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PREPARING EDUCATION FOR THE CLIMATE CRISIS: CRITICAL OVERVIEW OF NATIONAL K-12 CLIMATE CHANGE EDUCATION POLICY IN TURKEY BASED ON KEY INFORMANTS' OPINIONS

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Preparing Education for the Climate Crisis: Critical Overview of National K-12 Climate Change Education Policy in Turkey Based on Key Informants' Opinions

Eğitimi İklim Krizine Hazırlamak: Türkiye'nin Yükseköğretim Öncesi Ulusal İklim Değişikliği Eğitim Politikasına İklim Paydaşlarının Görüşlerine Dayalı Eleştirel Bakış

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5) Ekososyal Politika	5) Ecosocial Policy

FOREWORD

I was born in Antakya, along the *Orontes River* and by the *Amanos Mountains*. I cannot recall a single moment I was not amazed by nature and not be play friends. Eventually, I became a birdwatcher at METU in 1996 and met with the fantastic and at the same time erasing biocultural diversity of Anatolia. I sensed fascination with the *Great Zab River* in Hakkari, I walked on the 300.000 years old *Ekşisu Marshes* in Erzincan, I gazed at the *Mediterranean Sea* from the peak of the *Tahtalı Mountains* in Antalya. I witnessed the death of *Hasankeyf, Burdur Lake* shrinking year by year, nomad *Sarıkeçililer* forcibly becoming sedentary, *highlanders* of Trabzon complain about drought. I witnessed how nature and nature-human relations changed through time. This change ended up in crises across the world; one is the climate crisis.

In this thesis, I analysed Turkey's climate change education policies to contribute to discussions on education that enables climate action. It was not an as easy task in a country where climate policy is already in question. Nevertheless, I hope that alongside the growing interest in climate change education practices, the policy aspect and key informants' perspectives will complement the ongoing debates. I want to thank all interviewees for their sincere contribution and support.

My deepest gratitude is to my mom Hatice and my dad Adil. They supported me all along my life journey, transferred their love and care for nature and since 2012, took care of my daughter during long hours of working. I thank my brother Güven and Ayışığı for playing with Sumru and taking care of our home mates Pati and Boncuk. I thank my mother-in-law Suzan and father-in-law Şener for their understanding of my non-stop work. My partner Alper is one of my compasses in this complex world which shows the opposite direction most of the time. I am grateful to the most incredible human being – *crazy being* as she calls herself – I ever met, Sumru, who gave hope since the day she was born. Her hugs, gentle and ghostly kisses, millions of "*why and why not mom*" questions, and all the "*bıdır bıdırs and mızır mızırs*" she makes are what makes me feel alive and thankful for this amazing plant.

My advisor Prof. Sibel Yardımcı Yalçıntan, I witnessed, is a very patient and caring person. Throughout this very disruptive process, she never gave up on me. I am indebted to her and always inspired by her work, particularly on kinship. I also thank Dr. Umut Yıldırım both for the eye and heart-opening lectures she gave and her suggestion to contact my advisor. I thank Assoc. Prof. Zeynep Talay Turner and Prof. Kenan Çayır for their support, trust, flexibility, and constructive critiques. I thank Sezai Ozan Zeybek for his thought-provoking lectures and brain-opening syllabus.

I thank Prof. Lale Duruiz and Prof. Nurhan Yentürk for their continuous support. They advised me to study cultural studies, and it was one of the best decisions I took. During times of work pressure, my amazing colleagues Işık Tüzün, İpek Dübüş, Yeliz Düşkün, Özgenur Korlu, Ekin Gamze Gencer, Kayıhan Nedim Kesbiç and Ezgi Tunca were always there for me. My best friends Özge Balkız and Banu Binbaşaran were my continuous boosters. My source of inspiration Güneşin Aydemir often 'thought with' me on pluriversal worldviews. Dr. Şebnem Feriver Gezer and Assoc. Prof. Yelkin Diker Coşkun shared their valuable time to discuss with me. I thank Prof. Mahmut Özer for facilitating meetings with MNE experts.

Considering all the quite challenging, nerve and heart-breaking incidents happened in Turkey since 2013, wanting to get out of bed is a miracle I believe, let alone trying to write a thesis. Even though it is a master's thesis. I thank every day I could do that.

I thank Pati and Boncuk for making my study much more complicated and intriguing with every "purrrr" they made to invite me to hug and caress them. Living with them taught me way more than any education taught in my life.

I thank to *Earth*. I will forever be curious about our planet no matter what crisis it is in.

Sumru'ya,

Alper'e, Anneme ve Babama,

Büyük bir hayranlık duyduğum Yerküre'ye.

To Sumru,

To Alper, Mom and Dad,

To Earth, I have full of admiration.

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ABBREVIATIONS

AR	Assessment Report
BİLSEM	Bilim ve Sanat Merkezi
BoE	Board of Education
CC	Climate Change
CCASAP	Climate Change Adaptation Strategy and Action Plan
CCAMCB	Climate Change and Air Management Coordination Board
CCE	Climate Change Education
CEDAW	Convention on the Prevention of All Forms of Discrimination Against Women
COP	Conference of Parties
DGEPR	Directorate General of Electrical Power Resources
DMA	Directorate of Meteorological Affairs
DSW	Design Skill Workshops
EE	Environmental Education
EEA	Energy Efficiency Association
EfS	Education for Sustainability
ESD	Education for Sustainable Development
FAR	First Assessment Report
GCE	Global Citizenship Education
GECI	Girls' Education Challenges Index
GEF	Global Environment Facility
IAP	The InterAcademy Partnership
IEEP	International Environmental Education Programme
IPCC	International Panel on Climate Change
IUCN	The International Union for Conservation of Nature
K-12	From Kindergarten to 12th grade
KI	Key Informant
LGBTIQ	Lesbian, gay, bisexual, transgender, intersex, and questioning

MA	Master of Arts
MAF	General Directorate of Meteorological Affairs
MDG	Millennium Development Goals
MEF	Ministry of Environment and Forestry
MENR	Ministry of Energy and Natural Resources
METU	Middle East Technical University
MEU	Ministry of Environment and Urbanization
MNE	Ministry of National Education
NAP	National Adaptation Plan
NC	National Communication
NCCLS	National Climate Change Learning Strategies
NDC	Nationally Determined Contributions
ND-GAIN	The Notre Dame Global Adaptation Initiative
NGO	Non Governmental Organisations
OCE	The Office for Climate Education
REC	Regional Environmental Center for Central and Eastern Europe
SAR	Second Assessment Report
SDG	Sustainable Development Goal
TEMA	Türkiye Erozyonla Mücadele, Ağaçlandırma ve Doğal Varlıkları Koruma Vakfı
TRT	General Directorate of Turkish Radio and Television Corporation
UK	United Kingdom
UN	United Nations
UNCED	UN Conference on Environment and Development
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
VET	Vocational Education and Training

WCED	The World Commission on Environment and Development
WG	Working Group
WMO	World Meteorological Organisation
WWF	World Wide Fund for Nature
YÖK	Yüksek Öğretim Kurumu

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ABSTRACT

The scope of this thesis is K-12 formal education in Turkey. I aimed to shed light on the current state of CCE policies in Turkey and the outstanding shortfalls by analysing education policy documents and discussing the views of key informants. I conducted a literature review, desk research, a descriptive education policy analysis, and in-depth interviews with key informants. I discussed the preparedness of the Turkish K-12 formal education system for the *climate crisis* and analysed whether the public administration in Turkey is able to prepare a consistent CCE policy that aims for urgent action. I examined Turkey's climate policy in relation to K-12 formal education, the prevailing and potential impacts of the *climate crisis* on K-12 formal education, the actions required to strengthen K-12 formal education policies against the *climate crisis* and necessary policies to reduce the effect of K-12 formal education on the *climate crisis*. The *climate crisis* is an *ecosocial crisis*. Therefore, I preferred climate change education, *ecosocial policy*, and the *political ecologies of education* for the theoretical framework. This thesis unearthed that the lack of an effective and ecological justice-based climate policy in Turkey impacts climate change education policies. Climate change education is carried out primarily by non-governmental organisations to the extent that there is funding. Studies on CCE in Turkey mainly focus on the curricula, public awareness, the perceptions, knowledge, attitudes and behaviour of students or teachers. Holistic climate change education is urgently required, and active participation of students and teachers should be ensured while developing and implementing climate change education. Besides curriculum studies, research on infrastructure transformation is needed. Besides the *climate crisis*, policymakers should also consider the *biodiversity crisis*. National, regional and local climate change education strategies and action plans are needed. Decisionmakers should put effort on reducing the impacts of formal education on the *climate crisis* and adapting formal education settings to the impacts of the *climate crisis*.

Keywords: climate change education, climate crisis, climate education, education policy, ecosocial policy

ÖZET

Bu tezin kapsamı Türkiye'de yükseköğretim öncesi örgün eğitimdir. İklim değişikliği eğitiminin mevcut durumu ve bu kapsamdaki ihtiyaçlar, üst politika dokümanları ile iklim krizini izleyen bireylerin görüşleri çerçevesinde analiz edilmiştir. Araştırma için literatür taraması, masabaşı araştırma, betimsel eğitim politikası analizi, çevrimiçi yarı yapılandırılmış derinlemesine mülakat yapılmıştır. Örgün eğitimde iklim krizinin etkilerine ne kadar hazır olunduğu ve kamu idaresinin örgün eğitimi iklim krizinin etkilerine karşı nasıl hazırlayabileceği tartışılmıştır. İklim krizini izleyen farklı bireylerle Türkiye'nin iklim politikası, iklim krizinin örgün eğitime mevcut ve olası etkileri, örgün eğitimin iklim krizine karşı güçlenmesi ve örgün eğitimin iklim krizine etkilerinin azaltılması için yapılması gerekenler değerlendirilmiştir. İklim krizi ekososyal bir krizdir. Teorik çerçeve için iklim değişikliği eğitimi, ekososyal politika ve eğitimin politik ekolojisi alanlarından yararlanılmıştır. Türkiye'nin etkili bir iklim politikasının olmamasının iklim değişikliği eğitimi politikalarına da yansıdığı, iklim değişikliği eğitiminin ağırlıkla sivil toplum örgütleri tarafından finansman olduğu ölçüde yürütüldüğü, çalışmaların müfredat düzenleme, farkındalığın belirlenmesi ve artırılması ağırlıklı olduğu, iklim krizine ve krizin eğitime etkilerine yönelik bilginin, bilgiye erişimin ve becerilerin sınırlı olduğu anlaşılmıştır. Bu ve benzeri nedenler örgün eğitimin iklim krizine karşı kırılganlığını ve çocukların eğitim haklarının engellenmesi riskini arttırmaktadır. Eğitimin tüm kademelerinde çocukların ve öğretmenlerin etkin katıldığı bütünsel iklim değişikliği eğitimi acil gereksinimdir. İklim değişikliği eğitimine yönelik müfredat çalışmalarının yanı sıra altyapısal düzenleme çalışmaları da yürütülmelidir. Örgün eğitimi iklim krizine karşı güçlendirirken biyolojik çeşitlilik krizi de dikkate alınmalıdır. Ulusal, bölgesel ve yerel strateji ve eylem planları geliştirilmeli, örgün eğitimin iklim krizine ve iklim krizinin örgün eğitime etkisinin azaltılmasına yönelik acil politika tedbirleri hayata geçirilmelidir.

Anahtar Sözcükler: iklim değişikliği eğitimi, iklim krizi, iklim eğitimi, eğitim politikası, ekososyal politika

INTRODUCTION

"*What is education for?*"
(Orr, 1991, p.237)

What is education for, if not for nourishing the planet we live on and building kinship with our companion species?

We are going through a *climate crisis* that demands a collective response (UN Climate Change, 2020). The Earth is heating up; the survival of human and companion species is at high risk. It is more urgent than ever to address the *climate crisis* and calls for radical actions to lessen the impact of the *crisis* are increasing (IPCC, 1992; IPCC, 1995; Watson & Core Writing Team, 2001; Core Writing Team et al., 2007; Core Writing Team et al., 2015; Masson-Delmotte et al. ed., 2021). Since the early years of the Intergovernmental Panel on Climate Change (IPCC), which is the leading organisation responsible for informing the world on the course of the *climate crisis*, education has featured among the field subject to calls for action. However, education specialists have been absent from global and national climate policy discussions (Kwauk, 2020). Education can be a strategic means for transformation, and through education, *more-than-human* norms can be produced, reproduced, and disseminated. It should be remembered that although education is one of the key channels for mitigating and adapting to the *climate crisis*, it is also highly vulnerable to the impacts of this escalating crisis. The number of cases of children and young people being unable to access education due to the impact of the *climate crisis* is increasing (UNICEF, 2019). Especially after COVID-19, it is well known that disruption in education may permanently affect children's well-being and their learning outcomes (Rees et al., 2021). Schools are not just places for academic learning; most importantly they are an essential part of the child protection system. When schools are shut down, children and young people are more prone to various risks (Gencer et al. 2021). The effects of the *climate crisis*

on children and young people are multifaceted and complex and can be direct or indirect.

Since 1990, the IPCC has suggested primarily targeting children and young people and advised all countries to develop and implement tailored educational programmes according to the "specific requirements and resources of particular locales, countries, or regions" (1990, pp. xlviii, 213). More than thirty years have passed since; yet, it would be an overstatement to claim that quality *climate change education* (CCE) is now in place within the K-12 formal education system and is equipping and strengthening children and young people against the *climate crisis*. I have monitored K-12 education policies in Turkey, as an NGO volunteer since 1996 and a professional employee since 2000. My first attempt to join the global solidarity movement that calls for action through education was to review the K-12 CCE policies in Turkey and understand the depth of engagement. Without clear public policies that respond to the local and differentiated needs, it will be challenging to get to grips with the problem faced and even more challenging to decide on how to alter direction (Irwin, 2019). The research for this thesis indicates that Turkey does not have the required K-12 CCE policy, and that existing K-12 education policies are not in line with the global and local calls for CCE. Efforts to implement CCE are being carried out mainly by the civil society, which is fragmented, and until very recently did not aim for the active participation of children and teachers. There is also a narrow focus on particular areas and the efforts made are being developed and implemented in separate silos. There is a lack of integration, collaboration, and coherence within and across the levels of the system. The lack of a coherent, collaborative, and reflective education policy that targets the *climate crisis* may leave schools, teachers, students, and parents to fend for themselves in connecting the dots among policies and practices and can result in further fragmentation and confusion.

As in all other policy fields, education policies are failing children, young people, and teachers, leaving them with no space or buffer zone in which to act on the *climate crisis* (Kwauk, 2021). K-12 education policies in Turkey and the rest of

the world do not address the *climate crisis* coherently and do not sustain schools, students, and teachers prepare for a hotter climate and a more uncertain world. The top-down policy approach cannot be the only means of preparing for the *climate crisis*, yet bottom-up demand from the school ecosystems in Turkey is still limited. My thesis confirms this significant gap in policy and practice. Studies on CCE in Turkey mainly analyse the existing curricula, public awareness, the perceptions, knowledge, attitudes and behaviour of students or teachers, and the impacts of tailored programmes for a specific and limited sample of students or teachers. In a world where uncertainty has become the norm, and best practices are few, any study on CCE is valuable. Nevertheless, as shown by the interviews I have conducted for this thesis, there is a need for a coherent K-12 CCE policy to channel currently fragmented efforts towards achieving a collective impact. In this thesis, I have aimed to fill this gap and suggest where efforts might be channelled by referencing the literature, policy analysis and the insights gained from the interviews held with key informants.

The IPCC's *6th Assessment Report* (AR6) was published in August 2021 and has once again underlined the severity of the *climate crisis*. Public administrations can no longer avoid adopting CCE policies, strategies, programmes, action plans and practices. However, most countries still do not have consistent K-12 CCE policies (Kwauk et al., 2019, Kwauk, 2020; Kwauk, 2021; McKenzie, 2021). In cases where a policy or strategy is being implemented, these are mostly "shallow" in the sense that they widely assume that "it is possible to continue 'increasing ... human populations, technologies, and economies' if we are more careful towards nature" (Stibbe, 2004, p. 243). Moreover, young climate activists accuse countries such as Turkey of not adopting an *ecological justice*-based climate policy at all (Sacchi et al., 2019). Without such a climate policy, it is inevitable that education policies will remain inadequate. On the other hand, the transformation of education policy can also trigger for the transformation of climate policy.

The AR6 has affirmed with great rigour that the *climate crisis* is a *life and death* matter. On this matter, I *think with* Val Plumwood, who "see[s] death as

recycling", as a "material continuity/reunion with ecological others", and as a "part of life" (Plumwood, 2008, p. 325). In this thesis, I aim to argue that facing a *life and death* situation may lead to a radical rethinking of the meaning and actualisation of life, and furthermore education systems can be the platforms for such a vital transformation towards sustainability. However, the education system is also going through a crisis, and there is a need for a radical restructuring (The World Bank, 2018; Common Worlds Research Collective, 2020). There is an expanding debate on this need (UNESCO, 2015). According to a growing community of educators and researchers, achieving this essential change requires cutting the umbilical cord between the formal education system on the one hand and the economic growth-based development paradigm and human exceptionalism on the other (Common Worlds Research Collective, 2020). Additionally, the impact of the COVID-19 pandemic on the education systems across the world showed that business-as-usual band-aid interventions were not and cannot be an option for any educational transformation.

Greta Thunberg and young climate activists worldwide have issued a powerful and comprehensive call for radical change in current educational policies and practices, starting from the very goal of these practices. Questioning the goal of education, in her op-ed published in *The Guardian* on November 26th, 2018, Thunberg wrote:

> Some say I should be in school. But why should any young person be made to study for a future when no one is doing enough to save that future? What is the point of learning facts when the most important facts given by the finest scientists are ignored by our politicians? (para. 19)

Collective and explicit findings by prominent scientists state that the '*Earth is on fire*' and the impacts are disproportionate in their distribution. Indigenous peoples, island states, and vulnerable groups around the world are exposed to this fact in their daily lives. We do not live in a *one-world world* (De la Cadena & Blaser, 2018), yet we all live in a precarious world "[u]nder the sky [few] make" (Nicholas,

2021). Increasingly damaging disasters have shown that some communities live in a world of floods and others in a world of droughts. There are sinking, migrated, burnt, degraded, bulldozed, hierarchical, patriarchal, capitalist, and lost worlds. We live in *a world with many worlds* (De la Cadena & Blaser, 2018). Donna Haraway (2016) invites us to *stay with the trouble* and stay with the *other* – young, feminist, queer, indigenous, migrant, black, *more-than-human* other – to build more liveable worlds.

Worldwide, different *assemblages* and individuals, who are labelled as troublemakers and killjoys by beneficiaries of the current unsustainable systems, are increasingly speaking up about the damage that is being done to the Earth, its people and companion species. Since 1989, they have written countless books, given speeches, sung songs, created arts, danced, organised expensive overseas conferences, marched in the streets, occupied venues, gone on strike on Fridays and attended education, training, capacity building, and awareness-raising activities. Education does and can have a significant role in the *ecosocial learning* required for a sustainable world (Sterling, 2021). Still, however much we learn, it never seems to be enough as the problems we are up against peak, diverge, multiply, and deepen. Today, despite having the highest number of educated people ever, the world has less than a decade left before it overshoots the 1.5°C temperature rise target (Masson-Delmotte et al. ed., 2018). Knowledge and skills accumulated over the years through formal, informal, and non-formal education, environmental education, education for sustainable development, civic education and intercultural learning do not seem to have transformed into the widespread action that is urgently needed (Saylan & Blumstein, 2011). Today's widespread and mainstream education policies are still based on the notion of economic growth entertained by states and the international agreements, and not on the "transformative discourse that can have real social effects in response to contemporary crises of survival and sustainability" that should be at the heart of all structures (Olssen et al., 2004, p. 3). According to de la Bellacasa (2012, p. 198), standing not only for survival but "for sustainable and flourishing relations" is critical for much-needed care for all.

The Earth has entered the *Anthropocene* epoch (Crutzen, 2006). While the concept is a matter of dispute (Haraway, 2015), this epochal turn is seen as an opportunity for the radical transformation which is urgently needed (Rappleye & Komatsu, 2020). As an *ecosocial policy*, CCE can acknowledge that humans are not only social but ecological beings and thus address "the systemic pathology of a species disconnected from the conditions of its world" (Wright, 2014, p. 278). CCE can aim to encourage all members of the education ecosystem understand the "foolishness of human exceptionalism" (Haraway, 2008 p. 244) and weave paths to "recognize connectivity, feedback loops, interdependence and vulnerability" (Wright, 2014, p. 278).

In this thesis, I discuss K-12 education policies in Turkey in terms of whether and how they reflect on the *climate crisis*. Clearly, the practices of one nation will not be adequate to respond to global scale crises. However, such complex issues need to be worked at all scales. In Turkey, the impact of the *climate crisis* at K-12 levels concerns over 16 million students at K-12 level, over one million teachers, and 67,121 schools (MEB, 2021). Therefore, I examined national policies in this thesis. I have reviewed policy documents and the literature and interviewed key informants with a range of experience in various disciplines in order to understand the preparedness of the Turkish K-12 formal education system for the *climate crisis* and to determine whether the public administration in Turkey is able to prepare a consistent CCE policy that aims for urgent action. Here I discuss Turkey's climate policy in relation to K-12 formal education, the prevailing and potential impacts of the *climate crisis* on K-12 formal education, the actions required to strengthen K-12 formal education policies against the *climate crisis* and the policies required to reduce the effect of K-12 formal education on the *climate crisis*. I attempt shed light on the fragmented CCE-related policies and to cultivate insights on the current situation, gaps and urgent needs and the opportunities for a quality K-12 CCE across all formal education settings in Turkey.

I am highly concerned about the slow reaction given to the *climate crisis* within the K-12 formal education system in Turkey. Children and young people are

enrolled in an education system that does not meet today's conditions and needs. Yet, the system they are a part of does not keep them from becoming highly aware of the problem. With this thesis I expect to facilitate discussions on CCE in Turkey by providing a coherent genealogy of the steps taken and not taken since the Earth Summit of 1992. However, the absence of a CCE policy and the fragmented nature of the efforts made constrain my analysis and limit the potential for significant progress. Furthermore, the top-down structuring of policies neglects all those affected – particularly students and teachers in the case of education. This study was most affected by the lack of a clear and *ecosocial justice*-based *climate crisis* policy in Turkey. Without such a policy, education policies will lack a much-needed foundation.

1. RESEARCH DESIGN AND METHODOLOGY

1.1. THE PROBLEM, RESEARCH AIMS AND QUESTIONS

The main problem of this thesis is the human-generated *climate crisis* and its place in education. The crisis is real and everywhere, but within the K-12 formal education system in Turkey, the *climate crisis* has not yet been prioritised. The impact of the *climate crisis* is highly unequal, and it hits the most vulnerable hardest. According to the IPCC's *Global Warming of 1.5°C* report (Masson-Delmotte et al., 2018), we have only ten years remaining as of 2021 to minimise the inevitable impacts of the *climate crisis*. However, the World Meteorological Organisation (WMO) (2021) predicts an increased likelihood of temporarily reaching a rise of 1.5 °C within the next five years. It takes time to understand and react to complex problems; but there is no time to accumulate more knowledge and awareness on this matter. The collective knowledge that has accumulated about the reasons and impacts of the *climate crisis* is incontrovertible. It has been 29 years since the launch of the UNFCCC in 1992, and since then, entire generations have been born into a hotter world. Children and young people are particularly exposed

and vulnerable to the impacts of the *climate crisis* (Rees et al., 2021). According to *The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index*, two billion children are at high risk from air pollution, 920 million children are at high risk from water scarcity, 820 million children are at high risk from heatwaves, 815 million children are at high risk from lead pollution, 600 million children are at high risk from vector-borne diseases, 400 million children are at high risk from cyclones, 330 million children are at high risk from riverine flooding and 240 million children are at high risk from coastal flooding (Rees et al., 2021, p.10). Children's vulnerabilities arising from the *climate crisis* are not limited to those listed above; most children face intersectional problems and multiple effects. Thus 2.2 billion children are exposed to at least two threats, 1.7 billion children to at least three threats, 850 million children to at least four threats, 330 million children to at least five threats and 80 million to at least six threats caused by climate and environmental hazards, shocks, and stresses (Rees et al. 2021, p. 11). Moreover, these threats seriously jeopardise children's wellbeing, resilience, and adaptive capacity. The impacts of the *climate crisis* interrupt access to essential services such as health, food and education, and these interruptions further increase their vulnerabilities. Education is among the essential services that provide children with the necessary knowledge and skills to mitigate and adapt to the *climate crisis*. Under these circumstances, it is not surprising that children and young people have stepped up and started to strike against inaction and have been calling for immediate and urgent action worldwide since 2018. They are demanding radical changes in climate policies to achieve net-zero carbon emissions and calling for high-quality climate education (Teach the Future, 2021, September 26).

Although the importance of education that addresses the *climate crisis* has been acknowledged by the UNFCCC and subsequent international agreements since 1992, only 26% of the Nationally Determined Contributions (NDCs) submitted by the UNFCCC member parties have "referenced education as a strategy for increasing the knowledge, skills, and capacity of primary and secondary school children to adapt or mitigate climate change" (Rees et al., 2021, p.24). According to UNESCO's (2019) *Country Progress on Climate Change Education, Training*

and Public Awareness report, based on National Communications (NCs) and NDCs submitted by the parties to the UNFCCC, found that:

- Ninety-five per cent of the countries incorporated some form of CCE in one or more of their NCs/NDCs.
- Most of the target groups mentioned in the NCs/NDCs (over 50% of the references) were within formal education.
- Of the six CCE approaches (education, training, public awareness, public participation, public access to information, and international cooperation) coded for the analysis, 17% of the references are to formal education compared to 47% for public awareness.
- Of the formal education references given in the NCs/NDCs, the cognitive dimension of CCE received most attention at all levels from primary to tertiary education.
- Seventy-two per cent of the countries reported environmental education (EE) in their submissions and 26% education for sustainable development (ESD).
- Ninety per cent of the NCs and 11% of the NDCs included CCE-related contents (The parties to the UNFCCC submit actions already taken in their NCs and future plans in their NDCs).
- In both NCs and NDCs, the greatest importance is attached to the curriculum aspect of the issue.
- Only 30% of country submissions contained CCE related quantitative data (pp.5-13).

UNESCO has been the lead UN agency on ESD since the Decade on ESD 2005-2014 and responsible from framing CCE to promote principles and practices of sustainable development. It collaborates with other UN agencies to foster CCE through the UN Alliance on Climate Change Education, Training and Public Awareness. It also implements the global "Strengthening Climate Change Education for Sustainable Development (CCESD) at National and Regional Levels" programme. Thus, it monitors the state of CCE at a national level. Its'

findings regarding the availability of data on the six CCE approaches (22%), on climate change responses (2%), and on ESD/(GCE) within formal education (7%) (2019, pp. 5-13) reflected that the member nations give alarmingly low priority to CCE. It is worth noting that even where countries submitted evidence of existing CCE policies, the CCE which they implement may not be relevant to the children and young people, since the impacts of the *climate crisis* vary within regions and even within cities. For instance, in a country with an economy based on fossil fuels, CCE provided as part of formal education may even spread misinformation. UNESCO's (2019) report points to a lack of significant progress on CCE and a need to climate proof the education sector (Reid, 2019b).

As seen in the NCs and NDCs submitted, the most common of the six CCE approaches is public participation, which aims to "[i]nvolve all stakeholders in decision-making and implementation" (UNESCO & UNFCCC, 2016, p. 3) and "[e]ngage all stakeholders in debate and partnership to respond collectively to climate change" (Reid, 2019b, p. 769). According to Reid (2019b), the education approach of CCE should aim to "[f]oster a better understanding of, and ability, to address climate change and its effects" (p. 769). Current education policies do not "address socio-ecological issues", and most are "often ill-thought, underfunded, overstretched, and undervalued" (Reid, 2019b, p. 770). Kwauk's (2021) recent study on the latest NDCs to the UNFCCC as of the summer of 2021 – which is discussed in Section 3 – is compatible with the 2019 UNESCO data. Her findings indicated that there has not been much progress on CCE since 2019. Bieler et al. (2018) argued that there is "shallow engagement with climate change within education policies" (p. 63). This led me to conduct a review of CCE policies in Turkey to analyse the depth of engagement.

This thesis treats CCE as an *ecosocial policy* and seeks to identify whether and how Turkey's K-12 formal education system is responding to the *climate crisis.* It goes on to make a critical assessment of the gaps in order to identify the outstanding needs. It also proposes policy priorities with a view to contributing to and catalysing further discussions.

CCE is regarded as one of the instruments that may be employed to create an informed and empowered society and enable government officials to make decisions and undertake preparations to help protect communities against the *climate crisis* and its adverse impacts (UNESCO, 2010). Thus, this thesis aims to shed light on the current state of CCE policies in Turkey and the outstanding shortfalls. I also hope to contribute to policy discussions on how public institutions, schools and NGOs can inform and empower climate citizenry and action. To this end, I seek to answer the following research questions:

1) Is the public administration in Turkey preparing the K-12 education system for the *climate crisis* and if so how?
2) What CCE policies do the key informants consider it necessary to prioritise?

1.2. PUBLIC PERCEPTIONS OF THE CLIMATE CRISIS AND EDUCATION AS PART OF THE SOLUTION

Before attempting to analyse the state of CCE policies and the outstanding gaps in these policies, it will be useful to understand how the public perceives the *climate crisis* and education in relation to the crisis. Most of the studies I discuss below use the term 'climate change'. When referencing previous studies, I retain their terminology; otherwise, I use *climate crisis* for the reasons given in the second section of this thesis.

"Public perceptions" is the term used to describe how communities react and behave in response to an issue. The definition of 'climate change perception' according to van Valkengoed et al. (2021) is "people's perceptions of the reality and causes of climate change, and the perceived valence, spatial distance, and temporal distance of consequences of climate change" (p. 1). When addressing needs in the context of the *climate crisis*, it is critical to understand public perceptions, given the degree of citizen engagement needed for most actions – i.e., the high level of public commitment required for the adoption of mitigation and

adaptation measures and the implementation of policy interventions, and the importance of the public in advocating for legislation, changing consumer behaviour and taking responsibility (Dal et al., 2014; Van Valkengoed et al., 2021). Undoubtedly, public responses and behaviours are subject to sociocultural and political factors, and individual and structural factors interact (Capstick et al., 2015). Since the 1980s, research has shown that more people worldwide have come to perceive the *climate crisis* as a critical problem and acknowledge the need for life-changing transformations. Researchers have therefore taken a close interest in perceptions of the *climate crisis* and educating young people (Dal et al., 2014). In this respect, research on public perceptions of the *climate crisis* is increasing and according to Capstick et al., "we are now in a position to take stock of the key trends over this time period" (2015, p. 36).

However, the perception studies differ in the types of the *climate crisis* perception they assessed and the methods they used; and this is a barrier against a coherent and cumulative understanding (Van Valkengoed et al., 2021). Additionally, Schäfer et al. (2020) challenged the bias towards Western nations, the lack of representation from the global south and the "standardized research methodologies" of perception studies (p. 4). Acknowledging these limitations, I shared two research for an overview and then discussed the role we can claim for education.

UNESCO's *The World in 2030: Public Survey Report* was intended to help design a "clear and systematic framework for action" on the world's most challenging problems (UNESCO, 2021, p. 6). In the survey, participants were asked to state which obstacles they were most concerned about and which solutions they felt were needed most in order to resolve these obstacles. There were over 15,000 respondents, most of them women and young people. Sixty-seven per cent of all the respondents, 70% of the woman participants and 71% of respondents aged under 25 selected climate change and biodiversity loss as the biggest challenge their communities faced. Not unexpectedly, education for sustainability (EfS) ranked second among the most recommended solutions. A substantial majority of the

participants regarded disrupting and restructuring the growth- and consumption-based economy – at all costs – as the primary solution for combatting climate change and biodiversity loss (UNESCO, 2021, p. 6). This is a crucial finding that is reason for hope. The survey results placed education as a "valued and wide-reaching solution" to global challenges encountered on Earth's almost every corner (UNESCO, 2021, p. 36).

The survey participants provided another critical insight in response to a question about what is "most in need of rethinking in light of the COVID-19 crisis" (UNESCO, 2021, p. 42). It is an unfortunate fact that the COVID-19 pandemic has affected more than 1.6 billion school-aged children and young people worldwide, deepened existing inequalities and generated new ones (Ergün & Arık, 2020). In the survey, 47% of the respondents selected education and learning as the domain most in need of re-thinking, reflecting the long-felt necessity for educational improvement. Not unexpectedly, the bond between humans and nature was the domain second most in need of change (UNESCO, 2021, p. 42).

KONDA Araştırma ve Danışmanlık Şirketi and *İklim Haber* have been conducting climate change perception surveys in Turkey annually since 2018. According to their most poll (Doğru et al., 2020), a substantial majority of the citizens of Turkey – regardless of their political views and socio-economic status – are concerned about climate change. KONDA's assessment showed that three out of four respondents were worried about the *climate crisis* and one out of four did not expect policymakers to take the necessary measures against it. Nearly 70% chose one of the options 'I am worried' or 'I am quite worried'. This represented a decline compared to the 2018 results (74.7%) but an increase compared to 2019 (60.5%). The percentage of those who responded 'I am not worried at al' was 17.2%, which rather high. While 28.6% of the participants thought the climate change occurs naturally, 71.4% agreed that it is caused by human activities. Due to the pandemic conditions worldwide and in Turkey, the research team included new questions in the 2020 survey. Consequently, it was found that 51.5% of the participants perceived the climate change as a more significant problem than the

pandemic, while 42% assumed that it was an urgent concern, but less so than the pandemic. The percentage of those who believed that climate change does not exist was 6.5%. The survey result demonstrate that the citizens of Turkey are aware of and interested in environmental issues. A wide range of social groups acknowledge that climate change is due to human activity and that its consequences are escalating. Large numbers of participants perceive it as more critical than the pandemic and favour green economy options once the pandemic ends. The survey results do not differ significantly by political opinion, party affiliation, identity or level of education (Doğru et al., 2020, p. 4-5). The researchers conclude that there is a significant and broad consensus on the climate change and the environment in Turkey, despite the deep political polarization.

The study of van Valkengoed et al. (2021) can be thought-provoking in further understanding and designing studies on the perceptions of the *climate crisis*. Their study reflected that the perceptions could explain the behaviour towards the *climate crisis* and support for mitigation and adaptation policies. More people perceive the *climate crisis* as "real, human-caused, and occurring close by in time and space" and climate scepticism is not as widespread as considered; yet this might not result in action (p. 15). People may act towards mitigation behaviour if "they perceive the valence of consequences of climate change to be negative" (p.16). Thus, the study recommended focusing on encouraging and empowering people to act and support policies, rather than persuading them "about the reality, human causes, or negative consequences of climate change" (p. 16). Although the survey of Doğru et al. (2020) presented a significant and broad consensus on the *climate crisis* in Turkey, there are studies that showed the lack of knowledge and misinformation on the causes and effects of the *climate crisis* (Şen & Özer, 2018; Korkmaz, 2018; Ceyhan & Muğaloğlu, 2019; Atik & Doğan, 2019). Yuvam Dünya Derneği & KONDA Araştırma ve Danışmanlık Şirketi (2021) also lit the light on the lack of awareness of the impact on events that directly and radically affect people's lives.

The knowledge and perceptions on what are expected are superficial. The IPCC report (Masson-Delmotte et al., 2018) has emphasised the urgent need to transform human systems which are currently based on economic growth and consumption. Given that the Earth is swiftly advancing to a temperature increase of 1.5°C by 2030, this warning is highly justified. Scientists warn that once the 1.5°C mark has been reached, humanity should expect both the expected – i.e., drought, floods, extreme temperatures, forest fires, and poverty – and the unexpected too. Rockström and Kalrberg (2010) exposed the inaccurate view that "ecosystems change occurs in incremental, generally linear, and thereby predictable (and controllable) ways". Countering to this widespread but erroneous assumption seeded by the predominant social and economic paradigms, Rockström and Kalrberg (2010) argue that "ecosystems change in non-linear ways as a response to disturbance regimes, often abruptly and irreversibly". They argued that there is an element of surprise, and that a single disturbance might cause almost all the changes in the ecosystems and that we may even not be aware of that disturbance (Rockström & Kalrberg, 2010). The world has witnessed many examples of these disturbances since their thought-provoking article, such as the horrendous fires which occurred that happened throughout 2020 and 2021, degrading the buffering capacity of ecosystems, which is of great importance for safegurding the "resilience to shocks and disturbance, which reduces the operating space for human development" (Rockström & Kalrberg, 2010). At 1.5°C and beyond, *never-been-modern societies* (Latour, 2012) may no longer be able to continue their current lifestyles; they will have to focus entirely on surviving on an intensely degraded Earth (Silova et al., 2018).

The IPCC's report (Masson-Delmotte et al., 2018) has set out the challenges with their projected risks and impacts and called for a range of actions. Nevertheless, as Silova et al. (2018) have stated, such calls for action accord pay only passing attention to the role education plays in the climate crisis. The "*two cultures"* (Snow & Collini, 2012) paradigm seems to recur, since "virtually no educators participated in the writing of the IPCC report" (Silova et al., 2018). This might reflect policymakers' failure to invite educators, as well as educators' interest

in climate policy processes. Kwauk (2020) shared a US based research that presented the percentage of teachers (86%) who thinks climate change should be taught in schools and who already teach (42%). According to this study, the teachers who do not teach the *climate crisis* consider it outside the scope of their subject area (Kwauk, 2020).

Moreover, they focus primarily on individual behaviour changes. The IPCC stated that:

> Public acceptability can enable or inhibit the implementation of policies and measures to limit global warming to 1.5°C and to adapt to the consequences. Public acceptability depends on the individual's evaluation of expected policy consequences, the perceived fairness of the distribution of these consequences, and perceived fairness of decision procedures. (Masson-Delmotte et al., 2018, p. 22)

Measures "not connect[ing] with what matters to individuals and communities" are likely to fail (Adger et al., 2012, p.5). Emphasising the public's role as an advocate for policy action is essential, but it also entails a risk of overshadowing the accountability of the decisionmakers. Today's challenges are far beyond what an individual, a community, an institution or a nation can manage (Feriver Gezer, 2020), let alone a divided two culture policy (Snow & Collini, 2012). While practical actions by individuals are imperative for combatting the *climate crisis*, putting responsibility solely on the shoulders of individuals rather than decisionmakers can be considered a denial.

One of the critical dilemmas in the structure of contemporary education construction lies in its roots, which are closely entangled with the economic and human development paradigm. It is assumed that as access to quality education increases, so will pro-environmental behaviour. However, the current structure of most education systems, including the system in Turkey, pushes masses of individuals towards the ideal of development based on economic growth and

consumption. The myth that education is only for "upward mobility and success" is deepened (Orr, 2011, p.241). The intention here is not to step back from the universal target of ensuring every child's right to education. Currently, education is both an accelerator of the *climate crisis* and one of the domains which it affects, but at the same time it has the power to remake and transform culture. Silova et al. (2018) have put forward two suggestions to make education on of the contributing solutions for the *climate crisis*. First, they propose that education should diverge from the path of growth-oriented economic development. Neither the *climate crisis* nor poverty or any other global challenge is a technical problem that nations can solve through a form of education that builds a development story (Hickel, 2017). Such interventions through education may serve the purpose in the short term, but they will eventually fail unless they address the root causes and the structural determinants of the current challenges.

In many nations, perceptions of success centre on academic success. Progress towards a sustainable society, in which "a world with many worlds" (De la Cadena, 2018) is the norm and diversity and "polyphony" (Tsing, 2017) are valued, has not yet been accepted as the true measure of success of any given educational system. I should add that my knowledge is limited to the western education systems, whereas indigenous education systems might have such measures and goals. Research has shown that "higher cognitive skills and knowledge" alone will not lead to sustainable pathways, but that culture has the power to move people towards taking actions (Adger et al., 2012). It may be necessary to change curricula and depart from the path that leads the education community towards building more and more knowledge and skills. However, what has to be challenged first is the assumption of the exceptionality of the human being that runs through all the veins of the education system (Silova et al., 2018).

1.2. METHODOLOGY

In order to identify the CCE policies within K-12 formal education in Turkey, I selected a qualitative and descriptive approach that includes a literature review, desk research, a descriptive education policy analysis, and in-depth interviews with key informants. I am fully aware that quantitative and qualitative research frameworks and multifocal research (Young, 1999) are all necessary to present a relatively holistic image of an issue as complex as CCE,. However, a quantitative framework that requires a representative sample and survey design is was not included in the research activities. This thesis recommends that future researchers engage in representative cross-sectional and longitudinal quantitative studies on CCE that will reflect the situation at the national, regional, and local levels.

Güler Yıldız et al. (2021) emphasise the literature review as essential to identifying, highlighting, and revealing the critical arguments related to the research question. Therefore, I have scanned journal articles, books, and web-based resources using search engines and bibliographical databases. I took notes and structured my interviews accordingly, and in this way formed the references for my thesis. I accessed publications from the Web of Science, JSTOR, ERIC, EBSCOhost, YÖK National Thesis Centre and DergiPark Akademik databases. I used the following keywords: “climate literacy”, “climate and education”, “climate change education”, “climate change education for sustainability”, “climate change education policy”, “climate education policy”, and “climate change and education policy”. I included peer-reviewed articles, book chapters, research reports and theses in English and Turkish.

Monroe et al. (2017) carried out a systematic review of CCE research in English, collecting research from the EBSCOhost database, with a view to presenting ideas for the design of effective CCE. Their research was limited to studies that “tested, measured, and reported results of a climate change educational intervention” and were published between 1990-2015 (p. 792). Their findings

reveal a growing interest in CCE over the years. Nevertheless, although there is a plethora of information, there is no consensus on what strategies are effective in formal and non-formal settings. The authors suggested further research on understanding "how nations address climate change" along with "[a] review of national educational policies and programs" (pp. 806, 807). In line with the need specified by Monroe et al. (2017) and considering the low number of studies on education policies at the national level, I opted to examine how national K-12 formal education policies in Turkey address the *climate crisis*.

In addition to the literature review, I carried out desk research on public policies. For this, my primary sources of information were the UNFCCC, the IPCC, other UN agencies, the Ministry of National Education (MNE), the Ministry of Environment and Urbanisation (MEU), the Ministry of Agriculture and Forestry (MAF), national and international NGOs, and think-tanks. Ball (2015) discusses how "[p]olicies both change what we do (with implications for equity and social justice) and what we are (with implications for subjectivity)" (p. 306). Public policies shape and reshape, structure and restructure contexts that can alter "individuals' opportunities, capacities to act, and self-concepts" (Young, 1999, p. 679). They are "a course of government action or inaction in response to public problems" (Kraft & Furlong, 2018, p. 38). I was only able to access a limited number of studies on CCE policies. I have therefore also used descriptive education policy analysis to examine CCE related K-12 formal education policies and dissect and understand policy problems and solutions (Kraft & Furlong, 2018). Here, I have tried "to answer questions about who, what, where, when, and to what extent" CCE policies have been designed and what their effects have been (Loeb et al., 2017, p.v). My intention with the analysis is to "inform the process of public deliberation and debate about those decisions" (Kraft & Furlong, 2018, p. 199).

Education policies are complex and multifaceted, and K-12 formal education policies are "monumental" (Kraft & Furlong, 2018, p. 199). Thus, I have limited the documents I have reviewed to be able to cope and to conduct analysis within the framework of a master's thesis. Policy transfer regarding the *climate*

crisis is mainly from the UNFCCC and IPCC; thus, I have examined their critical documents. Additionally, the primary high-level policy documents I have reviewed were the *National Climate Change Strategy 2010-2023,* the *National Climate Change Action Plan 2011-2023,* the *National Climate Change Adaptation Strategy and Action Plan*, the *Development Plans*, the *National Communications*, *Turkey's Education Vision 2023*, the *2019-2023 Strategic Plan* of MNE, the *Performance Programmes* and *Annual Activity Reports* of MNE, the K-12 curricula and selected MNE protocols with public organisations and NGOs.

I have analysed policy documents retrospectively, discussed, anticipated the impacts of the decisions, and thought "seriously and critically about them" (Kraft & Furlong, 2018, p. 200). Similarly, and regretfully, due to the limitations of master's thesis, and the fact that this is the first study in Turkey to attempt to establish the relationship between K-12 education policies and the climate crisis, I have narrowed my scope and focused on "text and language rather [than] discourse" (Ball, 2015, p. 311) as the object of study. However, this thesis suggests further research, as Ball (2017, p. 311) recommended, that "address 'The Order of Things (Foucault 1970)'" on CCE policy in Turkey.

Finally, I have conducted in-depth interviews to ascertain the needs perceived and recommendations suggested by selected individual *key informants*, all of whom are concerned with the *climate crisis* and are working in the fields of education, child well-being, sustainability, and/or the *climate crisis*. These 40–60-minute semi-structured in-depth interviews with senior level public officials, climate scientists, academic experts in public policy, teachers, students, and civil society experts were guided by the following questions, which were revised after expert feedback. I have interviewed 45 individuals but included only 23 of them in this thesis who signed the consent form. The questions I asked are:

1. How would you define Turkey's climate and CCE policy?
2. How does the *climate crisis* affect K-12 formal education in Turkey? How will the *climate crisis* affect K-12 formal education in Turkey?

3. What should the aim of CCE policy for K-12 formal education in Turkey be?
4. What kind of difficulties/barriers might policymakers encounter when designing and implementing CCE policy?
5. What interventions might overcome the difficulties encountered?

Besides the methods explained above, to overcome the "lack of diversification in educational research and policy studies" and desensitization due to "time-worn assumptions, norms, and traditions that have been institutionalized and thus are accepted by most researchers", I preferred Young's (1999) multifocal educational policy research approach (p. 678). I used both traditional and critical approaches. In this thesis, the traditional theoretical approach follows the path of a continuum that flows from environmental education towards education for sustainable development and then climate change education. For the critical approach, I have chosen to extend theories and stretch the conceptual terrain of education as social policy towards the education as *ecosocial policy* and thought with the *political ecologies of education*.

1.3. LIMITATIONS

The lack of studies on education policies in relation to the CCE required this thesis to consider a broader range of CCE policies. Most studies on CCE focus on perceptions or implementation, and CCE have been primarily implemented through non-formal education. Only a few studies targeted education policy analysis regarding the *climate crisis*. Another obstacle I have experienced was the language barrier. The research in Turkish in this area is minimal, and most studies in English have adopted a Western perspective. I have attempted to examine articles in Spanish and French as well; however, I am not proficient in either of these languages. In addition to these constraints, I have carried out qualitative research, which has its

own limitations. My individual experience and perception of the climate crisis has shaped the descriptive analysis. Furthermore, K-12 formal education policy analysis in Turkey is constrained by problems of accountability, transparency and access to public information and public data. It has been getting harder to obtain public data since 2012 (Dinçer et al., 2013; Dinçer et al., 2014; Dinçer et al., 2015; Madra et al., 2016; Madra et al., 2017; Arık et al., 2018; Korlu, 2020; Korlu et al., 2021). It was not easy to contact and reach experts working in the public administration. I was only able to contact the Board of Education and the vocational education specialists. I interviewed a small number of specialists from MNE together with a few teachers who have recently taken an interest in CCE. Since I was unable to obtain the consent of public officials, I have excluded the interviews with them from this study. I was unable to obtain a response from the Ministry of Environment and Urbanisation. I have also carried out interviews with individuals. These discussions are not representative and most of the interviewees are from Istanbul, Izmir, and Ankara. I also tried to contact young climate activists from provinces in southeastern and eastern Turkey – namely Diyarbakır, Siirt, Mardin, Muş and Van – but I was unsuccessful in reaching out to these regions. While I have carried out policy analysis, I am aware that education policy and practice for CCE is only meaningful when studied together and at all levels, rather than in silos and at a single level. However, such an approach is beyond the scope of this thesis. There is a plethora of EfS, ESD and EE studies in Turkey and worldwide, and considering these studies would be beyond any master's thesis.

I am also fully aware that CC policy and CCE policy have strong ties with *power geometry* (Massey, 2009). Although there is limited space within the scope of this thesis, I have tried to overcome the absence of any discussion of *power geometry* by attempting to *think with* the *political ecologies of education* within the context of CCE. More attention needs to be paid to *power geometry*, social dynamics, inequality, and justice. Despite all these limitations, of which I am fully aware, I hope this thesis will contribute to the dissemination of different ways of thinking and acting differently towards the Earth and "learning to become with the world" through formal education (Common Worlds Research Collective, 2020).

1.4. OUTLINE

This thesis consists of four main sections, including this section in which the research design and methodology have been presented. In the second section, I discussed the theoretical framework for CCE. I started with the terminology of the *climate crisis* and then moved on to CCE. I have acknowledged CCE as an *ecosocial policy* and attempted to *think with* the *political ecologies of education*. In the third section, I presented the descriptive education policy analysis regarding CCE in Turkey. This section also includes a brief policy comparison with some countries that are active in the CCE policy field. In the fourth chapter, I discussed the recent situation, outstanding gaps, and the elements needed for an effective CCE policy through interviews with key informants. I concluded my thesis with key findings and future study recommendations.

2. THEORISING CLIMATE CHANGE EDUCATION

2.1. "CLIMATE CRISIS" AS AN ACKNOWLEDGED FRAME

"It's 2019. Can we all now please stop saying 'climate change' and instead call it what it is: climate breakdown, climate crisis, climate emergency, ecological breakdown, ecological crisis and ecological emergency?"

Greta Thunberg's tweet posted on May 4th, 2019

Words and frames matter for public understanding and engagement. Understanding of causes is expressed through words and frames. Individuals – and institutions – pay attention to words when they discuss, converse, argue and call for action. Communicating a cause that calls for and leads action is not an easy task, particularly for multifaceted causes such as the *climate crisis*. Nisbet (2010) speaks of the importance of framing in instances that includes ambiguity or uncertainty and

depending on the message conveyed and the way it is framed and shows that individuals can respond in various ways in line with the terminology used to define the cause. Şahin and Üzelgün (2016) point to the role played by the media in communicating multidimensional issues such as climate change that require rapid political decisions. The attention paid by the media to the IPCC's *Special Report: Global Warming of 1.5°C* published in 2018 facilitated the spread of acknowledgement of the urgency of the *climate crisis*.

Public discourse on climate change has changed over the years, facilitating the adoption of the expression *climate crisis* as opposed to climate change' (Erviti, 2020). According to Erviti (2020) the term 'climate change' was first introduced by Wallace S. Broecker in his article *Climate Change: are we on the brink of a pronounced global warming?* published in 1975. The UNFCCC (n.d.) has defined climate change as "a change in climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that adds to the natural variability of climate observed over comparable periods of time". Until recently, global warming was the most commonly used expression, but since 2007 climate change has gained ground instead. Whitmarsh (2008) argues that unlike global warming, climate change also carries connotations about aspects of the climate other than the increase in temperature. Lakoff (2010) attributes the spread of climate change to the Bush administration in the USA, since one of the president's advisors once noted that climate change was less scary than global warming.

Greta Thunberg was not the first to use the term *climate crisis*; various academics from a range of disciplines had already opted this expression before 2018 (Archer & Rahmstorf, 2009; Leahy et al., 2010; Goodman, 2010; Plowright, 2016). However, Greta Thunberg's social media post of May 4th, 2019, in which she called for a change of terminology had an important impact. Following her appeal, both key opinion-makers – particularly young climate activists – and some members of the press changed their language. I have also deliberately opted for the term *climate crisis* over climate change in response to Greta Thunberg's post and the calls of

other opinion-makers. However, I must also share my concern over the need to discuss this terminology further. Aykut Çoban prefers *degradation* to *crisis* (Çoban, 2020). In an interview, he explains that Turkish dictionaries define *degradation* as "maltreatment", "damage", and "diminished vitality" (Başcan, 2021). He also mentions various English synonyms for *degrade* – namely, "ruin", "demolish", "devalue", "disparage", "wear" and "disrespect". According to Çoban, the term *crisis* does not acknowledge the maltreatment of *more-than-human* beings, disrespect for nature, and soil degradation. Although he has no objection to using the term *crisis*, he argues that it evokes apocalypse, which could lead to band aid-type solutions. He suggests being cautious about addressing political authorities/power in the search for solutions, since quick-fix prescriptions de-emphasise the complex causes of the problem. Greta Thunberg appears to be exceedingly alert to this problem and repeatedly brings up the issue of the ignorance of those with power and responsibility.

María Carmen Erviti (2020) summed up the new discourse on the *climate crisis* or *climate emergency* in the sample Spanish newspapers following the publication of the IPCC's *Special Report* (Masson-Delmotte, 2018). Erviti found that the newspapers she reviewed rarely used the *climate crisis* or climate emergency during the 2015 Paris summit, but that this had changed by the time of the 2019 Madrid summit. Even so, climate change continued to be the most widely used term. In her article, Erviti shares her concern over the need for a consolidation of the emerging language on the *climate crisis*.

The Nieman Journalism Lab at Harvard University reports that *The Guardian* has updated its style guide to introduce terms that more accurately describe the environmental crises facing the world and started to use the term *climate crisis* in preference to climate change (Hazard Owen, 2019). *The Guardian*'s argument is that the climate change "sounds rather passive and gentle when what scientists are talking about is a catastrophe for humanity". Damian Carrington (2019) presents examples of this shift in terminology from UN agencies and even the Pope (para. 3, 5, 6). *The Guardian* journalists, columnists and guest

authors are not banned from using the term climate change but are encouraged to use the terms climate emergency, *climate crisis* or climate breakdown instead of climate change, global heating instead of global warming, wildlife instead of biodiversity, fish populations instead of fish stock, climate denier instead of climate sceptic. One of the leading climate movements, 350.org, has noted that in 2018, only 3.5% of national news stories that addressed climate change referred to it as a *crisis* or emergency. 350.org – together with the Climate Reality Project, Food and Water Watch, Climate Hawks Vote, The Climate Mobilization, Years of Living Dangerously, Hip Hop Caucus, Friends of the Earth, Progressive Democrats of America and the Center for Biological Diversity – has launched a petition entitled the "*Call it a Climate Crisis Campaign*" and invites major TV news outlets to use the term '*climate crisis*' (Schriner, n.d.). The campaign asks to cover the issue as a *crisis* at a time "when lethal heatwaves are the new normal", "[w]hen stronger storms force millions from their homes over and over again", and "[w]hen kids walk out of school so adults will see their futures at stake" (The Action Network, n.d.).

In this thesis I have preferred the expression *climate crisis* to climate change, but in order to stay in line with the accepted terminology in the field of education policy, I have made an exception for the term *climate change education* (CCE) – although there are recent studies that used *climate crisis education*.

2.2. FROM ENVIRONMENTAL EDUCATION TO CLIMATE CHANGE EDUCATION

One cannot attempt to review CCE without first recalling the discussions on Environmental Education (EE) and Education for Sustainable Development (ESD), which are "highly debated and contested" concepts and "means different things to different people" (Hung, 2014, p. 18). Both in Turkey and in the rest of the world, EE and ESD programmes are mainly implemented by NGOs. However, national frameworks and policy priorities are primarily catalysed by international and intergovernmental organisations (Johnson, 1980; Palmer, 2002). In this section, I

will therefore briefly discuss the international events and other developments, as well as the critical documents and definitions, that have shaped EE and ESD starting from 1972, when international efforts on EE first gained momentum – even though I am aware that both EE and ESD have "consistently prioritized Western education models that focus on economic growth" (Silova et al., 2018, para. 5).

2.2.1 Environmental Education

EE is known to have had prior definitions, but one of the first definitions used by the UN was agreed at the International Working Meeting on Environmental Education in the School Curriculum jointly held by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the International Union for Conservation of Nature (IUCN) in 1970. The idea for this meeting stemmed from a recommendation made during the Biosphere Conference convened by UNESCO in 1968. Following the discussions on defining EE, the delegates reached a consensus and in the final report of the meeting EE was defined as:

> the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality. (IUCN & UNESCO, 1970, p.11)

Nonetheless, EE essentially acquired international recognition – not for EE researchers such as Joy Palmer but among the general public – at the UN Conference on the Human Environment in Stockholm in 1972. The *Stockholm Declaration and Action Plan for the Human Environment* that emerged from the conference included 'education and training' as a supporting measure. Recommendation 96 of the Declaration stressed the urgent need for

interdisciplinary EE in and out of school and for all age groups. According to Blackburn (1983), this need was argued based on the assumption that administrative actions that aim to improve the environment cannot be successfully implemented unless supported by the wider public. The proposal also reflects the view that individual change, which can be achieved through education, is essential for the protection and improvement of the environment.

In response to this recommendation, UNESCO and UNEP initiated the International Environmental Education Programme (IEEP) in 1975 (Blackburn, 1983). A small group of staff at UNESCO's Division of Science, Technical and Vocational Education started work on determining needs and priorities for EE. The team went on to identify the needs and policy alternatives for member states. The IEEP commissioned fourteen experts to prepare papers on trends in EE, and these were discussed at the International Workshop on Environmental Education held in Belgrade in 1975 with the participation of educational experts from all around the world. The workshop was intended to draw up recommendations for the future work of IEEP's and the implementation of EE worldwide. However, the delegates came up with a surprising output – *The Belgrade Charter: A Framework for Environmental Education*. This critical document in the field of EE was adopted by common consent. The key importance of this critical EE document, which was adopted unanimously, lay in the way it upset the prevalent view that working on EE was 'safe' and 'comfortable'. The Charter begins by referring to the social and environmental inequalities generated by economic growth and technological advances. The signatories declared that handling problems such as poverty, pollution, illiteracy and domination separately did not and would not work, and that the economic growth of nations could not be allowed to proceed at the expense of other nations or the environment. Consequently, they underlined that a new global ethics should be developed that situated humanity within the biosphere and the necessary budget for all the efforts on EE could be allocated by restricting the military spending.

The IEEP's work on the recommendations led to the first Intergovernmental Conference on Environmental Education held in Tbilisi in 1977. Turkey was one of the 66 UNESCO member states that participated in the conference and its delegate was an official from the State Water Works. There was also a second participant from Turkey, who was the member of the Executive Committee of the Chamber of Architects. *The Declaration and Recommendations of the Conference* stated that EE should be "provided for all ages, at all levels and in both formal and non- formal education" and "should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values" (UNESCO, 1978, p.24). The recommendations endorsed goals, objectives, and guiding principles for EE. The *Tbilisi Declaration* of 1978 emphasised sustainability and the quality of life and provided the most widely used definition of EE (Krzesni, 2015). It is considered even more radical than the current practices, which are seen as narrow and politically neutral (Gruenewald, 2004; Krzesni, 2015). It stated that:

> Environmental education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values. By adopting a holistic approach, rooted in a broad interdisciplinary base, it recreates an overall perspective which acknowledges the fact that natural environment and man-made environment are profoundly interdependent. It helps reveal the enduring continuity which

> links the acts of today to the consequences for tomorrow. It demonstrates the interdependencies among national communities and the need for solidarity among all mankind. (p. 24)

After 1978, EE activities expanded amid "post Tbilisi mania" (Pace, 1996, p. 14). The IEEP designed curricula, implemented teacher training activities, ran pilot projects that focused on the local level and held assessment meetings; however, EE was not addressed at the national governmental level (Blackburn, 1983). EE gained momentum across the globe, but instead of reforming education policies and practices, it was "disciplined by conventional education" and aligned itself with the existing standards, thus serving "to legitimize, rather than challenge, educational practices that are problematic" (Krzesni, 2015, p. 13; Gruenewald, 2004, p. 76).

2.2.2 Education for Sustainable Development

In 1983, the World Commission on Environment and Development (WCED) was established as an independent UN body. The WCED reassessed the environmental and developmental problems and held meetings all around the world to understand these problems at first hand. It also organised open public hearings at which members of the public could openly express their views and ask questions. The Commission launched its final report, *Our Common Future*, also known as the "*Brundtland Report"* in 1987, shortly before it ceased its operations. Inspired by the *World Conservation Strategy: Living Resource Conservation for Sustainable Development*, which had been published in 1980, and which gave currency to the term 'sustainable development' (IUCN, 1980), the *Brundtland Report* defined the sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). The report led to an increased understanding of the interdependency and relationship between economics and nature and facilitated the

infiltration of the concept of 'sustainable development' into the EE ecosystem. As a result, ESD was integrated into many global frameworks and conventions.

The 1992 UN Conference on Environment and Development (UNCED) – widely known as the Rio Summit – resulted in significant developments regarding EE and ESD. First and foremost, there was a shift in terminology from EE to ESD (Gough, 2013). One of the most significant outputs of the Rio Summit was *Agenda 21*, a comprehensive plan of action for every sphere in which humans have impacts on the environment. Article 36.3 of Chapter 36 of *Agenda 21*, entitled *Promoting Education, Public Awareness and Training*, describes education as "critical for promoting sustainable development and improving the capacity of the people to address environment and development issues". The action plan recommended the incorporation of environment and development education within both formal and non-formal education (Palmer, 2002). This definition came to be known as ESD (UNCED, 1992). However, this development was not welcomed by everyone. Some researchers arged that the move towards ESD would have a negative impact on the stability of EE (Gough, 2013). Wals and Kieft (2010) highlighted another aspect of the ESD when they argued that "business and industry have also discovered ESD, strategically, as a public relations tool" (p. 11). Together with the *Convention on Biological Diversity* and the *Forest Principles*, another highly significant output of the Rio Summit was, of course, the UN Framework Convention on Climate Change, the first international treaty to acknowledge the threat of global warming.

In 2002, during the Johannesburg Summit, the UN adopted ESD as its framework for education and passed a resolution declaring a United Nations Decade on Education for Sustainable Development (DESD) for 2005-2014, with UNESCO as the leading UN agency. The term later came to be used increasingly in international policy circles as a key instrument for realising the Millennium Development Goals (MDG) that were announced during the Rio+5 Conference. By 2008, 78 countries had assigned a national ESD coordinating bodies and ESD was frequently mentioned in national policy documents (Wals & Kieft, 2010). In 2009,

the UNESCO World Conference on Education for Sustainable Development – held in Bonn, and better known as the Bonn Conference – focused on the mid-term review of the UN DESD (2005-2014). It resulted in Bonn Declaration, which was the first international conference declaration to focus exclusively on ESD, and which elaborated the concept in ten paragraphs. The declaration also acknowledged the divide between the MDGs and the DESD and suggested the integration of ESD into MDG initiatives. UNESCO accorded ESD a strategic role in achieving the MDGs to address poverty reduction and Education for All (EFA), not only in the context of sustainable development context but also in that of climate change (Wade & Parker, 2008).

2.2.3 Climate Change Education

Hung (2014) considers "[s]ustainability education, education for sustainability and ESD" (p. 18) as interchangeable and both EE and ESD "have been criticised for ignoring social injustices of environmental degradation and reproducing economic oppressions within neoliberal framings" (Svartstad, 2021, p. 217).

Early definitions narrowed CCE down to climate literacy, which is typically taught in science classes (Anderson, 2013). Deeb et al.'s (2011) *Climate Change Starter's Guidebook: An issue's guide for Education Planners and Practitioners* acknowledges CCE as a fundamental but challenging strategic resource needed to "promote strategies to address climate change in terms of mitigation and adaptation by increasing knowledge and understanding of the causes and impacts" (p. 55). CCE, it says, is essential to "enhance knowledge, skills, values and attitudes for effective mitigation", and education planners and practitioners should therefore mainstream CCE into "education policies, curricula, programmes and lesson plans" (Deeb et al., p. 55). The Guidebook makes a distinction between *CCE for mitigation* and *CCE for adaptation*, and thus argues that CCE needs to be tailored to the local context, the education system in place and the role of the educators. According to

the authors, CCE for mitigation focuses on impact awareness and teaching sustainable solutions, whereas *CCE for adaptation* focuses on strengthening adaptive capacities and resilience, particularly in vulnerable communities. Besides curriculum issues, there is an emphasis on the protection of learners through the transformation of the infrastructure of educational institutions to ensure climate-safe school environments. It is pointed out that the *climate crisis* can harm school buildings and disrupt education in numerous ways – for example, by affecting the psychological wellbeing of the school community or compromising physical safety. (Deeb et al., 2011, p. 55).

In terms of the content and context of CCE, Deeb et al. (2011) underline the need to steer away from the the traditional path of climate science towards a cross-curricular and systemic programme. Both mitigation and adaptation measures demand "more than knowledge of the natural science" (p. 55). Importance is placed upon a CCE that is connected to daily life and recognises the "learners' knowledge and experience" (Deeb et al., 2011, p. 57). When planning CCE, skills, values, and principles can be complicated to define and highly changeable from region to region. In terms of skills, Deeb et al. (2011) highlighted critical thinking, problem-solving, decision making, higher-order thinking skills, living with other ethnic groups and coping with environmental changes, but emphasised that the skills that may be needed might not be limited to these.

In the same document, the former Director-General of UNESCO, Kōichirō Matsuura defined CCE as: "helping learners understand and address the impacts of global warming today, while at the same time encouraging the change in attitudes and behaviour needed to put our world on a more sustainable path" (Deeb et al., p. 59). The description below adds to this definition:

> It must equip individuals with the values, knowledge and skills to make choices and decisions that minimize the use of natural resources, emissions, waste and pollution while supporting equitable socio-economic development and progress for all and contributing to the growth of new

> solutions. It enables each and every person to rethink the way they live, buy and consume. It also entails rethinking how our daily lives are organized, altering the ways in which people socialize, exchange, share, educate and build identities. (p.59)

Another argument made in the Guidebook is that students are "agents of change" and can act "as bridges between families and communities"; they are not exclusive recipients of knowledge (Deeb et al., 2011, p.66). Hung (2014) improves this definition and suggests including "what to teach," "how to teach," "who to teach", and how to know "they have learnt" into CCE practices (p.21).

According to Stevenson et al. (2017), CCE is preparing students for "uncertainty and rapid change" (p. 67) in a time of risks and equipping them with necessary skills as "learning, critical and creative thinking and capacity building" (p. 68) and inquiry so that they can learn about, engage, and then respond to the climate crisis. It is more than a content, rather a socio-scientific, ecosocial policy and ecological justice issue. For McKeown and Hopkins (2010), CCE involves both learning about the climate and equipping for the change urgently needed – which requires entanglements of all disciplines including the social sciences and humanities. Mochizuki and Bryan (2015) discussed CCE with the ESD framework that can "engage learners critically and productively with the complexities of CC in ways that are dynamic, interactive and innovative, while fully considering local and cultural specificities and age-appropriate content and pedagogy" (p. 22).

Reflecting the increasing eco-anxiety particularly among the young people, it might be critical for CCE to focus primarily on constructing hope for a liveable future as Ojala (2015) recommended. Monroe et al. (2019) highlighted the importance of engaging learners when designing CCE that is "personally relevant and meaningful for learners" (p. 799). It might also be wise to hear Orr (2011) who suggested to change the story of humankind who seek to answer the critical question "[w]hat is education for?" (p. 237) and advised considering to "reshape ourselves to fit a finite planet than to attempt to reshape the planet to fit our infinite wants"

(p. 239). Here, I would like to insert my starting question for this thesis and that is "[w]hat is education for, if not for nourishing the planet we live on and building kinship with our companion species?".

2.3. CLIMATE CHANGE EDUCATION AS AN ECOSOCIAL POLICY

"*Even bedrock cracks under pressure.. even the Earth's structural foundations are inherently transformative."*

Affrica Taylor, CIES's tweet posted on April 20th, 2020

Ayşe Buğra (2005) defines *social policy* as an interdisciplinary area that explores ways for people to participate in society as free individuals with equal rights. Social policy aims to improve people's quality of life and, through a capability-based paradigm for education policy, may nourish individual and collective autonomy (Laruffa, 2019).

Education is an integral part of the welfare state. The education system, like the climate system, is highly complex and in direct and indirect relation with other policy areas (Di Stasio & Solga, 2017). The design of education policies "may have spill-over effects on other social policy areas" such as social security, housing, poverty, childcare, health, working life and migration (Di Stasio & Solga, 2017, p. 316). Likewise, the design of social policy may affect education policies. The impact of COVID-19 pandemic on the educations systems has exposed this interrelatedness and shown how education systems can leave children and young people open to social risks, cause new social problems and exacerbate existing ones.

In this thesis, I intend to expand the boundaries of *education as social policy* and position it as an *ecosocial policy*. In this respect, I draw on Beck's *Age of Crisis*. Today's existential threats, such as the *climate crisis* and ecological breakdown, are *ecosocial* risks. Moreover, humankind is not only a social but also an ecological being (Crowley, 2010).

Any education policy that aims to halt the impacts of the *climate crisis* should address structural changes, in addition to individual changes, for a "degrowth-oriented, ecologically sustainable and socially equitable society" (Närhi & Matthies, 2016, p.493). CCE can be a critical means for collective action and a change in individual behaviour towards a just transition for social and ecological sustainability. For this, education philosophy should detach itself from the "rational, autonomous and detached human self that values its own opinions above all else" (Pulkki et al., 2020). The existence of an *ecosocial policy* is the litmus paper that reflects whether and to what extent the states are autonomous and can remain so in the face of crises (Buğra & Keyder ed., 2013). The problem that needs to be solved is the systematic reproduction of inequalities, not persistent and isolated injustices (Esping-Andersen, 1999). Social and ecological inequalities are interlinked.

One of the impacts of the Anthropocene epoch is the emerging problem of ecosocial poverty. Insufficient access to ecological and social resources and policies may result in "spatial and temporal forms of poverty" and *ecosocial* injustices (Fitzpatrick ed., 2014, p. xvi). The schools in Turkey in southeast and eastern Turkey, where drought is severe and is set to worsen, are facing water scarcity. In the summer of 2021, many schools were destroyed during the floods in Black Sea region and during the forest fires in southwest Turkey. It would not be wrong to state that the greatest challenge faced by education is the *climate crisis*. How will education reorganise ecosocial "services to cope not only with global warming but with the uncertainties that climate change brings?" (Fitzpatrick ed., 2014, p. 94). This thesis suggests extending Fitzpatrick's (2014) call to re-think "the very parameters of social policy" to ecosocial policy (Fitzpatrick ed., 2014, p. 94).

2.4. POLITICAL ECOLOGIES OF EDUCATION

Discussions on the complex and multi-layered *climate crisis* underline the significance of '*intersectionality'* and interdisciplinary approaches. These are critical for analysing the root causes of the problems and identifying potential paths

towards '*pluriversal*' solutions. To approach such a complex problem from a single discipline may result in the persistence of a fragmented and reductionist view, which is one of the root causes in the first place. Consequently, I opt in my thesis for '*thinking with'* political ecology and the political ecologies of education. I expect that '*thinking with*' political ecology will challenge and broaden dominant understandings of the field of education policy, lead to a broader perspective and help to make the invisible a little more visible.

Political ecology rejects "easy definitions, border policing, or prescriptive agendas", capitalist 'techno-scientific objectivism' and 'apolitical ecology' and aims to deconstruct the predominant interpretations of the root causes of the environmental degradation (McCarthy et al., 2015, p. 620). It therefore turns the spotlight on "political economy, marginalization, colonial capitalism, and the abuses of predatory states" rather than the "over-population, improper land management, and brute ignorance" of the poorer geographies and societies (Bridge et al., 2015, p.5). Robbins (2015) suggests considering political ecology as a 'trickster' that persistently criticises any 'norm' through its commitment to critical social theory and social justice, while Loftus (2015) put it forward not solely as a way of understanding the 'real' world, but as a way of changing it.

However, I will make at least one departure from the political ecology main line. McCarthy et al. (2015, p. 622) emphasise political ecology as "a form of critique". I, on the contrary, will prefer Karen Barad's notion of being 'critical' (Barad, 2007). In Dolphijn and van der Tuin (2012, p. 49), Barad underlines the "over-rated, over-emphasized, and over-utilized" notion of critique "to the detriment of feminism", that disregards reading with care and lacks ethical practices. Critique is a "practice of negativity" that subtracts, distances and otherises. Therefore Barad, emphasises Haraway's notion of 'diffraction' to look for "patterns of differences that make a difference".

Complementing Lloro-Bidart (2015) and Meek (2014), I will try to extend the political ecology perspective towards the education policy and hope to contribute to the '*political ecologies of education*'. In this way, while exploring the

'*earthisation*' of education policies, it may be possible to 'unearth' complex nature-society interrelations "to reveal new possibilities for restructuring education". Besides, as both the Common Worlds Research Collective (2020) and Lloro-Bidart (2015) suggests, the political ecologies of education may problematise '*educational humanism*' that contributes to the Anthropocene and be critical towards apolitical and technocratic approaches in the sphere of education.

Political ecologies of education can offer with new tools to comprehend the complex relations between humans and the climate (and more-than-human and companion species). They can provide an understanding of the relations at the local, regional, national, and global levels and of the '*power geometry*' that shapes the discourse on education (Massey, 2009). As Meek and Lloro-Bidart (2017) remark, political ecologies of education aim to bring to light the educational practices that construct and/or facilitate nature-society relations.

I embraced political ecologies of education as one of the theoretical frameworks for my thesis. Critically analysing the approaches to the *climate crisis* that are being adopted in education may serve to unearth and confront the existing climate politics and discourse. I have examined the climate narratives and actions in education policy documents to reveal how the *climate crisis* are handled and discussed in the education ecosystem and what actions were taken to mitigate and adapt to the *climate crisis* and ensure *ecosocial justice*.

2.5. CLIMATE CHANGE EDUCATION STUDIES IN TURKEY

There are numerous studies in Turkey on EE, ESD and EfS. However, although it has increased in recent years, there have been relatively limited studies on CCE and less on CCE policies compared to the ongoing international discussions. Even COP26 could not change the content and frequency of CCE. This section covers and discusses selected CCE studies carried out in Turkey to understand the overall framework of interest in Turkey and gain insights from

critical findings of these research. However, I should add that my aim is not to cover all research on CCE, and this section will be far from presenting a comprehensive review of CCE related studies. I have selected studies primarily targeting K-12 education, yet I also included research regarding tertiary education on occasions. This thesis recommends working on a comprehensive review on CCE, which will be valuable for Turkey to have a holistic picture.

Studies mainly focused on understanding students and teachers' awareness, knowledge, attitudes, attributes, behaviors, perceptions, and mental models (Aydın, 2014; Atik & Doğan, 2019; Nacaroğlu & Karaaslan, 2020). For example, Atik and Doğan (2019) conducted a study to determine the level of knowledge of high school students on the causes, effects and adaptation of climate change and their views on climate change. The study results showed that most participants did not have adequate knowledge of the causes and effects of climate change and how to adapt to it. They could not define the climate crisis and students who could share mainly had superficial and non-scientific concepts. Gifted students also have non-scientific and superficial knowledge and misconceptions, as Nacaroğlu and Karaaslan (2020) presented in their study on the cognitive structures of gifted students about climate change. Aytar and Özsevgeç (2019) proposed educational programs developed and implemented with an interdisciplinary approach for complex and difficult-to-comprehend issues such as the climate crisis. There is an increase in the number of studies that suggest interdisciplinary perspectives for solving complex problems (Karaarslan Semiz & Teksöz, 2020; Feriver Gezer, 2020; Elmas et al., 2021). Issues such as the climate crisis and even science might be considered controversial in which individuals or society differ and express opposing views (Kirkit, 2021). Elmas et al. (2021) mentioned the "fragmentary structural weakness of educational programs and the complex nature of the problems" and suggested systems thinking approach that "considers all aspects, parts and the relations of parts while focusing on a problem" (p. 108). They stated that systems thinking skills follow a developmental order and will not succeed if any level is not fulfilled. The researchers emphasised that system thinking skills are critical for understanding and solving complex problems like the climate crisis (Elmas et al., 2021). Kutluca et al.

(2020) recommended developing “socio-scientific argumentation process” in order to “to see interdisciplinary interactions more clearly and to make more qualified reasoning” (p. 37). Aydin (2014) also looked at whether there was a difference based on gender and type of school in his study to determine the level of knowledge of secondary school students. According to this research, the level of awareness of vocational school students is lower than that of students in other school types.

It is essential to investigate awareness on an issue; however, studies that focus on awareness and awareness-raising in Turkey indicated that efforts do not turn into action. Some factors support the transformation towards action, and others prevent. Ateş et al. (2017) aimed to design interventions for behavior changes and unearth the aspects that shape beliefs. Studies reflected that young people’s attitudes are mainly ecocentric or positive towards the environment (Tuncer et al., 2005; Durmuş & Çolak, 2021). However, Ateş et al. (2017) argued – based on their study in which the respondents are university students – the inadequacy and even misconception on the causes and impacts of the climate crisis and lack of interlinking individual behaviors and the climate crisis. Durmuş & Çolak (2021) shed light on the same problem in their study that targeted lower secondary education students. Additionally, they highlighted the problem of students not knowing who has what kind of responsibilities.

Like any learning issue, educational materials are critical for CCE. However, textbooks or other supplementary materials are among the least studied regarding the CCE. One of them, Eryılmaz (2021), considered social sciences as a critical course to discuss climate change at schools. Thus, in his study, he analysed the textbooks to understand how climate change was placed in 5th, 6th and 7th grade social sciences. He concluded that although there is more room for climate change in the 7th grade, the information for all levels is inadequate. Information on CC in the 5th grade textbook was inadequate and global warming was cited as the leading cause of global climate change in the given examples. He also criticised the lack of causes of global warming and the lack of visual materials. Eryılmaz (2021) could not find an issue associated with climate change in the textbook of 6th grade.

Climate change has been associated with natural disasters, hunger, terrorism and migration, and the causes of climate change and the actions to prevent it were covered.

Nevertheless, examples from the textbooks shared in the article reflect the inadequacy and superficiality of the information. In addition to the lack of quality content, the researcher also addressed the absence of visual and diverse material types. One of the most critical findings is the lack of measurement and evaluation tools and methods. Textbooks did not aim for higher cognitive skills. Eryılmaz (2021), based on his study, recommended integrating climate change into the curriculum at all levels for lower secondary education. He also suggested including the impacts on the wildlife and economic, social, political, and psychological consequences. He underlined the importance of using compelling images and diverse materials when explaining climate change related issues.

Higde et al. (2017) examined attributes that reflect "pre-service teachers' engagement with the climate change discourse" (p. 255). Although tertiary education is not in the scope of this thesis, their study presents valuable findings and discussions for policymaking processes. One of the key findings is the source of information pre-service teachers prefer. The primary sources of information were mass media, the Internet, and newspapers. However, Şahin and Üzelgün (2016) stated that mainstream media in Turkey is predominantly "tabloidlike". Few journalists are competent on an issue as complex as the climate crisis that requires research and data/information verification. Higde et al. (2017) found a strong relationship between the uncertainty of pre-service teachers about environmental issues and the impact of mass media on their attitudes and behaviours. This relationship points to the importance of educational environments for accessing accurate information regarding the climate crisis. The most critical determinant Higde et al. (2017) uncovered is the values and worldviews of pre-service teachers. Ecocentric values significantly predict behaviours regarding the climate crisis and "willingness to accept climate change policy measures" (p. 260). The research reflected that the respondents are aware of climate change, some even transformed

this awareness into individual actions, yet they also question the impact of individual efforts. Another critical implication of their study is that the authors considered the Turkish K-12 curriculum climate change inclusive. However, this consideration requires further research and does not provide any information on the adequacy of the content integrated into the curriculum.

The school environment is the "third teacher". Research on CCE focuses primarily on acquiring knowledge and skills on the climate crisis. Efforts to reduce the impact of the education system on the climate crisis focus on reducing footprint calculations and decreasing energy and water consumptions (Cevher-Kalburan & Güngör, 2018; Demirtaş & Çinici, 2019; Üçüncü & Yılmaz, 2019; Şimşek, 2020). However, one of the inspirational studies aims to make existing primary school structures more ecological and reduce environmental damage (Karadayı et al., 2016). For this purpose, a typical school structure was selected and analysed in Istanbul province, and recommendations for ecological improvement have been shared. A school building built as a typical project was selected, and ecological proposals for the interior and outside of the school building were designed. The research suggests that architects and MNE work together. In this research, the health of everyone in the school and the environmental impact of these buildings have been considered. One of the most important contributions of the education system to reverse the impacts of the climate crisis will be the qualified CCE education for students and teachers and ecological transformation of the infrastructure (Karadayı et al., 2016). Kaya and Kaya (2019) focused on a kindergarten and implemented the ecological and sustainability approach from the beginning.

3. POLICY ANALYSIS OF CLIMATE CHANGE EDUCATION

The *climate crisis*, generated by human activity, poses a risk to all systems including the education system at all levels. In order to address these risks and understand the needs of current developments and needs, an analysis of educational

policies is necessary. However, most work on CCE has focused on practice, although there have been some recent developments globally (Kwauk et al., 2019; Kwauk, 2021; McKenzie, 2021). Cheong Cheng and Ming Cheung (1995) present a framework for education policy analysis consisting of four pillars. The first pillar focuses on the background and underlying principles, the second assesses the policy formulation, the third focuses on the implementation phase and the fourth investigates the policy impact. CCE is developing recently across the world and is practiced even less in Turkey. As mentioned earlier, any discussion of policy for CCE is only meaningful when combined with a discussion of practices, just like any issue in education policy. However, under current circumstances, and considering the scope of a master's thesis, I will focus on the first two pillars, which analyse the background and underlying principles, and policy formulation. My research revealed a growing interest in CCE practices in particular. Since 2021 is an important year for the climate and CCE policy agendas on account of COP26, which is due to be held in Glasgow in November, I expect to see even more interest in the subject. Subsequent studies the investigate the other pillars of education policy analysis would be complement the present study.

Scientific study of the *climate crisis* has clearly indicated what is happening and what is necessary to achieve a sustainable path. However, the world appears to be at a standstill when it comes to taking action to halt and reduce the impacts of the *climate crisis*. Much-needed action cannot be taken due to the lack of political, social, and cultural will (McKenzie, 2019). In this section, I have tried to understand how top policy documents look on formal education as a tool and a means in this context. I do so with the reservation that what is stated in policy documents may not be reflected in actual practice. To alleviate this reservation, I have interviewed key informants who were members of the teams that contributes to the documents examined below. I'd like to note straight away something that I will come back to at the end of this section – namely, that critical climate policy documents and education policy documents do not speak to one other, and that references to the one in the other are quite infrequent.

This section begins by examining CCE policy through an investigation of the critical policy documents in Turkey.

3.1. CLIMATE CHANGE EDUCATION AND POLICY

The IPCC, the UN body that evaluates the available scientific, technical and socio-economic information relevant to the human-generated *climate crisis*, has produced five Assessment Reports (AR) since 1988 to provide policymakers with the scientific evidence about the *climate crisis* and its impacts, the associated risks, the options for responding, including both adaptation and mitigation, and the implications of these options. The evidence of anthropogenic influences on the *climate crisis* presented by the IPCC has grown more solid with each report. The first AR, known as FAR, ignited the discussions on the UNFCCC discussions, which then was adopted in 1992 to provide an overall policy framework and a legal basis (IPCC, 1990). The second AR, known as SAR, which is one of the most cited, underlined the weight of evidence about the apparent human influence on the global climate, and provided essential input for the negotiations that led to the adoption of the Kyoto Protocol in 1997 (IPCC, 1995). The IPCC's most recent report, AR5, made powerful statements about the clarity of the human impact on the climate and the new peak level of anthropogenic emissions of greenhouse gases. The changes in the climate system have extensive consequences (Core Writing Team et al. ed., 2015) and the *climate crisis* is making the world more and more precarious by reinforcing existing risks and creating new ones both for natural systems and for human systems. The *climate crisis* is a global climate injustice issue; its risks and impacts are uneven, and it will add greatly to the precariousness of vulnerable communities (Core Writing Team et al. ed., 2015). For example, low-income households residing in areas exposed to the *climate crisis* may not be spending enough on basic needs such as food, health, and education due to compensation efforts (İBB, 2018, p. 14). Although the IPCC reports, which are prepared by hundreds of scientists worldwide, are crucial for informing decisionmakers and

increasing awareness, they are "policy relevant but not policy prescriptive" (Guilyardi et al., 2018, p.5).

The World Meteorological Organisation (WMO) has declared 2011-2020 as the warmest decade, with 2016, 2019 and 2020 being the years with the highest temperatures. The Earth's average temperature is 1.2°C above the pre-industrial level. Besides the temperature, the data for greenhouse gas concentrations, ocean acidification, the global mean sea level, the glacial mass, sea ice extent, and extreme situations are distressing. The *climate crisis* is a multifaceted phenomenon and no longer a distant threat; it has been occurring here and now for quite a while (Masson-Delmotte et al. ed., 2018). Although some controversies, largely introduced by so-called sceptics/deniers (Ellerton, 2019) persist, there is a widespread consensus among the international scientific community on the human-generated *climate crisis*. In the short term, communities and nations that possess the financial and technological resources to protect themselves from the *climate crisis* may be considered safe. However, the *climate crisis* is a global *ecosocial justice* issue and no one person or country will be immune to its consequences (Kagawa & Selby, 2010). Despite this, denial of action – rather than lack of knowledge – has become a ubiquitous response to the *climate crisis*. This is clear from the attitudes of those countries that insist on the current global economic growth model – arguably the root cause of the *climate crisis* – rather than exploring a low-carbon economic model. Young climate activists have drawn attention to this state of denial, criticising as a failure of those who have contributed most to the *climate crisis*.

While the discussions on "whether human society still has a window of opportunity to mitigate" continues (Kagawa & Selby, 2010, p. 2), the *Special Report* of the IPCC (Masson-Delmotte, et al. ed., 2018) stated barely exist 12 years remain to avert a catastrophic *climate crisis*. It also underlined the vital importance of education. International calls for CCE have mounted since the UNFCCC was adopted in 1992, and recognition of the issue had grown following the launch of the UN Sustainable Development Goals (SDGs) and the Paris Agreement of 2015. In

the Paris Agreement and the United Nations 2030 Agenda, policymakers recognised the importance of CCE, accorded it priority, and identified it as a crucial instrument for sustaining and benefiting from any remaining window of opportunity. Effective education and communication are essential to defeat the *climate crisis* denial-of-action, raise climate and *climate justice* literacy and encourage climate action. Education often features highly among policymakers' favoured "band-aid" solutions for any promised change in society, as it is perceived as a motor of social change (Nohl & Somel, 2015): education can "fix it all". This 'fix-it-all' view of education has affected studies of EE. Saylan and Blumstein (2011, p. 1) demonstrated that despite the massive amount of energy that has been put into EE, it has failed to deliver the changes in attitude and behaviour that are required to reverse the *climate crisis*, loss of biodiversity and ecological degradation. This, they argued, is partly due to the shortcomings of EE itself – i.e., teaching primarily about the physical environment, teaching EE within the science curriculum rather than adopting a multidisciplinary approach, and the use of a 'doom and gloom' alarmist discourse (Saylan & Blumstein, 2011, p. 2). There are "blind, blank, bald and bright spots" that require EE (Reid, 2019a) and CCE to reflect on past experiences.

Attempts to change society's approach to the *climate crisis* through education have quite a long history and considerable experience has accumulated of the perils and pitfalls of this approach. The main pitfall which researchers notice immediately is the excessive focus on individual action rather than on breaking down existing structures and systems and the anthropocentric worldview, which put human beings and economic growth above all other concerns. According to Kawaga and Selby (2010, p.241), for such a challenging problem as the *climate crisis*, "education can only help a threatening condition by addressing root causes". Identifying education as a remedy without highlighting and disrupting "the role that the current hegemonic economic model and social order" play (Kawaga & Selby, 2010, p. 241) and the consumerism embedded in every vein of society may be regarded as "cruel optimism" (Berlant, 2011). Aside from this issue, there is no clear and shared recognition of what constitutes effective CCE at all levels of K–

12 education, and there is a lack of benchmarks and objectives to assist intergovernmental efforts to enhance CCE and monitor progress (Hargis & McKenzie, 2020).

Scientists have succeeded in drawing greater attention to the *climate crisis*, and more people have become members of the 'Club Climate Alarmed' (Nicholas, 2021). However, education can play a bridging role by facilitating a widespread and more subtle understanding of climate knowledge (Kagawa & Selby, 2010, p.241). Climate scientists frequently point to the significance of education and the role it has to play. The InterAcademy Partnership (IAP) for Science (2017), a global network of science academies launched in 1993, has addressed policymakers, education authorities and scientists in a statement that stresses the indispensable role of CCE for the preparedness of present and future generations. In their recommendations, the member academies appeal for more efforts to meet the needs of teachers, the most critical actors in CCE. The academies have prescribed a comprehensive array of support for teachers worldwide encompassing changes in curricula, additional training opportunities, distance and collective learning spaces, quality materials, creative and innovative tools deigned to equip students as "agents of change", inquiry-based science education and interdisciplinary pedagogy (The InterAcademy Partnership, 2017, p.1). While all teachers may need support on CCE, the IAP focuses explicitly on schools and teachers in vulnerable regions where learning has already been jeopardised. Among its key points, the statement underlines that science education needs reform to foster more critical thinking, that the education system must qualify and empower young people, and that teacher mobilisation for CCE is imperative. The IAP also calls on scientists to develop materials and tools for teachers. The Office for Climate Education (OCE), established in 2018 by climate scientists and educators, and directed by one of the principal authors of AR5, has acknowledged the IAP statement and the indispensable role of teachers. In 2018, OCE produced the *IPCC Special Report: Global Warming of 1.5° Summary for Teachers* (Guilyardi et al., 2018). Encapsulating the science explained in the ARs and illustrating the global path taken to combat the *climate crisis* are critical steps for strengthening teachers'

ability to handle such a complicated issue. The OCE has declared its intention of filling the niche of empowering teachers, particularly in developing countries. This effort is also to include working with climate scientists, engaging social scientists and educators, producing resources for "active pedagogy" and sharing best practices in inquiry-based science education. In addition, the OCE intends to disseminate resources and tools for teachers on adaptation and mitigation issues in synchrony with the ARs and the IPCC's summary reports for policymakers, (Guilyardi et al., 2018, p. 24). The OCE emphasises that experts should develop the more comprehensive materials at the global level, but that these should be tested at the local level and adapted to local situations.

Besides teachers, students too are active agents in the education system, yet their opinions are rarely asked or heard. Today, the prospects for dealing with the *climate crisis* seem to depend heavily on young people in schools, and they have become 'agents of change' (The InterAcademy Partnership, 2017, p. 1). Teach the Future, a youth-led initiative established by students in secondary and tertiary education in the United Kingdom, advocates for CCE in England, Scotland, Wales and Northern Ireland. Unlike most CCE initiatives, which concentrate mainly on curriculum change, Teach the Future seeks to realign the national education system to place the climate emergency and ecological crisis at its core. The initiative has adopted three areas of advocacy – namely, to change the style of teaching so as to empower students; to include green skills in vocational courses, and to retrofit schools to net-zero emissions (Teach the Future, 2021). The policy documents of the initiative cover a more comprehensive range of changes and include a bill to oblige all new schools to have net-zero emissions. All this reflects Teach the Future's systemic vision, the peer solidarity that underpins it and its proficiency in engaging in decision- and policy-making processes. In Turkey, young climate activists are calling mainly for curricula change, although they are also seeking an active role in decision-making processes (İklim için Gençlik, n.d.).

3.2. CLIMATE CHANGE EDUCATION IN THE POLICY DOCUMENTS OF TURKEY

An assessment of how Turkey includes CCE in its top policy documents and strategies may help to understand the current situation and identify gaps that need to be filled. This section analyses the *National Climate Change Strategy 2010-2023,* the *National Climate Change Action Plan 2011-2023, the National Climate Change Adaptation Strategy and Action Plan, the Development Plans, National Communications, Turkey's Education Vision 2023* document, the *2019-2023 Strategic Plan* of MNE, MNE's *Performance Programmes* and *Annual Activity Reports*, the K-12 curricula and selected MNE protocols with public institutions and NGOs.

3.2.1. National Climate Change Strategy 2010-2023 and Climate Change Action Plan 2010-2023

Turkey published its *Climate Change Strategy 2010-2023* in 2010. The first six chapters of the strategy detail the primary indicators, the national vision, the strategic goals and the 'unique circumstances' of Turkey for global negotiations. Chapter 7 sets targets for mitigating greenhouse gas emissions in various sectors (energy, transportation, industry, waste, land use, agriculture, and forestry). Chapters 8-12 are entitled: *Adaptation to Climate Change*; *Technology Development and Technology Transfer*; *Finance, Training, Capacity Development and Institutional Infrastructure*, and *Monitoring and Evaluation*.

Overall, the role attributed to the education system in this important document is not clear, solid, or adequate. The sectors to which importance is attached in combating the *climate crisis* include energy, agriculture, forestry, transportation, industry, and waste, but not education. Yet the successful implementation of CCE could contribute significantly to almost all the goals, directly or indirectly. The strategic goals describe the potential contribution of education as "to increase national preparedness and capacity to avoid the adverse

impacts of global climate change and to adapt to these impacts" and "to raise public awareness in support of changing consumption patterns in a climate-friendly manner through joint efforts" (Republic of Turkey Ministry of Environment and Urbanisation, 2010, pp. 9, 12).

The eighth chapter, *Adaptation to Climate Change*, does not include education among its medium, and long-term targets. The targets concerning education that do exist are among the short-term goals. Thus: "[a]wareness raising and training activities on climate change adaptation shall target local administrations, professionals and the general public"; "[t]raining activities shall be carried out in order to increase public awareness and participation on disasters and risks resulting from climate change"; "Activities such as local meetings, publications, television programs shall be planned on potential impacts of disasters resulting from climate change on human health, environment, historic and cultural protected areas and economic activities and preparedness against these risks", and "[t]raining activities for raising awareness on health impacts of climate change will be organized for health personnel and public via those personnel" (Republic of Turkey Ministry of Environment and Urbanisation, 2010, p. 32).

The eleventh chapter, *Training, Capacity Development and Institutional Infrastructure*, does not include short-term targets. The medium-term targets include the following: "[p]ublic awareness and institutional capacity will be strengthened in order to reduce the impacts of climate change and to adapt to the process", and "[p]ublic awareness will be raised for promotion of climatefriendly consumption patterns through joint efforts of all sectors of society such as public, private sector, university, and nongovernmental organizations" (Republic of Turkey Ministry of Environment and Urbanisation, 2010, p. 40).

By contrast, Turkey's *Climate Change Action Plan* for 2011-2023, adopted in 2012, contains targets for formal education. This document recognises education as a cross-cutting issue. Objective Y9.1 is to "[m]ake necessary arrangements in the education programmes until the end of 2012 so as to develop climate-friendly consumption patterns" (Republic of Turkey Ministry of Environment and

Urbanisation, 2012, p. 114). The two action areas under this objective are "[i]ncluding topics related to combating and adaptation to climate change in formal education programmes" and "[a]dding new modules to personal car driving training" (Republic of Turkey Ministry of Environment and Urbanisation, 2012, p.114). Within the first of these action areas, the Action Plan foresees "[i]ntegrating topics such as consumption habits, energy efficiency, climate change etc. in the curricula of preschool education" between 2011 and 2013 (Republic of Turkey Ministry of Environment and Urbanisation, 2012, p. 114). This is also expected to have benefits in terms of sustainable development efforts and reducing environmental pollution, thus increasing the quality of life. As one would expect, the MNE is designated as the authority responsible for these actions.

As well as addressing formal education, the *Action Plan* includes awareness raising activities for the public. One of the envisaged actions is to raise public awareness about the disasters and risks caused by the *climate crisis*, while another, concerning agriculture, aims to strengthen the awareness of civil society. Actions to raise public awareness are also envisaged with respect to adaptation to the *climate crisis*. It is also important to mention the inadequacy of efforts that aim solely awareness. Efforts might not be effective without targeting a change in the mechanisms that constitute the problem. Without systemic changes, awareness activities might remain disconnected from context.

The *Climate Change Strategy* and *Climate Change Action Plan* are important for the way they reflect the priorities attached to different areas that will be affected by the *climate crisis*. However, the approach to education is simple and it is not prioritised. Moreover, in the countless awareness-raising training sessions in which I have participated in the 20 years of my professional life, I have witnessed the methods and materials used and am quite sure of their ineffectiveness. This testimony is upheld by the interviews I have carried out for this thesis. Both the role of education in the *climate crisis* and its impact on education seem to be ignored in these two important strategy policy documents.

3.2.2. National Climate Change Adaptation Strategy and Action Plan

Apart from the above, there is one other significant policy document on adaptation to the *climate crisis*, the *National Climate Change Adaptation Strategy and Action Plan* (CCASAP). The social, ecological, and economic consequences of the *climate crisis* require urgent measures to be taken to manage and adapt to the *climate crisis*. Even if all the necessary measures are taken to halt the *climate crisis*, not all its impacts can be prevented. Nevertheless, the intensity of these impacts can be reduced if adaptation measures are adopted, accessible and implemented at the local, regional, national, and international levels. These adaptation measures need to address all sectors at all levels, including education. Mitigation and adaptation strategies are interlinked and complementary (Republic of Turkey Ministry of Environment and Urbanisation, 2011). Yet for a long time Turkey concentrated primarily on the international mitigation negotiations, seeking to persuade the UNFCCC to acknowledge Turkey's 'special status'. When the vulnerability of the Mediterranean region, and Turkey in particular, could no longer be ignored, discussions on *climate crisis* adaptation gained momentum. Moreover, a CCASAP was required under commitments to the UNFCCC.

Turkey prepared its CCASAP in 2011 under the United Nations Joint Programme on Enhancing the Capacity of Turkey to Adapt to Climate Change (Republic of Turkey Ministry of Environment and Urbanisation, 2011). The document has six chapters. The first two chapters present the background information and the rationale behind the CCASAP. Chapter 3 explains the methodology and Chapter 4 gives details about the process by which the document was developed. Chapters 5 and 6 comprise the strategy and the action plan respectively.

As stated in the introductory chapters, Turkey is among the "risky groups of countries" that will experience severe socio-economic and environmental impacts due to the *climate crisis*. Three factors that might intensify the consequences of the *climate crisis* are listed – namely, denying that policies and practices are maladapted, lack of cooperation among public institutions, and lack

of institutional and technical capacities (Republic of Turkey, Ministry of Environment and Urbanisation, 2011, pp. 29-30). Turkey's current education system is both a catalyser of the risks and liable to be affected by them. Consequently, Turkey identifies the "[e]valuation of the existing infrastructure for the development of necessary education, awareness and capacity for adaptation to climate change" as one of the five phases of the methodology chosen to prepare the CCASAP (Republic of Turkey, Ministry of Environment and Urbanisation, 2011, p. 32). An expert team led by myself designed a 'Knowledge Needs for Adaptation to Climate Change Survey' to discover the "awareness, education, participation and capacity development" needs of public institutions.

Short-sightedness concerning the vital role of the education system can be observed throughout the CCASAP. The Republic of Turkey Ministry of Environment and Urbanisation (2011, p. 41) did not list the MNE among the "important institutions" in the institutional structure. In addition, the Ministry of Environment and Urbanisation (MEU), rather than the MNE, was listed as the national focal point for the renowned Article 6 of the UNFCCC, which oversees training and awareness-raising on the *climate crisis*. The MEU has a meaningful and important role to play in this context, yet it would be balancing and complementary if both the MEU and the MNE had been assigned as focal points. Instead, two entities of the MEU were given responsibility for this complex role: the General Directorate of Environmental Management and the Department of Education and Publication (Republic of Turkey Ministry of Environment and Urbanisation, 2011, p. 44). However, although the language is not very specific, the CCASAP also cites the MNE's "significant role in raising and creating public awareness on the impacts of the climate change and adaptation" (Republic of Turkey Ministry of Environment and Urbanisation, 2011, p. 44).

Overall, the CCASAP omits metrics that might serve as an anchor or a baseline. For instance, the vaguely written allusion to "a remarkable increase in the works for capacity building" lacks the necessary references, the intended rate of increase, the number of people to be reached, directly or indirectly, or any impact

analysis, framework or aims (Republic of Turkey Ministry of Environment and Urbanisation, 2011, p. 44). Thus, it is not possible to monitor and evaluate progress.

Chapter 4, which explains the steps taken to develop the CCASAP, includes several references to the need to strengthen the "[a]wareness and participation of citizens" (Republic of Turkey Ministry of Environment and Urbanisation, 2011, p. 51). The whole CCASAP seems to have adopted the view that "[t]he more public awareness increases, the easier it will be to eliminate the risks; moreover, the benefits of adaptation will come out" (Republic of Turkey Ministry of Environment and Urbanisation, 2011, p. 53). However, the latest research increasingly indicates that more education on the subject does not result in increased awareness and action (Saylan & Blumstein, 2011).

CCASAP shares five chapters of focus such as water resources management, ecosystem services, biodiversity and forestry, etc. and the sixth chapter is for crosscutting issues which includes education, awareness raising and capacity building (Republic of Turkey Ministry of Environment and Urbanisation, 2011). Chapter 6, the action plan, sets out purposes and objectives and specifies the actions, time scales, outputs and performance indicators for each objective together with the institutions responsible for coordination and the other organisations to be involved. Here too, education is visible by its absence. The MNE is not even mentioned among the cross-cutting issues, although it is referred to under the focus area on 'Water Resources Management' in the context of the action "[p]rotecting and preventing illicit use of underground water resources in basins and raising public awareness on this matter" (Republic of Turkey Ministry of Environment and Urbanisation, 2011, p. 104).

It may be assumed that the first five focus areas did not include formal education strategies because these fit better into the sixth area, *Crosscutting Issues in Adaptation*, which is more intersectoral and specifically includes education. The cross-cutting issues to be "handled and implemented especially in the short- and medium-run" under this focus area are: Education, Awareness-Raising and Capacity-Building; Research and Development, Data and Information Systems;

Finance and Economic Tools; Governance, Coordination, Monitoring and Evaluation, and Gender Mainstreaming (Republic of Turkey Ministry of Environment and Urbanisation, 2011, p. 94). Almost all these issues have concrete, visible connections with formal education, and all have intangible ones. Nonetheless, these connections are only mentioned vaguely or are totally absent from the CCASAP. The MNE is thus mentioned only twice in the entire document (Republic of Turkey Ministry of Environment and Urbanisation, 2011, pp. 44, 104).

Formal education is known to have an important influence in strengthening the adaptive capacity of communities, particularly in low-income settlements (Wamsler et al., 2012; Kıygı, 2021). However, the main strategy on adaptation in Turkey shows that the role accorded to formal education in improving adaptive capacities is insufficient.

3.2.3. Development Plans

The *Ninth Development Plan* called for the preparation of the *Climate Change National Action Plan (2007-2013)*. However, there is no mention of CCE. The strategy acknowledged the ratification of the UNFCCC in 2004 and committed the government to fulfilling the requirements of UNFCCC membership, but within the framework of conditions in Turkey. It also announced the preparation of the first *National Action Plan* (NAP) to determine the required policies and measures for mitigation efforts (DPT, 2006). The *Tenth Development Plan* made greater reference to the *climate crisis* and its effects but did not relate it to formal education. There is no mention of EE, ESD or Education for Sustainability (EfS). However, Section 2.4.7 of the *Eleventh Development Plan*, concerning the Protection of the Environment (2019-2023), includes an objective of "increasing environmental awareness and sensitivity of all segments of the society" (Presidency of Strategy and Budget, 2019, p. 187). From the low importance given to education in these policy documents, it can be concluded, the contribution of education in the fight against the *climate crisis* has been ignored.

3.2.4. National Communications

In order to identify and assess the CCE path that Turkey's decisionmakers and key stakeholders including academics, the private sector and NGOs have paved, it is essential to scan the National Communications (NCs), which Annex 1 Parties are obliged to submit every four years as part of their reporting commitments under the UNFCCC. Reporting is one of the most important commitments which countries make to the UNFCCC, and aims to ensure that "consistent, transparent, comparable, accurate and complete" information is available for review, assessment and the monitoring of progress.

The format of the NCs is the same for all countries. The ninth chapter concerns the education, training and public awareness activities taking place in the country. Turkey has submitted four NC; the first on February 20th, 2007, when it was not yet a party to the Kyoto Protocol. Turkey became a party to the protocol on August 26th, 2009. The submission deadlines for the second, third and fourth NCs were missed; then fifth was published incorporating the previously omitted NCs, which was followed by the sixth and seventh. This section offers a chronological and descriptive analysis of the NCs to shed light on shortfalls and possible responses for an operational CCE in Turkey.

The administration of international conventions in Turkey is considered to be conducted in a top-down manner and essentially coordinated by the human and financial resources of international organisations. The preparation of the NCs is no exception. The UNDP funded and formulated Turkey's first NC as a project in coordination with the Ministry of Environment and Forestry (MEF). The NCs reflect the mitigation and adaptation efforts of the countries concerned. For the first NC, the coordination team in Turkey created ten thematic working groups (WGs) with a view to ensuring a more systematic review covering all relevant *climate crisis* impacts. Each WG consisted of experts from public institutions and, whenever possible, from universities and NGOs. MEF officials coordinated the WG

on Education, Training and Public Awareness. The key informants interviewed stated that this WG lacked the required expertise. One of the reasons for this was that the MNE only participated in the NC process in the later stages and was reluctant to participate right from the beginning. According to the informants, this reluctance may have been due to a lack of necessary funding and other resources within the Ministry. The experts initially struggled to arrange meetings with the MNE. Once communication was established, they convened several times to discuss possible actions and share international best practices. Eventually, officials of the Board of Education (BoE) – the MNE body responsible for designing and evaluating curricula and textbooks – agreed to set up a group to integrate the *climate crisis* into the curricula. However, the means used, and the outcome were unknown to the key informants.

The low level of representation of public educational institutions, education experts and the education sector in *climate crisis* activities is not unique to Turkey. According to Silova et al. (2018) UNFCCC reports and processes "overlooked and underestimated" the role of education in the *climate crisis* and discussions on sustainability (para. 1). The absence of education from processes related to the *climate crisis* exposes a more profound problem "than mere representation" (Silova et al., 2018, para. 4). While working to raise the level of representation, it will also be critical to disrupt the outdated paradigm of designating the education sector to champion any and all kind of behaviour change. Education is not a magic wand for resolving every challenge. Indeed, even EE and/or ESD are increasingly mentioned as root causes of humanity's crises (Saylan & Blumstein, 2011).

The limited representation of education in *climate crisis* discussions in Turkey is at an institutional level. The MNE is the principal public institution responsible for safeguarding the right to education and providing quality education for every child. *The Environmental Law of Turkey* obliges the MNE to address environmental issues at all levels starting from preschool. However, the UNDP and MoEF experts coordinated the work on education, training and public awareness for the first NC, and the institutional framework which it suggested assigned the

MoEF to be the primary coordinator for "Education and Public Awareness" (Apak & Ubay ed., 2007).

The ninth chapter of the first NC states that educational and awareness-raising activities were primarily designed and implemented with students and teachers at MNE schools by other ministries or NGOs. However, no information can be obtained from the NC as to whether research was carried out to identify the needs of the target audiences or to analyse the impact of the activities implemented. There is also no sign that an educational framework existed or that there was any intention to prepare a national and regional CCE strategy. The absence of such a strategy raises questions about the plethora of awareness activities listed in the NC – such as the qualifications of the implementers, the generic aims, the criteria for participation and the measurement of the impact.

The activities listed in the NC consist mostly of awareness-raising seminars or competitions for students and teachers. If any strategic discussions took place on priorities or on the knowledge and skills needed for children, young people and teachers to understand and reverse the *climate crisis*, they are missing from the NC. It is also unclear if there were any relations between the various public institutions that carried out education, training, and awareness-raising activities. The impression is that different institutions conducted unrelated activities without a specific strategy. The MNE is in a "service receiving" position, which also places the students and teachers targeted as objects rather than active agents of the intended change.

The Global Environment Fund (GEF)-funded project's output for education was the "[d]evelopment of public awareness and respective educational program methods and determination of activity schedules in short- and long-term periods" (Apak & Ubay, 2007, p. 241). In line with this output, 250 children from 39 countries participated in an international meeting. It is not clear from the report how the target audience for the educational activities included in the National Declaration (ND) was determined or whether impact analyses were conducted. Data on the educational efforts are minimal and superficial. Such available data as are

included in the NC do not include important indicators such as the type of school (state/private) or the gender balance among the participants.

The first NC listed several educational activities intended for teachers and students, most of which were implemented by public institutions other than the MNE or by NGOs. Some statistics were included, but without a monitoring and evaluation framework or a rationale behind the data, it is not possible for researchers to compare NCs and evaluate the progress. According to the first NC, 20,000 students from 70 primary and high schools in and around Ankara participated in seminars run by the General Directorate of Meteorological Affairs (DMA). In addition, the DMA translated the WMO document *We Care for Our Climate* and distributed it to the primary education community (Apak & Ubay ed., 2007). Another rare statistic presented concerned the MEF's awareness-raising activities is that the MEF reached 280 primary schools in Ankara and 2,000 schools across the country and provided them with classes about consumption, reforestation and recycling, including brief information on the *climate crisis* during discussions. The NC also mentioned the *Environmental Manual* prepared by the MEF and distributed among teachers and students. Nonetheless, the specific aim or the theoretical framework of the activity was not indicated – after all, informing the public is a very generic aim – and it was not clear what information if any the manual included on the *climate crisis*. Similarly, the Directorate General of Electrical Power Resources (DGEPR) provided information on energy to students and teachers and organised competitions among elementary and high school students during 'Energy Efficiency Week', but no information was provided on the strategic purpose, timing or impact analysis of these activities.

One sub-section of chapter nine is dedicated to activities led by the MNE. These activities are in line with a protocol on EE signed with the MEF in 1999. In this context, the NC listed the following activities implemented since 1999: EE activities addressing pre-schools and primary schools, studies to integrate EE into lower secondary education curricula, compulsory environmental lessons held once a week in primary schools, the integration of environmental issues into internship

practices in vocational and technical education (VET) and in-service training for teachers and students registered in secondary education (Apak & Ubay ed., 2007, p. 222).

As mentioned above the deadlines for the second, third and fourth NCs were missed, and these were included in the fifth NC. The fifth NC is the only NC which provides detailed data on the CCE programmes implemented. It presents a list of projects with information on the target populations and the outputs of the projects (Republic of Turkey Ministry of Environment and Urbanisation, 2013). Sharing qualitative data, in addition to the numbers of children reached or reached out to – would provide more information about the situation. The sixth NC displays the same problems as the earlier NCs. It contains vaguely written statements which are difficult to check or assess and which raise further questions. For instance, one statement related to pre-primary education reads: "[t]here are a lot of activities related to climate change and environmental issues in pre-primary education program, in which the importance of recycling is taught and the negative results of climate change are told" (Republic of Turkey Ministry of Environment and Urbanization, 2016, p. 246). This sentence instantly raises the questions of how many activities were conducted with how many people, where and by whom this was done, what materials were used, and what the impact was (Republic of Turkey Ministry of Environment and Urbanization, 2016, p. 246). The sentence, "negative results (….) are told" is even more worrying (Republic of Turkey Ministry of Environment and Urbanization, 2016, p. 246). Pre-primary education is a highly sensitive level and early childhood experts recommend that the information given should foster confidence and hope rather than anxiety.

The seventh NC was published and submitted in 2018. The ninth chapter again included developments in education, training and public awareness. However, the most important problem with this section was that it did not cite sources or cite statistics. For example, the NC reports that "[p]re-schools based on ecoliteracy are getting widespread throughout the country" but does not state how this information was obtained (Republic of Turkey Ministry of Environment and

Urbanization, 2018, p. 223). This NC contains much information of this kind. It was not therefore possible to make comparisons with previous periods or to measure progress. The NC also stated that the *climate crisis* and related topics including energy, water and nature were included in the primary education curricula and course books. These topics were being taught in different school subjects including Turkish, life sciences, technology and design, visual arts and science. There was no mention of similar initiatives for the pre-school or upper secondary levels.

All of the NCs indicated that the work done in the field of education was fragmented. These important documents treat formal education in a way that makes it difficult to monitor and observe the impacts. None of them indicate that any CCE policy or strategy had been prepared. All this suggests that education has not been effectively aligned with efforts to mitigate and adapt to the *climate crisis*.

3.2.5. Turkey's Education Vision 2023 and 2019-2023 Strategic Plan

In 2018, the MNE prepared and published a strategic document entitled *Turkey's Education Vision 2023*. The address of the minister at the time starts with the statement, "[w]e bear witness to the rapid changes in all parts of life in the 21st century" and lists the existing and worsening challenges as "violent conflicts, international terrorism, irregular immigration, environmental and health problems, financial interventions, and racism and xenophobia" (Ministry of National Education, 2018, pp. 6-7). The MNE's position is "against the degradation of the environment and the abuse of science and education" (Ministry of National Education, 2018, p. 8). The primary purpose of the document is "to raise science-loving, skilled and ethical individuals who take an interest in culture and are willing to use present and future skills for the well-being of humanity" (Ministry of National Education, 2018, p. 7). The minister at the time mentioned a desire "to rescue the educational process from its biological and economic definitions, statistical data and quantitative accomplishment, and take into consideration its

ontological, epistemological and ethical roots", and went on to ask the question, "What kind of a world will education create?" (Ministry of National Education, 2018, p. 8).

In an epoch when the *climate crisis* is well known and its effects are being felt, and when the relative stability of the Holocene geological era has been left behind as we enter the Anthropocene, the education vision of a nation setting an objective for 2023 ignores the *climate crisis*, let alone sustainability and continues to concentrate on human exceptionalism (Crutzen, 2006). There is not a single notion of the *climate crisis* in Turkey's education strategy. The Ministry of National Education 2019–2023 Strategic Plan does not refer to the *climate crisis* either.

3.2.6. MNE Protocols with Public Institutions and NGOs

This subsection covers only protocols signed between the MNE and public institutions or NGOs. I have not included seminars conducted by provincial directorates or at individual schools. I should add that it would be helpful to map the activities carried out at the school level. However, that is beyond the scope of this thesis.

My research has identified several protocols signed by MNE in the area of CCE. On December 9th, 2020, the General Directorate of Special Education and Guidance Services and the General Directorate of Lifelong Learning of the MNE signed a cooperation protocol with the General Directorate of Meteorological Affairs (DMA). Under this protocol, the DMA is to install meteorology stations primarily at Science and Arts Education Centres (BILSEMs) for talented children with the aim of increasing climate awareness and obtaining scientific information on weather events. This initiative is expected to encourage the students to carry out projects on issues such as global warming and the *climate crisis* (Ministry of National Education, 2020, December 9th). The second protocol identified was signed between the MNE and TEMA, an environmental NGO, for the implementation of the *Yerküreye Saygı: İklimi Koru* (Respect the Earth: Protect the

Climate) project. In 2021, TEMA prepared a video on the *climate crisis*, a presentation on the protection of the climate, a board game and a poster set (Ministry of National Education, 2021, p. 107, TEMA, n.d.). Thirdly, 'Energy Kid' is a joint campaign of the Ministry of Energy and Natural Resources (MENR) and the Energy Efficiency Association (EEA). This project puts an emphasis on the future by assuming that the education provided to children will benefit their families in the future. This is one of the most fundamental problems observed in activities with children: the fact that children exist today and have needs today is often ignored. Fourthly, the Water Ambassadors Education and Awareness Raising Project is an EU-funded project implemented by the MNE, the General Directorate of State Hydraulic Works and the General Directorate of the Turkish Radio and Television Corporation (TRT). Finally, the MNE has also signed a cooperation protocol on raising climate awareness with the Yuvam Dünya (My Home is the World) Association. Under this protocol, curriculum experts are to revise the primary education curricula and the elective course on EE in secondary education (Talim ve Terbiye Kurulu Başkanlığı, 2021, p.14). However, details of this protocol and the related activities have not been made public.

There may be other protocols, particularly between VET schools and the private sector. However, my desk research yielded no information regarding these protocols. There are also transparency problems around protocols signed by the MNE with NGOs. Finally, it is not known whether there is any connection among these protocols on the *climate crisis*.

3.3. COMPARING POLICY PATHWAYS

The policy frameworks and strategies recommended by intergovernmental institutions affect the policy priorities of nations (Barak & Göçmengil, 2020). However, each nation chooses its own pathway. Monitoring these pathways may generate information and encourage learning about successful practices that can be transferred from one national setting to another. There are few examples of

comparative research on CCE in Turkey or elsewhere. The existing studies focus primarily on EE, environmental literacy, ESD and climate literacy (Barak & Göçmengil, 2020). I have become aware of this information gap at the global level during my interviews with key informants. Young activists campaigning for CCE and NGOs that advocate for policy change or implement CCE programmes do not yet seem to have taken an interest in the policies of other nations either. In most countries including Turkey, CCE has not yet been included in educational policy documents. However, some countries have amended their constitutions, and many have adjusted their curricula – a pattern which is also typical for EE.

During COP25, the Executive Secretary of UN Climate Change invited all countries to commit to CCE by COP26. At COP25, Italy's then-minister of Education and Mexico's then-vice minister of Global Affairs participated in a press conference organised by the Earth Day Network. Both countries reaffirmed their commitments to CCE. Italy and Mexico were model countries referred to by UN officials when encouraging other nations to take critical action towards a radical rethinking of education. At the press conference, the two countries explained how they had integrated EE and CCE into their education systems, but the approaches they employed were different.

Italy has revised its civic education curriculum and made it mandatory for all schools at all levels. According to the then-minister of Education, starting from the civic education curriculum ensured that the political polarisation in the community did not get in the way of the key issue. To monitor the progress made since 2019, and try to understand what has happened in practice, I have contacted an Italian EE expert with whom I have previously worked on several international/regional EE projects. I have also participated in online webinars/conferences/panel discussions with the then-minister of Education of Italy and asked him and the organisers about the priority accorded to Italy’s policy changes and to their actual implementation. It is imperative to follow up the commitments made at high-level international conferences, and further studies are

needed that map the ways in which various countries actually proceed with their policy changes, in addition to mapping the policy commitments.

Curricula studies regarding CCE reflect the necessity for reform around the world, including Turkey. UNESCO advocates fulfilling this gap and supports the nations technically and financially to integrate CCE into their curricula. In their study, Barak and Göçmengil (2020) highlighted a lack of program development in Turkey that can meet this need, and there are very few examples in the world. They compared the secondary school curricula of Turkey with nations or regions that have high PISA 2015 scores. Their findings reflect that British Columbia (Canada), Massachusetts (USA), Castile and Leon (Spain) and the Republic of South Africa have integrated CCE into their curricula in an interdisciplinary, whereas Bavaria (Germany), Finland, UK, and Western Australia in a mixed, and Sweden in a disciplinary approach.

Mexico, on the other hand, began by strengthening the legal foundation by amending its constitution, the *Constitución Política de Los Estados Unidos Mexicanos*. The revised constitution was published on May 15th, 2019. Article 3 emphasises care for the environment, the gender perspective, the interdisciplinary approach, including arts and sports, indigenous knowledge. Mexico has also revisited its law on education, the *Ley General de Educació*n. Accordingly, Section IV of Article 13 in this law emphasises respect and care for the environment and constant positioning towards sustainability to understand and integrate the interrelation of nature and social, environmental and economic issues. Section VIII of Article 15 names sustainable development and resilience against the *climate crisis* as critical purposes of education. Section V of Article 16 on educational criteria and Section XVI of Article 30 on plans and programmes of study refer to the prevention of, and struggle against, the effects of the *climate crisis*. Following the changes in the constitution and the education law, Mexican Senator Castañeda Hoeflich (2020) submitted a draft decree which he drew up together with the president of the *Sin Planet B* (There is no Planet B) organisation to strengthen the

education system in the areas of caring for the environment, respecting nature and combating the *climate crisis*. His proposal was "pending" as of July 2021.

Although these cases are unique, there is an overall increase in analyses of the state of CCE at the global level. In a recent study with a focus on the formal education sector, Kwauk (2021) examined 73 Nationally Determined Contributions (NDCs) and ten National Climate Change Learning Strategies (NCCLSs) to assess the state of CCE and found that the level of ambition is poor. Kwauk (2021) designed six metrics and 31 indicators based on Education International's *Manifesto for Quality Climate Change Education for All* and used them to conduct a trends and gaps analysis. Many countries, including Turkey, had not yet submitted their NDCs to the UNFCCC as of July 30th, 2021. Overall, all countries failed the test, since they scored below 59%. The countries with the highest scores were Cambodia (58%), the Dominican Republic (51%) and Colombia (50%). When she added the 42 percent points in order to curve the scores, only ten countries scored over 59%. Cambodia, the Dominican Republic, Colombia and Argentina scored between 90% and 100%, Cabo Verde and Costa Rica between 80% and 89%, the Marshall Islands between 70% and 79% and St. Lucia, Vanuatu and Mexico between 60% and 69%. It is worth noting that the most vulnerable countries least responsible for greenhouse gas emissions have approached CCE more sensitively, while the wealthiest 20 have not mentioned CCE. Although there are only ten NCCLS, the analysis of these also generated unsettling results.

The same piece of research affirms that no countries are considering compulsory CCE and that the highest-scoring countries reference vulnerable communities. Only St. Lucia mentions the importance of students, while none of the countries cited the vital role of teachers. CCE will fail if students and teachers are absent from policy processes. Some of the most critical findings of Kwauk's (2021) study are as follows:

- 23% of the NDCs mention education that addresses children and young people.

- Although 18% of the NDCs mention CCE, there was no reference to compulsory CCE.
- None of the NDCs mention engaging teachers.
- Six NDCs situate children and young people as agents of change, four as priority groups, 23 as beneficiaries, 27 as vulnerable groups and 29 as stakeholders.
- Only nine NDCs mention girl students.
- Only three NCCLS mention ensuring children's right to education.
- Only three NCCLSs mention strengthening the education infrastructure.

The information and findings mentioned in this section are not based on a comprehensive review of all the CCE studies in the world, which would require further studies on many levels.

4. INSIGHTS FROM THE INTERVIEWS WITH KEY INFORMANTS

"*The end of the world's got a funny way of making connections*."
Gus, Sweet Tooth on Netflix

This section will complement the thesis by reflecting on the key informant interviews conducted with experienced individuals working in a variety of relevant fields. By means of these interviews, I was able to compare the perceptions and opinions of key informants with the findings of the policy analysis. I was also able to access information which the policy texts did not reveal. The interviews have allowed me to create a relatively holistic picture of the condition of CCE policies.

I would like to state from the beginning that the recent initiatives on CCE, whether taken by public administrations, NGOs or young climate activists, or as a result of cooperation among these groups, seem to be following the same path as EE practices in Turkey. EE activities, projects and programmes operated on a relatively small scale – I might also include wider scaled efforts –, and it is hard to

tell whether these efforts have evolved into effective national, regional and local EE policies. ESD was even harder to work with and difficult to grasp. Problematic, polarised, fragmented and highly bureaucratic education systems have constrained EE and ESD practices in Turkey and thus failed students. COVID-19 pandemic has led to increased interest in EE – particularly in forest schools – but the level of ambition for CCE is still highly inadequate as we stand on the verge of 1.5°C. This situation should make professionals and volunteers from both the policy and practice sides of education restless in the sense of Haraway's (2016) concept of "staying with the trouble", which can lead to solidarity and action and is "more serious and more lively... Staying with the trouble requires making oddkin; that is, we require each other in unexpected collaborations and combinations, in hot compost piles. We become-with each other or not at all" (Haraway, 2016, p. 4).

Climate, the *climate crisis* and thus CCE are complex, intersectional and interrelated. The knowledge and practice they necessitate have not yet been thoroughly studied in Turkey. There is a need for collective thinking. This is not only the case in Turkey; the absence of CCE worldwide is disconcerting (Kwauk, 2021). I aim to fill this gap, at least partially, in Turkey considering the limitations of a master's thesis and bearing in mind that it will not be realistic to consider the different needs of different regions, let alone provinces, within the scope of this research. To put at least one building brick in place, I have chosen to "think-with" key informants from various disciplines to assess the existing situation and discuss potential policy recommendations for multiple and pluriverse roadmaps for CCE.

All the individuals I have interviewed are following the impact of the *climate crisis* in Turkey and the world. They either work professionally or academically in this field, or learn, share, campaign or advocate for stronger climate policies. I have interviewed teachers, students, academics, activists, public officials, politicians, journalists and lawyers. During these interviews, they provided their evaluations of Turkey's climate policies, the impact of the crisis on educational settings, CCE policy priorities, the barriers to CCE policies and the means by which these barriers might be overcome.

The interviews were conducted online, partly due to the distances involved but mainly due to the COVID-19 situation. The interviews were semi-structured, and the findings are shared here under five subsections. The first subsection draws on our discussions about climate policy and CCE policy in Turkey; the second concerns the impact of the *climate crisis* on formal education settings; the third is on goals; the fourth is on barriers, and the fifth is on means to overcome these barriers. There are both commonalities and differences in the opinions of the interviewees. I have coded the key informants in Annex III, summarised their opinions in tables and briefly discussed insights I gained. Considering the amount of feedback, discussing these will require a different master's degree.

4.1. INSIGHTS ON CLIMATE POLICY AND CLIMATE CHANGE EDUCATION POLICY

This subsection reflects on discussions with key informants regarding climate policy and CCE policy in Turkey. I have first summarised their opinions and then briefly discussed these opinions in conjunction with the literature review, desk research and my professional knowledge of Turkey's climate policy, education policy and CCE policy.

Table 4. 1. Views on Climate and CCE Policy in Turkey

KIs	Views on Climate and CCE Policy
KI-1	- The government is not working to improve climate policy. - There is a lack of political will. - Copy-pasting has been done in CCE over the years; the methods and materials have not changed much since the late 2000s. - Climate policy is based on projects funded by the EU and UN. - There is no follow up on projects; this is the biggest problem.

	- Projects have no impact analysis and are not accountable. They have considerable budgets but lack scope. - There's no impulse from the bottom up; all policies come from outside Turkey and are top-down. - CCE is being used as a cement to fulfil international obligations. It was never a priority. - Reports submitted to the UNFCCC include extensive education activities, but most of these are implemented by NGOs. - The NDCs and NCs contain fewer CCE programmes run by the public authorities. - The public administration has not prioritised CCE.
KI-2	- CCE policies have been weak since the first NC. - The MNE has not taken ownership of CCE. The MEU (previously the MEF) owns and implements it. - There are few best practices in Turkey or around the world. - The BoE got interested when they encountered examples of curricula from other countries and started working on revising the curricula. - It is mostly NGOs that implement CCE. - During the discussions on the first NC, CCE was a major topic, yet the interest did not go very far. - The BoE complained about a lack of resources and financial and human capacity. - The MNE was not a CCAMCB member, so the discussions lacked the MNE's voice. Now they are a member.
KI-3	- The MNE did not participate in CCE policy discussions in the past; they have only recently started to do so. - There is a lack of continuity in projects, goals and efforts.

	- There is a quality problem regarding the materials used during training sessions. Public authorities or their contractors have been using copy-pasted materials ever since the first NC. - There is a lack of knowledge and experience. You must rediscover everything about CCE on your own.
KI-4	- There is no climate policy. - No priority was given to a just transition in the climate policy discussions. - The *climate crisis* is not seen as an existential threat. - Democracy is weak in Turkey. - Insufficient data and information make it difficult to understand the situation and act accordingly. - Ecological extinction and the biodiversity crisis are deeply linked to the *climate crisis* yet ignored. - Turkey's development paradigm, based on fossil fuels and growth, is a major barrier. - Turkey's victim rhetoric in high-level negotiations is a major barrier. - There is a lack of systemic understanding. - The focus is on the energy sector. - There is dependence on foreign aid for CC and CCE programmes; financing within the country is limited. - Policies are developed from the top down; it should be the other way round.
KI-5	- Climate policy hasn't changed since 1992. - Turkey is the 15th highest polluter in the world. - Turkey has never denied the *climate crisis*. - Turkey acknowledges CC but acts as if it is not its problem. - Turkey supports developing countries, but wants to leave Annex 1.

	- Turkey struggled to adapt to the negotiations following the Paris Agreement. - Net-zero emission reduction is taboo, so Turkey focuses on adaptation, i.e., CCE and public awareness. - Climate policy is locked into an old discourse. - Meanwhile, the renewable energy sector has gained in strength. - There is anxiety about the Green Deal. - CCE is customised and was copied from other countries; there is a lack of local context.
KI-6	- I have realized my lack of knowledge about Turkey's climate policy. - I try to follow the situation regarding the various agreements. - In terms of governance, it feels like there's no institution that owns climate policy in Turkey. - Climate policy contradicts other policies, such as tourism policies and development policies.
KI-7	- I don't think any climate policy exists. - The policies of the public and private sector, academia and NGOs fall short of what is required. - They are not adequate, balanced or sustainable. - They are consumption-oriented policies. - I learnt about the *climate crisis* from young people a few years ago; I wasn't aware of it before that.
KI-8	- I do not know much about the *climate crisis*. - The climate and nature are under attack. People are trying to defend them. - We are a country with amazing natural resources; however, the state is treating these resources harshly. - It feels like an area where we don't have much influence. - The policies are fragmented and not holistic.

	- Human exceptionalism is dominant in education policies.
KI-9	- Policies are controversial and politically problematic. - The impact of the drought has reached serious levels. 41 of the 82 provinces have been affected. Product yields have fallen. - The water management crisis awaits us. Socioeconomic and class crises are knocking on the door. - There are no climate adaptation and climate mitigation policies. - Cities should have emergency action plans. - There are villages that cannot pay their debts. - There is environmental racism. - The crisis is greater than it seems. - The climate is portrayed as soft politics, as if it's an issue of a particular social class. - Development policies are fuelled by coal. However, the Green Deal has had an impact on the private sector. - The climate finance requested is too small. Years have gone by with this useless demand. - We are in an economic crisis.
KI-10	- I do not have adequate information. - Turkey is a developing country, and its heavy industry depends on polluting energy. - Investment in fossil fuel-based industries seems to be continuing. - Neoliberal policies are a major barrier.
KI-11	- There is no climate policy. - The Green Deal is changing EU policies from the top down. Turkey is not discussing these changes as much as it should. - The absence of the climate issues from education policies is a problem. - Not working with young people to design a better future is a major mistake.

KI-12	- I started following climate policies when I was eight. It has been ten years now; there has been no change in policies. - I question whether there is any climate policy. - Ratification of the Paris Agreement will be an important act, but there are bigger issues to come. - Sustainable energy has potential, but is still inadequate. - Agriculture policies seem to have gone backwards. - We are destroying the country. - Nobody can blame the citizens; a handful of ministries are responsible for the current unsustainable path. - There is a lack of enforcement for unsustainable practices.
KI-13	- Leaders talk about how effective policies are, but the Paris Agreement was not ratified, and ecological degradation continues. - Green policies have no impact and are not applied. - Climate policy is weak. - The perception is of "climate change" rather than "*climate crisis*". - We, young climate activists, have requests to make of the government, decisionmakers and policymakers, but they do not listen to us.
KI-14	- There is no climate policy. - The Paris Agreement was not ratified, and no statements were made on mitigation targets. - The Administration is more interested in 'Public Gardens' than the *climate crisis*. - There is an urgent need for decisive action. - We read reports about the plans, but there is no information on the implementation. - There is no time left to act; on the contrary they frequently announce new coal power plants or other investments that rely on fossil fuels, and they report this as good news.

KI-15	- Since the beginning, climate policy in Turkey has not evolved in line with the UNFCCC, the protocols and agreements. - Turkey has tried to be a part of the agreements/protocols but not on rightful terms. - Turkey did not commit on time and now it is late for most actions. Its arguments were right at times, but not anymore. - There was chasing after small grants. - Turkey has missed many chances all these years, played the victim and not committed to anything. - There is no international support; Turkey is alone in the negotiations. - During the Paris negotiations, Turkey's climate diplomacy went back to old narratives. There is no sympathy for Turkey in the international arena. - There is a risk of losing status at the UNFCCC. - Turkey is among the countries that will be most affected.
KI-16	- Climate change has critical effects at different levels. It turns the system upside down and has local consequences too. - I learn about the developments from social media and books. - Climate policy is sterile and narrow. There is no policy to improve. - There is a focus on recycling, but it will not be adequate. - I do not have much faith that policy will change any time soon. - Curriculum change is the perspective for CCE. - There is no entity or institution working on CCE.
KI-17	- I lack background knowledge and follow the news and developments via social media. - Climate change communication is one-sided. - Politics is destroying nature, the climate and everything else.
KI-18	- There is a longer history in Turkey which is not known to the public or even climate activists.

	- Critical junctions were missed before Rio. Turkey made a reduction commitment before Rio, but the Ministry of Energy and the then-State Planning Organisation manipulated the negotiations. - Development projects prevent any progress. - Today, there is no climate policy; they only plant trees. - Development is focused on economic growth. - Ecosystems have no priority. - Neoliberal policies are damaging. - There is no consideration for non-humans or future generations - Loss of biodiversity is more destructive but unseen and ignored. - I trust in norms even if they are palliative.
KI-19	- I have little background information and I regret it. - There is no news in the mainstream media. - It is discussed in narrow circles. - I know it is a deep, complex and serious subject that I need to learn about, but I abstain from learning about it. - Young people are not included in the discussions.
KI-20	- I only recently started to follow this. I get my information from the civil space. - I am not aware of historical perspectives and information about them is not accessible. - Climate is not included in programmes and plans. - Climate is always linked to sustainable development (SD) but SD narrows the focus of climate discussions. - Development policies dominate the agenda. - It is not the institutions responsible that are trying to solve the problem but we citizens. - International institutions are not working and create bureaucratic barriers. - We are trapped in a neoliberal system.

	- It is highly problematic how they make vulnerable groups visible.
KI-21	- There is no climate policy. - There is total disappointment in the world. - Currently, the countries who are mitigating are transferring their carbon budgets elsewhere. - [Policymakers and decisionmakers] use all the legal loopholes. - There is no vision for climate policy or CCE policy.
KI-22	- The main lines of policy have been the same since 1990. - Turkey has recently realised its vulnerability to the *climate crisis* due to international trade restrictions. - Development policies dominate the agenda. - Economic concerns make an impact. - We have clung to fossil fuels. - We cannot benefit from incentives. - Turkey cannot leave Annex 1; no country will allow this to happen. Leaving requires changes at many levels and is too complex. - Climate policies are driven by external factors; they are not demanded by society. - The biodiversity crisis is reinforcing the *climate crisis*.
KI-23	- There is no CC or CCE policy in Turkey - The Paris Agreement does not have the power of sanctions. - The biodiversity crisis is unseen and overshadowed.

Turkey ranks 15th in the world for carbon emissions and is among the countries worst affected by the *climate crisis*. However, as Table 4.1. shows, almost all the informants think that Turkey has no climate or CCE policy. Even those who have followed the international negotiations and participated in them on behalf of Turkey are of the same opinion. As in many policy areas, the public administration seems unable to function in this vital area. The public authorities seem to have been employing the same rhetoric and conducting the same advocacy work since 1992.

The informants cited economic policies as one of the most important influences on or barriers to climate policies. They noted that climate policies are contradicted by many other policies, including policies related to the economy, like tourism. The issue of ownership was another concern. The informants stated that the public administration does not own the climate policies. They also stated that these policies should really belong to the public. Another critical issue raised was the lack of transparency and accountability.

These views reported above highlight two other important issues. First, the public authorities and the public itself should address the *climate crisis* and the biodiversity crisis simultaneously. Secondly, a bottom-up approach is lacking – and yet when young climate activists seek to fill this gap, they feel unheard.

Another significant issue mentioned was the lack of best and original practices on CCE. According to the informants, the public authorities do not own CCE policies, and when they do adopt them, they use them as "cement" for fulfilling their international obligations. Access to information also seems to be problematic. Social media was frequently cited as a source of information.

4.2. INSIGHTS ON THE IMPACTS ON FORMAL EDUCATIONAL SETTINGS

This subsection reflects on the key informants' comments regarding the impacts of the *climate crisis* on formal educational settings. I asked the informants how the *climate crisis* has affected K-12 formal education in Turkey and how it will affect in in future. As in the previous subsection, I have first summarised the opinions of the informants and then proceeded to briefly discuss them.

Table 4. 2. Views on the Impact of the Climate Crisis

KIs	Impact of the Climate Crisis

KI-1	- Inequality is being reproduced and deepened.
KI-2	- There is a need for changing skills. - They are vulnerable to disasters.
KI-3	- The budget is reduced. - There's a lack of resources. - The curricula do not meet the needs.
KI-4	- Young people are not hopeful. - There's a risk of social policies falling short.
KI-5	- There will be heatwaves, floods, fires, water scarcity… - Inequity is an issue.
KI-6	- We have been implementing the same school calendar for 20-30 years. - Disasters will occur. The summers will be hotter and the winters harsher. - It will impact the functioning of education services. - It will have a direct impact on outputs. - Education should aim to be ready for potential risks. It should provide tools for this, but it doesn't. Students and the public lack the necessary skills – and skills are changing. - The requirements and needs of the education system are mounting. - The need for lifelong learning is increasing. - The curricula should change – for example, there will be food items that Turkey will not be able to produce soon.
KI-7	- We will have anxious generations without hope. - Students are unhopeful. - Young people think they have no future. - It affects their mental health. - Children are treated as if they don't know anything. - Access to education will be disrupted.

	- COVID-19 pandemic had a serious impact, but the *climate crisis* could have more severe consequences.
KI-8	- We must prepare for natural phenomena that we have not experienced before. - It's not just about education; it's about life. - Jobs will change. - We don't know and we are not ready. How will we prepare? - We're not even ready for earthquakes. - Do we have long-term plans for how to prepare for disasters that we don't even know about? - We need to know what we don't know right now and this is challenging. - Education should prepare students for uncertainties and an unknown future.
KI-9	- The education system is wounded. - There are basic problems, like compulsory religious education and inequities. - There is a need for constant change and reform. - The education system is not settled. - The curriculum is out of touch with our everyday lives, as if it was prepared for another universe.
KI-10	- I am more aware of the projections: drought, the Mediterranean basin, floods, heatwaves, climate refugees… - It will have a direct impact on our daily lives. - It may affect mobile teaching. - It will affect access to education, which is already a critical problem. - Vulnerable groups will be prone to greater risks and threats. - If people have to migrate, how will schooling policies react to migrant children?

	- The infrastructure of schools is weak and vulnerable. - Climate also affects education philosophies. The current discourse is competitive and individualistic. - Education is in crisis already. It has become a technical issue and the societal benefits have been ignored. - There is hidden institutional discrimination, and this may deepen. - Educational values and climate activism are incompatible. This leads to the climate struggle being ignored. - The education system is a social contract and anything different, such as the inclusion of refugee children, causes a crisis.
KI-11	- The curricula must change. - The *climate crisis* will affect our everyday lives, including the way education works. - The approach to decision-making must change.
KI-12	- Most of the impact is in rural areas; children from these areas will be affected the most. - Child labour may increase.
KI-13	- It will have a negative impact on students' mental health. - Schools may close for various reasons such as air pollution, floods and heatwaves. - Disadvantaged groups will be more prone to risks. - Climate injustice will increase.
KI-14	- I don't have any information on the possible impacts. - What I learn or do at school will not change anything; I will not get anything in return. - Currently I'm focusing on my climate activism– focusing on solving today's problems: our everyday lives are in jeopardy today. - We may need to change our lifestyles; we need to change.
KI-15	- The curricula must change.

KI-16	- Changes in the pattern of production will lead to internal migration. Then how will the cities which people migrate to include the newcomers? - We teach so many things in K-12, but will there be a planet where they can put what they have learnt into practice? - Teachers are not interested in this issue. I have never heard any of my colleagues discuss the *climate crisis*. This has to change. - The curricula should change. - The ineffective education system will be disrupted. - It will cause anxiety. - Infrastructure will be an issue.
KI-17	- Children are interested and want to learn more. - The school environment is an issue. - There will be health issues for students and teachers.
KI-18	- There will be physical consequences. - Child poverty may increase. - Hunger may increase.
KI-19	- It will deepen inequalities. - It will affect disadvantaged groups. - Children will be overburdened. - It will affect girls. - Anxiety is an issue.
KI-20	- Education policies don't even mention the word 'climate'. - The topography varies, so different policies are needed. Policies for mountainous regions will not work in coastal cities. - Disasters are lying in wait. - The impact of the education system on the *climate crisis* is invisible: the carbon footprint, excavations… - Bussing will be affected – school transport...

	- There will be migrations due to drought. We don't know where they will emigrate to and how they will plan schooling and infrastructure there. - Our education capacity is not prepared for the changes, impacts and disasters. - There are no answers, and it seems no work is being done to find them. - Disaster after disaster will disrupt education.
KI-21	- It doesn't have a direct impact. - It hasn't changed our mindsets. - The aim is still there – the perception of civilisation, human exceptionalism… - There is no vision.
KI-22	- Green works are needed. - The curricula are antiquated. - There is a need for renewable systems. - Children are bringing the *climate crisis* discourse into households. - Children are getting depressed while negotiations go on.
KI-23	- The curricula have to change. - It will have an impact on our everyday lives. This is already happening. - Radical change is needed in the entire education system. - There'll be more migration.

With respect to the effects of the *climate crisis* on formal education, the key informants pointed to the need for curriculum change. They also highlighted the inequalities in education, which may increase and deepen with the *climate crisis*. The preparedness of educational environments for disasters was also frequently questioned. It seems that the *climate crisis* could affect education in many ways and to varying degrees. The education system must be made resilient to the impacts of

the *climate crisis*. Efforts in this area should include, but should not be limited to, changes in the curricula. The importance of rapidly addressing infrastructure problems is apparent in view of the prospect of heatwaves, drought and floods. When planning curriculum change, the well-being of students should be addressed holistically.

4.3. INSIGHTS ON CCE POLICY GOALS

This subsection is based on the comments made by the key informants during the semi-structured interviews regarding CCE policy goals. I asked the informants for their opinions as to what the goals of a CCE policy for K-12 formal education in Turkey might be. As in previous subsections, I have first summarised their opinions in a table and then briefly discussed them.

Table 4. 3. Views on CCE Policy Goals

KIs	Views on CCE Policy Goals
KI-1	- The MNE should democratise CCE, reaching out to state schools, especially VET institutions.
KI-2	- Goals should be determined within the framework of Article 6. - A link should be made with everyday life. - The education should be associated with disaster education. - The education must be skills oriented.
KI-3	- They should be shaped around regional needs, with a different design for each province. - Hope must be emphasised. - There should be a focus on skills: scientific thinking, relational thinking…...problem solving, observation, cause and effect, comparison, graph reading, collective thinking, critical thinking…

	- Intergenerational learning is important.
KI-4	- The education should target hopeful solutions to address anxiety. - Climate literacy should be a goal. - Young people should be granted space to ask questions to the public administration. For example, when they are asked not to consume too much water, they could ask how well water is managed by the relevant public body. - Learning through inquiry could be a goal. - Local and regional knowledge could be a goal.
KI-5	- Civil CCE must be aimed for. - Freedom of thought is important. - Basic science – i.e., the Earth system – should be included. - The education should be research-based. - CCE should be interdisciplinary, not a separate subject. - Children should be taught English so that they can follow scientific developments - The education should encourage scientific thinking… - …and ecological citizenship. - Evolution must be taught. - Political consciousness is required.
KI-6	- The education should include preparation for risks. It should provide autonomy and use a capabilities approach. It should instill the confidence to manage crisis situations. - We know the risks but should be *prepared* for them. - CCE should be integrated into all courses rather than having a separate course on climate. - It should be part of the examination system, so that students include it on their learning agendas. - Monitoring the knowledge acquired will be critical.

KI-7	- They should use the universal declaration on the *climate crisis* which children have prepared. - Consumption culture should be eliminated. - The curricula must address the *climate crisis* and its solutions. - Families should be included. - Science is our compass. - There should be no dramatisation, but the risks should not be swept under the carpet. - It should convey the impact of the *climate crisis* on all living things, not only humans. - We need to start by raising awareness.
KI-8	- A separate curriculum should not be designed; CCE should be integrated into all disciplines. - The focus should not only be on designing and producing content and materials. - Scientific and critical thinking is essential. - It needs to be interdisciplinary. - We should admit that we don't know how to do it. We don't know how to work together very well - We can start by changing the philosophy of human exceptionalism. - If we think together and talk together, I think we will reach the right conclusions and find our way. Education should allow this and provide the space to do it. - We need to be less individual. I think very individually. It's the way it works. We need to teach people to think as a community. - When you're so individualistic, it's all about me and the humans. You don't know anything else. - The individualistic people walk away; they leave.
KI-9	- It should include preparing for what's going to happen.

	- Students should be properly trained and ready for what to expect after they graduate. - The education system itself needs preparing. - It should be a preparation for struggle rather than just awareness-raising.
KI-10	- It should include degrowth. - Social peace should be stressed. - It should expose the current system – reveal what it does to chickens. - There should be a critical re-think of the consequences of the discovery of the New World - Critical points in *climate crisis* history should be included. - It should not solely consist of awareness-raising. - Actions to take in everyday life could be taught. - There is a need to teach practices, the roles of politics and nations, and the history of civilisation and the *climate crisis*.
KI-11	- We must go beyond the "Climate change is a major crisis; we must be prepared for droughts" discourse. - Panic discourses will not work. - The education could treat it as a new reality: the *climate crisis* is happening and it is here – that's the reason why we've stopped using coal and created new jobs, why we care for a just transition, why we drive this type of car… - Education should be a preparation for the new world order.
KI-12	- Let's abandon disaster scenarios. - K-3 should focus on promoting nature and protecting it. - The problems can be discussed in the higher grades. - It's about how to change our lives. - "Recycling saves the world" teaches individual action; education should aim for social mobilisation.

KI-13	- The focus should be on the development of the individual. - Workshops in nature could be included, to take teaching outside the school. - There is a need for applied experimental and interactive teaching. - Let's take students outside the school and teach them in their everyday lives. - We can use the schoolyards. - The number of exams should be reduced; the current load is already too much. - Scientists can be invited to school. - Include them in the curricula.
KI-14	- There seems to be climate education at school, but in fact there isn't. - I learnt about the climate in geography in the 7th and 9th grades. The teachers taught the rosy side of climate change. One can find this information everywhere. - The goal should be to inform young people about their future and mobilise them or at least inform them. - Young people should understand what is happening and be convinced that science is important to understand the background. - Students should learn to spread information. - They should be taught how to become climate activists. - Let's listen to what young people want to learn and how they want to act and include these in the curricula. - All students go through the same examination system; this is unequal and problematic. - Climate education aside, the curricula must change completely.
KI-15	- The education must teach that life will never be the same: the climate is changing and so will human systems.

	- It should teach the projections and explain that it's not a surprise or a matter of faith: as the temperature increases, the hydrological cycle intensifies – so expect severe impacts. - The impacts have already begun in many sectors, such as agriculture. - Climate change science can be discussed in 3D. - We must know, discuss, and explain the differences between the climate and climate change. - Education should teach how to prevent further crises: what to do, how to act, what to change. - The history of the climate and of climate change agreements and negotiations could be included. - Let's teach students about who is responsible. - The measures that need to be taken in energy and industry; what the public, the private sector or local administrations can do… Let's teach all of this. - The education should include how to reduce energy and water consumption and carbon footprints. - It also needs to be about how habits change. - Energy and electricity are very important. Students need to understand the consequences of their daily behavior. - We can share examples of how to act at all levels, from the state to the private sector and the individual. - The NGO contribution should be included. Let's find and share best practices, including good pedagogical practices.
KI-16	- One goal could be learning by seeing and doing. - Concrete, knowledge, and actions tested in real life should be included. - Discourses about nature could be discussed.

	- Local, regional and global perspectives should be addressed at the same time; the education should not only be about Turkey but should provide a worldwide perspective. - The active participation of students is important. - We must abandon conventional or traditional environmentalism. - Respect for nature should be taught, and not only respect for humans.
KI-17	- It's time to move on from "We have to love nature" to "How can we love nature?". - The education should teach children about their local environment. - Recent events could be discussed, like the floods, the forest fires or the mucilage in the Sea of Marmara. - An interdisciplinary approach is necessary. - Education should be open to collaborations. - Freedom of thought matters: we could discuss the Istanbul Canal with our students.
KI-18	- There should be a link with everyday life. - Biodiversity and loss of biodiversity should be taught. - Traditional methods must be abandoned.
KI-19	- The education should be action-oriented - It shouldn't be a separate course. - The trainers need to be taught. - A change of discourse is necessary. - An interdisciplinary approach is required. - There should be two-way learning: from teachers to students and students to teachers. - We cannot wait for political will; we have to move on this. - Contemporary political discussions could be included. - Students should be politicised. - Local perspectives are needed.

	- There should be free discussion.
KI-20	- Let's disrupt human exceptionalism. - Disaster preparedness has to be included. - The system has to be prepared for waves of migration. - It's important to design a justice-based system. - The curricula must be changed. - Financing should be increased. - The burden should not all be put on teachers. - There is a need to build and sustain democracy. - Schools can be societal healing places. - A local perspective is necessary. - Teachers require support.
KI-21	- The right to resistance could be taught. - Relational thinking and systemic thinking are important. - One goal is sharing alternatives. - Historical perspectives could be included. - Political teaching is necessary. - Using the imagination and relating it to practice could be included. - The education should give a critique of the system. - Radical questioning is needed: "Save the butterflies – OK, but what does it mean to save them? What impacts will it have?" - Agency has to be stressed.
KI-22	- The language of catastrophe should be dropped. - It's important to share hope. - The education should inform students about causes and results and empower them with alternative means of living on the planet. - Ecological citizenship could be a goal. - The education should cover the local environment, and our place on the Earth. - Cities are metabolic; let's teach this.

	- Global, regional and local problems can be taught. - Critical thinking is needed. - There is a risk of blind confidence – for example, in science.
KI-23	- It should aim to teach what is happening, why it is happening and what the impacts are. - It should empower people to adapt and to solve the problems. - The rights of nature could be included. - Ecological values are another goal. - Human exceptionalism has to be disrupted.

The comments listed above clearly indicate the importance attributed to education. The crisis in education has been on the agenda for some time. COVID-19 pandemic has revealed the need for a system change. However, education continues as before. The interviewees speak of the need for a radical change in education starting with its goals. Most of the informants stated that human exceptionalism is a major problem. Another significant issue is the lack of participatory mechanisms designed for young people. The informants do not think education is currently adequate or of a high quality. They do not believe what they have learnt at school will be useful in the future.

One of the topics highlighted in the interviews was skills training. The interviewees stated that there will be changes in the skills required. The importance of skills such as critical, scientific, and relational thinking was affirmed once again. In addition, the interviewees proposed to address the need to change lifestyles through the education system. As an example, mention was made of the importance of sharing alternative lifestyles. Some interviewees felt that CCE should not be a separate subject, and that its integration into all subjects has become a priority. We were also reminded of the fact that education cannot be separated from politics.

4.4. INSIGHTS ON BARRIERS TO CCE POLICIES

This subsection refers to the comments which the key informants made when asked about the kind of difficulties or barriers policymakers might encounter when designing and implementing CCE policy. As in previous subsections, I have first summarised the opinions expressed and then briefly discussed them.

Table 4. 4. Views on Barriers to Achieving CCE Goals

KIs	Views on Barriers to Achieving CCE Goals
KI-1	- The current CCE reproduces privileges. - There is a lack of information for vulnerable groups. - Young people, particularly the most vulnerable, are left unauthorised. - There is a failure to link CCE with justice. - CCE does not bring about systemic changes. - Only elite groups have access. - The agency of young people is being ignored. - There is a lack of quality materials. - The same CCE materials are used over and over again. - No scientific study or situation analysis of CCE has been conducted for the NCs and NDCs. - The science-policy interface is weak.
KI-2	- There is no budget. - The MEU is in charge of CCE. - The MNE lags behind.
KI-3	- Materials are outdated. - There is a lack of ownership on the part of the MNE. - Projects are short-term and there is no continuity. - Teachers are polarised.

	- Teachers who implement CCE do not feel safe and secure. - Teachers are not free. - Schools may waste resources. - The MNE is very bureaucratic. - There is a disconnection from daily life. - The administration is too centralised. - People do not believe the crisis can be overcome.
KI-4	- The development paradigm is a barrier. - Information and data are lacking. - Population policies are an obstacle. - Alarmist language is a challenge. - The SDGs cannot be achieved without addressing CC. - There is a lack of systemic thinking. For instance, the wastewater treatment facility in Çiğli in İzmir will soon be under water but they continue to invest there. - CC is difficult to teach.
KI-5	- Budgets need to be allocated for capacity building for years. - Responsibility has to be given to individuals. - There is a lack of Turkish resources for CCE. - Lack of information is a barrier, and so is misinformation. - Compulsory in-service training in schools is inefficient. - CCE reflects class inequality.
KI-6	- Education is examination-based. - It keeps students away from all things important and necessary in life, such as risk preparedness. - There is a perception that the *climate crisis* is far away, yet it is happening here and now. - Public policymakers such as curriculum designers lack knowledge and experience. - CCE is not included in policy documents.

KI-7	- The barriers include established companies and structures,… - …the scale of the consumption culture,... - …the lack of fair production,… - …government policies,… - …economic interests, and… - …lack of capacity.
KI-8	- The disciplines are not interlinked. - It's so polarised; it's hard to come together even for something like children and games. - The procedures and paths are unclear; they don't merge in people's minds. - It is also a challenge for everyone to follow the same curriculum; there is a need for local adaptations.
KI-9	- The education system itself is a barrier. - Other obstacles include the governance crisis, … - …interest groups, … - …religious references, and… - the need for a more pluralistic, inclusive, egalitarian, and accountable governance with gender equity.
KI-10	- The rise of conservatism and nationalism around the world is an obstacle to CCE. - The political economy scares people and prevents them from sharing their opinions. - Nobody believes anyone in the post-truth society. - Everybody is saying something different. - It is difficult to believe in anything. - The impact on everyday life is a barrier.
KI-11	- Teachers find it risky to discuss climate change with children. - Teachers do not know the subject; they don't know how to explain it without causing fear or anxiety.

	- There is no push for systemic change in the education system. - Changing the education system is not easy. - There are one million teachers.
KI-12	- The agenda is very full. - Well-being issues are a challenge. - People have the idea that you don't need to take action right now. - People cannot express their opinions freely; they don't believe that their ideas are valued. - Worrying about climate change is perceived as a luxury. - Water scarcity in 2050 is a distant issue compared to unemployment.
KI-13	- Exam pressure within the education system is a barrier. - Students are not activated or socialised.
KI-14	- Decisionmakers are inconsistent. - Young people are ignored.
KI-15	- There's a problem of governance. - There are problems of cooperation and coordination. - There is a lack of democracy. - CCE is not seen as a priority. - There is no long-term planning. - National education policy is far from being scientific. - The people who write textbooks aren't competent. - Scientific knowledge needs to be prioritised.
KI-16	- Teachers aren't interested. - The education system is not functioning. - There are no best practices. - People only pretend to work on CCE. - Teachers are overloaded. - There's a lack of belief. - Curricula are ineffective.

KI-17	- Information, best practices and collaboration are lacking. - School environments, particularly in cities, are an obstacle.
KI-18	- There's a lack of transparency. - There are no best practices. - The loss of biodiversity is not taken into consideration.
KI-19	- The root causes are not discussed. - There's a lack of real-life scenarios. - The *climate crisis* is seen as a scary subject. - It is not easy to comprehend. - There's a language barrier for teachers and students.
KI-20	- Teachers are alone and overburdened. - Issues with democracy are another barrier.
KI-21	- Bureaucracy is a stumbling block. - Other challenges include lack of agency,… - …the centralised examination system,… - … changes in relation with the subject matter, and… - …the current state of relations between students and students, parents and students, students and teachers, and students and their subjects. - Infrastructure is insufficient. - There isn't enough free time to think, talk, play or try new things out.
KI-22	- Long-term panic is damaging. - Children are getting depressed while negotiations go on. - Modernism is a problem. - National security priorities are another barrier. - Science is perceived as northern and western.
KI-23	- There are economic and class barriers.

Numerous barriers were mentioned in the interviews, some of which are entrenched issues. These issues vary in scale: some can be solved easily while others can perhaps only be solved in the long run. They include neoliberal economic policies, governance problems and challenges related to bureaucracy and democracy. When addressing these problems, NGO employees and young activists stated that they felt unauthorised and helpless. The *climate crisis* is a vital and complex issue. It is important to examine the root causes of these barriers without giving up hope.

4.5. INSIGHTS ON WAYS OF OVERCOMING BARRIERS TO CCE POLICIES

This subsection reflects on the points made by the key informants regarding the ways in which barriers to CCE policies might be overcome. During the interviews, the informants were asked to suggest potential interventions for overcoming the difficulties encountered.

Table 4. 5. Views on Means to Overcome CCE Policy Barriers

KIs	Views on Means to Overcome CCE Policy Barriers
KI-1	- Democratise CCE. - Introduce CCE for VET institutions. - Involve industrial zones. - Make CCE practical – for example, schools and students could design and construct solar panels.
KI-2	- Organise workshops that are fun. - Give hope. - Make use of the design skills workshops (DSWs).

KI-3	- Ensure the active participation of teachers and children right from the beginning and at all phases. - Provide solid information. - Do not permit the use of didactic methods. - Start with those most affected. - Change the school infrastructure. - Create links with other social policies, such as regular health checks related to the *climate crisis*. - Conduct extracurricular activities. - Make sure teachers feel secure, safe and free.
KI-4	- Start with the grassroots. - Use climate communication techniques. - make use of peer-to-peer learning. - Involve people over 65. - Treat children as agents. - Address emotions. - Involve the Ministry of Youth and Sports. - Provide parental education. - Abandon the “victim” rhetoric. - Work for equity. - Involve young people. - Work on mental health.
KI-5	- Transform urbanisation policies, such as public transportation. - Involve young people and climate activists who influence EU policies. - Design CCE for young people. - Involve the MNE, not the MEU.
KI-6	- Include CCE in all subjects. - Allocate funding. - Support young climate activists.

	- Adapt transferred information to the local context. - Ensure that schools participate in the process actively.
KI-7	- Determination is very important. Work on attitudes. - Scientific jargon may not always work. Vary the language when you go to rural areas. - Remember the private sector will not want economic losses. - Ensure meaningful participation. We need to listen to the children first. They shouldn't be passive objects. - Do not criticise any actions they might take. Save the future they stand for. - Promote climate activism in Turkey. - Empower children to address the many challenges they face. - Make children think that they are important and valued.
KI-8	- Teach teachers about project-based learning. - Make schools autonomous. - Promote critical thinking.
KI-9	- Foster pluralistic, inclusive, gender-sensitive, transparent and accountable administration.
KI-10	- Operate through schools. - Accept that it will not be easy.
KI-11	- Strengthen the agency of young people.
KI-12	- Focus on well-being.
KI-13	- Strengthen the agency of young people. - Support climate activism.
KI-14	- Collaborate. - Develop solidarity. - Take science as our compass.
KI-15	- Be guided by science.
KI-16	- Focus on what students need. - Link CCE to everyday life.

	- Collaborate. - Ensure the active participation of students, teachers and non-traditional NGOs.
KI-17	- Collaborate. - Use high-quality materials
KI-18	- Collaborate. - Train the politicians first.
KI-19	- Start with “good decisions”. - Offer hope. - Stay in contact with the world. - Adopt a participatory approach. - Remember the local perspective.
KI-20	- Find and share best practices. - Ensure child participation.
KI-21	- Benefit from the potential of the design skills workshops (DSWs). - Leave the room to teachers and students. - Share data to understand and discuss. - Provide open access to resources and best practices.
KI-22	- Disrupt the aim of education. - Change the role of teachers. - Listen to the needs of students. - Demand democracy. Only referencing science may affect the demand for democracy. The science of the IPCC includes controversial issues such as bioengineering.
KI-23	- Engage climate activism.

One of the highlights of the interviews when it comes to overcoming barriers to CCE was the call for its democratisation. CCE will gain in importance as the Earth heats up and should therefore be available to all children in public schools. Learning works both ways and public and teachers have started to learn

from young people. The effective participation of teachers and parents is important for any planning strategy. Cooperation is also highly important.

CONCLUSION

The 'Earth is on fire' and the impacts are disproportionate. The *climate crisis* demands a collective response (UN Climate Change, 2020). As the Earth heats up, the survival of humans and companion species is at risk. The education system is also going through crisis and is in need of a radical change of structure (The World Bank, 2018; Common Worlds Research Collective, 2020). Business-as-usual "band-aid" recipes are not and cannot be an option for any educational transformation.

To understand the state of CCE in Turkey and the changes that are necessary to climate proof education against the climate and education crises, I have examined policy documents and spoken to key informants who keep track of the *climate crisis*. Through descriptive policy analysis, I have reviewed the state of readiness of formal education settings for the impacts of the *climate crisis* and obtained insight on how the public administration in Turkey can climate proof formal education. I have assessed Turkey's CCE policies and tried to understand the prevailing and emerging impacts of the crisis on formal education settings, the ways in which formal education might be strengthened against the *climate crisis* and the means by which the impacts of formal education on the crisis might be reduced. I have sought to answer the following two research questions: 1) Is the public administration in Turkey preparing the K-12 education system for the *climate crisis* and if so how? 2) What CCE policies do the key informants consider it necessary to prioritise? These questions do not have blueprint answers and the answers may vary from region to region.

In brief, this thesis has determined that Turkey lacks an *ecosocial justice* based climate policy, and that CCE policy too is shaped by climate policies that are either non-existent or ineffective. Without the right kind of climate policy, climate education policies are bound to be inadequate. On the other hand, the transformation of education policy could also act as a trigger for the transformation of climate policy. Both climate and CCE policies appear to rest on the shoulders of

NGOs, but a growing community of young climate activists is claiming the task of giving climate a voice. Their engagement may have supportive and disquieting effects. Some do not foresee a future and feel eco-anxious. Access to information on the *climate crisis* and the impact of the *climate crisis* on education is low. All these factors reinforce the vulnerability of formal education and increase the risk that children's rights to education will not be fulfilled. There is an urgent need for a holistic CCE policy, which focuses on both the *climate crisis* and the *biodiversity crisis* and offers the hope of living in a damaged world. The CCE policy must be deigned to bring children and teachers together from the beginning. It is vital to reduce the risks to education settings, but it is also important to lessen the impact of this huge education ecosystem on the climate.

Existing efforts are being implemented mainly by civil society. They are fragmented, and until very recently they have not aimed to achieve the active participation of children and teachers. There is a narrow focus on individual topics, and interventions are developed and implemented in separate silos. There is a lack of integration, collaboration and consistency within and across the different levels of the system. The lack of a consistent, collaborative and reflective education policy for the *climate crisis* may leave schools, teachers, students and parents alone to connect the dots among these initiatives, which may result in further fragmentation and confusion.

Education policies are failing children, young people and teachers and leaving them with no space or buffer zone in which to act on the *climate crisis* (Kwauk, 2021). K-12 education policies in Turkey and around the world do not address the *climate crisis* consistently and do not prepare schools, students, and teachers for a hotter and more uncertain world. There is a significant gap in policy and practice. Studies on CCE in Turkey consist mainly of analyses of the current curricula, public awareness, the perceptions, knowledge, attitudes and behaviour of students or teachers, and the impacts of tailored programmes for a specific and limited sample of students or teachers. In a world where uncertainty has become the norm, and best practices are few, any study on CCE is valuable. Nevertheless,

as shown in the interviews I conducted for this thesis, there is a need for a consistent K-12 CCE policy to channel fragmented efforts towards achieving a collective impact.

Turkey's climate policy denies the nation's responsibility for the carbon footprint and focuses mostly on adaptation policies. Following the Paris Agreement, nations will have to decarbonise production and consumption and there will be economic, political and social impacts. CCE can play a critical role for society's well-being by facilitating learning with the climate and with the *climate crisis*. Turkey has a responsibility to address the *climate crisis* and education as an ecosocial policy. The *climate crisis* cannot be tackled by discrete units in the public sector, by market failures in the private sector and by a lack of scale and fragmentation in the civil sector (The Young Foundation, 2012). Both individual and institutional actions are required, but institutional behaviour is particularly important.

This thesis has addressed a limited aspect of the discussion on CCE policies. There are many other aspects that require further study. Approaching CCE from a gender perspective is at the top of the list. Various forms of discrimination are inseparable, making the *climate crisis* an intersectional issue. The impact and risks of the *climate crisis* on girls and women (Fry & Lei, 2021) and on LGBTIQ communities (UNFCCC, 2019; Anschell, 2021), are disproportionate. The accelerating and deepening effect of the *climate crisis* on pre-existing social inequalities, including gender inequalities, is visible, yet advocacy for progress towards equity is extremely insufficient.

Equity and intersectionality are absent from the literature on CCE in Turkey. Yet without placing gender at the heart of *climate crisis* actions, the opportunity to generate "alternative knowledge crucial in the formulation of more effective and legitimate climate strategies" will be missed (Kaijser & Kronsell, 2013, p. 419). If the 2030 target is to be achieved, then "alliances between voices that are usually marginalised in the dominant climate agenda" have to be prioritised (Kaijser & Kronsell, 2013, p.419). The *climate crisis* is interconnected with power relations,

erasing the imaginary boundaries between 'social' and 'natural'. There is a significant amount of research and advocacy work that clearly identifies the *climate crisis* as an issue of intergenerational and *ecosocial justice*. Studies in education therefore argue that CCE aims to ensure justice (Kwauk et al., 2019). The severity of the impact varies with age, region, gender and socio-economic status, while intersectionality worsens the consequences. Girls and women are among the most vulnerable groups.

Besides recommending the adoption of a gender approach when discussing CCE, this thesis suggests that further studies should be carried out on the importance of teachers in combating the *climate crisis*. A survey carried out in middle schools by Ennes et al. (2021) found that efforts to promote CCE in K-12 schools faced multiple barriers to their implementation because teachers lacked the preparation and confidence needed to teach the subject. In Turkey, the main concern may not be confidence in the subject matter but worries about the political consequences of addressing its socio-political dimensions (Ennes et al., 2021). A number of civil society organisations including the *Yuva* Association, the TEMA Foundation and WWF Turkey are responding to the needs of teachers and offering online, hybrid or face-to-face 'training of trainers' in which teachers can participate. Other examples include the Istanbul Policy Center and REC Turkey. To my knowledge, however, no research has been done to investigate the needs of teachers before any policy or practical work is planned.

Young people are demanding action from decisionmakers and they consider their campaigns an intergenerational right. However, most local, regional, national and global discussions fail to ensure the active participation of young people in *climate crisis* related discussions and decision-making processes. There is still a widespread assumption that young people should "learn" and not "contribute". As Freire (2014) argues, in traditional schooling, "teachers 'deposit' abstract knowledge into the supposedly empty heads of students".

Meanwhile, at almost the very last minute before I submitted my thesis, the President of Turkey announced a decision to ratify the Paris Agreement. This is a

very significant decision for the Earth, first and foremost, but it may also ensure improved CCE policies in Turkey.

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ANNEX I – CONSENT FORM

ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

"Eğitimi İklim Krizine Hazırlamak: Türkiye'nin Yükseköğretim Öncesi Ulusal İklim Değişikliği Eğitim Politikasına İklim Paydaşlarının Görüşlerine Dayalı Eleştirel Bakış" başlıklı tez çalışması İstanbul Bilgi Üniversitesi Kültürel İncelemeler Yüksek Lisans öğrencisi Burcu Meltem Arık Akyüz (116611048) tarafından gerçekleştirilmektedir. Bu form sizi araştırma koşulları hakkında bilgilendirmek için hazırlanmıştır.

Tez çalışmasının amacı:
Bu çalışma, yükseköğretim öncesi örgün eğitimde Türkiye'nin iklim değişikliği eğitimine yönelik politika ve uygulamalarını; farklı paydaşların iklim değişikliği eğitimine yönelik algı, ihtiyaç ve beklentilerini belirlemeyi amaçlamaktadır.

Takip edilecek süreç:
Araştırma yaklaşık 1 saat süreli odak grup ya da derinlemesine mülakat görüşmesi ile gerçekleştirilecektir. Araştırmacı elindeki soru formunu kullanarak size iklim değişikliği eğitimi ile ilgili bazı genel sorular soracak ve yanıtlamanızı isteyecektir.

Katılımınızla ilgili bilmeniz gerekenler:
Çalışmaya katılmak tamamen gönüllülük esasına dayalıdır. Çalışmaya katılmayı reddedebilir veya çalışmayı bırakabilirsiniz, yanıt vermek istemediğiniz sorular olursa yanıt vermeyebilirsiniz.

Çalışmaya katılanlardan toplanan veriler tamamen gizli tutulacaktır. Veriler ve kimlik bilgileri herhangi bir şekilde eşleştirilmeyecektir. Katılımcıların bilgileri bağımsız bir listede toplanacaktır. Toplanan verilere sadece araştırmacı ve danışmanı ulaşabilecektir. Bu tez çalışmasının sonuçları bilimsel ve profesyonel yayınlarda veya eğitim amaçlı kullanılabilir, fakat katılımcıların kimliği gizli tutulacaktır.

Araştırmayla ilgili daha fazla bilgi almak isterseniz:
Çalışmayla ilgili soru ve yorumlarınızı araştırmacıya … adresinden iletebilirsiniz.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

Adı Soyadı	Tarih	İmza
	…./…./….	

ANNEX II – ETHICAL STATEMENT

ETHICAL STATEMENT

In this master's thesis entitled "**Preparing Education for the Climate Crisis: Critical Overview of National K-12 Climate Change Education Policy in Turkey Based on Key Informants' Opinions**", I cautiously complied scientific ethics and academic rules, obtained all the information and data within the framework of scientific ethics, prepared according to the thesis writing rules, and cited every direct or indirect quote I included. I declare that all studies I refer to can be found in the references.

Burcu Meltem Arık Akyüz

BİLİMSEL ETİK BİLDİRİMİ

Yüksek lisans tezi olarak hazırladığım **"Eğitimi İklim Krizine Hazırlamak: Türkiye'nin Yükseköğretim Öncesi Ulusal İklim Değişikliği Eğitim Politikasına İklim Paydaşlarının Görüşlerine Dayalı Eleştirel Bakış"** adlı çalışmamda bilimsel etiğe ve akademik kurallara dikkatle uyduğumu, tez içindeki tüm bilgileri ve verileri bilimsel etik çerçevesinde elde ettiğimi, tez yazım kurallarına uygun olarak hazırladığımı, doğrudan veya dolaylı olarak yer verdiğim her alıntıya kaynak gösterdiğimi, yararlandığım eserlerin kaynakçada gösterilenlerden oluştuğunu beyan ederim.

Burcu Meltem Arık Akyüz

ANNEX III – CODING FOR KEY INFORMANTS

KI	Field/Profession
KI-1	Climate policy, climate crisis, degrowth / Academician
KI-2	Climate policy, sustainable development / Intergovernmental organisation, Private sector
KI-3	CCE, early childhood education, gender / Intergovernmental organisation
KI-4	Climate policy, public awareness, gender expert / NGO
KI-5	Climate policy expert, academician / Think tank, NGO
KI-6	K-12 education policy / Think tank organization
KI-7	Children's' rights/ NGO
KI-8	K-12 education policy / Think tank organization
KI-9	Gender, ecology / Politician
KI-10	Migration policy, sociology / Academician
KI-11	Climate policy / International NGO
KI-12	Climate activist / Student
KI-13	Climate activist / Student
KI-14	Climate activist / Student
KI-15	Climate science, climate policy / Academician
KI-16	Inclusion, ecology / Teacher
KI-17	Inclusion, ecology / Primary school teacher
KI-18	Public policy, public legislations / Academician
KI-19	Child rights, teacher policies / NGO
KI-20	Urban planning, urban & child interaction, child participation / NGO
KI-21	Sociologist, ecology, non-human studies / Academician
KI-22	Public policy, public legislations / Academician
KI-23	Climate policy / Journalist

ANNEX IV – RESULT OF EVALUATION BY THE ETHICS COMMITTEE

Ethics Board Approval is available in the printed version of this dissertation.