



FINAL MASTER'S THESIS (FMT)

Towards a Sustainable and Just Development:
Analyzing the Coherence of Climate Change Adaptation
Policies and Social Protection in Catalonia

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Class of 2022 – 2024

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Date: September 2024

Abstract

The world is currently facing a climate crisis that disproportionately impacts at-risk populations. This leads to an increase in poverty levels and, consequently, it affects the economic and social development of societies. Despite numerous public policy efforts, scientific evidence suggests that progress has been insufficient. Developing climate change adaptation policies that align with social protection systems and incorporating climate risks in social programs emerges a long-term intersectoral approach to address the impacts caused by climate change, and thus, building just and sustainable societies. Through a regulatory review methodology, this study analyzes whether there is coherence between climate change adaptation policies and social protection in Catalonia with the aim of safeguarding human health. Even though Catalonia has made considerable efforts in linking climate change and health policies in recent years, the findings of this paper indicates that the integration of social protection in climate adaptation policies could be further strengthen.

Keywords: Climate Change, Social Protection, Sustainability, Health, Equality.

Resumen Ejecutivo

El mundo se enfrenta actualmente a una crisis climática que afecta de manera desigual a los grupos poblacionales en riesgo. Esto lleva a un aumento en los niveles de pobreza y, en consecuencia, también afecta el desarrollo económico y social de las sociedades. A pesar de los numerosos esfuerzos en políticas públicas, la evidencia científica sugiere que el progreso ha sido insuficiente. Desarrollar políticas de adaptación al cambio climático alineadas con los sistemas de protección social, así como incorporar los riesgos climáticos en los programas sociales, es un enfoque intersectorial a largo plazo para abordar los riesgos que plantea el cambio climático y, así, construir sociedades justas y sostenibles. A través de una revisión de políticas públicas, este estudio analiza si existe coherencia entre las políticas de adaptación al cambio climático y la protección social en Cataluña con el objetivo de proteger la salud humana. Si bien Cataluña ha realizado notables esfuerzos en la cohesión de políticas de cambio climático y salud en los últimos años, los hallazgos de este trabajo indican que la integración de la protección social en las políticas de adaptación al cambio climático podría fortalecerse aún más.

Palabras clave: Cambio Climático, Protección Social, Sostenibilidad, Salud, Igualdad.

*This paper has been written in the framework of the **Master's Degree in Public and Social Policies** offered by the **UPF Barcelona School of Management**, an institution affiliated with the Pompeu Fabra University.*

Index of Content

1. Introduction	5
2. Objectives	7
3. Conceptual Framework and Background Information	8
3.1 Climate Change Impacts on Human Health.....	8
3.2 Climate Change Impacts on Health in Spain and Catalonia	11
3.3 Social Protection’s Role in Addressing Climate Change	12
3.4 Gaps in Social Protection and Climate Change Policies	13
3.5 Mitigation and Adaptation Policies	15
3.6 Review of Main Climate Change Adaptation Policies	15
3.6.1 International Framework	16
3.6.2 Regional level: European Union	18
3.6.3 National level: Spain	19
3.6.4 Local level: Catalonia.....	19
4. Methodology.....	21
5. Study Analysis.....	24
5.1 Social Protection Budget	25
5.2 Integration of social protection in climate change policies	26
5.3 Intersectoral Coordination	28
5.4 Temporary nature of climate change adaptation policies	30
5.5 Quantification of the Impact of Climate Hazards on People’s Health.....	31
6. Discussion.....	33
7. Conclusions	36
8. References	39
Annex 1. Climate Change Effects on Health.....	45

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

Annex 2. Climate Change Impacts on Mental Health	45
Annex 3. Preliminary Policy Analysis	46

Index of Figures

Figure 1. Diagram on Social Protection Functions in Fighting Against Climate Change	12
Figure 2. Summary of Main Climate Change Adaptation Policies	15
Figure 3. Regulatory Review Funnel.....	22

Index of Tables

Table 1. Hypothesis Operationalization	21
Table 2. Results Matrix of the Policies Analyzed	24
Table 3. Summary of the temporary nature dimension	30

1. Introduction

The world is in the midst of a climate crisis. Since the industrial era, the planet's surface temperature has increased more rapidly than in any other half-century period of analysis, reaching 1.09° C above 1850-1900 levels in 2011-2022 (IPCC, 2023). According to Copernicus, —a program of the European Union (EU) that provides comprehensive data on climate change—, 2023 was the warmest year on record, when global average temperature reached 14.98° C, which is 0.17° C higher than in 2016, the previous warmest year on record (Climate Copernicus, 2024/a). This trend is expected to continue in the coming years, with an 85% chance that the global average temperature will set a new record at least once between the period 2024 and 2028; thus surpassing 1.50° C above the average levels of 1850-1900 (WMO, 2024/a). In fact, in July 2024, a new daily record was achieved with registered temperatures of 17.16° C, being the warmest day on record (Climate Copernicus, 2024/b).

The increasing temperature has altered the weather and has led to extreme climate events in various regions of the world, impacting the planet and people's lives. Natural disasters impact differently according to the geographical area, within a country, and even at the city-level, as well as by socioeconomic characteristics, such as gender, age, and socio-economic status. This occurs because climate events tend to trigger and intensify pre-existing precarious conditions, disproportionately impacting at-risk populations, including the poor, women, children, older people, migrants, and ethnic minorities (WMO, 2024/b). Climate change exacerbates both social and economic inequalities. According to the World Bank Group, between 68 and 135 million people could be pushed into the poverty line due to climate change by 2030 (World Bank Group, 2020).

The tropical cyclones, extreme heat waves, droughts, and wildfires in recent years have presented significant challenges to water and food security, resulting in cascading effects on human well-being, including health (WMO, 2024/a). In 2023, over 700 million people across 78 countries experienced high levels of food insecurity, a situation that has been exacerbated by the consequences of climate change and extreme events (WMO, 2024/b). An additional 127 million people faced moderate or severe food insecurity just in 2021 following a period of heatwaves and droughts compared to the years between 1981 and 2010 (Watts et al., 2021). The implications of climate change on food insecurity are linked to the fact that extreme weather events disrupt

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

crop production, leading to limitations in access to high-quality food due to availability and high prices.

Additionally, devastating consequences for the poorest includes housing damage or destruction, loss of assets, income resources, and negative health outcomes. Floods and heavy storms make poor people lose on average two to three times more than households that are not poor (Hallegatte et al., 2016 cited in Bagolle et al., 2023). In 2019, vulnerable populations worldwide were exposed to an additional 475 million heatwave events, leading to poor health outcomes, such as increased rates of morbidity and mortality (Watts et al., 2021). Furthermore, poor individuals are also at a disadvantage in terms of preparedness and resilience, as they have fewer resources and social support networks to prepare for and recover from unexpected climate events compared to wealthier households (Bagolle et al., 2023).

Apart from the poor, there are other vulnerable groups greatly affected by climate change and extreme weather events, such as women and children. When natural disasters occur, women have a higher chance of dying compared to men, as well as suffering other types of health outcomes, such as malnutrition (Neumayer and Plümper, 2007 & Casas, 2017 cited in Bagolle et al., 2023).

The relationship between climate change and poverty levels, as well as its clear impact on health, is undeniable. Despite the development of numerous public policy instruments developed by public administrations, recent progress has not been and will not be sufficient to address health outcomes in the face of the future scenario forecasted (UNFCCC, 2023). According to Sengupta and Dahlet (2023), social protection systems could play a critical role in addressing climate change, but there is limited coherence between them and climate policies. Additionally, climate hazards have not been equally studied in academia, and gathering data on the health risks of some of them, such as droughts, remains a challenge (WHO, 2023).

Considering the projections on climate change and specifically its impact on human health, this master's thesis aims at contributing to the current scientific discussion about the potential role of social protection in addressing climate change, advocating for the development of a more robust, integrated, and human-centered policy framework. Findings suggest that high temperatures is and will continue being the main climate threat to the health and wellbeing of Spanish people with a more pronounced impact in Mediterranean cities, such as Barcelona. As a result, this paper focuses on this geographical area and analyzes climate change adaptation policies in Catalonia by identifying references to social protection in the proposed solutions aimed at protecting human

health from the effects of climate change. The research question that guides this paper is the following: **Is there coherence between climate change policies and social protection in Catalonia?**

Although the research topic of this paper is connected to almost all Sustainable Development Goals (SDGs), it is directly aligned with **3. Good Health and Well-being**, **10. Reduced Inequalities**, and **13. Climate Action**. Moreover, it is closely linked to goals 1. No Poverty, 11. Sustainable Cities and Communities, and 17. Partnerships for the Goals (United Nations, 2015).

This master's thesis is structured into seven different chapters. The first chapter of the **Introduction** contextualizes the problem, presents the importance of the research topic, and outlines the research question, while the second one summarizes the general and specific **Objectives** of the research, clearly highlighting what the study intends to achieve with its publication. Additionally, the **Conceptual Framework** provides the theoretical background in which the study will be supported, as well as the **Background Information and Context** about the public policies implemented relevant to the subject topic of this paper. This is followed by the **Methodology**, where the central research question is posed and the hypothesis is stated based on the literature review. This section also refers to the research design, data collection, and analysis methods to be employed. The **Study Analysis** section outlines the findings, interpreting the information in relation to the research question and hypothesis. The **Discussion** section outlines some of the main recommendations and suggestions being discussed in the scientific community to try to narrow the gap between climate change policies and social protection, highlighting the role that the latter could play in ensuring a good quality of life for the most vulnerable. Lastly, in the **Conclusions**, a summary of the paper is presented. It also includes the limitations of the research paper, which allow for new research lines that could complement this work.

2. Objectives

The general objective of this study is to determine whether there is coherence between climate change adaptation policies and social protection with a focus on health outcomes in Catalonia. The specific objectives intended to be achieved through this paper are as follows:

- Identify climate change adaptation policies applicable to the Catalan territory, including international, regional, national and local policies

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

- Analyze the coherence between climate adaptation policies and social protection in Catalonia based on the gaps identified by the literature
- Raise awareness of the importance of developing long-term, intersectional, and targeted to the most vulnerable populations when it comes to climate change adaptation
- Expose the current public policy discussion in academia on how to narrow the gap between climate change and social protection policies, exposing the ongoing discussion, the available tools and data for policymakers to take action immediately and allocate resources efficiently

With the publication of this paper, the author aims to reach decision-makers and prompt them to reflect on the importance of creating more integrated policies that address the cascading and differential effects of climate change on human health in the short and long term. The intention is not only to review existing policies on the topic, but also to provide a comprehensive analysis of the gaps in climate change policies and social protection in Catalonia.

Ultimately, the goal is to shift the current mindset of policymakers towards a new approach that recognizes the need for the public sector to deliver a long-term and integrated response to climate change, rather than treating it solely as an emergency situation. Additionally, these insights are crucial for society as a whole, as it empowers citizen groups to demand comprehensive and equitable responses.

Finally, this thesis lays the groundwork for further study, highlighting gaps in current policy frameworks and suggesting areas for interdisciplinary collaboration.

3. Conceptual Framework and Background Information

3.1 Climate Change Impacts on Human Health

The approach of this master's thesis for studying human health is that of a "one-health approach", a concept developed in 2008 by the One Health Initiative Task Force (OHITF). This approach involved "[adopting] an integrated, holistic approach that reflects both [the] profound interdependence and the realization that [human health is] part of a larger ecological system—exquisitely and elaborately connected" that includes "people, animals, and [the] environment" (American Veterinary Medical Association, 2008, p. 9). In other words, health is not viewed as

an isolated dimension of human beings, but as part of a more complex structure with many interconnected edges.

As a result, there is a strong interconnection between the environment and human health systems, in which climate change “threatens the very foundations of human health and wellbeing” (Watts et al., 2021, p. 131). Climate change accelerates the frequency and intensity of weather phenomena, such as heat and cold waves, cyclones, hurricanes, floods, droughts, and wildfires. Climate hazards have cascading effects that extend to economic and social aspects of a community, including health, occupation, housing, migration, and nutrition. Furthermore, all of these events impact the entire ecosystem of a community, leading to major changes in natural systems that can facilitate the spread of infectious diseases and result in negative health outcomes (WHO, 2021/a). A recent analysis carried out by the World Economic Forum projected that climate-intensified natural disasters could cause \$12.5 trillion in economic damages and the loss of more than two billion healthy life years by 2050 (WEF, 2024).

The adverse effects of climate change on health encompass both physical and mental health, leading to increased mortality rates, reduced healthy lifespan, damages to healthcare facilities, and changes in the provision of healthcare services (WHO, 2021/b).

According to the WHO (2021/b), impacts on physical health include injuries, deaths, respiratory diseases, illnesses, malnutrition and food-related diseases, infectious and water-borne diseases, and non-communicable diseases. Respiratory diseases are often related to poor air quality, high pollen levels, and droughts. Malnutrition and food-related diseases are worsened by food insecurity caused by droughts and high temperatures. Infectious and water-borne diseases tend to occur in areas with heavy floods, limited access to drinking water, and sanitation issues. A summary of the major health risks associated with climate change is outlined in Annex 1.

Although it is difficult to measure the extent to which climate change impacts human health, as well as to calculate the health risk associated with the varying degrees of exposure to climate hazards, scientific progress has made it possible to gather statistics that illustrate the cost of climate change in terms of health (WHO, 2023). According to the WHO (2023), 2 billion people do not have access to drinking water and 600 million contract foodborne illnesses each year. Climate change is strongly related to nutrition crisis as it has negative effects on food availability and quality, and it contributes to the spread of vector-borne diseases. The WHO (2023) warns that, without preventive measures, the current annual death toll of over 700,000 from these

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

diseases could increase. In fact, it is already forecasted that by 2030 an additional 250,000 human deaths per year may occur as a result of climate change (WHO, 2023).

Extreme temperatures and heatwaves are significant climate hazards that affect health. Over the past two decades, global heat-related deaths among individuals over 65 years old have nearly doubled, totaling around 300,000 deaths in 2018 (Watts et al., 2020). Major direct impacts of high temperatures include dehydration, cardiovascular and respiratory diseases, among others (European Climate and Health Observatory, 2024).

Future scenarios are not encouraging. In relation to forecasts for 2050, floods are projected to be the most significant immediate threat to life from climate change, expected to cause 8.5 million deaths by 2050 while air pollution-related excess deaths are forecasted to be the leading determinant of premature mortality with nearly 9 million deaths annually (WEF, 2024). Meanwhile, droughts, associated with extreme temperatures, rank as the second most significant contributor to mortality, leading to an estimated 3.2 million deaths (WEF, 2024).

As mentioned before, climate change also triggers immediate mental health issues, such as anxiety and Post-Traumatic Stress Disorder (PTSD), as well as long-term disorders due to displacement and disrupted social cohesion (European Climate and Health Observatory, 2022). Although this is not extensively explored (see Annex 2 for more information), it has been stated that climate change worsens mental health outcomes, being the chance of having psychological distress due to a climate hazard 40 times higher than that of physical injuries (IPCC, 2022 & Lawrance et al., 2021 cited in European Climate and Health Observatory, 2022). Both extreme weather events and high temperatures have a direct impact on mental health, leading to PTSD, anxiety, depression, mood disorders, and even an increased risk of suicide (European Climate and Health Observatory, 2022).

According to the literature, health outcomes from floods and droughts are linked to forced displacements, housing damage and loss, and economic impacts on productivity and revenue, particularly affecting farmers who rely on agricultural production. These indirect impacts on mental health could have long-term consequences, such as climate anxiety and distress, caused by unexpected climate hazards (European Climate and Health Observatory, 2022).

Extreme weather events and changes in weather patterns interact with the resilience of healthcare systems and socioeconomic characteristics of the population resulting in direct and indirect

impacts on health. The impact of climate change to healthcare facilities includes infrastructure damages as well as the resilience and adaptation capacity to respond to the increase in health outcomes. The infrastructure of more than 400 health care facilities was affected due to extreme weather events in the period 2005-2019 (WHO, 2021). According to WEF estimations, it is expected that an additional \$1.1 trillion in healthcare expenditures will be needed by 2050, based on Intergovernmental Panel on Climate Change (IPCC) scenarios (WEF, 2024).

3.2 Climate Change Impacts on Health in Spain and Catalonia

Since pre-industrial times, Spain has experienced a temperature rise of approximately 1.7°C, with particularly notable warming in recent years. The summer period now spans five weeks longer than it did in the early 1980s. According to the State Meteorological Agency (AEMET), since 1984, Spain has seen a twofold increase in the number of days per year surpassing heatwave thresholds, alongside a 25% reduction in cold events. Additionally, there has been a rise in sea surface temperatures and a notable increase in sea levels (MITECO, 2020).

Forecasts based on IPCC scenarios show that the trend in Spain will continue, with an expected increase in both minimum and maximum temperatures, making soils more arid and vulnerable to fires. In addition, a decrease in the annual amount of precipitation is expected, provoking more dry days and droughts (Sanz & Galan, 2020).

The main concerns about the effects of climate change on the health of the Spanish population are those related to high temperatures. It is estimated that heatwaves cost the country 1,300 deaths annually, even though mortality rates have decreased since the heat wave in 2023 thanks to the National Plan of Preventive Actions for the Effects of Excess Temperatures on Health (MITECO, 2020).

High temperatures not only result in mortality, but also morbidity, cardiovascular and respiratory diseases. Extreme temperatures are a result of changes in nature, such as vector-borne diseases (Sanz & Galan, 2020). Findings of the European project PHEWE suggest that heat-related deaths could account for an average of 2% of total mortality, with a more pronounced impact expected in Mediterranean cities, such as Barcelona (Baccini et al., 2011 cited in Ministry of Health, Social Services and Equality, 2013).

In Catalonia specifically, it is projected that by 2050, deaths attributed to heat episodes could increase by eight, exceeding 2,500 deaths per year, while an estimated annual 3,500 premature

deaths in the Barcelona Metropolitan Area are linked to air pollution. This may be related to winds from the Saharan desert that compound with other types of air toxins coming from the industry and agriculture through pesticides. Likewise, public health is threatened by the increase in vectors, resulting in an increase in associated diseases (Duran, Picó & Lluís Reales, 2017).

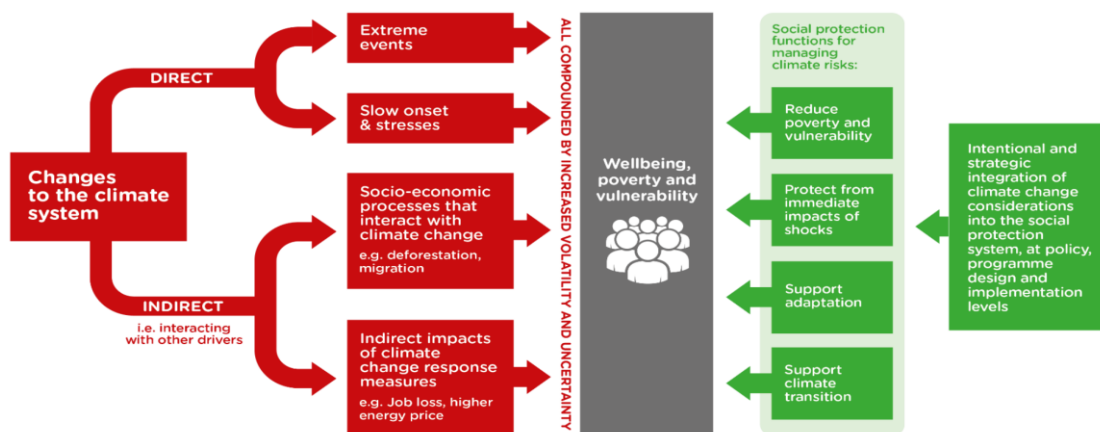
Even though the impacts of climate change are universal, vulnerable people (women, children, the poor, the elderly, migrants, among others) and individuals with pre-existing conditions (respiratory and cardiovascular diseases, diabetes, among other diseases) are more at risk than the general population, both in Spain and in Catalonia, as seen in global statistics (Duran, Picó & Lluís Reales, 2017).

3.3 Social Protection’s Role in Addressing Climate Change

Social protection is defined as “a set of policies and programmes that address economic, environmental and social vulnerabilities to food insecurity and poverty through protective, preventive, promotive and transformative effects for its beneficiaries (...) which could take the form of social assistance (...), social insurance (...) and labour market interventions” (FAO & Red Cross Red Crescent Climate Centre, 2019, p. 13).

According to the literature, social protection could play a significant role in responding to the impacts of climate change “both in terms of managing climate risks and enhancing adaptive capacities” (Sitko et al., 2023 cited in Sengupta & Dahlet, 2023, p. 3). Image 2 summarizes the role that social protection could play in addressing the effects of climate change.

Figure 1. Diagram on Social Protection Functions in Fighting Against Climate Change



Source: Costella et al., 2021, p. 16.

The social protection system could serve the following four functions to ensure economic and social sustainable development: “[reduce] poverty and vulnerability [before climate hazards occur] (...), [protect] people from immediate impacts of climate shocks through shock-responsive measures, [contribute to] adaptation by helping to reduce disaster risk and to enhance adaptive capacity, and [compensate] for or incentivising measures that support a just societal transition to a climate-resilient future and a green economy” (Costella et al., 2021, p. 15).

It is clear that social protection could enhance many areas of people’s lives, such as health, education, employment, and housing, beyond just acting as a patch after climate shocks.

Regarding health, social protection mechanisms can ensure food security for vulnerable populations, promoting healthy nutrition and preparedness to face diseases. In addition, it is related “to effective promotion of health preventive behaviour and access to health (...)”; all of which contributes to build resilience (Costella et al., 2021, p. 16).

3.4 Gaps in Social Protection and Climate Change Policies

Sengupta & Dahlet (2023) emphasize the importance of the coherence between climate change and social protection policies on two levels: integrating climate-related aggravating circumstances into the social protection scheme and including social protection mechanisms into climate plans as a risk and adaptation management instrument.

FAO & Red Cross Red Crescent Climate Centre (2019) identified two conceptual frameworks for integrating climate actions and social protection: Adaptive Social Protection and Shock-Responsive Social Protection. The first approach focuses on using “social protection tools and mechanisms (...) to tackle climate risks” before they happen by increasing vulnerable populations’ resilience to climate change, while the second approach aims at “deliver[ing a flexible] response to shocks in low-income countries and fragile contexts” (p. 17).

In spite of the significant progress in developing climate instruments and social protection policies, complete policy coherence has not been achieved. Costella et al. (2021) identified four gaps that the social protection system faces in addressing the effects of climate change, which undermine the role that it could have in addressing vulnerable populations.

Firstly, financial issues are a major concern as public “investments are still low compared to the needs (...) with a financing shortfall of US\$ 0.7 trillion per year to meet basic social protection

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

needs” (Costella et al., 2021, p.22). The effectiveness of social protection systems is compromised when there is not enough funding to respond to increasing shocks and negative effects of climate change on the most vulnerable. According to the projections exposed, poverty levels are expected to rise, and the financial system should be prepared for this.

Secondly, there is a lack of comprehensive integration of climate and social protection policies globally. Climate “policy options for addressing future needs at scale via social protection remain under-emphasize”, and when policies do cross-reference, they tend to be “project-based, ad hoc, and short term” (Costella et al., 2021, p. 20). In addition, the absence of a strategic vision in climate change and social protection policies is linked to a lack of institutional coordination, including public bodies and international organizations. This dimension not only includes having a common approach towards addressing climate change effects on the most vulnerable, but also a common budget and financing that supports the common mission (Costella et al., 2021).

Thirdly, measuring climate risks remains a challenge. Nonetheless, this is crucial for developing robust and targeted public policies to address responses to those most in need and prevent possible negative effects. The lack of a clear mapping of the effects of climate change on the different groups of people could “affect decisions on who is covered by social protection benefits, including response to shocks” (Costella et al., 2021, p. 21). A more integrated approach of climate risk information on preparedness, vulnerabilities, and impacts is needed to the design of focalized climate adaptation policies. An associated concern regarding climate data is the fact that not all climate hazards have been studied in depth in the same way and, as a consequence, there is not sufficient evidence base for indicators and to connect climate-related phenomena to social impacts (Costella et al., 2021).

Lastly, there is not a differential approach in the social protection system to the different social groups mostly affected by the effects of climate change, such as women, older people, children, people with disabilities, migrants, among others. As a result, responses are not as effective as they could be, evidencing that there is a “limited understanding of intersectional inequalities and how they relate to climate risks” (Costella et al., 2021, p.22). Incorporating a disaggregated approach in data collection and its translation into social protection policies that address climate effects would be the ideal approach to consolidate effective policies, and ultimately, promote an equal society.

Sengupta & Dahlet (2023) summarize the lack of coherence between climate change and social protection policies by noting that social protection is not considered part of a long-term adaptation measure for climate change; institutional coordination between the two areas is not sufficient, and there are no concrete resources and targets for social protection policies included in climate change adaptation policies.

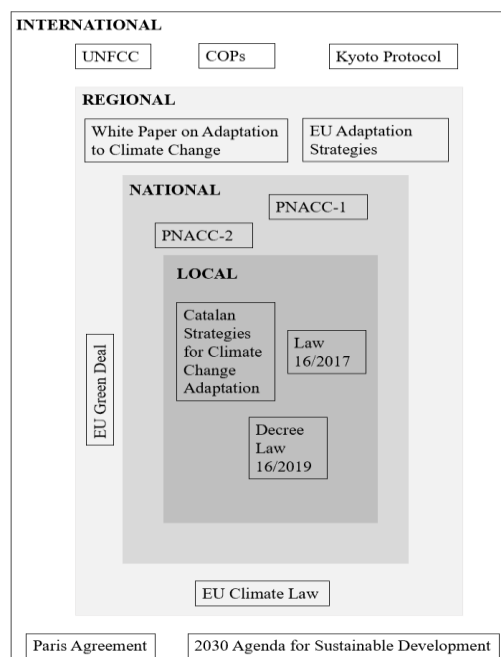
3.5 Mitigation and Adaptation Policies

Even though there may be different classification of policies, this master thesis will take into account the traditional classification of climate change actions: mitigation and adaptation policies. These concepts were defined by the IPCC back in 2001. Mitigation policies are “anthropogenic intervention[s] to reduce the sources or enhance the sinks of greenhouse gases, while adaptation makes reference to “adjustment[s] in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPCC, 2001 cited in Klein, 2007, p. 750).

3.6 Review of Main Climate Change Adaptation Policies

Efforts to create a regulatory framework to respond to the climate emergency have been multiple at all levels of governance. Below is a summary of the main climate adaptation policies.

Figure 2. Summary of Main Climate Change Adaptation Policies



Source: Own elaboration.

3.6.1 International Framework

In light of the warnings and scientific studies conducted by the academic community, as well as the fact that climate change causes and consequences are intertwined among countries, the international community got organized and agreed to set a series of measures to combat this common challenge.

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty agreed upon in 1992, which came into force in 1994 and now includes 198 countries (UNFCCC, May 9, 2022). Its objective is to limit the effects of climate change on the world by “[stabilizing] greenhouse gas concentrations at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system” (UNFCCC, 2022, p. 9). In this document, food production and economic development were key aspects to maintain while achieving the goal of reducing emissions worldwide, while specific actions for the Parties to follow-up in accordance with the main goal of the convention are outlined in Article 4 (UNFCCC, 2022). The annual meetings called Conference of the Parties (COP) are the forum in which convention members report their main progress and discuss new actions against climate change. The first COP was held in Germany in 1995 and the most recent one was in Dubai in December 2023.

The UNFCCC has laid the basic foundations for upcoming negotiations and agreements in the international sphere, such as the Kyoto Protocol (1997), and the Paris Agreement in 2015. The Kyoto Protocol marks a stepping stone as it is the first international document that “sets binding emission reduction targets for 37 industrialized countries and economies in transition and the European Union” (UNFCCC, n.d./a). To achieve this, the document establishes that countries should have their measures in addition to four new financial instruments: International Emissions Trading, Clean Development Mechanism (CDM), and Joint Implementation (JI) (UNFCCC, n.d./a). In the end, this was not as successful as promised due to the lack of commitment from countries to truly comply with the binding targets, notably the absence of internal ratifications from key players, such as the United States (UNFCCC, n.d./a).

A more flexible and comprehensive international framework was introduced in 2015 with the signing of the Paris Agreement. 195 countries, including both developing and developed nations, committed to limiting the rapid increase of temperatures by 2 °C below pre-industrial levels (UNFCCC, n.d./b). A more ambitious goal was set to keep the temperature rise below 1.5 °C pre-

industrial levels, as scientific evidence shows significant differences in the 0.5 °C in terms of social, economic and environmental impacts (UNFCCC, n.d./b). With the approval of the Paris Agreement, each country is responsible for preparing their own Nationally Determined Contributions (NDCs) in which they outline the measures they will take to meet the overall objective (UNFCCC, n.d./b).

In 2015, the 2030 Agenda for Sustainable Development was adopted within the United Nations framework, which includes 17 Sustainable Development Goals (SDGs), focusing on eradicating poverty while achieving sustainable development across social, economic, and environmental aspects (United Nations, 2015). Six SDGs are directly connected to climate change and environmental issues, while five additional goals are influenced by its consequences (MITECO, 2020).

Regarding health, it is worth noting the recognition of the importance of addressing climate change and health together in the framework of the 61st WHO World Assembly in 2008. For this, the international community agreed to include health outcomes in climate change policies, work collaboratively and transversally between specialized health technicians and climate change policy makers to strengthen partnerships and promote the implementation of health risk prevention systems due to climate causes, with the monitoring of health indicators being key to strengthening health systems' response capacity (WHO, May 19-24, 2008).

Besides, other resolutions that make reference to climate change and health were approved within the WHO framework, such as the WHA68.8 on addressing the health impacts of air pollution, the WHA68.2 on the global technical strategy and targets for malaria, the WHA68.19 on the outcome of the Second International Conference on Nutrition, and in the WHO Global Strategy on Health, Environment and Climate Change of 2019 (Climate and Health Alliance, April 5, 2023).

Finally, the COP26 Health Programme, an initiative introduced in COP26 held in Glasgow in 2021, highlighted the importance of incorporating the health dimension into climate policies and, to achieve this, the Alliance for Transformative Action on Climate Change and Health (ATACH) was established (Climate and Health Alliance, April 5, 2023).

3.6.2 Regional level: European Union

Building upon the international regulatory framework, the European Union (EU) also began addressing the impacts of climate change in its region. In 2009, the EU presented the White Paper, "Adapting to Climate Change: Towards a European Framework for Action", a strategic document that outlines the need of adjusting EU policies and practices to "reduce the EU's vulnerability to the impact of climate change" together with thematic working papers, including health that "foresees actions on adaptation" (European Commission, 2009, p. 3).

This initiative represented a significant advancement for the region leading to the implementation of 15 adaptation policies at the national level, "10 [countries of the EU] (45%) reported conducting a climate change and health vulnerability and adaptation assessment" (Van Daalen et al., 2022, p. 943). Nonetheless, very few measures were actually adopted in practice, as "the enactment of adaptation plans alone is not sufficient to advance adaptive capacity" (Van Daalen et al., 2022, p. 943). Estimates suggested that the lack of action by the European community costed 100 billion euros a year in 2020 and could reach 250 billions in 2050, in addition to the significant social costs (European Commission, 2013). In response, the EU Adaptation Strategy -approved in 2013- included 8 specific actions for member states to follow in order to enhance "preparedness and capacity to respond to the impacts of climate change at local, regional, national and EU levels, developing a coherent approach and improving coordination" (European Commission, 2013, p. 5).

In 2019, the European Parliament declared a climate emergency, urging the European Commission to align with international targets for limiting global temperature increase. Due to this, the European Commission introduced the European Green Deal, a European strategy to achieve climate neutrality by 2050 and 55% less emissions by 2030, followed by the first EU Climate Law in 2021 (European Commission, n.d.). The EU Green Deal is a comprehensive public policy on climate change that aims to drive economic growth in Europe while considering the environment. To achieve this goal, several mechanisms, plans, funds, among other instruments have been created, such as the Next Generation Funds and the Fit for 55 regulations package. There are some specific policies and strategies within the EU Green Deal related to health, such as The Farm to Fork Strategy, The Chemicals Strategy for Sustainability, The EU Biodiversity Strategy for 2030, The EU Zero Pollution Action Plan, Air Quality and Noise legislations, and Water Directives (Keyte et al, 2024).

Following the evaluation of the first EU adaptation strategy in 2018 and the approval of the EU Green Deal that set new targets in 2019, the EU approved in 2021 a new EU adaptation strategy. This strategy focuses on making adaptation smarter, faster, and more systemic (European Commission, 2021). The impacts on health are emphasized in the document advocating for “a deeper understanding of the climate-related risks for health and greater capacity to counter them” by committing to “pool and connect data, tools and expertise to communicate, monitor, analyze and prevent the effects of climate change on human health, based on a 'One Health' approach” (European Commission, 2021. p. 7).

3.6.3 National level: Spain

After the release of the "Preliminary Assessment of Climate Change Impacts in Spain" report in 2005, Spain adopted the first National Climate Change Adaptation Plan (PNACC-1) in 2006, which became the country's primary policy for climate change adaptation. This was later updated with the PNACC-2 in 2020, covering the period from 2021 to 2030. The plan is part of the country's Strategic Framework for Energy and Climate, which includes other significant policies, such as the Climate Change and Energy Transition Law, the Long-Term Strategy for achieving a Modern, Competitive, and Climate-Neutral Economy by 2050, the National Integrated Energy and Climate Plan 2021-2030, and the Just Transition Strategy (Sanz y Galán, 2020).

The second National Plan is the currently regulatory framework for Spain that is aligned with international and regional policies. It was developed with eight specific objectives and four strategic pillars, and 18 sectoral areas with specific actions under each one, including health (MITECO, 2020). As part of this plan, the Climate Change Health Observatory was established in 2023 to look for solutions to address the effects of climate change on health transversally and in a comprehensive manner, with representatives from the Ministry for Ecological Transition and the Demographic Challenge and the Ministry of Public Health (MITECO, n.d.).

3.6.4 Local level: Catalonia

During 2012, the Catalan government assigned to the Climate Change Catalan Office the task of preparing a Catalan Strategy for Climate Change Adaptation for the period 2013-2020. Its main objective is to increase Catalonia's resilience towards climate hazards through the achievement of several general and transversal objectives. This document also highlights health as a key dimension to consider (Government of Catalonia, November 2012).

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

The Catalan Strategy was evaluated in 2017 and updated with a new Catalan Strategy for Climate Change Adaptation in 2020 for the period 2021-2030. Likewise, in 2017, an important law was passed in the Catalan Parliament regarding climate change with the aim of reducing GHG emissions and increasing the resilience towards climate change effects in Catalonia. Another key objective of this law is to coordinate different institutions and sectors involved (Law 16/2017, of August 1).

In 2019, the Government of Catalonia declared a climate emergency through a Government Agreement, emphasizing the need for concrete actions. This was followed by the passing of Decree Law 16/2019 in the same year, which included binding measures to address the climate emergency (Decree Law 16/2019).

The National Plan for the Implementation of the 2030 Agenda in the Catalan Region was approved in December 2019 with the aim of committing Catalonia to the SDGs by connecting “the 2030 Agenda with existing planning and regulations, the Government Plan and ministerial plans” (Government of Catalonia, n.d.). SDG 3 on health includes more than 80 commitments associated with various legal instruments in force in Catalonia that contribute to the well-being and overall health of its residents.

In 2020 the Public Health Response Program to the Climate Emergency was approved by the Health Department of the Catalan Government, covering the period 2021-2025. A scientific committee to advise on climate change and health was created, as well as a coordination group with the Public Health Agency of Catalonia. Other of its main measures includes updating information on their webpage about climate change impact on health (Government of Catalonia, January 20, 2020). The general health public policy (Health Plan 2021-2025) in Catalonia was later updated in 2021, which includes a chapter on the relationship between the environment and human health, emphasizing cross-collaboration between the two areas as crucial for developing a healthy community (General Department for Health Planning, 2021).

Other initiatives undertaken by the Government of Catalonia include the Climate Change Mitigation Plan in Catalonia (2008-2012), which specifically aimed at reducing emissions rather than focusing on the social and economic impacts of the phenomena.

Municipalities also have some competencies in the fight against climate change, but they will not be discussed in this chapter as it exceeds the scope of this master's thesis.

4. Methodology

As mentioned in the first chapter of this paper, the guiding research question is: **Is there coherence between climate change policies and social protection in Catalonia in order to safeguard human health?**

Based on the literature review, the hypothesis that the author considers is that while climate change adaptation policies may mention social protection, there is not a strong coherence between them. There is still a lack of strategic integration between these two areas. This is evidenced by the absence of concrete social security measures within climate change adaptation policies aimed at addressing the health outcomes of the most vulnerable caused by climate shocks or at providing tools to enhance the overall health of these population groups.

Since the term “coherence” is broad, and many interpretations could be assigned to this term, for the purpose of this master’s thesis, the categories of analysis to test the hypothesis are based on the gaps identified by Sengupta & Dahlet (2023) and Costella et al. (2021), which are summarized in Table 1.

Table 1. Hypothesis Operationalization

#	“COHERENCE” DIMENSIONS	UNIT OF MEASURE (QUALITATIVE)
1	Social protection budget	Allocation of financial resources for social protection programs included in climate change adaptation policies
2	Integration of social protection in climate change adaptation policies	Number of times (if any) that social protection is mentioned in climate change adaptation policies
3	Coordination between climate and social protection institutions	Inclusion of specific actions for the coordination of climate and social protection departments/institutions
4	Temporary dimension of climate change adaptation policies	Application period of climate change adaptation policies and number of times (if any) that the word “emergency” is linked to climate change
5	Quantification of climate change’s impact on people’s health	Inclusion of quantitative data of the health impact of at least three different climate hazards

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

6	Approaches to intersectional inequalities	Inclusion of solutions to address social inequalities (targeted by social and geographical groups) in the health impacts caused by climate change
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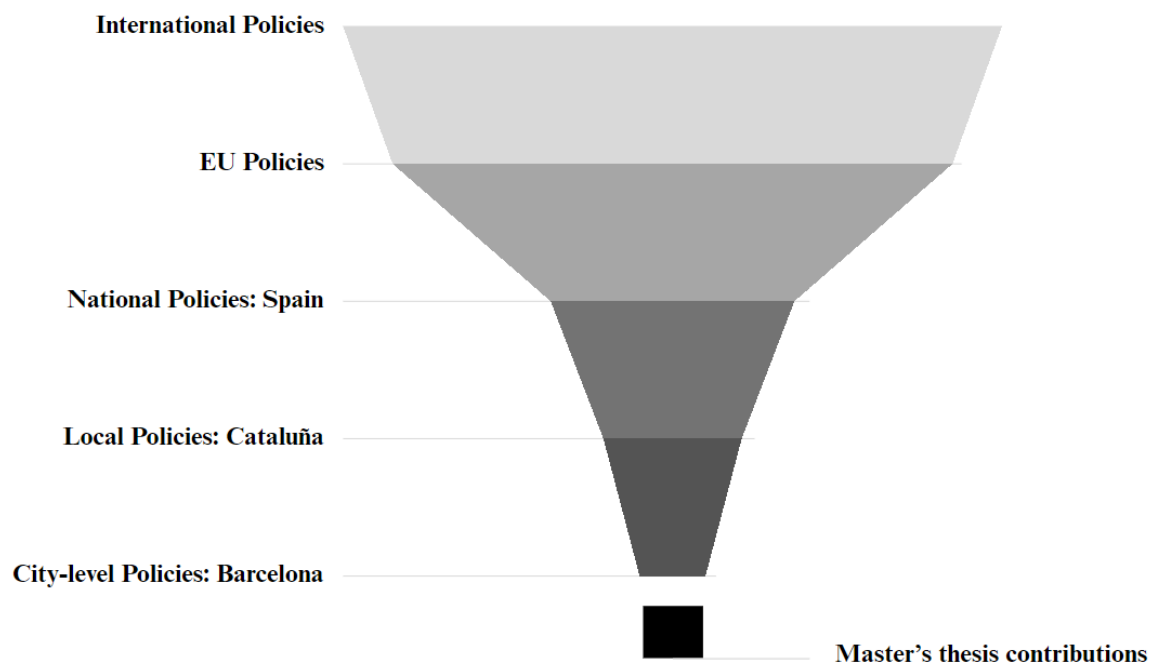
Source: Own elaboration.

The methodology of this paper is qualitative and is based on the review of regulations, specifically, public policies addressing climate change adaptation in the defined geographical area of study. A non-systematic approach will be adopted, and a gap analysis will be used as the tool to interpret the content of the legal documents.

This methodology was selected because this paper focuses on exploring the coherence between climate change adaptation and social security policies. To achieve this, the gap analysis, based on the six dimensions explained, allows for the comparison, interpretation, and analysis of the content of public policies, identifying what elements have not been sufficiently covered.

The following funnel outlines the approach for reviewing the selected regulatory framework:

Figure 3. Regulatory Review Funnel



Source: Own elaboration.

International and regional policies on climate change were mentioned in Chapter 3 of this paper as part of the broader legal framework that applies to Catalonia, and it will serve as a contextual

framework on the efforts taken. However, only national and Catalan adaptation policies on the subject will be part of the analysis of this study. Even though the specific geographical area of study is Catalonia, the Spanish climate change adaptation policy sets the national framework for climate change adaptation policies as it acts as a lighthouse that guides the course of action for local authorities. Therefore, including the national climate change policy framework would allow for a more complete and comprehensive analysis. In addition, local authorities in Spain have competencies in climate change and social protection, but they have cascaded the specific lines of action from national priorities in a top-down approach. In any case, the recent recognition from the United Nations of the importance of cities in sustainable development has empowered them in terms of governance and accountability, allowing for a bottom-up dynamic in the formulation of climate change policies (Law 16/2017, of August 1).

According to the literature review, public policies addressing climate change can be classified into mitigation or adaptation measures. Given the scope of this master's thesis, only adaptation measures will be part of this study, as they aim to minimize the effects of climate change on communities and the ecosystem in general, while mitigation policies aim to reduce GHG emissions by addressing the root causes of climate change. As this paper focuses on one of the dimensions most affected by climate change (people's health), the policies chosen for analysis are adaptation policies.

Based on this, the specific public policies that will be analyzed are the following ones: the National Climate Change Adaptation Plans (PNACC 1 and PNACC 2), the Catalan Strategies for Climate Change Adaptation (ESCACC20 and ESCACC30), Law 16/2017 of August 1 (Catalonia), and Decree-Law 16/2019.

In addition to the findings from the analysis, two interviews with experts on the subject were conducted to provide a practical perspective for the paper. The interviews were not structured and are not part of the methodology of this master's thesis. The main objective of the interviews was to validate the research topic, as well as to gather contributions and insights for the discussion chapter.

Finally, the results of the review will be presented in a general results matrix.

5. Study Analysis

As shown in Table 2 below, which summarizes the main results of the study analysis, none of the climate change adaptation policies analyzed show a strong coherence with social protection. All of them acknowledge the social impacts of climate change, including effects on health. Nonetheless, none of them include specific social protection actions within the proposed measures to address these outcomes in the short or long-term. Overall, there has been progress since the first climate adaptation policy, and there is a clear alignment between national and local priorities. Nevertheless, there is a need for greater integration of social protection actions that support the needs and interests of the most vulnerable.

The green color of Table 2 indicates strong coherence between the dimension of analysis and the reviewed public policy, while the red is totally the opposite; this is, there is no coherence or connection between them. The yellow color represents an intermediate category, where the condition is not entirely met. Despite of this, there is not solid coherence either. In some cases, the dimension under study is merely mentioned without a clear explanation of how it will be addressed. Further details on this will be provided in the sections following the table.

Table 2. Results Matrix of the Policies Analyzed

LEVEL	PUBLIC POLICY	"COHERENCE" DIMENSIONS					
		#1 Social protection budget	#2 Integration of social protection actions in climate change policies	#3 Intersectoral coordination between climate and social protection policies	#4 Temporary nature	#5 Quantification of climate change's impact on health	#6 Approaches to intersectional inequalities
NATIONAL	National Climate Change Plan (PNACC 1)	No	No	No	N/A	No	No
	National Climate Change Plan (PNACC 2)	No	Yes	No	N/A	No	Yes
LOCAL	Catalan Strategy for	No	No	No	N/A	Yes	No

Climate Change Adaptation 2013-2020 (ESCACC20)							
Law 16/2017, of August 1, on Climate Change	No	No	No	N/A	No	No	
Decree Law 16/2019 - Urgent Measures for the Climate Emergency and the Promotion of Renewable Energies	No	No	No	N/A	No	No	
Catalan Strategy for Climate Change Adaptation 2021-2030 (ESCACC30)	No	Yes	No	N/A	No	Yes	

Source: Own elaboration.

5.1 Social Protection Budget

Even though the literature review refers to the total public investment in the social protection system for the most vulnerable in facing climate events' effects as the analysis unit, for the purpose of this thesis, the dimension analyzed is the public commitment with specific economic or financial resources that the climate adaptation policy allocates for the social protection system to respond to health outcomes for the most vulnerable.

In this sense, **PNACC 1** and **PNACC 2** do not include specific information on the budget allocated to the deployment of the lines of actions proposed for the health dimension, neither within nor outside the social protection system. Nonetheless, in PNACC 2, there is a detailed text on the existing financial mechanisms for its implementation. Regarding the health dimension,

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

the budget is the regular one of the Ministry of Health and Ministry of Ecological Transition and Demographic Change for this purpose. Even though this is not the same as having a specific line item to deploy social protection actions focused on health impacts exacerbated by climate change for the most vulnerable, identifying the potential funds to implement policies is a positive first step.

The **Catalan Strategy for Climate Change Adaptation 2013-2020 (ESCACC20)** outlines the necessity of allocating resources for its implementation, but it does not specify a fixed budget within the text for the overall strategy, neither for social protection actions to combat the effects of climate change. The same situation happens with **Law 16/2017, of August 1, on Climate Change**. The latter establishes a framework for financial planning and resource allocation to support the measures and actions contained in the document, as in PNACC 2.

Decree Law 16/2019 on Urgent Measures for the Climate Emergency and the Promotion of Renewable Energies makes no reference to a concrete budget or financial resources for the implementation of climate adaptation solutions that protect human health. Health is barely mentioned in the text as the main focus of the regulation is to position the climate issue as a top priority for being an emergency linked to the extended use of fossil fuels.

Regarding the **Catalan Strategy for Climate Change Adaptation 2021-2030 (ESCACC30)**, there is an extensive chapter dedicated to financial mechanisms, which includes international, regional, national, and local funds for the deployment of the overall strategy. Nonetheless, it does not include a specific budget allocated for social protection policies that address the effects of climate change on human health.

In short, none of the policies analyzed contained a specific budget for deploying social security programs with the aim of protecting and increasing the adaptive capacity of the most vulnerable in terms of human health. Likewise, none of these policies plan a common budget for climate and health departments to provide a combined solution for the most in need as suggested by the literature as well.

5.2 Integration of social protection in climate change policies

Even though some of the climate change adaptation policies analyzed include references to social protection or social vulnerabilities, there are no specific mechanisms, programs, or actions within the social protection framework, nor at the national or Catalan levels, created to target vulnerable

communities whose health is affected by extreme weather events and other types of climate change effects included in the policies analyzed.

In **PNACC 1** there are no mentions of social protection at all, while **PNACC 2** highly emphasizes the unequal impact of climate change, and therefore, the unequal possibilities to cope with climate change depending on social and territorial characteristics. Social protection is mentioned just once in the text, but it shows an improvement from the previous version.

The **Catalan Strategy for Climate Change Adaptation 2013-2020 (ESCACC20)** makes no references to the social protection system. Regarding health, it includes a specific chapter on this topic with a clear categorization of the solutions proposed for this sectoral area. It divides the solutions into types of measures (technical, educational, or research), types of effects of the measures (preventive or corrective actions), degree of priority in the implementation (short-term or long-term), and status of the implementation (in progress, not implemented, implemented, etc). One interesting initiative included is the incorporation of the health impacts caused by climate change in the health law of Catalonia. It also promotes the creation of new health plans that gather climate change impacts on human health, but there is no suggestion of incorporating new and long-term mechanisms within the social protection system.

Article 23 of the **Climate Change Law** passed in 2017 does not refer to social protection, but it does to social inequities and health outcomes. The law specifically entrusts public authorities to “produce and approve special protection plans for the most vulnerable groups at risk” (Law 16/2017, August 1, p. 20). This law does not create or expand programs or mechanisms within the social protection system, but it recognizes the role that protection schemes could have in addressing climate change for the most vulnerable. Undoubtedly, this represents a positive note from previous legislation, but it continues to be weak to suggest there is strong cohesion between climate and social protection responses.

Measures within the social protection system are not considered in **Decree Law 16/2019 on Urgent Measures for the Climate Emergency and the Promotion of Renewable Energies**. As mentioned, the objectives of this decree law distant from the issue that is being analyzed in this paper. In this sense, it modifies the wording of some articles of the previous climate law 16/2017 and is mainly focused on setting a clear path for the implementation of alternative energies in lieu of fossil fuels.

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

Regarding the **Catalan Strategy for Climate Change Adaptation 2021-2030 (ESCACC30)**, there is an explicit objective under the section on urbanism and housing of enhancing the governance of climate change plans and territorial planning instruments, which includes social protection mechanisms. Despite the fact that this does not relate to health, including this dimension is a step closer to it.

5.3 Intersectoral Coordination

PNACC 1 dedicates an entire chapter to detail the different coordination committees of the national adaptation plan. It highlights the work carried out by the Interministerial Group on Climate Change at the national level, the Climate Change Policies Coordination Commission that aligns with other levels of governance, such as autonomous communities, and the Spanish Office for Climate Change, whose aim is to coordinate the different sectoral departments involved, including health but excluding the social protection system. The Health Ministry is identified as a potential interested stakeholder, but there are no clear lines of action for the coordination of public policies among groups with shared targets.

PNACC 2 acknowledges the importance of public-private-social partnerships, technical knowledge exchange, and intersectoral and intergovernmental coordination to address climate change effects. The plan sets the basis for the creation of three national working groups, focused on climate change policies and impacts. Annex I of the plan provides an overview of the lines of actions by area of work to be executed in order to comply with the general objectives, in which the responsible entities and collaborators are identified. In the case of health, the plan entrusts the integration of climate change adaptation actions to the National Health and Environment Plan to the Ministry of Health together with the Ministry for the Ecological Transition and Demographic Change. In addition, sectoral adaptation plans by the corresponding ministries are also targeted by this policy. There are no specific mentions to the coordination of actions with social protection institutions that could include more comprehensive and targeted measures.

The **Catalan Strategy for Climate Change Adaptation 2013-2020 (ESCACC20)** includes a specific chapter on the coordination among entities for the deployment of the plan, emphasizing the different levels of governance: national, regional, and local. The Catalan Office for Climate Change coordinates climate adaptation and mitigation actions in Catalonia. Additionally, it highlights the importance of sectoral coordination, including the Catalan health department in

the climate plan. The cooperation with social protection institutions is not mentioned in this document.

Law 16/2017, of August 1, on Climate Change recognizes the importance of institutional coordination to implement climate adaptation policies. In concrete, it creates the Interdepartmental Commission on Climate Change to coordinate the different climate adaptation initiatives in the Catalan territory and report to the national government. The collaboration with other local governments is highly emphasized, although there are no directives about which institution will have the competence for this and how it will carry out this task. Additionally, health is positioned as a key dimension to consider in the formulation of climate adaptation policies. Despite this could be inferred from the text, there is no explicit evidence that the environmental department should work together with social security institutions or health department to implement policy responses for human health.

Social protection is not mentioned in **Decree Law 16/2019 on Urgent Measures for the Climate Emergency and the Promotion of Renewable Energies**, nor health outcomes caused by climate change are addressed in this public document. Therefore, neither is the coordination of the solutions proposed within the government of Catalonia. Nonetheless, the participation of private and public actors as well as society in general is identified as key for achieving a renewable electrification system.

The various sections of the **Catalan Strategy for Climate Change Adaptation 2021-2030 (ESCACC30)** do not specifically address institutional coordination among areas and different levels of governance. However, throughout the text, it is suggested that this coordination is inevitable for formulating the recommendations of public policy, though there are no guidelines with a structured process on how this will be materialized in reality.

In summary, while social protection was mentioned in some of the regulations analyzed that address climate change (section 5.2), cooperation between climate and social protection institutions are not directly addressed in the regulations analyzed.

5.4 Temporary nature of climate change adaptation policies

Table 3. Summary of the temporary nature dimension

PUBLIC POLICY	TEMPORARY NATURE	
	Number of times (if any) the word “emergency” is linked to climate change	Application period of climate change adaptation policy
National Climate Change Plan (PNACC 1)	0	2006-2020
National Climate Change Plan (PNACC 2)	18	2021-2030
Catalan Strategy for Climate Change Adaptation 2013-2020	11	2013-2020
Law 16/2017, of August 1, on Climate Change	1	2017-onwards
Decree Law 16/2019 - Urgent Measures for the Climate Emergency and the Promotion of Renewable Energies	12	2019-onwards
Catalan Strategy for Climate Change Adaptation 2021-2030	13	2021-2030

Source: Own elaboration.

According to the literature review, social programs are “still mainly regarded as a tool to address shocks, and not long-term adaptation needs” (Sengupta & Dahlet, 2023, p.6). This idea may be linked to the fact that over half of the climate change adaptation policies reviewed are related to an emergency situation, prompting public entities to develop specific measures for these special cases. However, activating emergency measures with emergency budgets does not allow for a long-term strategy to address the long-term effects of climate change. Therefore, “the social protection component requires a change of vision, with climate change embedded across policies, systems, and programmes” (Costella et al., 2021, p.26). Additionally, the analysis of the policies shows an increasing use of the term “emergency” in relation to climate change over time. While this prioritizes the issue on political agendas and addresses the visible and immediate

consequences of climate change, it fails to establish a robust long-term public policy to effectively manage its long-term impacts.

On the other hand, most of the plans cover a specific period of time and the majority include mid-term assessments, reviews, and updates. Short-term policies can be more flexible in adapting to climate change events that are also continuously evolving and impacting differently, but they may not be strategic for a long-term approach to address climate change. Beyond the timeframe of the plans analyzed, it is desirable to have a long-term public policy vision with concrete actions running in parallel. This will facilitate the implementation of structural changes needed to address the unequal impact of climate change on human health.

5.5 Quantification of the Impact of Climate Hazards on People's Health

PNACC 1 provides a qualitative overview of how climate change and health interact without providing any quantitative data on the impact. The interrelation is summarized in temperature-related diseases and deaths, health deterioration due to extreme weather events, diseases due to air, water, and food contamination, as well as vector-borne diseases. The **second version of PNACC** lacks quantitative data on the climate change impacts on health as well.

Quantitative data on the health outcomes of heat waves, air quality, and solar irradiance are included in the first **Catalan Strategy for Climate Change Adaptation**. Although it is brief, it demonstrates the scale of the issue and the importance of monitoring these indicators.

A diagnostic of how climatology has evolved over the years and projections for future scenarios in Catalonia are detailed in Annex I of the second **Catalan Strategy for Climate Change Adaptation** that covers the period 2021-2030, while Annex II of this document addresses the social and economic effects of the evolution and projections. This chapter includes the impact of climate change on insurance companies, the energy industry, services and commerce (such as agribusiness, textile industry, and mobility), as well as an overview of the most affected geographical areas by type of hazard. However, there is no quantitative data on its impacts of climate change on human health. In the main text of the strategy, there is data on the impact of heat waves and air quality on human health cited from other papers, as well as qualitative information on the relationship between diseases and water contamination.

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

Law 16/2017 sets different aims for the various sectors affected by climate change. For health, in particular, the primary goal is to “[identify] and [assess] the effects of climate change on people’s health”. This is required for future actions and it is not measured in the regulation itself.

Decree Law 16/2019 does not include any assessment on how climate events impact on people’s wellbeing, and health is just mentioned in relation to fossil fuel consumption.

5.6 Approaches to Intersectional Inequalities

Among the proposed lines of actions, **PNACC 1** prioritizes the assessment of health outcomes disaggregated by demographic characteristics as well as the formulation of a surveillance and monitoring system of the impact of climate hazards that could map different geographical areas. Nonetheless, it is mentioned as a general statement in a list of actions, and there is no concrete process outlined to address intersectional inequalities in this plan.

The **new version of PNACC** includes different transversal areas complementary to the key sectors identified for climate change adaptation action. Both territorial and social vulnerabilities are included in this section, as it is acknowledged that climate change impacts differently depending on the geographical location and the socio-demographic variables of the population. The plan highlights the importance of taking into account this difference both during the assessment and measurement of the impacts, as well as in designing adaptation measures. Annex II of this document states that the lines of action regarding social vulnerability should “develop socially just adaptive responses that are commensurate with levels of vulnerability”, and for that, “qualitative and quantitative indicators of social vulnerability and adaptation to climate change in those areas where particularly vulnerable groups or communities” must be developed (MITECO, 2020, p. 220 and 221). Although the document does not include specific programs or mechanisms that social groups with multiple vulnerabilities could access, this is a significant milestone in climate adaptation policy.

The **Catalan Strategy for Climate Change Adaptation 2013-2020** considers the development of regulation that includes pre-action protocols and directives for the vulnerable. Actions to reduce intersectional inequalities due to climate change effects within or outside the social protection system are not considered in this strategy.

The identification of social and territorial vulnerable groups and areas is one of the strategic aims of **Law 16/2017** in order to then propose measures to reduce the gap with other sectors and

geographical zones within Catalonia. This is also emphasized as a key objective of the health dimension. Social inequalities are mostly mentioned as part of the diagnosis, but there are no solutions proposed in this regard. Although there are no concrete actions that integrate climate change effects and social protection actions to target social inequalities, the fact that this is stated in the document is a positive sign from which the administration could elaborate further.

Regarding **Decree Law 16/2019**, intersectional inequalities are not directly addressed.

With the approval of the **Catalan Strategy for Climate Change Adaptation 2021-2030**, Catalonia now includes two transversal dimensions: social and geographical vulnerabilities that apply to all sectors mentioned, including health. This means that both personal characteristics (age, sex, socioeconomic status, etc) and the surroundings should be taken into consideration in the assessment of vulnerabilities as well as in the solutions to be developed for the fulfillment of the plan's goals. The measures proposed by the strategic plan in the health pillar are the design of intersectoral plans (such as the climate change and health plan, the Catalan health plan, the air quality improvement plan) that stem from 5 sectoral objectives: surveillance and monitoring of water and air quality, reducing the impacts on health due to high temperatures, and promoting knowledge exchange and good practices related to health outcomes. Even though only one of them is focused on vulnerable populations and addressing social inequalities is not part of the objectives itself, it is understood that it is a transversal aspect, embedded in all of them.

6. Discussion

Based on the literature review, the potential role of the social protection system to support the most vulnerable in the face of climate change becomes evident as it could assist the most in need when sudden events occur and also supply them with tools and resources that enable them to be better prepared to face adverse climate situations, increasing their resilience capacity.

The analysis of climate adaptation public policies in Spain, and particularly in Catalonia, has revealed a lack of a solid, unified approach between climate change and social protection, and that there is still room for improvement, despite the significant progress that has been made in the linkage of climate change and health outcomes.

While this work does not aim to provide specific public policy recommendations, the following is a summary of some of the main suggestions commonly found in the reviewed literature to

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

bridge the gap between climate change policies and social security. Some notes focused specifically on health are also added based on the public policy analysis carried out.

The suggestions could be grouped into four major categories: financing, governance, instruments and programs within the social protection system, and data-based identification of target populations (Agrawal et al., 2019; Bagolle et al., 2023; Sengupta, et al., 2023).

In the financing pillar, there is a significant global gap in climate change adaptation financing that reaches up to more than 350 billion dollars annually, while projections estimate that 10 to 18 times the currently allocation is needed to cope with the effects of climate change (United Nations Environment Program, 2023). Therefore, the literature suggests diversifying funding through international and regional climate funds in terms of quantity but also quality (Agrawal et al., 2019). In terms of quality, it is key to design comprehensive appropriate financing programs, depending on the type of climate event and the nature of its impact. For example, the response should differ if a person experiences low blood pressure due to high temperatures, preventing them from performing their work normally for a specific period of time, compared to a person who suffers permanent health damage, such as irreversible respiratory issues due to pollution.

Financing recommendations also emphasize the importance of identifying the most suitable organisms to disburse the money and execute the programs, having the social protection system a key role in providing a quick response (Agrawal et al., 2019; Bagolle et al., 2023; Sengupta, et al., 2023). Both PNACC 2 and the second Catalan Climate Adaptation Strategy do a good job of identifying financing mechanisms. Many of the identified funds could be used to carry out pilot programs with social equality and climate change adaptation objectives, which would provide valuable information to the Administration for future adoption of stable, long-term programs with their own public budget. It is essential to ensure a sustained solution over time, rather than relying solely on emergency funds.

Governance involves inter-institutional coordination to share objectives, funding, and information between the departments of climate change and social security (Agrawal et al., 2019; Bagolle et al., 2023; Sengupta, et al., 2023). An innovative example highlighted in the literature is the Climate Change Adaptation Plan prepared by the Ministry of Social Affairs and Health of Finland, whose aim is “to introduce the Adaptation Plan to healthcare and social welfare operators and to increase risk awareness in the healthcare and social welfare sector” (Ministry of

Social Affairs and Health, 2021, p. 4). The development of sectoral climate adaptation plans is established in PNACC 2. However, so far, at the national level in Spain, there is the Strategic Plan for Health and the Environment, which is not focused on climate adaptation, but general in nature. Similarly, at the local level in Catalonia, no specific adaptation plan has been developed by health authorities to integrate solutions into the welfare system.

The modification, expansion, and innovation of instruments, actions, and programs within the social security system to incorporate an environmental perspective is a recurring suggestion in the literature. This involves strengthening the current infrastructure and services offered by the social protection system. Additionally, it involves addressing intersectional inequalities in the impacts of climate change to better target assistance and also incorporating climate-related objectives and conditions into social security mechanisms (Agrawal et al., 2019). According to Costella et al. (2021), program success is linked to the development of “inclusive social protection systems which recognise and address gender and intersecting inequalities and proactively engage with civil society” (p. 26). In other words, this means expanding coverage, including poor households and climate-vulnerable populations not included in the first group in the current social protection programs.

Lastly, an initial diagnosis and a mapping of how climate change affects health and, in particular, the most vulnerable populations, not only in terms of poverty but also in terms of climate vulnerability, are crucial for effective results. Although there is not extensive and detailed information on how health is affected by the consequences of climate change in the public policies analyzed, all of them are based on a basic diagnosis. In the case of Catalonia, and specifically the city of Barcelona, the Barcelona Public Health Agency has conducted several studies and reports that compile relevant data on the association between climate phenomena and public health disaggregated by geographical area. Furthermore, they have recently developed a public health surveillance system for resilient cities in the face of climate change.

Integrating climate data into the social protection system through early warning and forecast systems would enable a faster response, by identifying in advance the most vulnerable areas as well as those population groups and jobs most affected by climate change consequences in terms of health outcomes, which may require public support to enhance their response capacity or cope with sudden events (Agrawal et al., 2019; Bagolle et al., 2023; Sengupta, et al., 2023).

The literature provides numerous suggestions on the ways to bridge the gap between the impacts of climate change and the potential role of social protection in mitigating them. The necessary knowledge and tools are readily accessible for politicians. It is now imperative to further develop the progress that has already been made in this direction. This work seeks to challenge the current understanding of climate change and how it should be addressed moving forward. Despite being late to the game, there is no time to waste. With this, it seeks to show the significant potential that coordinated public efforts can have in building prosperous, equitable, and healthy societies.

7. Conclusions

The negative impact that climate change has had and will continue to have on the most vulnerable is undeniable. As a result, it is crucial to change the approach that has been taken toward this phenomenon so far by stopping treating it as an emergency situation that requires emergency policies. The consequences of climate change are not always immediate, and in fact, they are often intertwined with other factors that degrade people's quality of life. This paradigm shift also requires a more effective use of public resources with the aim of building more sustainable, just, and developed societies. In this regard, it is essential to integrate the climate perspective into existing social assistance and support systems for the most vulnerable, as well as to highlight the role the latter can play in contingency and climate change response capacity.

This paper has explored the main climate adaptation policies in Catalonia by analyzing their relation with social protection with a focus on health outcomes. The research question guiding this master's thesis was whether there is coherence between climate change adaptation and social protection policies in Catalonia. Based on the literature review, the hypothesis suggested that there is a lack of strategic integration between them and more action is needed in order to better address climate change impacts on the health of vulnerable populations. The study analysis in Chapter 5 confirms this hypothesis, contributing to the existing literature that advocates for a more coherent policy framework with a broader role of the social protection scheme to address climate change while building a more equal and resilient society.

Despite this major contribution, during the research process, some limitations were identified. Given the scope of this master's thesis, the analysis focused on climate change adaptation policies in Catalonia, excluding the analysis of climate change mitigation policies, as well as of the social protection system and the potential references to climate change. Sectoral health policies are also

beyond the scope of this work and, therefore, were not subjected to analysis. Future research could complement with a broader analysis of climate change policies by including mitigation policies and also by analyzing social protection programs and the cohesion with climate change. In particular, it would be really interesting to focus on health provisions that include climate-related measures.

Given that the units of analysis were policies, the analysis of the economic and financial resources for social protection programs in climate change adaptation policies was limited to the text of the documents themselves. As a result, a research on the evolution of poverty in Spain and Catalonia compared to the evolution of the budget assigned to the social protection system and, if possible, to the budget allocated to face climate hazards in this geographical area would complement the analysis in order to have a much more comprehensive idea of the relation of these two areas.

This master thesis primarily examines national and local levels. Although more concrete levels of analysis can be identified, such as the city and municipal levels, this was out of the scope of this thesis and was not taken into consideration. Nonetheless, given that municipalities have a key role in climate adaptation actions and social protection programs, understanding how municipalities complement the efforts taken at other levels of governance would enrich this work. Barcelona is a great example to enhance the analysis given all the initiatives that the city has taken over the past years.

Health is a fundamental pillar from an individual perspective but also a public health concern in the context of climate change. Ultimately, investing in public health is investing in quality of life and, therefore, in social development, which also translates into economic growth. Beyond the suggestions for future exploration in the field, this master's thesis has demonstrated the existing gap between climate change adaptation and social protection policies, evidencing that Catalonia can further strengthen its position as a role-model region in terms of equality and sustainability.

Looking forward, the scientific evidence on climate variability and change is overwhelming. But more is the social impact. This is not just a fight for the optimization of resources nor for taking care of the physical limitations of the planet. This is a fight for the human rights of the most vulnerable, so that they can have a dignified and healthy life. There is no economic development if it is not sustainable. There is no sustainability if inequalities persist.

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

Public policies are the instrument that the Administration has to balance these inequalities. And decision-makers have the responsibility and obligation to do so. In this sense, this work is a call to action for policymakers, politicians, and legislators. They must act now towards this path and allocate public resources efficiently.

Being aware that political commitment is not enough, this work also hopes to motivate and empower those most affected in order to advocate for their rights and transition towards a more just and sustainable society.

8. References

American Veterinary Medical Association (July 15, 2008). One Health: A New Professional Imperative. One Health Initiative Task Force (Final Report). https://www.avma.org/sites/default/files/resources/onehealth_final.pdf

Climate Copernicus (January 9, 2024/a). *The 2023 Annual Climate Summary. Global Climate Highlights 2023*. [Press Release] <https://climate.copernicus.eu/global-climate-highlights-2023>

Climate Copernicus (July 25, 2024/b). *New record daily global average temperature reached in July 2024*. [Press release] <https://climate.copernicus.eu/new-record-daily-global-average-temperature-reached-july-2024>

Climate and Health Alliance (April 5, 2023) Concept Note: A WHA Resolution on Climate Change and Health. <https://climateandhealthalliance.org/wp-content/uploads/2023/05/April-2023-A-WHA-Resolution-on-Climate-Change-and-Health.docx.pdf>

Costella, C., McCord, A., van Aalst, M., Holmes, R., Ammoun, J., Barca, V. (2021) ' Social protection and climate change: scaling up ambition', Social Protection Approaches to COVID-19 Expert Advice Service (SPACE), DAI Global UK Ltd, United Kingdom

Duran, X., Picó, M.J., Reales, L. (2017). Executive Summary of the Third Report on Climate Change in Catalonia. Institute of Catalan Studies and the Government of Catalonia. https://cads.gencat.cat/web/.content/Documents/Publicacions/tercer-informe-sobre-canvi-climatic-catalunya/Resum_executiu_TICCC/RESUM_EXECUT_TICCC_web_EN.pdf

European Climate and Health Observatory (March 2022). Climate change impacts on mental health in Europe. An overview of evidence. https://climate-adapt.eea.europa.eu/en/observatory/evidence/health-effects/mental-health-effects/european_climate_health_observatory_mental-health_evidence_review_2022.pdf/@download/file

European Climate and Health Observatory (July 3, 2024). Heat. <https://climate-adapt.eea.europa.eu/en/observatory/evidence/health-effects/heat-and-health>

European Commission (2009). Adapting to climate change : towards a European framework for action [White Paper]. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52009DC0147>

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

European Commission (2013). An EU Strategy on adaptation to climate change. eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0216

European Commission (n.d.). The European Green Deal. Striving to be the first climate-neutral continent. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

European Commission (2021). Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0082>

FAO and Red Cross Red Crescent Climate Centre (2019). Managing climate risks through social protection – Reducing rural poverty and building resilient agricultural livelihoods. Rome.

General Department for Health Planning (2021). Health Plan of Catalonia 2021-2025. Barcelona. https://scientiasalut.gencat.cat/bitstream/handle/11351/7948/pla_salut_catalunya_2021_2025_2021.pdf?sequence=1&isAllowed=y

Government of Catalonia (2012). Catalan Strategy for Climate Change Adaptation (ESCACC). Horizon 2013-2020. https://canviclimatic.gencat.cat/web/.content/02_OFICINA/publicacions/publicacions_de_canv_i_climatic/Planificacio_i_estrategies_cc/escacc.pdf

Government of Catalonia (2023). Catalan Strategy for Climate Change Adaptation for the 2030 horizon (ESCACC30). https://canviclimatic.gencat.cat/web/.content/03_AMBITS/adaptacio/ESCACC_2021_2030/00_Memoria-ESCACC30_rev_ling.pdf

Government of Catalonia (January 20, 2020). El Govern impulsa el Programa de salut de resposta front l'emergència climàtica. Retrieved July 23, 2024, from <https://govern.cat/salaprensa/notes-premsa/381809/govern-impulsa-programa-salut-resposta-front-emergencia-climatica>

Government of Catalonia (n.d.) National Plan for the implementation of the 2030 Agenda in Catalonia. Retrieved August 6, 2024, from https://cads.gencat.cat/en/Agenda_2030/pla-nacional/

IPCC (2023). Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the

Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

Keyte, I., Reynolds, K., Sims, N., Cooke, W. Vichev, Z. (2024). Healthier environment for healthier lives: impacts of the European Green Deal on human health. Commission for the Environment, Climate Change and Energy within the European Committee of the Region of the European Commission.
<https://cor.europa.eu/en/engage/studies/Documents/QG0224012ENN%20Healthier%20environment%20for%20healthier%20lives.pdf>

Klein, R.J.T., S. Huq, F. Denton, T.E. Downing, R.G. Richels, J.B. Robinson, F.L. Toth, 2007: Inter-relationships between adaptation and mitigation. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment.

Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 745-777.

Kyoto Protocol to the United Nations Framework Convention on Climate Change (December 10, 1997). 2303 U.N.T.S. 162.

Law 16/2017, of August 1, on Climate Change. Official State Bulletin. (Spain).
<https://www.boe.es/buscar/pdf/2017/BOE-A-2017-11001-consolidado.pdf>

Law 16/2019, of April 26, on Climate Change. (2019). Official State Bulletin. (Spain).
<https://www.boe.es/buscar/doc.php?id=BOE-A-2019-6050>

Ministry of Health, Social Services and Equality. (2013). Impacts on health of climate change.
https://www.sanidad.gob.es/ciudadanos/saludAmbLaboral/docs/CCResumen_ENG.pdf

Ministry for the Environmental (2006). *The Spanish National Climate Change Adaptation Plan 2006-2020*. https://www.miteco.gob.es/content/dam/miteco/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/folleto%20pnacc_ing_tcm30-70395.pdf

Ministry for the Ecological Transition and the Demographic Challenge (MITECO) (2020). *The Spanish National Climate Change Adaptation Plan 2021-2030*.
https://www.miteco.gob.es/content/dam/miteco/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/pnacc-2021-2030-en_tcm30-530300.pdf

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

Ministry for the Ecological Transition and the Demographic Challenge (MITECO) (n.d.).

Health and Climate Change Observatory.

<https://www.sanidad.gob.es/areas/sanidadAmbiental/observatorioSaludCambioClimatico/home.htm>

Paris Agreement to the United Nations Framework Convention on Climate Change (December 12, 2015). T.I.A.S. No. 16-1104.

https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf

Sanz, M.J. y Galán, E. (editoras) (2020). Impactos y riesgos derivados del cambio climático en España. Oficina Española de Cambio Climático. Ministerio para la Transición Ecológica y el Reto Demográfico, Madrid.

Sengupta, S., Dahlet, G. (2023). Policy coherence between social protection and climate action: initial findings from global studies and projects. Red Cross Red Crescent Climate Centre.

United Nations Framework Convention on Climate Change (UNFCCC) (May 9, 1992). Treaty Doc No. 102-38, 1771 U.N.T.S. 107.

https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

United Nations Framework Convention on Climate Change (UNFCCC) (n.d./a) What is the Kyoto Protocol? https://unfccc.int/kyoto_protocol

United Nations Framework Convention on Climate Change (UNFCCC) (n.d./b) The Paris Agreement. <https://unfccc.int/process-and-meetings/the-paris-agreement>

UNFCCC. (November 14, 2023). *New Analysis of National Climate Plans: Insufficient Progress Made, COP28 Must Set Stage for Immediate Action*. Retrieved July 20, 2024, from <https://unfccc.int/news/new-analysis-of-national-climate-plans-insufficient-progress-made-cop28-must-set-stage-for-immediate>

United Nations (2015). Transforming our world: The 2030 Agenda for Sustainable Development. Retrieved July 18, 2024, from <https://sdgs.un.org/2030agenda>

United Nations Environment Programme (2023). *Adaptation Gap Report 2023: Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed.* Nairobi. <https://doi.org/10.59117/20.500.11822/43796>

Van Daalen, K. R., Romanello, M., Rocklöv, J., Semenza, J. C., Tonne, C., Markandya, A., Dasandi, N., Jankin, S., Achebak, H., Ballester, J., Bechara, H., Callaghan, M. W., Chambers, J., Dasgupta, S., Drummond, P., Farooq, Z., Gasparyan, O., Gonzalez-Reviriego, N., Hamilton, I., ... Lowe, R. (2022). The 2022 Europe report of the Lancet Countdown on health and climate change: Towards a climate resilient future. *The Lancet Public Health*, 7(11), e942–e965. [https://doi.org/10.1016/S2468-2667\(22\)00197-9](https://doi.org/10.1016/S2468-2667(22)00197-9)

Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Beagley, J., Belesova, K., Boykoff, M., Byass, P., Cai, W., Campbell-Lendrum, D., Capstick, S., Chambers, J., Coleman, S., Dalin, C., Daly, M., Dasandi, N., Dasgupta, S., Davies, M., Napoli, C. D., ... Costello, A. (2021). The 2020 report of The Lancet Countdown on health and climate change: Responding to converging crises. *The Lancet*, 397(10269), 129–170. [https://doi.org/10.1016/S0140-6736\(20\)32290-X](https://doi.org/10.1016/S0140-6736(20)32290-X)

Watts N, Amann M, Arnell N, Ayeb-Karlsson S, Beagley J, Belesova K et al. (2020). The 2020 report of The Lancet Countdown on health and climate change: responding to converging crises. *The Lancet*. 397(10269):129-170; [https://doi.org/10.1016/S0140-6736\(20\)32290-X](https://doi.org/10.1016/S0140-6736(20)32290-X)

World Bank Group (October 7, 2020). *Global Action Urgently Needed to Halt Historic Threats to Poverty Reduction.* <https://www.worldbank.org/en/news/feature/2020/10/07/global-action-urgently-needed-to-halt-historic-threats-to-poverty-reduction>

World Economic Forum (WEF) (January 16, 2024). *Climate Crisis May Cause 14.5 Million Deaths by 2050.* Retrieved July 18, 2024, from <https://www.weforum.org/press/2024/01/wef24-climate-crisis-health/>

World Health Organization (WHO). (May 19-24, 2008). *Sixty-first World Health Assembly. Resolutions and Decisions.* WHA61/2008/REC/1. https://apps.who.int/gb/ebwha/pdf_files/WHA61-REC1/A61_REC1-en.pdf

World Health Organization (WHO). (2021/a). *Climate change and health vulnerability and adaptation assessment.* <https://iris.who.int/bitstream/handle/10665/345968/9789240036383-eng.pdf?sequence=1>

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

World Health Organization (WHO). (2021/b). COP26 special report on climate change and health: the health argument for climate action. <https://iris.who.int/handle/10665/346168>

License: CC BY-NC-SA 3.0 IGO

World Health Organization (WHO) (October 12, 2023) *Climate change*. Retrieved July 18, 2024, from <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

World Meteorological Organization (WMO) (2024/a). WMO Global Annual to Decadal Climate Update. Target years: 2024 and 2024-2028.

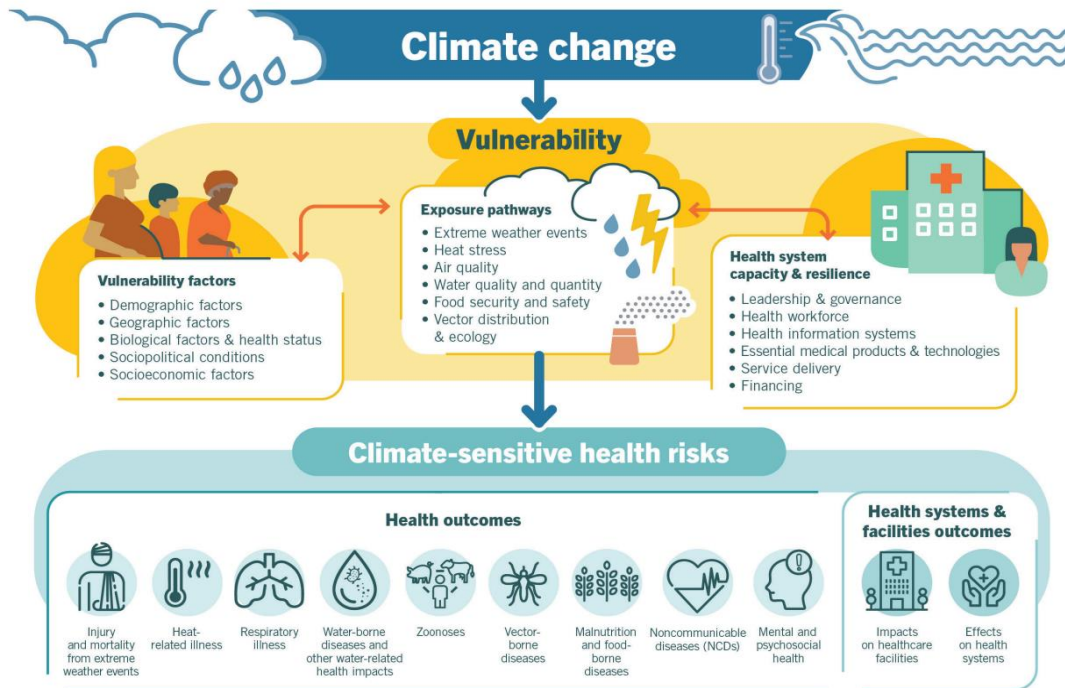
<https://library.wmo.int/records/item/68910-wmo-global-annual-to-decadal-climate-update>

World Meteorological Organization (WMO) (2024/b). State of the Global Climate 2023.

WMO-No. 1347. <https://library.wmo.int/records/item/68835-state-of-the-global-climate-2023>

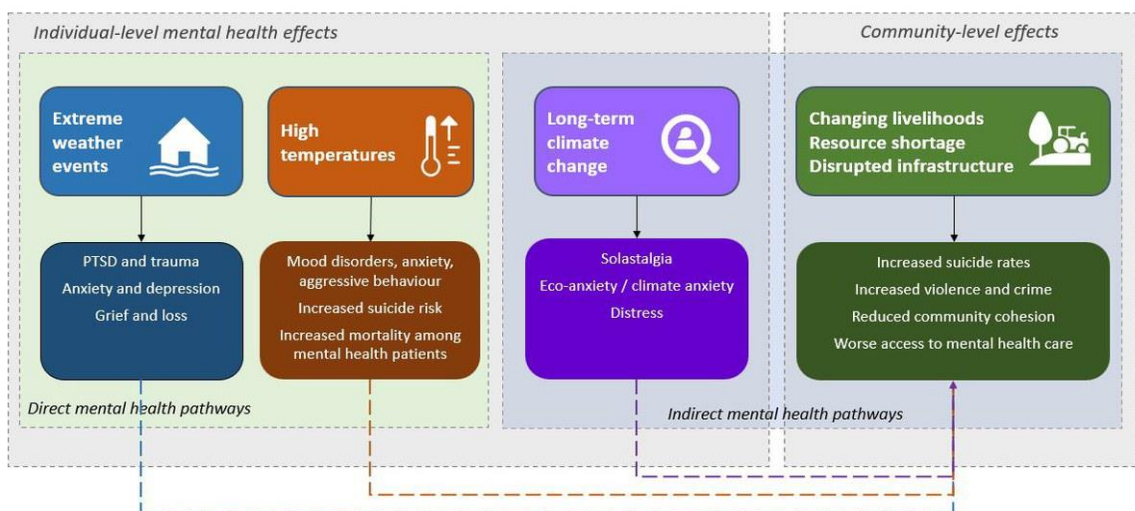
1. Annexes

Annex 1. Climate Change Effects on Health



Source: WHO, 2021/a, p. 8.

Annex 2. Climate Change Impacts on Mental Health



Source: EEA elaboration, based on Lawrance et al. (2021) and Berry et al. (2010).

Annex 3. Preliminary Policy Analysis

Level of analysis	Name	Type of document	Overall budget and budget allocated to social protection programs	Authority	Period of PP	Main objective	References to social protection	Does the policy acknowledge the importance of health as a key sector affected by CC?	Explicit link between CC and health in the measures	Type of planned measures related to health	Are social inequities integrated in the measures proposed?	Link
National	National Climate Change Adaptation Plan (PNACC 1)	Plan	No specific budget allocated for the plan, nor for social protection actions, nor for health-focused programs	Ministry for the Ecological Transition and the Demographic Challenge	2006-2020	It aims at becoming a useful tool for the policy makers on the key topics related to the adaptation to climate change. The Plan's initial objectives are: <ul style="list-style-type: none"> · To develop the regional climate scenarios for the Spanish geography. · To develop and apply methods and tools to evaluate impacts, vulnerability and the adaptation to climate change for all the relevant socioeconomic sectors and ecological systems. · To incorporate to the Spanish R&D&i system the most relevant needs for 	No	Yes	Yes	<ul style="list-style-type: none"> - Assessment of the effects over health and cartography of vulnerable areas under different climate scenarios. - Development of action plans in public health based on early warning systems. - Surveillance programs and control programs for vector-borne diseases - Awareness and public participation campaigns on climate change and health. 	No	https://www.miteco.gob.es/content/dam/miteco/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/foleto%20pnacc_ing_tcm30-70395.pdf

Towards a Sustainable and Just Development:
Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

						<p>climate change impact assessment.</p> <ul style="list-style-type: none"> · To carry out continuous information and communication activities about the projects. · To promote the participation of all stakeholders involved in the different sectors and systems, for purposes of mainstreaming adaptation to climate change to sector policies. · To prepare specific reports on the results of the evaluations and projects, and periodical follow-up reports about the projects and the National Adaptation Plan as a whole. 						
National	National Climate Change Adaptation Plan (PNACC 2)	Plan	No specific budget allocated for the plan nor for social protection action. However, it mentions three types of financial mechanisms: EU level, national	Ministry for the Ecological Transition and the Demographic Challenge	2021-2030	The general objective of the PNACC 2021-2030 is to promote coordinated and coherent action to address the effects of climate change in Spain in order to avoid or reduce present and future damage from climate change and to	Yes	Yes	Yes	(1) Integrate climate change into health policies (2) Preventive actions against the effect of high temperatures in health (3) Preparation and response to communicable diseases (4) Preventive action for atmospheric pollution (5) Preventive actions against the effects of CC on health of workers	Yes	https://www.miteco.gob.es/content/dam/mbio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/pnacc-2021-2030-en_tcm30-530300.pdf

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

			level and private capital mobilization			build a more resilient economy and society						
Local	Catalan Strategy for Climate Change Adaptation 2013-2020 (ESCACC20)	Strategy	No specific budget for the implementation of the overall strategy, nor for social protection actions related to climate change and health outcomes	Generalitat de Catalunya	2013-2020	The strategic objectives of ESCACC20 is to become less vulnerable to the impacts of climate change	No	Yes	Yes	<p>Incorporation of the impacts of climate change into the public health law of Catalonia. Development of health prevention plans. Development of preventive measures and action protocols leading to impacts on vulnerable groups. Promote the rehabilitation of spaces with the objective of increasing thermal comfort to reduce climatization needs.</p> <p>Promote research in the health-climate change relationship. Develop analysis and instruments for specific risk assessment and vulnerability of the population facing the impacts of climate change. Establish information campaigns with the objective of reducing the vulnerability of the population. Maintain strict monitoring and control of water consumption. Continue both surveillance and food control activities. Promote monitoring campaigns and control of diseases transmitted by vectors. Implement and reinforce the surveillance and prevention frameworks.</p>	No	https://canviclimatic.gencat.cat/web/contenut/02_OFICINA/publicacions/publicacions_de_canviclimatic/Planificacio_i_estrategies_cc/eescacc.pdf
Local	Law 16/2017, of August 1,	Law	No specific budget. Its implementation	Generalitat de Catalunya	N/A	Legal framework for climate change actions at local level with these	No	Yes	Yes	1. Extreme weather response plan, 2. vector-borne disease monitoring, 3. air quality improvement,	No	Ley 16/2017, de 1 de agosto, del cambio

Towards a Sustainable and Just Development:
Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

	on Climate Change		depends on general budget of the government of Catalonia.			main objectives: 1. Mitigation of GHE, 2. ADaptation to CC, 3. Promotion of renewable energy, 4. Sustainable development, 5. Public awareness and education, 6. Research and Innovation, Regulatory and Policy framework				4. water quality and supply management, 5. public health education, 6. healthcare system preparedness, 7. health assessment		climático. (boe.es)
Local	Decree Law 16/2019 - Urgent Measures for the Climate Emergency and the Promotion of Renewable Energies	Law	No specific budget. Its implementation depends on general budget of Catalonia.	Generalitat de Catalunya	N/A	1. take urgent measures for the climate emergency, 2. promote renewable energies, 3. modifications to law 16/2017 on climate change measures	No	Yes	No	N/A	No	BOE-A-2020-445 Decreto-ley 16/2019, de 26 de noviembre, de medidas urgentes para la emergencia climática y el impulso a las energías renovables.
Local	Catalan Strategy for Climate Change Adaptation 2021-2030 (ESCACC30)	Strategy	No specific overall or specific social protection budget. Nonetheless, it contains a detailed chapter on the existing financial mechanisms to deploy the solutions mentioned	Generalitat de Catalunya	2013-2020 2021-2030	Enhance the resilience and adaptive capacity of Catalonia to the impacts of climate change by 2030. Operational objectives are divided into different sectors. In health: Ensure the effectiveness of surveillance and health control actions for water and food in the face of the impacts of climate change, Prevent, monitor, and control vector-	Yes	Yes	Yes	1. Health Plan of Catalonia, 2. Interdepartmental and Intersectoral Public Health Plan. 3. Public Health and Climate Change Program, 4. Action Plan for Improving Air Quality in Special Protection Zones	Yes	https://canviclimatic.gencat.cat/web/contenut/03_AMB/ITS/adaptacio/ESCACC_2021_2030/00_Memoria-ESCACC30_rev_ling.pdf

Towards a Sustainable and Just Development:

Analyzing the Coherence of Climate Change Adaptation Policies and Social Protection in Catalonia

						borne diseases, Improve air quality to meet recommended levels of contaminants emissions by the World Health Organization and reduce the impact of atmospheric pollution on health, especially among the most vulnerable risk groups. Reduce the impact of extreme temperatures on health, particularly among the most vulnerable risk groups, Enhance the generation and transfer of knowledge regarding the impacts of climate change on health.						
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Source: Own elaboration.