limited institutionalization.

Central to addressing these gaps is the integration of children's rights into every stage of policy development. As one of the groups most exposed to environmental risks, children should be both

strongly protected and genuinely empowered to take part. Recognizing their dual status – as both in need for protection and capable of meaningful participation – yields more inclusive, equitable, and forward-looking solutions. Ensuring that their voices and interests are reflected in decision-making processes is not only a legal and moral obligation but also a strategic pathway toward more resilience and future-oriented governance.

Chapter 3, finally, aligns climate strategies with the SDG - in particular SDG 4 and Target 4.7 – to strengthen the foundation for long-term progress. ESD is highlighted as a transformative tool that empowers children and young people to engage with and address sustainability challenges. When implemented within a rights-based framework, ESD contributes to empowerment, civic engagement, and long-term resilience. The comparative analysis between Germany's and Uganda's ESD policies reveals that while countries differ in their approaches to implementing ESD and protecting children's rights in the context of climate change, effective outcomes depend on context-sensitive strategies, inclusive participation, and cross-level collaboration.

These results collectively affirm that addressing the climate crisis through the lens of children's rights and education is both a responsibility and an opportunity – to build fairer, more inclusive, and sustainable societies for current and future generations.

Despite growing global awareness and some notable advances, the implementation of children's rights in the climate context faces profound barriers. Systemic underfinancing remains a pressing obstacle: wealthy nations have fallen short of their Paris Agreement commitments, leaving climate-vulnerable children without the resources needed to secure basic rights (Council of Europe, Inaction on climate change – a violation of children's rights, 2021, 2). Moreover, existing climate financing frameworks rarely include child- specific considerations. Most national policies and international funding mechanisms fail to systemically assess how climate-related investments impact children, and few explicitly prioritize child resilience or participation (*ibidem*, 1, 2). This omission is especially pronounced in the education sector, where infrastructure and curricula remain poorly adapted to climate-related disruptions (*ibidem*, 2).

A 2023 report by the Children's Environmental Rights Initiative, Falling short: Addressing the Climate Finance Gap for Children, provides empirical confirmation of this structural neglect. In a review of 591 projects funded by multilateral climate funds (MCFs) under the UNFCCC and Paris Agreement between 2006 and 2023, the study found that only 2.4% - approximately $1.2 billion of $51.5 billion – had any child-responsive elements (Children's Environmental Rights Initiative,

falling short: addressing the climate finance gap for children, 2023, 4-5). These projects typically included children only marginally, and not as central actors. On average, this equated to just $70.6 million per year, or $0.03 per child annually – a striking demonstration of underinvestment in child-specific climate action (*ibidem*, 5).

Even where children are acknowledged in project designs, they are often treated solely as passive recipients of aid. Only 13% of projects meaningfully considered children, and just 1% involved them in project design or monitoring, while a mere 12% supported child participation at any stage of implementation (*ibidem*, 6, 23). Moreover, despite the recognized role of education in building climate resilience, only one project across all MCFs had education as its primary focus (*ibidem*, 30).

These findings underscore the deep misalignment between the global rhetoric of child rights and the actual design and implementation of climate policy and finance. Without urgent reforms to climate governance - including better data collection, legal recognition, participatory mechanisms, and targeted investment - children's rights will remain at risk in the face of an escalating climate emergency.

Looking ahead, five years remain before the 2030 deadline to peak global emissions, and the year 2025 represents a pivotal moment to transform governance systems in way that prioritize children's wellbeing. While climate governance remains complex and fragmented, the future holds significant potential to reshape systems in ways that prioritize the wellbeing of children. Looking ahead, good governance – characterized by inclusive policymaking, equitable financing, robust regulation, and transparent monitoring – can and should be the foundation for child-focused climate strategies (UNICEF, prospect for children: building resilient systems for children's futures, 2025, 42). In the coming years, four key areas of governance present promising opportunities to enhance the protection of children in the face of climate change. First, national policy frameworks are expected to evolve. As countries prepare the third round of NDCs, extending to 2035, there is a clear opportunity to integrate child-specific considerations into climate planning. Future NDC and NAPs can explicitly embed children's rights by setting dedicated targets, timelines, and resource allocations across sectors such as health, education, WASH, energy, and social protection (*ibidem*, 43). Second, the future of climate finance holds transformative potential. The New Collective

Quantified Goal (NCQG)[45], to be finalized beyond 2025, could serve as a vital instrument for directing funds toward child-responsive climate actions. While current commitments remain insufficient, future iterations of the NCQG can be designed to include earmarked funding for programs that directly support children. Establishing strategic, time-bound financial targets for both public and private sectors could significantly expand access to the resources needed to protect education, healthcare, nutrition and psychological services before, during, and after climate-related crises (*ibidem*, 44). Third, the regulation of private sector environmental standards offers a growing space to embed child rights into corporate accountability. Governments and international bodies can lead efforts to support developing countries in implementing these regulations fairly, avoiding exacerbation of inequality. With appropriate support, the regulations can become a powerful tool for ensuring that business operations protect and promote children's rights, minimize harmful impacts, and contribute to inclusive and sustainable economic transitions (*ibidem*, 45-47). Fourth, legal accountability is set to become an even more influential driver of climate justice. The growing momentum behind climate litigation opens future avenues for strengthening legal protections for children. Courts have increasingly recognized the connection between climate inaction and human rights violations, and this trend is likely to continue. As legal norms evolve, states may face increased pressure to uphold their obligations toward younger generations. Furthermore, as children and youth continue to play an active role in legal challenges, their participation could help redefine how intergenerational equity is interpreted and implemented in law. Future rulings could set precedents that reinforce the state's duty to protect the rights of children in climate-related contexts and compel more ambitious and accountable policymaking (*ibidem*, 47-49).

If implemented effectively, these prospective developments in policy, finance, regulation, and law can strengthen the systems that children rely on—healthcare, education, food security, and social protection—ensuring they are better equipped to face the intensifying effects of climate change (*ibidem*, 42–43). However, the success of these future efforts will depend on sustained political will, inclusive decision-making, and an unwavering focus on equity.

[45] The New Collective Quantified Goal is a global climate finance target adopted by countries under the UNFCCC and Paris Agreement framework to succeed the earlier $100 billion annual goal set in 2009. It aims to provide increased financial support to developing countries for climate mitigation and adaptation. The NCQG was officially adopted at COP29 in Baku in 2024, with a commitment to mobilize $300 billion annually by 2035. This new goal reflects growing recognition of the urgent financial needs of vulnerable nations in addressing climate change.

Ultimately, a forward-looking, rights-based approach is essential. National climate plans must evolve to reflect the needs and rights of children, supported by adequate and well-targeted finance. The private sector must be held accountable through frameworks that assess their impact on children. Legal systems must continue to evolve in ways that empower young people and ensure long-term justice. While progress to date has laid a foundation, the future must see these elements scaled up and coordinated to ensure that climate action truly delivers for children—not only as beneficiaries, but as active participants in shaping a just and sustainable world (*ibidem*, 49).

In final reflection, achieving equitable and effective climate action demands that multilevel governance frameworks place children's rights at their core, enhance youth engagement, and institutionalize mechanisms for meaningful representation. Strengthening collaboration across governance levels and embedding child-sensitive strategies into all climate policies are essential steps toward climate justice. Recognizing children both as beneficiaries and as active participants in shaping a sustainable future honors collective responsibility to current and future generations and laying the groundwork for fairer, more inclusive, and resilient societies.

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