

**THESIS**  
**ADAPTING BOSTON'S ZERO CARBON EMISSIONS**  
**POLICIES TO MAKASSAR BASED UPON**  
**INTERNATIONAL ENVIRONMENTAL LAW**

**Prepared and submitted by:**

**A.NURIL ZAMHARIR HARIS**

**B011191130**



**LEGAL STUDIES/INTERNATIONAL LAW**  
**LAW FACULTY HASANUDDIN UNIVERSITY**  
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**TITLE PAGE**

**ADAPTING BOSTON'S ZERO CARBON EMISSIONS POLICIES  
TO MAKASSAR BASED UPON INTERNATIONAL  
ENVIRONMENTAL LAW**

As a Final Project in the Context of Completion of Undergraduate  
Studies at Department of International Law Study Program

Prepared and submitted by:

**A.NURIL ZAMHARIR HARIS**

B011191130

**STUDY PROGRAM LEGAL STUDIES  
DEPARTMENT OF INTERNATIONAL LAW  
LAW FACULTY HASANUDDIN UNIVERSITY  
MAKASSAR  
2023**

## PENGESAHAN SKRIPSI

### **Adapting Boston's Zero Carbon Emissions Policies To Makassar Based Upon International Environmental Law**

Disusun dan diajukan oleh

**A.NURIL ZAMHARIR HARIS**

**B011191130**

Telah dipertahankan di hadapan Panitia Ujian yang dibentuk dalam rangka Penyelesaian Studi Program Sarjana Departemen Hukum Internasional Program Studi Ilmu Hukum Fakultas Hukum Universitas Hasanuddin

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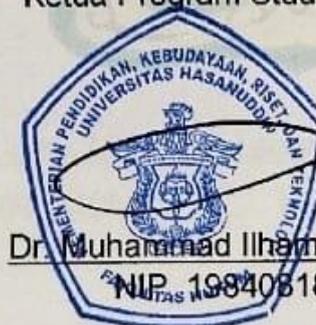
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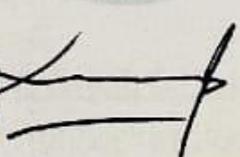
Pembimbing Pendamping

  
Prof. Dr. Maskun, S.H., LL.M.  
NIP. 19761129 199903 1 005

  
Leode M. Syarif, S.H., LL.M., Ph.D.  
NIP. 19650616 199202 1 001

Ketua Program Studi Sarjana Ilmu Hukum



  
Dr. Muhammad Ilham Arisaputra S.H., M.Kn  
NIP. 19840818 201012 1 005

## SUPERVISOR APPROVAL

Hereby explained that the thesis of:

Name : A.Nuril Zamharir Haris

Student Number : **B011191130**

Major : Legal Studies

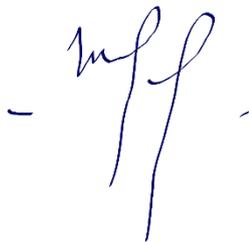
Department : International Law

Thesis Title : **Adapting Boston's Zero Carbon Emissions Policies To Makassar Based Upon International Environmental Law**

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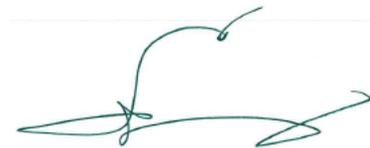
**Main Supervisor**



Prof. Dr. Maskun, S.H., LL.M.

NIP. 197611291999031005

**Co-Supervisor**



Laode M. Syarif, S.H., LL.M., Ph.D.

NIP. 196506161992021001



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RISET, DAN TEKNOLOGI

UNIVERSITAS HASANUDDIN  
FAKULTAS HUKUM

Jln. Perintis Kemerdekaan KM.10 Kota Makassar 90245, Propinsi Sulawesi Selatan  
Telp : (0411) 587219,546686, Website: <https://lawfaculty.unhas.ac.id>

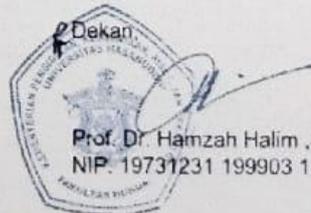
### **PERSETUJUAN MENEMPUH UJIAN SKRIPSI**

Diterangkan bahwa skripsi mahasiswa :

Nama	: A.Nuril Zamharir Haris
N I M	: B011191130
Program Studi	: Ilmu Hukum
Departemen	: Hukum Internasional
Judul Skripsi	: Adapting Boston's Zero Carbon Emissions Policies to Makassar Based upon International Environmental Law

Memenuhi syarat untuk diajukan dalam ujian skripsi sebagai ujian akhir program studi.

Makassar, Oktober 2023



## RESEARCH AUTHENTICITY STATEMENT

Hereby explained that the thesis of:

Name : A.Nuril Zamharir Haris

Student Number : B011191130

Major : Legal Studies

Department : International Law

Declares hereby that the Thesis entitled "**Adapting Boston's Zero Carbon Emissions Policies To Makassar Based Upon International Environmental Law**" is my own work and does not violate other copyrights. If later my Thesis is proven that part or all of it is the work of others that I use in a way that violates other copyrights, then I am willing to accept sanctions

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## ABSTRACT

**A.NURIL ZAMHARIR HARIS (B011191130) with the title “*Adapting Boston’s Zero Carbon Emissions Policies To Makassar Based Upon International Environmental Law*”.** Under the guidance of sir **Maskun** and **Laode Muhammad Syarif**.

This thesis aims to explore the adaptation of Boston's zero carbon emissions policies to Makassar, Indonesia, based upon international environmental law. The research will analyze the legal frameworks and policies in both Boston and Makassar, as well as relevant international treaties and agreements on environmental protection and climate change mitigation.

With Normative Research (Literature Research) and Comparative analysis, this thesis will also examine the legal challenges and opportunities for adapting and implementing zero carbon emissions policies in Makassar within the context of Indonesian environmental law. The study's will emphasize on zero carbon emissions policies, Makassar, Indonesia, international environmental law, legal frameworks, and how will the environmental diplomacy have its role on adapting such polices.

The research findings will provide recommendations on how to modify or enhance the existing legal frameworks to achieve Makassar's carbon emission reduction targets while aligning with international environmental standards.

**Keywords:** Boston Zero Carbon Emission Policy, Environmental Diplomacy, International Environmental Law

## FOREWORD

Climate change is one of the most pressing global challenges of our time, with far-reaching implications for the environment, human health, and socio-economic development. In response to this challenge, many cities around the world have taken proactive measures to reduce their carbon emissions and mitigate the effects of climate change. One such city is Boston, which has implemented ambitious zero carbon emissions policies to achieve its carbon reduction targets. This thesis focuses on the adaptation of Boston's zero carbon emissions policies to Makassar, Indonesia, based upon international environmental law.

The research aims to analyze the legal frameworks and policies in both Boston and Makassar, as well as relevant international treaties and agreements on environmental protection and climate change mitigation. The study also examines the legal challenges and opportunities for adapting and implementing zero carbon emissions policies in Makassar within the context of Indonesian environmental law.

The thesis highlights the importance of international environmental law in addressing global environmental challenges such as climate change. The findings of this research will provide insights into how to modify or enhance the existing legal frameworks to achieve Makassar's carbon emission reduction targets while aligning with international environmental standards.

The author would like to express a sincere gratitude to my parents DR. Abdul Haris Abbas S.H., M.M., who gave me hope and guiding me through rough times and gave me wise advice to proceed forward, DRA. A.Indrawaty Baso Rachim who supported me with everything she had and also my siblings that are trying to help me as much as they can for me to finish this thesis, and all the individuals and organizations who have provided support and assistance throughout the research process:

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Zufar Mashuri, who since the beginning of our time in Hasanuddin University have been accompanying, entertaining, supporting and give each other insights and point of views especially in time of need, thank you for not abandoning and give up on me all this time during our long journey in Faculty of Law;

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The author realizes that in writing this thesis there are still many shortcomings and limitations that are owned so that this thesis still has many shortcomings.

In those manners, the authors really hope for constructive criticism and suggestions from all parties. In conclusion, I hope that this thesis will be useful and beneficial to the writer personally, to the Faculty of Law,

Hasanuddin University in particular and to readers and the  
general public.

A handwritten signature in black ink, consisting of a tall, narrow vertical stroke that curves slightly to the right at the top, and a horizontal stroke that extends to the right from the middle of the vertical stroke.

Author,

A.Nuril Zamharir Haris

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## CHAPTER I

### INTRODUCTION

#### A. Background

International environmental law has developed as a distinct field of public international law in response to the pressing global environmental challenges such as climate change, ozone depletion, loss of biodiversity, pollution of air and sea, and depletion of freshwater resources. This field of law recognizes the interdependence of ecosystems and the fact that environmental issues that were once considered to be of national concern now have international implications that require cooperation and regulation at various levels, including bilateral, subregional, regional and global. The emergence of international environmental law is a result of the recognition of these ecological interdependencies that transcend national boundaries.<sup>1</sup>

International environmental law is a significant and rapidly developing field of international law making, comparable in scale and form to the law of human rights and international trade law.<sup>2</sup> It addresses environmental issues at multiple levels, with an early and well-established use of international law in regulating

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<sup>1</sup> Philippe Sands, Jacqueline Peel, *Principles of International Environmental Law*, (Cambridge: Cambridge University Press, 2018), p.3-4

<sup>2</sup> Patricia Birnie, Alan Boyle, Catherine Redgwell, *International Law and the Environment*, (Oxford: Oxford University Press 2009), p.1

transboundary problems such as air or water pollution and the conservation of migratory animals. These problems, often regional in nature, are typically addressed by regional organizations and agreements, particularly in Europe, North America, and in regional seas like the Mediterranean and Caribbean.<sup>34</sup>

Like domestic environmental law, international environmental law protects the environment and is equally multifaceted and intricate. It involves regulations, policies, and protocols to facilitate communication, conflict resolution, treaty enforcement, and customary law. Furthermore, it fosters collaboration among states, international organizations, and non-governmental organizations, and establishes the basis for environmental governance, law-making, and regulation at the

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<sup>3</sup> *Ibid*, p.8

<sup>4</sup> Regional environmental problems, such as transboundary air or water pollution, or the conservation of migratory animals, are often addressed by regional organizations and agreements. These agreements are often formed between countries that share a common boundary or are located in the same geographic region. They typically focus on addressing environmental issues that are specific to that region, such as air and water quality, conservation of natural resources and biodiversity, and sustainable development. Regional agreements and organizations are particularly prevalent in Europe and North America, where there is a long history of cooperation on environmental issues. In Europe, the European Union has developed a comprehensive environmental policy that is enforced through a variety of laws and regulations. In North America, the United States and Canada have formed the North American Agreement on Environmental Cooperation, which promotes cooperation on environmental issues between the two countries. Regional seas, such as the Mediterranean and Caribbean, also have their own regional agreements and organizations to address specific environmental issues in those regions. For example, the Mediterranean Action Plan, established under the Barcelona Convention, aims to protect the Mediterranean Sea from pollution and other environmental impacts. Similarly, the Caribbean Environment Programme, established under the United Nations Environment Programme, focuses on addressing environmental issues in the Caribbean region.

international level, including, in certain cases, international trusteeship.<sup>5</sup>

International environmental law, like domestic environmental law, primarily focuses on regulating environmental problems, setting common standards and best practices to prevent or mitigate pollution, and promoting conservation and sustainable use of natural resources and biodiversity. The rule making process is adaptable, allowing for updates as new technology and knowledge become available. This regulatory system is mainly established through multilateral treaties, but it also incorporates non-binding instruments such as codes of conduct, guidelines, and recommendations. Framework agreements also allow for further negotiation of protocols, annexes, and decisions to create a more comprehensive regulatory framework.<sup>6</sup>

Some international environmental agreements aim to harmonize national laws, either globally or regionally. Examples of this include treaties on civil liability for nuclear accidents or oil-pollution damage at sea, where national laws must largely replicate the provisions of these treaties, resulting in similar laws in each state party. The goal is to make it easier for individuals who have suffered a loss in large-scale international accidents to seek

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<sup>5</sup> *Op Cit*, Patricia Birnie, Alan Boyle, Catherine Redgwell (2009), p.9

<sup>6</sup> *Ibid*, p.9

justice. Regulatory treaties have a different objective in mind when trying to harmonize national laws, as the economic impact of implementing environmental protection measures may lead states to participate in such treaties if they can be assured that the same regulatory standards will apply to competitor states. However, this may not always be possible and developing states may insist on differential standards.<sup>7</sup>

The Stockholm Declaration,<sup>8</sup> made over 50 years ago, reminds us that humans are both affected by and can shape their environment, which provides for their physical needs and enables intellectual, moral, social and spiritual growth. With the rapid advancement of science and technology, humans now have the power to drastically alter their environment on an unprecedented scale. Both the natural and man-made aspects of the environment

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<sup>7</sup> *Ibid*, p.9-10

<sup>8</sup> The Stockholm Declaration was adopted in 1972 at the United Nations Conference on the Human Environment, held in Stockholm, Sweden. It is considered to be the first international document that recognized the importance of the environment and the need for international cooperation to protect it. The Declaration sets out several principles that continue to be relevant today, including the recognition of the interdependence between humans and the environment, the importance of sustainable development, and the need to address environmental issues at a global level. It also emphasizes the importance of public participation in environmental decision-making, and the need to take into account the needs of future generations. The Declaration also calls for the protection of natural resources, the reduction of pollution and the promotion of scientific understanding of environmental issues. The Stockholm Declaration is considered a foundational document in the development of modern international environmental law, and its principles continue to inform the work of international organizations and governments around the world.

are crucial for human well-being and the enjoyment of basic human rights, including the right to life.<sup>9</sup>

The Stockholm Declaration, adopted in 1972, is a statement of principles for environmental protection and sustainable development. It recognizes that man has the right to live in a healthy and fulfilling environment, and that he has a responsibility to protect and improve the environment for current and future generations. The declaration highlights the importance of safeguarding natural resources, including air, water, land, and biodiversity, for the benefit of all. It also emphasizes the need to maintain and restore the earth's capacity to produce vital renewable resources.<sup>10</sup>

In recent years, legal systems in both developed and developing countries have been examining the most effective methods for implementing environmental policy. In developed countries, particularly in the EU, international conventions and directives have influenced a shift towards more refined legal instruments. Rather than relying solely on regulations, there is now a greater use of market-based instruments such as environmental taxes and emission trading, as well as increased emphasis on environmental liability. Additionally, environmental law has moved

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<sup>9</sup> "The Stockholm Declaration on the Human Environment", (United Nations Environment Programme, 1972)

<sup>10</sup> *Ibid*

towards a more integrated approach, considering the effects of an activity on various components of the environment in the decision-making process, and consolidating legislation into environmental acts or codes.<sup>11</sup>

The literature often fails to examine the extent to which the developments in environmental law and policy in developed countries are also present in developing countries. While there has been a focus on how to effectively develop environmental law in these countries, it is challenging to put this knowledge into practice.<sup>12</sup> Additionally, it remains uncertain if developing countries are willing to adopt new developments such as the integration of environmental law and market-oriented instruments. Furthermore, there is a question of whether environmental policy should be centralized or decentralized within larger developing countries.<sup>13</sup>

The evolution of diplomacy and climate policy has undergone significant changes in recent years. However, despite these advancements, the global environment is facing increasingly dire

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<sup>11</sup> *Ibid*

<sup>12</sup> Clifford Russel, Ruth Greenspan Bell, *Environmental Policy for Developing Countries*, (2002), (<https://issues.org/greenspan-environmental-policy-developing-countries/>) accessed on December 25<sup>th</sup>, 2022

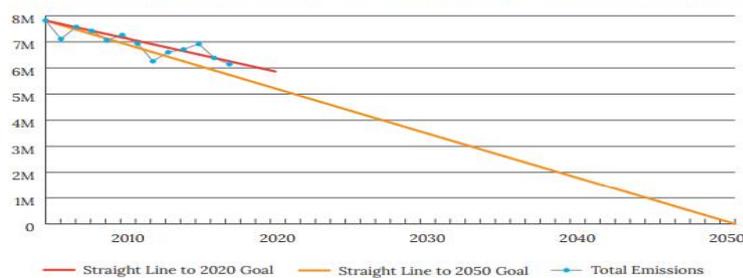
<sup>13</sup> Developing countries may not be willing to adopt new developments in environmental law and policy due to a lack of resources and capacity to implement them, as well as the potential negative economic impact on their already vulnerable economies. Additionally, there may be cultural and political resistance to adopting policies and practices from developed countries. It may also be argued that the circumstances and priorities of developing countries differ from those of developed countries, and therefore different approaches to environmental law and policy may be necessary.

conditions, largely due to the accelerated impact of climate change, which is having a widespread and more severe effect than previously predicted.

Boston is a city that is well-known for its policies aimed at reducing carbon emissions, with plans in place to reach zero emissions by 2050. The city has a long-standing commitment to climate action and released its first climate action plan in 2007. Over the years, Boston has set ambitious long-term goals for climate mitigation, adaptation, waste reduction, mobility, and community connectedness. By achieving these goals, Boston aims to become a sustainable and resilient community.<sup>14</sup>

Figure 1.1

Boston Community Carbon Emissions, 2005-2017, and Progress Towards Goals (in metric tons)



Since 2005, Boston's emissions have decreased by approximately 21 percent, from 7.9 to 6.1 million metric tons of carbon. The reduction in Boston's emissions has occurred at the same time that the population and the number of jobs in Boston have increased. Per capita emissions have decreased from 15 metric tons of carbon in 2005, to 9 metric tons in 2017. Emissions per million dollars of Gross City Product (GCP) have fallen from 86 to 48 metric tons of carbon per million dollars over the same period.

Almost all of the Boston community's carbon emissions stem from the building and transportation sectors: buildings account for 71 percent of total emissions; transportation accounts for nearly 29 percent of remaining emissions. Boston is currently on track to meet our 2020 carbon target.

Boston Carbon Emissions by Source, 2017



<sup>14</sup> Martin J Walsh, *Boston Climate Action Report 2019 (Update 4)*, (Boston 2020), p.5

The writer aims to investigate and expand upon the policies implemented in Boston, as it is a leading city with efficient policies. The focus is on how these policies can be adapted and implemented in Makassar, Indonesia to reduce carbon emissions and combat climate change, while also adhering to international environmental law. By studying the successes and challenges of Boston's policies, Makassar can develop a strategy that is tailored to its specific needs while fulfilling its obligations as a member of the global community to preserve the environment for current and future generations. Furthermore, the role of environmental diplomacy and its impact on the advancement of environmental law will also be examined.

## **B. Research Question**

1. How can the zero carbon policies implemented in Boston be adapted and implemented effectively in Makassar, Indonesia to reduce carbon emissions and combat climate change while also complying with international environmental law?
2. What extent does environmental diplomacy play a role in the progress of environmental law and how can it be utilized to facilitate the adaptation and implementation of Boston's zero carbon policies in Makassar?

### **C. Research Purpose**

1. To understand and explore how the zero carbon policies implemented in Boston be adapted and implemented effectively in Makassar, Indonesia to reduce carbon emissions and combat climate change while also complying with international environmental law
2. To understand the extent of environmental diplomacy play a role in the progress of environmental law and how can it be utilized to facilitate the adaptation and implementation of Boston's zero carbon policies in Makassar

### **D. Research Benefits**

This research can be used as one of the main considerations of what policies that should be adopted and understanding the role of the environmental diplomacy in the world of international environmental law itself.

### **E. Research Originality**

The Adapting Boston's Zero Carbon Emissions Policies To Makassar Based Upon International Law research haven't been made before in Indonesia, the search are based upon looking to the library of Law Faculty of Hasanuddin University, and then proceed to look for it on different repository of different universities in Indonesia and also in Google Scholar. There's a couple of

identical articles, journal/thesis regarding the partial of the topic but not in entirety, the said journals are:

- 1) "THE GOVERNMENT OF BANDUNG CITY'S EFFORTS IN UTILIZING FOREIGN SOURCES: Case Study in Sister City Cooperation" by RMT Nurhasan Affandi, Gilang Nur Alam, and Windy Dermawan

This journal emphasizes on The Bandung City Government, operating as a sub-state actor, has engaged in foreign activities through various forms of cooperation, including the sister city program, demonstrating their ability to participate in global politics. Their cooperation with Suwon City in South Korea has resulted in development programs such as river restoration and sanitation, involving multiple institutions to provide mutual assistance to the community. This research indicates that sister city cooperation can provide additional input for regional development, lessening dependence on the state budget. The use of foreign sources can extend beyond infrastructure and be applied to investment, education, politics, and human resource development, optimizing development at the sub-national level. Foreign sources can also foster foreign relations not only with state and sub-state actors, but also with the private sector and individuals.

The main difference between the two is the subject matter. The journal pertains to the Bandung City Government's utilization of foreign sources through sister city cooperation, while the thesis "Adapting Boston's Zero Carbon Emissions Policies To Makassar Based Upon International Environmental Law" focuses on the adaptation of Boston's zero carbon emissions policies in Makassar based on international environmental law. The former discusses the Bandung City Government's involvement in foreign relations, while the latter focuses on environmental policies and international law.

2) "Net zero adaptation a review of built environment sustainability assessment tools" by Amie Shuttleworth and Kristen MacAskill

On this one they emphasize that despite the increasing prominence of achieving net zero carbon emissions, it is becoming more widely acknowledged that adapting to current and future climate impacts is just as crucial. Within the real estate and finance sectors, developers and designers will face more requirements. Various organizations, such as the Taskforce on Climate-Related Financial Disclosures and the Climate Bonds Initiative, recognize that both mitigation and adaptation are important for built assets due to different risks they pose. However, if

adaptation criteria are to be integrated into existing sustainability assessment methods, as advocated by the net zero carbon agenda, this perspective paper suggests that there is still a long way to go. Updating these assessments could signal best practices and address the current inadequacies in meaningfully addressing climate risks within building design. To ensure that asset investment considers climate impacts in a holistic manner, better mechanisms for integrating mitigation and adaptation are required. This will necessitate further standards development, from voluntary to mandatory. The COP26 was supposedly expected to be an ideal platform to ensure adaptation considerations become an increasingly important part of the climate change agenda.

It discusses the importance of both mitigation and adaptation in the built environment and the need for better mechanisms to achieve an integrated perspective of both. It highlights the current shortfalls in addressing climate risk within building design and the potential for COP26 to address this issue.

In contrast, the thesis "Adapting Boston's Zero Carbon Emissions Policies To Makassar Based Upon International Environmental Law" focuses specifically on the adaptation

of zero carbon emissions policies from one city to another, considering the legal and policy frameworks in place.

3) “Changing behaviour for net zero 2050” by Theresa M Marteau, Nick Chater, and Emma E Garnett

The journal discusses the importance of behavior change by individuals, commercial entities, and policymakers to achieve net zero in all domains, focusing on diet and land travel. Dietary change and sustainable land travel will involve substantially fewer journeys by car and more journeys taken by foot, bicycle, and public transport, ensuring that all transport is carbon neutral and powered by renewable energy. The interventions with the most potential to change routine or habitual behavior at scale target whole populations and involve changes to the systems shaping and maintaining the behavior, placing lower demands on the cognitive, social, and material resources of individuals than those based on providing advice and guidance, thereby having greater potential to achieve change equitably.

The differences between the two is the fact that it emphasizes on the general view of net zero policies that should be set a foot as in entirety while for the thesis is a specific research proposal focused on a particular topic and in a specific two cities.

## **F. Research Methods**

For this thesis, the writer is going to be conducting Normative Research (Literature Research) in which the writer would read a combination of books and journals in the form of physical copies as well as online (e-books), government documents and papers as the means of conducting the research. In addition to covering Boston's and Makassar's policies, the research will cover national and international regulations/policies as a whole as well.

**Literature review:** The author will conduct a comprehensive review of the existing literature on zero carbon emissions policies and international environmental law, including relevant legal instruments such as the Paris Agreement and the United Nations Framework Convention on Climate Change. Conducting a literature review can help the author understand the current state of research and best practices related to zero carbon emissions policies and international environmental law. This can help the author identify gaps in the existing literature that their research can address.

**Comparative analysis:** The author will use a comparative analysis approach to compare the zero carbon emissions policies of Boston and Makassar, and to identify areas where Makassar could learn from Boston's approach. This could involve analyzing policy documents in both cities.

**Legal analysis:** Given the focus on international environmental law, the author uses a legal analysis approach to examine the relevant legal instruments and frameworks that apply to zero carbon emissions policies. This could involve conducting a thorough review of relevant treaties, agreements, and national and international laws related to climate change and sustainable development.

**CHAPTER II**  
**LITERATURE REVIEW AND ANALYSIS OF THE FIRST**  
**PROBLEM FORMULATION**

**A. An Overview of The Evolution of International  
Environmental Law**

**1. The Development of International Environmental Law**

The development of international environmental law has been ongoing for over a century, with its roots tracing back to the late 19th century. It is a complex system of legally binding agreements, conventions and treaties that aim to regulate and mitigate the environmental impacts caused by human activities. The first international treaty for the preservation of nature, the Convention for the Protection of Birds Useful to Agriculture, was adopted during this time period.<sup>15</sup>

The development of international law in general is a dynamic and ongoing process. As the world changes, so too does the law. New challenges and opportunities emerge, and the law must adapt to meet them. In recent years, there has been a growing focus on the development of international law in the areas of human rights, environmental protection, and

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<sup>15</sup> The 1902 Convention for the Protection of Birds Useful to Agriculture is considered to be the first multilateral international convention that focused on the protection of specific wildlife species

economic development. These are all areas where the law can play a vital role in promoting peace, security, and prosperity. The development of international law is not without its challenges. States often have different interests and values, and it can be difficult to reach agreement on new rules and principles. However, the benefits of international law are clear. It provides a framework for cooperation and coordination, and it helps to resolve disputes peacefully. As the world becomes increasingly interconnected, the need for international law will only grow stronger. The law can help to create a more just and stable world, and it can provide a means for addressing the challenges of the 21st century.

International environmental law has undergone significant growth in recent years, with various international agreements and binding instruments put in place to address the environmental impacts of human activities. The field has its roots in the late 19th century with the adoption of the first international treaty on nature protection, the Convention for the Protection of Birds Useful to Agriculture. Nevertheless, it was not until the 20th century that the field began to grow more extensively, with the creation of various agreements on pollution control, biodiversity conservation, and natural resource protection. One of the most notable milestones in the development of international environmental law is the United

Nations Conference on the Human Environment in 1972, which led to the adoption of the Stockholm Declaration and the establishment of the United Nations Environment Programme (UNEP).<sup>16</sup>

This conference marked a significant change in the way the international community viewed the environment, recognizing the interdependence of economic, social, and environmental factors and the need for a more comprehensive approach to environmental protection. Since then, international environmental law has continued to evolve and expand, with the adoption of numerous agreements on various environmental issues, such as climate change, hazardous chemicals and waste, and the conservation of biodiversity. These agreements are implemented through a variety of mechanisms, including international courts and tribunals, as well as regional and national bodies responsible for enforcing

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<sup>16</sup> The United Nations Environment Programme (UNEP) is a UN agency established in 1972 with a focus on advancing environmental protection and sustainable development globally. It is headquartered in Nairobi, Kenya and provides support to member states in their efforts to promote sustainable development and safeguard the environment. The UNEP offers a wide range of resources to member states, including access to expert advice, training and professional development, and funding for initiatives and projects. The agency also fosters collaboration among member states on environmental and sustainable development issues by organizing meetings and events such as the United Nations Environment Assembly (UNEA), which serve as a platform for member states to exchange ideas and experiences. In addition, the UNEP engages with other international organizations, civil society groups, and stakeholders to encourage environmental protection and sustainable development. See <https://www.unep.org/about-us> accessed on December 2nd, 2022

and implementing the provisions of these agreements. As the impacts of climate change and other environmental challenges become increasingly severe, the importance of international environmental law in addressing these issues has become increasingly clear. It is essential that states and other actors work together to uphold their obligations under these agreements and take the necessary steps to protect the environment and natural resources for present and future generations.<sup>17</sup>

The evolution of international environmental law principles was sparked by the recognition of the impact of environmental issues that transcend national borders. This led to a growing awareness among leaders of the need to develop laws specifically addressing cross-border environmental pollution. The Trail Smelter Arbitration (United States v. Canada) marked one of the earliest examples of this trend, as it dealt with the transboundary effects of pollution.<sup>18</sup>

The Trail Smelter case, which occurred in the early 20th century, marked the first instance of a transboundary pollution dispute involving both the United States and Canada. It resulted in the establishment of the harm principle in environmental law

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<sup>17</sup> Laode M. Syarif, Maskun, & Birkah Latif, *Hukum Lingkungan: Teori, Legislasi, Dan Studi Kasus*, p.38

<sup>18</sup> *Ibid*, p.38

in relation to cross-border pollution in the US.<sup>19</sup> The case arose from the emissions of smoke from the Trail Smelter in British Columbia, which was operated by Consolidated Mining and Smelting Company (COMINCO) and caused damage to crops and forests in the surrounding area as well as across the border in Washington. The complaints of affected residents led to negotiations, arbitration, and ultimately the resolution of the case in 1941.<sup>20</sup>

The Consolidated Mining and Smelting Company (COMINCO) was the operator of the Trail Smelter in British Columbia, Canada, prior to its merger with Teck in 2001. The smelter, which had been processing lead and zinc since 1896, had caused damage to the surrounding forests and crops, as well as to the neighbouring state of Washington in the United States, due to smoke emissions. The disputes over the compensation for the damages caused by the smelter could not

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<sup>19</sup> JD Wirth, *The Trail Smelter Dispute: Canadians and Americans Confront Transboundary Pollution*, (1996), ([https://www.jstor.org/stable/pdf/3985111.pdf?refregid=excelsior%3A191bdf48b9f5f355b71b71853eee3053&ab\\_segments=&origin=](https://www.jstor.org/stable/pdf/3985111.pdf?refregid=excelsior%3A191bdf48b9f5f355b71b71853eee3053&ab_segments=&origin=)) accessed on December 3rd, 2022

<sup>20</sup> The Consolidated Mining and Smelting Company (COMINCO) was a Canadian mining and smelting company that was established in 1906. It was formed by the merger of several smaller mining companies in the Kootenay region of British Columbia. It was one of the largest mining companies in Canada at the time. COMINCO owned and operated several mines, including the Sullivan Mine in Kimberley, British Columbia, which was one of the largest lead-zinc mines in the world. The company also owned and operated the Trail Smelter in Trail, British Columbia, which was a large lead-zinc smelting facility. The Trail Smelter was in operation since 1896, and it was known for emitting smoke that caused damage to the surrounding area. See <https://www.memorybc.ca/consolidated-mining-and-smelting-company-of-canada> accessed on September 15<sup>th</sup>, 2022

be resolved between the smelter operators and the affected landowners. This led to the case being sent to an arbitration tribunal, which determined that Canada had failed to prevent the pollution from crossing the border, and thus had breached its obligations under the 1909 Boundary Waters Treaty between the two countries. This case, being one of the first instances in which a state was held responsible for environmental damage caused by the activities of a private company operating within its borders, established the principle that states have a responsibility to prevent environmental harm caused by their activities from affecting other states, and it has had a significant impact on the way that international environmental law has developed in the decades since.<sup>21</sup>

We also can take note with the Lac Lanoux Arbitration case, which took place between France and Spain, brought attention to the need for an international environmental law

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<sup>21</sup> The 1909 Boundary Waters Treaty between the United States and Canada was one of the first international agreements to address transboundary water management issues. It established a framework for cooperation and coordination between the two countries on issues related to the use and protection of boundary waters, including the regulation of water levels, the construction of dams and other works, and the prevention of pollution. The treaty also established a process for resolving disputes related to the use of boundary waters through negotiation, mediation, and arbitration. The Trail Smelter arbitration was one of the first cases to be heard under the terms of the treaty, and it set an important precedent for the application of the treaty to transboundary pollution issues. Since the 1909 Boundary Waters Treaty, many other international agreements have been adopted to address transboundary water management issues and to protect water resources around the world. See Government Of Canada, (<https://www.canada.ca/en/environment-climate-change/corporate/international-affairs/partnerships-countries-regions/north-america/canada-united-states-boundary-waters-treaty.html>) accessed on September 1<sup>st</sup>, 2022

regime. The case involved the use of water from Lake Lanoux, which is within French jurisdiction, but the source of the river that flows through Spanish territory is from the lake. Spain expressed concern that a project in the lake would affect the flow of the river and therefore, violated the Treaty of Bayonne, which stated that both parties must agree on the terms of construction before any projects can begin on the lake.<sup>22</sup> The case was brought to an arbitration court and the tribunal ruled that France had not violated the treaty as they had taken into consideration Spain's rights to the waters of Lake Lanoux before proceeding with the development.<sup>23</sup>

The International Law Association's (ILA) legal principles on climate change are a set of principles that were adopted by the ILA in 2014. The principles are intended to provide guidance to states and other actors on their legal obligations in relation to climate change. The principles recognize that climate change is

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<sup>22</sup> Laode M. Syarif, Maskun, & Birkah Latif, *Loc.cit*

<sup>23</sup> The Treaty of Bayonne was a bilateral agreement between France and Spain, signed in 1866, that aimed to regulate the use of the waters of Lake Lanoux and the rivers that flow from it. The treaty established the principle that any construction or development on the lake would require the prior approval of both parties, in order to ensure that the rights of both countries to the waters of the lake were protected. The treaty also established a mechanism for resolving disputes that might arise in relation to the use of the waters of Lake Lanoux, which would involve an arbitration court. The Lake Lanoux Arbitration was the first dispute to be heard under the terms of the Treaty of Bayonne, and it established the principle that states have a responsibility to consider the rights of other states to transboundary water resources before undertaking any development that might affect those resources. See <https://www.ecolex.org/fr/details/court-decision/lake-lanoux-arbitration-france-v-spain-b09cb956-2cb5-479e-ba3a-bbfd4f7b68fc/> accessed on September 1<sup>st</sup>, 2022

a global problem that requires a global solution. They also recognize that states have a duty to take action to mitigate climate change and to adapt to its impacts. The International Law Association (ILA) has developed a set of legal principles on climate change to guide states and other actors in their efforts to address this global problem. The principles recognize that climate change is a serious threat to the planet and that states have a duty to take action to mitigate and adapt to its impacts. The ILA principles are divided into four parts: general principles, prevention, mitigation, and adaptation. The general principles set out the fundamental principles of international law that apply to climate change, such as the principle of sovereignty, the principle of common but differentiated responsibilities, and the principle of sustainable development. The prevention principles focus on the need to take action to avoid the worst impacts of climate change, while the mitigation principles focus on the need to reduce greenhouse gas emissions. The adaptation principles focus on the need to prepare for and respond to the impacts of climate change that are already happening or are likely to happen. The ILA principles are not legally binding, but they are an important source of guidance for states and other actors. They have been cited by courts and tribunals, and they have been used to support the development of international agreements on

climate change. The ILA principles are a valuable tool for addressing climate change and ensuring that states take action in a way that is consistent with international law. The ILA principles are an important contribution to the development of international law on climate change. They provide a framework for states and other actors to take action to address climate change in a way that is consistent with international law.<sup>24</sup>

International environmental law has evolved as a response to the recognition of the need to protect the environment from the negative impacts of human activities. This evolution has been highlighted by cases such as Trail Smelter and Lac Lanoux, which have emphasized the importance of protecting not only national regions but also the global environment. These cases, despite not being technically international in nature, have demonstrated the need for additional legislation to safeguard the environment. As a result, international environmental law has been classified into two categories: soft law and hard law.

## **2. The Development of Soft Law and Hard Law In International Environmental Law**

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<sup>24</sup> Christoph Schwarte, The International Law Association's legal principles on climate change, (<http://www.jstor.com/stable/resrep15562.7>) accessed on September 3<sup>rd</sup>, 2023

Soft law refers to non-binding guidelines or principles that do not have the force of law, but can influence behavior and decision-making. Hard law, on the other hand, refers to legally binding rules and regulations that have clear consequences for non-compliance and can be enforced by third parties, such as courts.<sup>25</sup>

The term "soft law" refers to international agreements or documents that contain principles, norms, or other statements of expected behavior, but do not have the legal binding status of a treaty. These agreements are not legally enforceable, but they can still influence public behavior and are intended to achieve functional cooperation among states to achieve international goals. As Gold (1996) explains, soft law "expresses a preference and does not impose an obligation on a state to act in a specific manner." They are not legally binding but intended to guide or encourage states to act in a certain way.<sup>26</sup>

The term "soft law" is often used to refer to non-binding international documents that contain principles, norms, or

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<sup>25</sup> Katarina Zajc, *Hard Law*. In: Marciano, A., Ramello, G. (eds) *Encyclopedia of Law and Economics*, (Springer, New York, NY:2016), ([https://doi.org/10.1007/978-1-4614-7883-6\\_224-1](https://doi.org/10.1007/978-1-4614-7883-6_224-1)) accessed on December 1st, 2022

<sup>26</sup> Dinah L. Shelton, *Soft Law*, George Washington University, GW Law Faculty Publications & Other Works, (2008), ([https://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=2048&context=faculty\\_publications](https://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=2048&context=faculty_publications)) accessed on December 2nd 2022

standards of expected behavior. These documents are not legally binding, but they can still influence the behavior of states and other actors. Some scholars also use the term "soft law" to refer to weak or indeterminate provisions in binding treaties. However, it is important to note that even if a treaty provision is weak or general, it is still legally binding and creates obligations for states. The use of the term "law" for non-binding instruments is somewhat of a misnomer, but it is often used for convenience and simplicity.<sup>27</sup>

Soft law is a category of non-binding instruments used in international environmental law to shape and guide the development of legally binding agreements. These non-binding instruments, such as guidelines, principles, and recommendations, are not legally enforceable but can still play a crucial role in addressing complex and transboundary environmental issues. The use of soft law in international environmental law has a long history, but it has grown significantly in the latter half of the 20th century. One of the key advantages of soft law is its flexibility and adaptability, as well as its inclusivity, which allows for the participation of a wide range of stakeholders. However, it has also been criticized for its lack of binding force and legal certainty, and for potentially

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<sup>27</sup> *Ibid*

sidestepping more difficult and politically sensitive issues. Despite these criticisms, soft law continues to be an integral part of the international legal landscape, particularly in areas where legally binding agreements may not be feasible or flexible approaches are needed.

Hard law, also known as legally binding instruments, are agreements such as treaties, conventions, and others that create enforceable obligations for states and other actors. These agreements play a crucial role in international environmental law by providing a legal framework for the protection of the environment and natural resources globally. The use of hard law in international environmental law has a long history, dating back to the late 19th century, but it was in the latter half of the 20th century that the adoption of these instruments increased significantly. This was due to the growing recognition of the need for more binding and enforceable commitments to address complex and transboundary environmental issues. Hard law instruments offer a high level of legal certainty and binding force, which are essential for effective and sustained environmental protections. They can also be effective in addressing complex and multifaceted environmental issues by providing a detailed and comprehensive framework. However, the process of creating and implementing hard law instruments can be complex and

time-consuming as they require the consensus of many states and actors. This can make it challenging to negotiate and adopt hard law instruments quickly, especially in the face of political or other obstacles. Additionally, hard law instruments can be inflexible and hard to amend or update, which can limit their effectiveness in addressing rapidly changing environmental conditions. Despite these challenges, hard law instruments have played a central role in the development of international environmental law and continue to be an important tool for achieving effective and sustained environmental protections globally. Examples of important hard law instruments in international environmental law include the United Nations Convention on the Human Environment (1972), the United Nations Framework Convention on Climate Change (1992),<sup>28</sup>

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<sup>28</sup> The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty that was adopted in 1992. The main goal of the UNFCCC is to address global warming and climate change by reducing greenhouse gas emissions and promoting sustainable development. The UNFCCC is a framework treaty, which means that it establishes the basic principles and goals for addressing climate change, but it does not specify specific emissions reduction targets or other measures. Instead, the UNFCCC sets out a framework for cooperation among member states, and it provides a platform for the development of more detailed agreements and measures to address climate change. The UNFCCC has been ratified by almost all countries in the world, and it is considered to be the foundation of the international effort to address climate change. It has played a crucial role in shaping the global response to climate change, and it has provided a platform for the development of a number of other international agreements and initiatives, such as the 1997 Kyoto Protocol and the 2015 Paris Agreement. See *The United Nations Framework Convention on Climate Change*

and the United Nations Convention on Biological Diversity (2003).<sup>29</sup>

The United Nations Economic and Social Council conducted an evaluation of the progress made during the first World Development Decade (1960-1970)<sup>30</sup> which served as a

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<sup>29</sup> The United Nations Convention on Biological Diversity (UNCBD) is an international treaty that was adopted in 1992. The main goal of the UNCBD is to conserve biodiversity and promote the sustainable use of biological resources. The UNCBD is a legally binding treaty, which means that member states are required to take specific actions to implement the provisions of the treaty. The UNCBD sets out a number of obligations for member states, including the obligation to develop national strategies and action plans to conserve biodiversity and promote the sustainable use of biological resources. It also requires member states to cooperate with each other to address cross-border issues related to biodiversity and to share information and technology related to the conservation and sustainable use of biological resources. The UNCBD has been ratified by almost all countries in the world, and it is considered to be an important international instrument for the conservation and sustainable use of biodiversity. It has played a crucial role in shaping global efforts to protect biodiversity and promote sustainable development, and it has contributed to the development of a number of other international agreements and initiatives, such as the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. See <https://www.cbd.int/history/>, accessed on September 5<sup>th</sup>, 2022

<sup>30</sup> The First World Development Decade (1960-1970) was a ten-year period declared by the United Nations (UN) to focus on economic and social development in the developing world. The main goal of the decade was to reduce poverty, improve living standards and promote economic growth in developing countries. The decade was officially launched in 1961, with the adoption of a resolution by the UN General Assembly calling for an "intensive effort to accelerate economic and social development in the developing countries." The decade was marked by a number of key initiatives and actions aimed at promoting development in the developing world. These included the creation of a number of new international development organizations and programs, such as the United Nations Development Programme (UNDP), the International Development Association (IDA), and the United Nations Industrial Development Organization (UNIDO). Additionally, the decade saw a number of major international development conferences and summits, such as the UN Conference on Trade and Development (UNCTAD) in 1964, and the First United Nations Development Decade Conference in 1971, which aimed to review progress and set new goals for the decade. The First World Development Decade also saw a number of important economic and social development initiatives, such as the creation of the Green Revolution, which aimed to improve agricultural productivity in developing countries through the use of new technologies and improved farming practices. However, despite these efforts, many of the goals of the First World Development Decade were not achieved. The decade was marked by a lack of sufficient financial resources and political will to achieve its ambitious goals, and many developing countries continued to struggle with poverty, underdevelopment,

foundation for creating a plan for the second World Development Decade (1970-1980).<sup>31</sup> This evaluation came as a result of the growing number of environmental concerns that had started to gain worldwide attention.<sup>32</sup>

### **Soft Law Instruments**

The concept of non-binding instruments, also known as "soft law," in international environmental law has a long history, with

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and other economic and social challenges. See Dag Hammarskjöld Library , (<https://research.un.org/en/docs/dev/1960-1970>) accessed on September 7<sup>th</sup>, 2022

<sup>31</sup> The Second World Development Decade (1970-1980) was a period of time designated by the United Nations (UN) for addressing the issue of global poverty and underdevelopment. It was preceded by the First World Development Decade (1960-1970) which was similarly focused on the same issues. The Second World Development Decade was officially launched in 1970 by the United Nations General Assembly, which recognized the need for continued action to promote economic and social development in the developing countries. The Second World Development Decade was marked by a number of important initiatives and milestones. One of the key goals of the decade was to achieve "a better quality of life for all people", which was reflected in the creation of a number of new development agencies and programs within the UN system. The UN Development Programme (UNDP) was established in 1965 to provide financial and technical assistance to developing countries, and the World Food Programme (WFP) was established in 1961 to help combat hunger and malnutrition. See Dag Hammarskjöld Library, (<https://research.un.org/en/docs/dev/1971-1980>) accessed on September 7<sup>th</sup>, 2022

<sup>32</sup> The United Nations Economic and Social Council (ECOSOC) is one of the six main organs of the United Nations. It is responsible for promoting international economic and social cooperation and development. ECOSOC acts as a forum for member states to discuss and coordinate on economic, social and environmental issues, including sustainable development, poverty reduction, and the implementation of the 2030 Agenda for Sustainable Development. ECOSOC is composed of 54 member states, which are elected by the General Assembly for a three-year term. The council meets regularly throughout the year, and holds a annual high-level segment in July, where heads of state and government, as well as senior representatives of UN agencies and other organizations, come together to discuss important economic and social issues. ECOSOC also coordinates the work of 14 functional commissions, 5 regional commissions and 10 standing committees, which are responsible for specific areas of work such as science and technology, population and development, and the status of women. It also works closely with the other UN bodies and agencies, such as the World Bank and the International Monetary Fund, to promote cooperation and coordination on economic and social issues. The Economic and Social Council also plays a key role in monitoring the implementation of the sustainable development goals, and provides guidance to the General Assembly on the progress made towards achieving them. See <https://csonet.org/?menu=123>, accessed on September 7<sup>th</sup>, 2022

some examples dating back to the late 19th century. However, it was not until the latter half of the 20th century that the use of soft law in this field began to expand significantly. The reason for this was due in part to the increasing recognition of the importance of non-binding instruments in addressing complex and transboundary environmental issues that may not be easily resolved through legally binding agreements. The key advantage of soft law is its flexibility and adaptability when compared to legally binding instruments, which can be difficult to amend or update.<sup>33</sup> Soft law instruments, such as principles, guidelines, and recommendations, are not legally enforceable and do not create binding obligations for states or other actors. However, they can still play an important role in shaping the development of international environmental law and influencing the behavior of states and other actors. Soft law can also be more inclusive, as it is often developed through a participatory process that involves a wide range of stakeholders, including governments, civil society organizations, and private sector actors.<sup>34</sup> This can make it easier to build consensus and secure the broadest possible support for environmental protections.

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<sup>33</sup> Katarina Zajc, Hard Law. In: Marciano, A., Ramello, G. (eds) Encyclopedia of Law and Economics, (Springer, New York, NY:2016), ([https://doi.org/10.1007/978-1-4614-7883-6\\_224-1](https://doi.org/10.1007/978-1-4614-7883-6_224-1)) accessed on December 1st, 2022

<sup>34</sup> Dinah L. Shelton, Soft Law, George Washington University, GW Law Faculty Publications & Other Works, (2008), ([https://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=2048&context=faculty\\_publications](https://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=2048&context=faculty_publications)) accessed on December 2nd 2022

Additionally, soft law can act as a stepping stone to the development of legally binding agreements, by providing a framework for further negotiations and helping to build political momentum for more binding commitments. Despite these advantages, the use of soft law in international environmental law has also been the subject of criticism. Some argue that soft law lacks the binding force and legal certainty of legally binding instruments, and may therefore be less effective in achieving environmental protections. Others argue that soft law can be used to sidestep the more difficult and politically sensitive issues that may be addressed in legally binding agreements. Despite these criticisms, the use of soft law in international environmental law has continued to grow, and it is now an integral part of the international legal landscape. Soft law instruments play a particularly important role in areas where legally binding agreements may not yet be feasible, or where more flexible approaches are needed to address rapidly changing environmental conditions.<sup>35</sup> Examples of important soft law instruments in international environmental law include the 1992 Rio Declaration on Environment and Development, the 2002 Johannesburg Plan of Implementation, and the 2012

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<sup>35</sup> Gregory C. Shaffer, Mark A. Pollack, *Hard Versus Soft Law In International Security* (Boston College Law Review, Boston, MA: 2011)

United Nations Conference on Sustainable Development (Rio+20) Outcome Document.

The Stockholm Declaration, adopted at the 1972 United Nations Conference on the Human Environment, established seven main points for the preservation and improvement of the environment. The conference, held in Stockholm, Sweden, required member states of the United Nations to adhere to these proclamations. The Swedish government-initiated preparations for the conference in 1968, resulting in the formation of 7 Proclamations and 26 Principles. As the world's leading international organization, the United Nations is involved in multiple fields, including those related to the relationship between humans and the environment.<sup>36</sup>

The Declaration of Stockholm, adopted in 1972 during the United Nations Conference on the Human Environment, was expanded upon in 1992 at the Earth Summit in Rio de Janeiro. The Earth Summit marked the 20th anniversary of the Stockholm Conference and was based on the WCED report. The conference emphasized the interrelation between environment and development and the need to integrate and

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<sup>36</sup> Günther Handl, *Declaration of the United Nations Conference on the Human Environment and Rio Declaration on Environment and Development*, (United Nations Audiovisual Library of International Law, 2012)

balance these dimensions in decision-making.<sup>37</sup> The conference also resulted in new regulations and improvements to previous ones. Among these was the set of non-binding principles for global consensus on forest management, conservation, and sustainable development, known as the Forestry Principles. The Rio Declaration also emphasized the need for a new global partnership involving governments, individuals, and key sectors of society to protect the environment and promote responsible development. International agreements that protect the global environment and promote responsible development must be established by human society together.<sup>38</sup>

The Rio Conventions are three international environmental agreements that were adopted at the United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, which was held in Rio de Janeiro in June 1992. The three conventions are, The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty that was adopted in 1992. The UNFCCC's objective is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous

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<sup>37</sup> *Resolution 45/211 of the United Nations General Assembly*, (December 21, 1990)

<sup>38</sup> LinusWealth, *The 1992 Rio Declaration on Environment and Development*, ([https://www.sustainable-environment.org.uk/Action/Rio\\_Declaration.php](https://www.sustainable-environment.org.uk/Action/Rio_Declaration.php)) accessed on Desember 2nd 2022

anthropogenic interference with the climate system." The UNFCCC is the first international treaty that commits all countries to take action to address climate change. The Convention on Biological Diversity (CBD) is an international treaty that was adopted in 1992. The CBD's objective is to "conserve biological diversity, [and] promote the sustainable use of its components." The CBD is the first international treaty that recognizes the importance of biological diversity and the need to protect it. The United Nations Convention to Combat Desertification (UNCCD) is an international treaty that was adopted in 1994. The UNCCD's objective is to "combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa." The UNCCD is the first international treaty that recognizes the importance of land degradation and the need to combat it.<sup>39</sup>

The Agenda 21 Initiative is a global plan for sustainable development that addresses economic, social, and environmental issues, with input from all countries. It is a comprehensive work plan that reflects a global consensus and political commitment to development and environmental

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<sup>39</sup> Emily A. DeMoor, *Soils of regeneration: Exploring Conceptualizations Of The natural World As A Context For An Ecologically Sensitive Curriculum*, (2004)

cooperation. The responsibility for its implementation lies primarily with governments, but international organizations, industries, and other groups are also encouraged to participate. The initiative, which is approximately 700 pages long, includes a wide range of applications and can be adapted to support efforts to integrate the environment into all aspects of social, economic, and cultural life. It also emphasizes the impact of human activities on the environment and the need for sustainable production systems in the future. The initiative aims to eliminate poverty, hunger, disease, illiteracy, and environmental destruction and to prevent global warming. All countries, including Indonesia, signed Agenda 21 at the conference.<sup>40</sup>

The Berlin Mandate was adopted at COP1 in 1995. It called for developed countries to take the lead in reducing greenhouse gas emissions and for developing countries to adopt policies and measures to mitigate climate change. The Mandate also established a number of working groups to further discuss and develop these issues. The Berlin Mandate was a significant step forward in international cooperation on climate change. It was the first time that developed countries had agreed to take

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<sup>40</sup> *Agenda 21*, (United Nations Conference on Environment & Development, 1992), Preamble

the lead in reducing emissions, and it also established a number of working groups to further discuss and develop these issues. The Mandate's workgroups produced a number of important documents, including the Kyoto Protocol, which was adopted at COP3 in 1997. The Berlin Mandate's workgroups also produced a number of other important documents, including the Buenos Aires Plan of Action, the Marrakech Accords, and the Doha Amendment. These documents further elaborated on the Mandate's work and helped to shape the international response to climate change. The Berlin Mandate was an important milestone in the history of climate change. It helped to lay the foundation for the Kyoto Protocol and other important international agreements. The Mandate's workgroups also produced a number of other important documents that have helped to shape the international response to climate change. Here are some of the key points of the Berlin Mandate: Developed countries should take the lead in reducing greenhouse gas emissions. Developing countries should adopt policies and measures to mitigate climate change. A number of working groups should be established to further discuss and develop these issues. The work of the working groups should be reviewed at COP2 in 1996. The Berlin Mandate was a significant step forward in international cooperation on climate change. It helped to lay the foundation for the Kyoto Protocol

and other important international agreements. The Mandate's workgroups also produced a number of other important documents that have helped to shape the international response to climate change.<sup>41</sup>

The Bali Action Plan is a decision adopted at COP13 in 2007. It called for a new agreement to be adopted at COP15 in Copenhagen in 2009. The Bali Action Plan also established a number of mechanisms to help countries implement their climate change commitments, such as the Clean Development Mechanism (CDM) and the Reduced Emissions from Deforestation and Forest Degradation (REDD+) program. The Bali Action Plan was a significant step forward in international cooperation on climate change. It was the first time that all countries had agreed to work together to address climate change. The Plan also established a number of important mechanisms to help countries implement their climate change commitments. The Bali Action Plan's workgroups produced a number of important documents, including the Copenhagen Accord, which was adopted at COP15 in 2009. The Copenhagen Accord is a political agreement that did not have the same legal force as the Kyoto Protocol. However, it did set

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<sup>41</sup> United Nations Framework Convention on Climate Change, (<https://unfccc.int/cop3/fccc/info/backgrod.htm>) accessed on June 28<sup>th</sup>, 2023

a goal of limiting global warming to 2 degrees Celsius above pre-industrial levels. The Bali Action Plan's workgroups also produced a number of other important documents, including the Cancun Agreements, the Lima Call for Climate Action, and the Paris Agreement. These documents further elaborated on the Plan's work and helped to shape the international response to climate change.<sup>42</sup>

The Copenhagen Accord is a political agreement that was adopted at COP15 in Copenhagen in 2009. It set a goal of limiting global warming to 2 degrees Celsius above pre-industrial levels, but it did not include binding emissions targets for countries. The Accord was a compromise between developed and developing countries. Developed countries agreed to provide financial assistance to developing countries to help them mitigate and adapt to climate change. Developing countries agreed to take action to reduce their greenhouse gas emissions, but they did not agree to binding emissions targets. The Copenhagen Accord was not as ambitious as some had hoped, but it was still a significant step forward in international cooperation on climate change. It was the first time that all countries had agreed to a common goal for limiting global

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<sup>42</sup> Neha Grover, Bali Action Plan - Environment Notes, (<https://prepp.in/news/e-492-bali-action-plan-environment-notes>) accessed on July 1<sup>st</sup>, 2023

warming. The Accord also established a number of important mechanisms to help countries implement their climate change commitments.<sup>43</sup>

### **Hard Law Instruments**

The United Nations Framework Convention on Climate Change (UNFCCC), established in 1992 is an international treaty that forms the basis for global endeavours to combat climate change. Its primary goal is to stabilize greenhouse gas concentrations in the atmosphere to prevent harmful human interference with the climate system. Within the UNFCCC framework, nations collaborate and negotiate on climate-related matters, promoting international cooperation, knowledge sharing, and the exchange of best practices for climate mitigation and adaptation. The UNFCCC also serves as a platform for subsequent agreements and protocols aimed at achieving specific climate objectives. Central to the UNFCCC are key principles such as common but differentiated responsibilities, recognizing that all countries share the responsibility to address climate change, but developed nations should take the lead due to their historical emissions and

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<sup>43</sup> Reuters, FACTBOX: Main points of the Copenhagen Accord (<https://www.reuters.com/article/us-copenhagen-climate-accord/factbox-main-points-of-the-copenhagen-accord-idUKTRE5BI0ID20091219>) accessed on July 1<sup>st</sup>, 2023

greater capacity. The principle of equity and sustainable development is also essential, as it acknowledges the need to balance environmental protection with the socioeconomic development aspirations of developing countries.<sup>44</sup> The UNFCCC has played a crucial role in facilitating global action on climate change by providing a platform for countries to negotiate and adopt significant agreements, including the Kyoto Protocol and the Paris Agreement. The Kyoto Protocol, adopted in 1997, established binding emission reduction targets for developed countries. The Paris Agreement, adopted in 2015, strives to limit global temperature rise well below 2 degrees Celsius and pursue efforts to achieve 1.5 degrees Celsius. It emphasizes nationally determined contributions, allowing each country to set its own targets and actions to address climate change. Through its agreements, the UNFCCC has been instrumental in mobilizing global action, raising awareness about climate change, and fostering international cooperation. It has also led to the establishment of financial mechanisms like the Green Climate Fund, which supports climate change mitigation and adaptation efforts in developing countries.<sup>45</sup>

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<sup>44</sup> The United Nations Framework Convention on Climate Change (UNFCCC), (United Nations, 1992)

<sup>45</sup> U.S. Department of Agriculture, Agriculture Handbook, Issue 712, (1949) (<http://books.google.com/books?id=9Z-NxW3NIWAC>) accessed on December 28<sup>th</sup>, 2022

The Kyoto Protocol is an international treaty that aims to reduce greenhouse gas emissions as an extension to the United Nations Framework Convention on Climate Change. Based on scientific evidence linking CO<sub>2</sub> emissions to global warming, countries who ratify the protocol pledge to lower emissions of carbon dioxide and six other greenhouse gases associated with climate change, as well as participate in emissions trading. The protocol was negotiated in Kyoto, Japan in 1997, opened for signature in 1998, and came into effect in 2005 after Russia's formal ratification.<sup>46</sup> The Kyoto Protocol expired in 2020, and was replaced by the Paris Agreement, established at the UN Climate Change Conference in 2015.<sup>47</sup>

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<sup>46</sup> The Kyoto Protocol is an international treaty that was adopted in 1997 as an amendment to the 1992 United Nations Framework Convention on Climate Change (UNFCCC). The main goal of the Kyoto Protocol is to reduce greenhouse gas emissions and address global warming and climate change. The Kyoto Protocol is a legally binding treaty, which means that member states are required to take specific actions to implement the provisions of the treaty. The Protocol sets binding emissions reduction targets for developed countries, which are known as Annex I countries. It also establishes a system for international emissions trading, which allows Annex I countries to meet their emissions reduction targets by purchasing emissions credits from other countries. The Kyoto Protocol has been ratified by almost all countries in the world, and it is considered to be an important international instrument for addressing climate change. It has played a crucial role in shaping global efforts to reduce greenhouse gas emissions and address global warming and climate change, and it has contributed to the development of a number of other international agreements and initiatives, such as the 2015 Paris Agreement. See <https://www.britannica.com/event/Kyoto-Protocol>

<sup>47</sup> In order to combat "dangerous human interference with the climate system", the United Nations Framework Convention on Climate Change (UNFCCC) established an international environmental treaty, which will stabilize greenhouse gas concentrations in the atmosphere to combat "dangerous human interference with the climate system." 154 countries signed the UNCED during the United Nations Conference on Environment and Development (UNCED), which took place between 3 and 14 June 1992 in Rio de Janeiro.

The Paris Agreement is an international treaty that was adopted in 2015 as part of the United Nations Framework Convention on Climate Change (UNFCCC). The main goal of the Paris Agreement is to strengthen the global response to climate change by reducing greenhouse gas emissions and limiting global warming to well below 2 degrees Celsius above pre-industrial levels. The Paris Agreement is a legally binding treaty, which means that member states are required to take specific actions to implement the provisions of the treaty. Under the Paris Agreement, member states are required to develop and submit national climate action plans, known as Nationally Determined Contributions (NDCs), which outline their commitments to reduce greenhouse gas emissions and adapt to the impacts of climate change. The Paris Agreement also establishes a system for monitoring, reporting, and verifying the implementation of NDCs, and it provides support to developing countries to help them implement their NDCs and adapt to the impacts of climate change. The Paris Agreement has been ratified by almost all countries in the world, and it is considered to be a major milestone in the international effort to address climate change. It has set the stage for stronger action on climate change, and it has provided a framework for cooperation among member states to reduce greenhouse gas emissions and adapt to the impacts of climate change. Unlike

the 1997 Kyoto Protocol, the Paris Agreement did not require countries to set specific emission targets, but each country's target should be more ambitious than the previous one. This change in approach resulted in the need for developing countries to submit plans for reducing their emissions. The official signing ceremony for the Paris Agreement was held on Earth Day, April 22, 2016 in New York. The agreement entered into force on November 4, 2016 after enough countries, responsible for a significant amount of GHG emissions, ratified it. All UNFCCC member states, except Iran, are expected to have signed the agreement by September 2022. The United States withdrew from the UNFCCC in 2020 but rejoined in 2021. The Paris Agreement consists of a short agreement with only 16 introductory paragraphs and 29 articles, with procedural and operational articles.<sup>48</sup> The goal of the Paris Agreement is to keep global warming below 2°C (3.6°F) above pre-industrial levels, preferably 1.5°C (2.7°F), to significantly reduce the effects of climate change. Emissions should be reduced as soon as possible, with the ultimate goal of reaching net-zero

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<sup>48</sup> Schleussner, Carl-Friedrich, *The Paris Agreement – the 1.5 °C Temperature Goal*, (<https://climateanalytics.org/briefings/15c/>) accessed on November 6th, 2022

emissions by the middle of the century. The Paris Agreement proceed to be followed by the Glasgow Climate Pact.<sup>49</sup>

## **B. Boston Climate Action Plan**

### **1. Introduction**

The United States has had an inconsistent track record in addressing climate change over time, taking part in greenhouse gas reduction under the United Nations Framework Convention on Climate Change (UNFCCC). This led to the adoption of the Paris Agreement (PA) in 2015, which was accepted by President Obama and the United States became a party to the agreement when it came into effect in 2016. President Trump withdrew the United States from the PA in 2017, but President Biden re-joined the PA in 2021.<sup>50</sup>

The Boston Climate Action Plan is a comprehensive approach to decrease the city's carbon emissions and combat climate change. Developed in 2007 by the City of Boston, the plan aims to make Boston a leader in the fight against climate change and achieve a 25% decrease in greenhouse gas emissions by 2020, compared to 1990 levels. The plan includes

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<sup>49</sup> United Nations Framework Convention on Climate Change (UNFCCC), *The Paris Agreement*, (2015) (<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>) accessed on November 7th, 2022

<sup>50</sup> U.S. Climate Change Policy, Congressional Research Service, (2021) (<https://crsreports.congress.gov/product/pdf/R/R46947>) accessed on October 22nd, 2022

various policy initiatives and strategies to achieve these emission reduction targets, such as promoting renewable energy, implementing energy efficiency measures, and implementing carbon pricing mechanisms. Some key elements of the plan include developing a solar panel installation program, establishing a green energy purchasing program for city-owned buildings, expanding electric vehicle infrastructure, and promoting low-carbon transportation options. The plan also calls for retrofitting city-owned buildings to improve energy efficiency and implementing carbon pricing mechanisms such as a carbon tax or cap-and-trade system to incentivize emission reduction and generate funding for climate-related initiatives.<sup>51</sup>

In the past, the United States has taken various approaches to addressing climate change, with a focus on voluntary programs and indirect regulations prior to 2007. However, following the Supreme Court's decision in *Massachusetts v. EPA* in 2007, the federal government began implementing direct regulations on greenhouse gas emissions through the Clean Air Act.<sup>52</sup> Meanwhile, state and local governments have

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<sup>51</sup> Martin J Walsh, *Boston Climate Action Report 2019 (Update 4)*, (Boston 2020)

<sup>52</sup> *Massachusetts v. EPA* was a landmark Supreme Court case in the United States that was decided in 2007. In this case, the state of Massachusetts and several other states, cities, and environmental organizations sued the Environmental Protection Agency (EPA), alleging that the EPA had failed to regulate greenhouse gas emissions from motor vehicles in accordance with the Clean Air Act. The plaintiffs argued that greenhouse gas emissions from motor vehicles were a major contributor to climate change, and that the EPA had a legal obligation under the Clean Air Act to regulate these emissions. The EPA argued that it did not have the authority to

also taken various actions to reduce emissions. Boston, in particular, has made combating climate change a top priority, setting a goal to reduce greenhouse gas emissions by 80% by 2050. The city has implemented policies and initiatives to achieve this goal, and is a member of several national and international networks, such as the Global Covenant of Mayors and the International Alliance of Cities and Local Governments for Climate and Energy, to collaborate and share information with other cities.<sup>53</sup> Despite the United States' withdrawal from the Paris Climate Agreement under the previous administration,

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regulate greenhouse gas emissions under the Clean Air Act, and that the issue of climate change was beyond the scope of its authority. The Supreme Court ultimately ruled in favor of the plaintiffs, holding that the EPA did have the authority to regulate greenhouse gas emissions from motor vehicles under the Clean Air Act. The Court also held that the EPA had a legal obligation to consider regulating these emissions, and that it could not simply disregard the issue of climate change. This decision was seen as a major victory for environmental organizations and supporters of action on climate change, as it established the EPA's authority to regulate greenhouse gas emissions and set a precedent for future action on climate change. However, it was also seen as a controversial decision, as it drew the EPA into a highly politicized and divisive issue, and it raised questions about the role of the federal government in addressing climate change. See U.S. Reports: *Massachusetts v. EPA*, 549 U.S. 497 (2007).

<sup>53</sup> The Global Covenant of Mayors for Climate and Energy is an international alliance of cities and local governments that are committed to taking action on climate change and promoting sustainable energy. The Covenant was established in 2016, and it is headquartered in Brussels, Belgium. The Covenant's main goal is to support cities and local governments in their efforts to reduce greenhouse gas emissions and promote sustainable energy, and to encourage them to share their experiences and best practices with each other. To this end, the Covenant provides a range of resources and support to member cities, including access to expert advice and guidance, training and professional development opportunities, and funding for projects and initiatives. The Covenant also works to facilitate cooperation and coordination among member cities on climate change and sustainable energy issues. It hosts regular meetings and events, such as the Global Summit of Mayors, which provide a forum for member cities to exchange views and experiences, and to share knowledge and expertise. The Covenant also works to engage with national governments, international organizations, and other stakeholders to promote the role of cities in addressing climate change and promoting sustainable energy. See Global Covenant Of Mayors For Climate And Energy, (<https://www.globalcovenantofmayors.org/>) accessed on September 10<sup>th</sup>, 2022

Boston pledged to continue supporting the agreement and has continued to work towards meeting its goals.<sup>54</sup>

Boston has taken a proactive stance on addressing climate change by joining various initiatives and networks at the local, national, and international level. In 2014, the city became a member of the C40 Cities Climate Leadership Group, a global network of cities committed to taking action on climate change through sustainable and measurable means. Boston also participates in the Urban Sustainability Directors Network (USDN), which enables collaboration and peer-to-peer learning among cities in North America.<sup>55</sup> Furthermore, the city works closely with its partners in the state government, in alignment with the Federal Climate Change Act of 2005, which set a target to reduce carbon emissions by 80% over the next 50 years. Additionally, Boston's neighbouring state Connecticut had

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<sup>54</sup> "The City of Boston's Climate Action Plan", (2007), p.2

<sup>55</sup> The Urban Sustainability Directors Network (USDN) is a network of local government officials who are responsible for sustainability and environmental issues in their respective cities. The USDN was founded in 2009, and it is headquartered in San Francisco, California. The main goal of the USDN is to support local government officials in their efforts to promote sustainability and environmental protection in their cities. To this end, the USDN provides a range of resources and support to its members, including access to expert advice and guidance, training and professional development opportunities, and funding for projects and initiatives. The USDN also works to facilitate cooperation and coordination among its members on sustainability and environmental issues. It hosts regular meetings and events, such as the Annual Network Meeting, which provide a forum for members to exchange views and experiences, and to share knowledge and expertise. The USDN also works to engage with national governments, international organizations, and other stakeholders to promote the role of local governments in addressing sustainability and environmental issues. See Angela Park, *Equity In Sustainability: An Equity Scan Of Local Government Sustainability Programs*, (2014)

already achieved a 21% decrease in carbon emissions from 1990 to 2016, which is a significant accomplishment in the fight against climate change.<sup>56</sup>

## **2. Status Quo**

Boston is taking a proactive approach to combat climate change by joining various initiatives and networks that promote sustainable and quantifiable means of reducing carbon emissions. The city is a member of the C40 Cities Climate Leadership Group and the Urban Sustainability Directors Network, which allows them to collaborate with other cities on projects and share information on climate change mitigation. Boston also works with its partners in the state government, who have adopted a framework law to reduce carbon emissions by 80 percent over the next 50 years compared to 2005 levels. Additionally, the city is part of the Metropolitan Mayors Coalition, a network of mayors in the Boston area who collaborate on issues related to climate change that affect the community as a whole. The coalition has committed to achieving net-zero carbon emissions by 2050 through initiatives such as expanding electric vehicle charging infrastructure, implementing community-wide zero-waste plans, and adopting

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<sup>56</sup> Martin J Walsh, *Boston Climate Action Report 2019 (Update 4)*, (Boston: 2020) p.28

green building zoning regulations. Boston also plans to adopt a Zero Net Carbon standard for new construction by 2030, and retrofitting and electrifying at least 80 percent of existing buildings as part of their efforts to reduce carbon emissions. They also have plans in place to reduce emissions in transportation and waste disposal. The city will also ensure that new developments are resilient, affordable, and inclusive.<sup>575859</sup>

The Zero Net Carbon (ZNC) and Zero Energy (ZNE) buildings are designed to consume low amount of energy, which is mostly generated on-site through renewable energy sources, making them fossil fuel-free. ZNE buildings are

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<sup>57</sup> The Boston Decarbonization Roadmap: 80x50 study is a collaborative effort between the Executive Office of Energy and Environmental Affairs (EEA) and other state agencies focused on identifying strategies that can be cost-effective, equitable, and efficient in reducing Massachusetts' greenhouse gas emissions by at least 80% by 2050. This project will develop a pathway for reducing the amount of carbon dioxide in the atmosphere, incorporating transitions in a variety of sectors: the building and transportation sectors, electricity sectors, non-energy sectors, and land use sectors. See Martin J Walsh, *Boston Climate Action Report 2019 (Update 4)*, (Boston: 2020)

<sup>58</sup> The Metropolitan Mayors Coalition (MMC) is a network of local government officials from metropolitan areas in the United States who are committed to promoting sustainable development and environmental protection in their respective regions. The MMC was founded in 2004, and it is headquartered in Chicago, Illinois. The main goal of the MMC is to support local government officials in their efforts to promote sustainability and environmental protection in their metropolitan regions. To this end, the MMC provides a range of resources and support to its members, including access to expert advice and guidance, training and professional development opportunities, and funding for projects and initiatives. The MMC also works to facilitate cooperation and coordination among its members on sustainability and environmental issues. It hosts regular meetings and events, such as the Annual Meeting of Mayors, which provide a forum for members to exchange views and experiences, and to share knowledge and expertise. The MMC also works to engage with national governments, international organizations, and other stakeholders to promote the role of local governments in addressing sustainability and environmental issues. See Metropolitan Area Planning Council, (<https://www.mapc.org/get-involved/coalitions/mmc/>) accessed on September 10<sup>th</sup>, 2022

<sup>59</sup> *Op Cit*, Martin J Walsh (2020), p.32-34

connected to the electric grid and some even generate excess energy that can be fed back to the grid. Larger buildings like medical facilities or laboratories might require off-site renewable energy to meet the ZNC standard, even if they generate their own renewable energy on-site. Such buildings are well-insulated, have efficient windows and use smaller, more efficient and fossil fuel-free heating, cooling and ventilation systems to reduce their energy consumption. The use of smaller systems in new construction makes ZNE and ZNC buildings cost-effective and offsets other additional costs. The combination of renewable energy and energy storage in low-energy buildings also reduces stress on the electric grid and makes buildings more resilient.<sup>60</sup>

To achieve the goal of reducing emissions, carbon targets are set for all buildings larger than a certain threshold, requiring them to meet these targets. Building owners will be able to develop cost-effective solutions that are tailored to specific building types, which will ensure steady progress towards reducing emissions. The current requirements for energy action and assessment will be replaced by the new reporting requirement under the Building Energy Reporting and Disclosure Ordinance (BERDO). The city will collaborate with

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<sup>60</sup> *Ibid*, p.35

partners to develop case studies and share lessons from demonstrations of deep energy retrofits and thermal electrification in various types of buildings. Additionally, the city will provide building owners with better technical and financial assistance in the future.<sup>61</sup>

The Boston Climate Action Plan aims to reduce the city's carbon emissions and combat climate change by implementing Go Boston 2030 projects and policies, reducing vehicle miles traveled, and increasing the use of zero-emission vehicles. As a major source of carbon emissions, Boston is taking steps to shift commuters out of personal vehicles and into electric or other zero-emission vehicles. The city is also working to expand access to charging and zero-emission vehicle technologies, and replacing municipal fleets with electric vehicles. The plan is based on the principles of common but differentiated responsibilities, precaution, and prevention, and is consistent with international environmental agreements such as the United Nations Framework Convention on Climate Change and the Paris Agreement. This plan serves as an example for other cities and states to take meaningful steps in addressing climate change and protecting the environment.<sup>62</sup>

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<sup>61</sup> *Ibid*, p.44

<sup>62</sup> *Ibid*, p.55

## **C. Indonesia and Makassar**

### **1. Indonesia Regulations on Environment**

As a party to the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement, Indonesia is obligated to adapt its national law to the provisions of these international instruments. This means that Indonesia must ensure that its laws and regulations are consistent with the goals and objectives of these instruments, which include the reduction of greenhouse gas emissions and the adaptation to the impacts of climate change. Indonesia has taken some steps to adapt its national law to the UNFCCC, the Kyoto Protocol, and the Paris Agreement. For example, in 2009, Indonesia adopted the National Action Plan for Greenhouse Gas Emission Reduction (RAN GRK).<sup>63</sup> The RAN GRK outlines Indonesia's strategy for reducing greenhouse gas emissions and adapting to the impacts of climate change. However, there is still more work to be done. Indonesia needs to continue to update its national law to ensure that it is consistent with the latest climate change science and the commitments that it has made under the UNFCCC, the Kyoto Protocol, and the Paris Agreement. The adaptation of national

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<sup>63</sup> Bappenas, Laporan Implementasi Perancangan Pembangunan Rendah Karbon, (2019)

law to international instruments is an important part of the global effort to address climate change. By adapting its national law, Indonesia can help to ensure that it is taking the necessary steps to reduce greenhouse gas emissions and adapt to the impacts of climate change.

Indonesia has put in place a comprehensive legal framework to protect the environment. This includes domestic laws such as the 1997 Environmental Management Act, which establishes the regulatory framework for environmental protection in Indonesia, and the 1999 Environmental Impact Management Act, which sets out the procedures and requirements for the assessment and management of the environmental impacts of development projects. In addition to these domestic laws, Indonesia is also party to international environmental agreements such as the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity, and the Convention on the Law of the Sea. These agreements provide a legal framework for the protection of the environment on a global scale, and Indonesia is committed to upholding its obligations under these instruments.

The Environmental Impact Management Act (EIMA) of 1999 in Indonesia is a law that aims to regulate and manage the impact of development activities on the environment. The act requires that any development project, such as construction,

mining, or logging, must undergo an environmental impact assessment (EIA) before it can be approved. The EIA process involves an evaluation of the potential environmental impact of the proposed project, as well as the development of mitigation measures to minimize or prevent negative effects. The EIMA also establishes an Environmental Impact Management Agency (BAPEDAL) to oversee the implementation of the act and to ensure compliance with environmental regulations. This agency is responsible for reviewing EIA reports, issuing environmental permits, and monitoring the environmental performance of development projects. The act also includes provisions for public participation in the EIA process, as well as for penalties for non-compliance. The act also requires the company or individual to conduct a monitoring on the impact of the development project after it has been implemented. The act also requires the company or individual to conduct a monitoring on the impact of the development project after it has been implemented and to take steps to mitigate any negative impacts that are identified.<sup>64</sup>

The 1997 Environmental Management Act, also known as Law No. 23 of 1997, is a key piece of legislation in Indonesia

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<sup>64</sup> Dadang Purnama, Reform of the EIA process in Indonesia: improving the role of public involvement (Environmental Impact Assessment Review Volume 23, Issue 4), (2003), ([https://doi.org/10.1016/S0195-9255\(03\)00046-5](https://doi.org/10.1016/S0195-9255(03)00046-5)), accessed on January 3<sup>rd</sup> 2023

that establishes the legal framework for environmental management in the country. The Act sets out the principles, obligations, and responsibilities of the government and other stakeholders in relation to the environment, and it covers a wide range of environmental issues, including air quality, water quality, waste management, and biodiversity conservation. The Act gives the Ministry of Environment and Forestry the power to regulate and monitor environmental activities in Indonesia, including the issuance of environmental permits and licenses, and the implementation of environmental impact assessments. It also establishes the National Environmental Management Council, which serves as an advisory body to the government on environmental matters. One of the key provisions of the Act is the requirement for companies and individuals to obtain an Environmental Impact Management License (EIML) before proceeding with development projects that have the potential to cause significant environmental impacts. This includes construction projects, industrial activities, and large-scale land use changes. The Act also requires companies and individuals to conduct an Environmental Impact Assessment (EIA) for these projects and to submit the EIA report to the Ministry of Environment and Forestry for review and approval. The Act also includes provisions for the management and disposal of hazardous and toxic waste, and it establishes the National

Hazardous and Toxic Waste Management Center to oversee these activities. In addition, the Act establishes the National Conservation Authority, which is responsible for managing and protecting protected areas in Indonesia, including national parks and wildlife reserves.<sup>65</sup>

Law No. 23 of 2014 on Environmental Impact Assessment (EIA) is the main legislation in Indonesia that regulates the process of assessing the potential environmental impacts of proposed projects. The law aims to ensure that projects are designed and implemented in a way that minimizes their environmental impacts and promotes sustainable development. The law applies to all projects that are likely to have a significant impact on the environment, including: Industrial projects, such as factories, power plants, and mines Infrastructure projects, such as roads, dams, and airports Development projects, such as housing estates, shopping malls, and tourism complexes the law requires the proponent of a project to conduct an EIA and submit the report to the relevant government authority for review. The government authority will then decide whether the

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<sup>65</sup> Siti Vania, *The Requirement of Environmental Impact Analysis In Indonesia*, (2020)

project can proceed, and if so, what conditions must be met to mitigate the environmental impacts.<sup>66</sup>

Despite these efforts, Indonesia continues to face environmental challenges such as deforestation, pollution, and the impacts of climate change. To address these issues, the government has implemented policy initiatives such as the establishment of protected areas, the implementation of conservation programs, and the promotion of sustainable development. The government has also taken steps to strengthen its capacity to enforce environmental laws and regulations, including the establishment of specialized environmental courts and the creation of a dedicated environmental police unit. Indonesia has made significant progress in the development of environmental law, there is still much work to be done to address the country's environmental challenges and ensure the rights of present and future generations to a healthy and sustainable environment are protected.

In Indonesia, there are several laws and regulations in place to protect the environment and promote sustainable development. These include the Law No. 23 of 1997 on

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<sup>66</sup> Directorate General of Human Settlements, Ministry of Public Works for the Asian Development Bank, Environmental Assessment and Review Framework, (2014)

Environmental Management, which sets the legal framework for environmental management and lays out the responsibilities of the government and other stakeholders. The Government Regulation No. 27 of 2012 on Environmental Impact Management establishes procedures for assessing and managing the environmental impact of development projects.

Presidential Decree No. 12 of 2019 on the National Strategy for Sustainable Development This decree establishes a national strategy for sustainable development. The strategy aims to achieve sustainable development by 2030. The strategy covers a wide range of sectors, including economy, environment, social, and governance. The strategy sets a number of ambitious targets for sustainable development. For example, the strategy aims to reduce greenhouse gas emissions by 29% to 41% below business-as-usual levels by 2030. The strategy also aims to increase the share of renewable energy in the country's energy mix to 23% by 2025. The strategy is a significant step forward for Indonesia in its efforts to achieve sustainable development. The strategy provides a clear roadmap for the implementation of sustainable development policies and measures. The strategy also includes a number of innovative measures, such as the establishment of a National Carbon Fund. Presidential Regulation No. 98 of 2021 on the Implementation of Carbon Pricing to Achieve the

Nationally Determined Contribution Target and Control over Greenhouse Gas Emissions in the National Development This regulation establishes a carbon pricing mechanism in Indonesia. The mechanism will be implemented through a combination of carbon trading, results-based payments, and carbon levies. The goal of the mechanism is to reduce greenhouse gas emissions and achieve Indonesia's Nationally Determined Contribution (NDC) target.

The Government Regulation No. 27 of 2012 on Environmental Impact Management, also known as Peraturan Pemerintah (PP) No. 27 of 2012, is a regulation issued by the Indonesian government to establish the procedures and requirements for the assessment and management of environmental impacts of development activities in the country. This regulation aims to ensure that development activities are carried out in a sustainable manner, and that the negative impacts on the environment are minimized. The regulation requires developers to prepare an Environmental Impact Assessment (EIA) report before proceeding with their projects. The EIA report should include information on the project's design, location, potential impacts, and proposed mitigation measures. The report will be reviewed by the relevant government agency, and if it is deemed to have a significant impact on the environment, a public consultation process will

be conducted. Once the EIA report is approved, the developer must obtain an Environmental Impact Management License (EIML) before proceeding with the project. The EIML is issued by the relevant government agency and is valid for a certain period of time, usually five years. The developer must also comply with the mitigation measures proposed in the EIA report during the implementation of the project. The regulation also requires the developer to monitor the environmental impacts of the project and to report the results to the relevant government agency. The agency may also conduct its own monitoring and inspection of the project to ensure compliance with the EIA report and the EIML.

The Government Regulation No. 38 of 2014 on Environmental Management of Hazardous and Toxic Waste (GR 38/2014) is a regulation issued by the Indonesian government that sets out the procedures and requirements for the management of hazardous and toxic waste in Indonesia. This regulation is intended to ensure that hazardous and toxic waste is managed in a safe and environmentally responsible manner, and to protect human health and the environment from the potential impacts of such waste. GR 38/2014 covers the generation, storage, transportation, treatment, and disposal of hazardous and toxic waste, and it establishes the roles and responsibilities of the government and other stakeholders in

relation to these activities. The regulation also sets out the requirements for the management of hazardous and toxic waste, including the need for waste generators to register their waste with the government, the need for waste transporters to obtain permits, and the need for waste treatment and disposal facilities to meet certain standards. The regulation also establishes the National Hazardous and Toxic Waste Management Center (Puslitbang P3T) as the body responsible for coordinating and overseeing the implementation of the regulation, and it also establishes the National Hazardous and Toxic Waste Management Fund (Dana P3T) to provide financial support for the management of hazardous and toxic waste

The Law No. 41 of 2009 on Forest Protection and Management regulates the protection and management of forests, and the Law No. 4 of 2009 on Mineral and Coal Mining governs the mining sector. The Law No. 32 of 2009 on Environmental Protection and Management and the Law No. 32 of 2009 on Regional Government also play a role in environmental protection and management, giving regional and village governments the power to develop their own regulations and policies.

The Law No. 41 of 2009 on Forest Protection and Management, also known as the Forest Law, is a legal framework that aims to protect and manage forests in

Indonesia. The law sets out the principles, obligations, and responsibilities of the government and other stakeholders in relation to forests, and covers a wide range of issues, including the conservation of forests, the sustainable use of forest resources, and the prevention and control of forest fires. The Forest Law recognizes the importance of forests for the country's ecological, economic, and social development, and it establishes the legal framework for the protection and management of forests in Indonesia. The law stipulates that the government has the responsibility to protect and manage forests, and it sets out the powers and duties of the government in relation to forests, including the authority to establish protected areas, to regulate the use of forest resources, and to monitor and enforce compliance with the law. The Forest Law also establishes the roles and responsibilities of other stakeholders in relation to forests, including private individuals, companies, and communities. The law requires private individuals and companies to obtain a permit for the use of forest resources, and it establishes the rights and obligations of communities in relation to forests, including the right to participate in the management of forests and the obligation to protect forests. The Forest Law also establishes the National Forest Authority as the main agency responsible for the protection and management of forests in Indonesia. The law

stipulates that the National Forest Authority has the authority to regulate the use of forest resources, to monitor and enforce compliance with the law, and to provide technical and financial assistance to other stakeholders. In addition, the Forest Law also establishes the legal framework for the conservation of biodiversity and the protection of endangered species. It prohibits the hunting, trapping, or killing of protected species, and the destruction of their habitat

The Law No. 32 of 2009 on Environmental Protection and Management, also known as the Environmental Protection and Management Law, is a legislation in Indonesia that establishes the legal framework for environmental protection and management in the country. The law sets out the principles, obligations, and responsibilities of the government and other stakeholders in relation to the environment. The law covers a wide range of environmental issues, including air quality, water quality, waste management, and biodiversity conservation. It also includes provisions for the management of hazardous and toxic waste, as well as the protection and management of forests. The law also gives the authority to the local government to develop their own environmental regulations and policies. Under the Law No. 32 of 2009, the government is responsible for setting environmental standards and regulations, as well as enforcing them. It also establishes the Environmental Impact

Management Agency (Bapedal) as the main agency responsible for implementing the law and enforcing environmental regulations. The law also requires companies and individuals to obtain environmental permits and licenses before proceeding with any activities that may have an impact on the environment. It also includes provisions for the compensation of damage to the environment caused by companies and individuals, as well as penalties for non-compliance.

The Law No. 32 of 2009 on Regional Government, also known as the Law of Regional Government, establishes the legal framework for regional government in Indonesia and sets out the powers, duties, and responsibilities of regional governments in relation to environmental protection and management. This law aims to ensure that regional governments in Indonesia have the necessary authority to effectively manage and protect the environment within their respective regions. Under this law, regional governments are empowered to develop their own environmental regulations and policies, and to implement environmental programs and initiatives in their respective regions. This allows for a more decentralized approach to environmental management, as regional governments are better equipped to understand and address the specific environmental challenges and

opportunities that exist within their regions. The law also establishes the roles and responsibilities of regional governments in relation to environmental protection and management. For example, regional governments are responsible for issuing environmental permits, enforcing environmental regulations, and monitoring and reporting on the environmental conditions within their regions. They also have the authority to establish and manage protected areas and to implement conservation programs. In addition, the law requires regional governments to establish a regional environmental agency or office, which is responsible for coordinating and implementing environmental management activities within the region. This agency or office is also responsible for providing technical and administrative support to regional governments, as well as working with other stakeholders such as local communities and NGOs in environmental protection and management.

These laws and regulations are crucial for the protection of the environment and promoting sustainable development in Indonesia. Additionally, it is important to note that to understand the laws of Indonesia, it is necessary to understand the worldwide movement towards environmental protection, which includes international guidelines and binding agreements.

The Stockholm Declaration on the Human Environment, adopted at the United Nations Conference on the Human Environment in 1972, marked the beginning of global environmental management policy. This has been a significant driving force in the development of environmental law in Indonesia. The constitutional basis, the National Development Planning System, and the passing of Law Number 4 of 1982 on Basic Provisions for Environmental Management have all contributed to the growth of the National Legal System.<sup>67</sup> These laws and policies recognize the importance of protecting and preserving the environment, including its supporting systems and capacities. The National Development Planning System, as outlined in the State Policy Guidelines, sets environmental policy on a five-year basis and reflects the political will of the Indonesian people on environmental management. The principles outlined in the Stockholm Declaration and the Rio Declaration on Environment and Development were incorporated into the National Development Planning System, with a focus on sustainable development. Additionally, the passing of laws such as Law Number 25 Year 2000,<sup>68</sup> and Law Number 17 and 25 of 2004, as well as the ratification of the

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<sup>67</sup> Law Number 4 of 1982 concerning Basic Provisions for Environmental Management

<sup>68</sup> Law Number 25 Year 2000 on the National Development Program 2000 - 2004

Kyoto Protocol, further strengthened environmental protection efforts in the country. The President and Regional Head are responsible for organizing and conducting National and Regional Development Planning, respectively, with the National/Regional Long-Term Development Plan being a law, the National/Regional Medium-Term Development Plan being a Presidential Regulation/Head of Regions Regulation, and the National/Regional Annual Development Plan being an Executive Order.<sup>69</sup>

The Agenda 21 is a global plan for sustainable development that emphasizes the integration of economic, social and environmental factors. To achieve sustainable development, all sectors involved in the development process must work together and adhere to this principle. The Indonesian National Agenda 21 serves as a guide for government institutions, private firms and the community to achieve sustainable development in Indonesia. The report provides a detailed overview of the relationship between economic and social development in Indonesia and serves as a tool for policy-making and development programs. Additionally, the Framework Convention on Climate Change, which was ratified by Indonesia in 1994, outlines the commitment of developed

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<sup>69</sup> Law Number 25 Year 2004 About the National Development Planning System

countries to reduce GHG emissions and assist developing countries in fulfilling their obligations under the convention. Furthermore, the laws of 1982 and 1997, also known as UULH and UUPLH respectively, have also been updated to reflect the principles outlined in the Stockholm Declaration and the Rio de Janeiro Declaration on Environment and Development.

If we take a look on Indonesia's greenhouse gas emissions were reported in its Second Biennial Report to the United Nations Framework Convention on Climate Change (UNFCCC) in 2017. The report stated that in 2015, Indonesia's total greenhouse gas emissions (excluding land use, land-use change, and forestry) were 1,219.7 million tonnes of carbon dioxide equivalent (MtCO<sub>2</sub>e). LULUCF emissions in 2015 decreased to 942.4 MtCO<sub>2</sub>e compared to previous years due to reduced deforestation rates. However, Indonesia's total greenhouse gas emissions including LULUCF were 1,952.1 MtCO<sub>2</sub>e in 2015, which represents a significant increase compared to 1990 (1,029.7 MtCO<sub>2</sub>e). The energy sector was the largest source of emissions, accounting for 70% of total emissions (excluding LULUCF) in 2015, with electricity and heat production, transportation, and industry being the largest sources of emissions. Indonesia aims to reduce its greenhouse gas emissions by 29% by 2030 compared to business-as-usual levels, or 41% with international support. The report highlights

progress in reducing emissions from deforestation and peatland degradation through various policies and programs. However, reducing emissions in other sectors such as energy and industry has been limited, and Indonesia faces challenges in achieving its emissions reduction target due to inadequate financial resources, limited access to technology, and the need for capacity building.<sup>70</sup>

The RAN-API is a comprehensive document that outlines Indonesia's climate change mitigation and adaptation strategy. It is a valuable resource for understanding the government's plans to address climate change, and for tracking progress towards these goals. The RAN-API is divided into four main sections: mitigation, adaptation, cross-cutting issues, and implementation and monitoring. The mitigation section sets out the government's plans to reduce greenhouse gas emissions. It includes measures to improve energy efficiency, increase the use of renewable energy, and promote sustainable forest management. The adaptation section sets out the government's plans to increase the resilience of communities to the impacts of climate change. It includes measures to improve early warning systems, build sea walls, and develop drought-

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<sup>70</sup> Second Biennial Report. United Nations Framework Convention on Climate Change (UNFCCC). (2017)

resistant crops. The cross-cutting issues section sets out the government's plans to mainstream climate change considerations into all aspects of government policy and planning. It includes measures to strengthen the capacity of government agencies, raise public awareness, and develop a climate change financing strategy. The implementation and monitoring section sets out the government's plans to implement and monitor the RAN-API. It includes measures to establish a national climate change coordination mechanism, develop a monitoring and evaluation framework, and report on progress to the international community.<sup>71</sup>

Regional Climate Change Action Plan (Mitigation and Adaptation) the regional climate change action plans are an important part of Indonesia's climate change mitigation and adaptation strategy. They help to ensure that the government's plans are implemented at the local level, and that they are tailored to the specific needs of the region. The regional climate change action plans typically focus on mitigation and adaptation measures that are relevant to the region, such as improving energy efficiency, developing renewable energy projects, and promoting sustainable agriculture. The regional climate change

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<sup>71</sup> Ministry of National Development Planning/ National Development Planning Agency (BAPPENAS), National Action Plan for Climate Change Adaptation (RAN-API), (2014)

action plans are developed by provincial and district governments, and they are tailored to the specific needs of the region.<sup>72</sup>

The Regional Action Plan for Climate Change Adaptation (RAD API) is a document that outlines the strategies and actions to adapt to the impacts of climate change in a specific region or locality. RAD APIs are developed by local governments in Indonesia, in collaboration with national government agencies, development partners, and civil society organizations. The RAD API process typically involves conducting a vulnerability assessment to identify the potential impacts of climate change on the region or locality. Based on the results of the vulnerability assessment, a set of adaptation strategies and actions are developed to address the identified vulnerabilities. These adaptation strategies and actions are then prioritized based on their cost-effectiveness and feasibility. An implementation plan is then developed for the prioritized adaptation strategies and actions. Finally, the RAD API is monitored and evaluated to ensure that it is being implemented effectively. The RAD API is an important tool for local governments to build resilience to the impacts of climate change and to ensure the long-term sustainability of their

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<sup>72</sup> *ibid*

communities.<sup>73</sup> Rencana Aksi Daerah Adaptasi Perubahan Iklim dan Pengurangan Risiko Bencana (Regional Action Plan for Climate Change Adaptation and Disaster Risk Reduction) for Makassar, Indonesia, is a document that outlines the strategies and actions to adapt to the impacts of climate change and reduce the risk of disasters in the city. The document was developed in 2013 by the city government of Makassar in collaboration with the national government, development partners, and civil society organizations. The document is based on a vulnerability assessment that was conducted in 2012. The RAD API-PRB identifies a number of climate change risks that are relevant to Makassar, including sea level rise, increased rainfall intensity, more frequent and severe droughts, more frequent and severe floods, increased risk of vector-borne diseases, and increased risk of landslides. The document also identifies a number of disaster risk reduction strategies that are relevant to Makassar, including early warning systems, flood control measures, landslide mitigation measures, disaster preparedness and response plans, public awareness campaigns, and disaster risk reduction education and training.

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<sup>73</sup> Kemitraan Partnership, (<https://www.kemitraan.or.id/vacancies/konsultan-penyusunan-rad-api-af-pekalongan#:~:text=Dokumen%20RAD%20DAPI%20adalah%20dokumen,program%2F%20kegiatan%20pembangunan%20pada%20umumnya.>) accessed on June 27<sup>th</sup>, 2023

The RAD API-PRB is a living document that should be updated regularly to reflect the latest climate change projections and the changing needs of the city of Makassar. The document is an important tool for the city government to build resilience to the impacts of climate change and reduce the risk of disasters.<sup>74</sup>

The Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca (RAN GRK), or the National Action Plan for Greenhouse Gas Emission Reduction, is a government-led plan that outlines the strategies and actions to reduce greenhouse gas emissions in Indonesia. The RAN GRK identifies six priority sectors for action: energy, transportation, industry, agriculture, forestry, and waste. The plan aims to reduce greenhouse gas emissions by 26% (or 41% with international support) below business-as-usual levels by 2030. The RAN GRK is a comprehensive plan that provides a roadmap for Indonesia to reduce greenhouse gas emissions. The plan is ambitious, but it is achievable with the right political will and financial support. The RAN GRK is a blueprint for how other countries can reduce their greenhouse gas emissions and address climate change. The key actions that are being taken under the RAN GRK include investing in renewable energy projects, promoting energy efficiency

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<sup>74</sup> Ahmad Rifai, Rencana Aksi Daerah untuk Adaptasi Perubahan Iklim dan Pengurangan Risiko Bencana (RAD API-PRB), (2015)

measures, reducing deforestation, investing in flood control measures, and improving public awareness of climate change. These actions are necessary to reduce greenhouse gas emissions and adapt to the impacts of climate change. The RAN GRK is a significant step forward for Indonesia in its efforts to address climate change. The plan is ambitious, but it is achievable with the right political will and financial support. The RAN GRK is a blueprint for how other countries in Southeast Asia and around the world can reduce their greenhouse gas emissions and adapt to the impacts of climate change.<sup>75</sup>

## **2. Makassar Policies**

Makassar needs to take action to decrease its carbon emissions in order to address the issue of climate change and meet its international environmental obligations. One approach is to emulate the successful zero carbon policies of Boston, such as promoting renewable energy and electric vehicles. However, it is important to tailor these policies to fit the unique needs and challenges of Makassar. By considering both international environmental law and the successes and challenges of Boston's policies, Makassar can develop a comprehensive approach to reducing its carbon footprint and

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<sup>75</sup> Bappenas, Laporan Implementasi Perancangan Pembangunan Rendah Karbon, (2019)

addressing climate change. This will not only benefit the city and its citizens, but also contribute to the global effort to protect the environment for future generations. Additionally, the government of Makassar is legally mandated under article 63, paragraph (1) of the UUPPLH to coordinate and implement pollution control and environmental damage management, develop and implement management policies, and enforce environmental laws.<sup>76</sup>

According to Makassar City Regional Regulation Number 8 2016, the Department of Environment is responsible for assisting the Mayor in governmental affairs related to the environment, which falls under the jurisdiction of the Regional Authority. The Mayor has been assigned task assistance to help facilitate actions in this regard. One of the major challenges facing urban areas today is the issue of green open spaces and the high population density in cities.<sup>77</sup> This leads to the conversion of green spaces into built areas without proper consideration for the surrounding environment, resulting in decreased quality and quantity of the environment, as well as issues such as flooding, air pollution, and social vulnerability. The rapid population growth in Makassar has only intensified

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<sup>76</sup> Article 63 Paragraph (1) of The UUPPLH, 2009

<sup>77</sup> Makassar City Regional Regulation Number 8 2016

this problem. To address these issues and improve living conditions for residents, the city government must prioritize the fair development of the urban community, including providing green corridors, productive green spaces, and special green spaces for conservation and recreation. The Makassar City Parks and Cleanliness Service is responsible for maintaining these green spaces and creating tailored program plans for the community. The city government must also coordinate both internally and externally to optimize the management of green open spaces in the long-term.<sup>78</sup>

Makassar City Regulation No. 6 of 2017 on the Management of Solid Waste provides a comprehensive framework for the management of solid waste in Makassar City. It encompasses the entire process, from waste collection to disposal. The regulation imposes specific obligations on businesses and individuals involved in generating or handling solid waste. For instance, businesses are required to segregate their waste into recyclable and non-recyclable materials. Individuals are obligated to dispose of their solid waste in designated waste bins. The regulation stipulates penalties for non-compliance with its provisions. Businesses failing to

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<sup>78</sup> Maskun, *A thousand of waste problems in Makassar: The fire in landfill case*, IOP Conference Series: Earth and Environmental Science, (Makassar: 2020)

adhere to the waste separation requirements may face fines or other consequences.

In the Strategic Plan City Parks and Cleaning Service Makassar, there is a policy regarding waste management that is incorporated into a Regional Regulation.<sup>79</sup> The Makassar Tidak Rantasa (MTR) program is being implemented by the Makassar Mayor to address waste management through a joint effort among residents. However, the effectiveness of the policy is not optimal due to lack of proper execution. The Makassar City Parks and Cleaning Service coordinates internally based on its duties and functions, and external coordination with stakeholders, including the private sector, community, and media, is also conducted.<sup>80</sup> Socialization is important for encouraging community participation in park activities, and the government should collaborate with local media outlets to create a campaign. Makassar is an overpopulated region in eastern Indonesia where green spaces are scarce and pollution is high. It is uncertain how the regional government will address these issues with limited policies and lack of cooperation between the community and media.<sup>81</sup>

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<sup>79</sup> Makassar City Regional Regulation Number 4 Year 2011

<sup>80</sup> Makassar Mayor Regulation Number 3 of 2015 Concerning Delegation Of Authority

<sup>81</sup> Maskun, *Loc.cit*

Makassar City Regulation No. 10 of 2018 on the Management of Air Quality establishes a comprehensive framework for managing air quality in Makassar City. It addresses various aspects of air pollution, including emissions from vehicles, factories, and power plants. The regulation sets specific standards to ensure air quality. For instance, it defines a maximum allowable concentration of particulate matter in the air. Additionally, the regulation includes measures aimed at improving air quality, such as promoting the use of cleaner fuels and encouraging the use of public transportation. In order to enforce compliance, the regulation outlines penalties for businesses and individuals who violate its provisions. Businesses that exceed the prescribed emission standards may face fines or even closure as a consequence of non-compliance.

Makassar City Regulation No. 6 of 2016 on Environmental Management establishes a comprehensive framework for managing the environment in Makassar City. It addresses various environmental aspects, including air and water quality, solid waste management, and environmental impact assessment. The regulation imposes specific obligations on businesses and individuals responsible for generating or handling environmental pollutants. For instance, businesses emitting air pollutants are required to install air pollution control

devices, while individuals are obligated to properly dispose of their solid waste. Moreover, the regulation includes penalties for non-compliance with its provisions. Businesses failing to meet the requirements for air pollution control devices may face fines or even closure.

The city of Boston has made climate change a top priority and has taken action to reduce carbon emissions. In 2007, Boston set a goal to become a net-zero city by 2050, and they continue to work towards this goal. This provides a great opportunity for Makassar, a developing city in Indonesia, to learn from Boston's policies and adapt them to their own city. One way to do this is through a "sister city" partnership, where the two cities collaborate on cultural, economic, and environmental projects.<sup>82</sup> Sister city partnerships have many benefits, including economic growth and regional development, the exchange of knowledge and experience, and cultural exchange.<sup>83</sup> It is important for Makassar to identify strategic issues, select the best model of cooperation, and establish principles for a successful partnership with Boston. This type of collaboration is legally recognized and regulated by Law

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<sup>82</sup> True Education Partnership, *What Is The Sister City Partnership?*, (<https://www.trueeducationpartnerships.com/culture/what-is-a-sister-city-partnership/>) Accessed on November 8th, 2022

<sup>83</sup> Brian Cross, *Sister Cities And Economic Development: A New Zealand Perspective*, (<https://rtsa.ro/tras/index.php/tras/article/download/171/167>) Accessed on November 8th, 2022

Number 37 of 1999, which governs foreign relations in Indonesia.<sup>84</sup>

Law Number 24 Year 2000 concerning International Agreements defines an international agreement as "an agreement concluded between the Government of the Republic of Indonesia and one or more states, international organizations, or other entities, in written form and governed by international law." It also sets out the different types of international agreements, including treaties, conventions, protocols, agreements, and exchanges of notes.<sup>85</sup> Article 363 of Law Number 23 of 2014 concerning Regional Government sets out the sources of funding for intergovernmental financial balancing activities. These activities are aimed at ensuring that all regions in Indonesia have the same opportunities to develop, regardless of their size or location. The funding for intergovernmental financial balancing activities is an important part of the Indonesian government's efforts to promote regional development and to reduce disparities between regions.<sup>86</sup>

The city of Makassar in Indonesia is facing a pressing challenge, how to effectively reduce its carbon emissions and combat climate change in a manner that is feasible and

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<sup>84</sup> Law Number 37 of 1999 About Foreign Relations

<sup>85</sup> Law Number 24 Year 2000 concerning International Agreements

<sup>86</sup> Law Number 23 of 2014 concerning Regional Government Article 363

compliant with international environmental law. To meet this challenge, Makassar must take a holistic and multi-faceted approach that addresses both the demand for and supply of energy in the city. One promising approach for Makassar is to adopt and adapt the zero carbon policies implemented in Boston, Massachusetts, which have proven successful in helping the city significantly decrease its carbon footprint. While adopting and adapting these policies for use in Makassar can be beneficial, it is important to recognize that the city faces its own unique set of challenges and circumstances. Therefore, it is crucial that any policies implemented in Makassar be carefully tailored to meet the specific needs of the city and its citizens. In addition to addressing the demand for energy, Makassar must also consider the supply side of the equation, and take steps to transition away from fossil fuel-based energy sources.

The RAN-API could play a number of roles in adapting Boston's zero carbon emissions policies to Makassar based upon international environmental law. These roles include, providing guidance on the specific mitigation and adaptation measures that are most appropriate for Makassar. The RAN-API outlines a number of mitigation and adaptation measures that could be implemented in Makassar, such as improving energy efficiency, increasing the use of renewable energy, and

promoting sustainable forest management. These measures could be adapted to the specific needs of Makassar, taking into account factors such as the city's climate, geography, and economic development. Helping to build capacity in Makassar to implement zero carbon emissions policies. The RAN-API includes a number of provisions on capacity building, such as training programs and technical assistance. These provisions could be used to help Makassar build the capacity to implement zero carbon emissions policies, such as by training government officials and businesses on how to reduce their greenhouse gas emissions. Promoting collaboration between Makassar and other cities that are committed to reducing their carbon emissions. The RAN-API includes a number of provisions on international cooperation, such as the establishment of a network of cities committed to reducing their carbon emissions. This network could be used to promote collaboration between Makassar and other cities, such as Boston, to share experiences and best practices on how to reduce their carbon emissions. In addition to these roles, the RAN-API could also play a role in ensuring that Makassar's zero carbon emissions policies are consistent with international environmental law. International environmental law includes a number of treaties and conventions that set out the obligations of countries to reduce their greenhouse gas emissions. The RAN-API could be

used to help Makassar ensure that its zero carbon emissions policies are consistent with these obligations.<sup>87</sup>

Providing guidance on the specific mitigation and adaptation measures that are most appropriate for Makassar. The RAN-API outlines a number of mitigation and adaptation measures that could be implemented in Makassar, such as: Improving energy efficiency, this could be done by investing in energy-efficient appliances and buildings, and by promoting public transportation. Increasing the use of renewable energy, this could be done by developing solar and wind farms, and by promoting the use of electric vehicles. Promoting sustainable forest management, this could be done by reducing deforestation, and by planting trees.<sup>88</sup> These measures could be adapted to the specific needs of Makassar, taking into account factors such as the city's climate, geography, and economic development. For example, if Makassar is located in a tropical climate, then it may be more important to focus on measures to improve energy efficiency and reduce deforestation. Helping to build capacity in Makassar to implement zero carbon emissions policies. The RAN-API includes a number of provisions on capacity building, like

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<sup>87</sup> Tri Dewi Virgijanti, Indonesia National Action Plan on Climate Change Adaptation (RAN-API), (2013)

<sup>88</sup> Ministry of National Development Planning/ National Development Planning Agency (Bappenas), National Adaptation Plan: Executive Summary, (2019)

training programs: These programs could be used to train government officials and businesses on how to reduce their greenhouse gas emissions. Technical assistance: This assistance could be provided by international organizations or other cities that have experience in implementing zero carbon emissions policies. This capacity building could help Makassar to develop the skills and knowledge necessary to implement zero carbon emissions policies.<sup>89</sup> For example, if Makassar does not have a strong public transportation system, then it may need to develop one in order to reduce its reliance on cars. Promoting collaboration between Makassar and other cities that are committed to reducing their carbon emissions. The RAN-API includes a number of provisions on international cooperation, such as: The establishment of a network of cities committed to reducing their carbon emissions: This network could be used to promote collaboration between Makassar and other cities like Boston, to share experiences and best practices on how to reduce their carbon emissions. The signing of bilateral agreements: These agreements could be used to commit Makassar and other cities to reducing their carbon emissions and to working together to achieve this goal. This collaboration could help Makassar to learn from the

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<sup>89</sup> *Ibid*

experiences of other cities that have already implemented zero carbon emissions policies. If Makassar is considering investing in solar power, then it could talk to other cities that have already done this to learn about the challenges and successes of this approach. In addition to these roles, the RAN-API could also play a role in ensuring that Makassar's zero carbon emissions policies are consistent with international environmental law. International environmental law includes a number of treaties and conventions that set out the obligations of countries to reduce their greenhouse gas emissions.<sup>90</sup> The RAN-API could be used to help Makassar ensure that its zero carbon emissions policies are consistent with these obligations. For example, the Paris Agreement is an international treaty that sets out a goal of limiting global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.<sup>91</sup> The RAN-API could be used to help Makassar develop its zero carbon emissions policies in a way that is consistent with this goal. RAN-API could play a significant role in adapting Boston's zero carbon emissions policies to Makassar based upon international environmental law. By providing guidance,

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<sup>90</sup> *Ibid*

<sup>91</sup> Environmental Defenders Office, EDO Clients Apply to Join Appeal to Uphold Dendrobium Coal Mine Refusal, (2021), (<https://www.edo.org.au/2021/07/02/edo-clients-apply-to-join-appeal-to-uphold-dendrobium-coal-mine-refusal/>) accessed on May 15<sup>th</sup>, 2023

building capacity, and promoting collaboration, the RAN-API could help Makassar to reduce its carbon emissions and mitigate the impacts of climate change.

To ensure that its efforts to reduce carbon emissions are compliant with international environmental law, Makassar must also consider its obligations under relevant international agreements, such as the United Nations Framework Convention on Climate Change and the Paris Agreement. Makassar has a critical role to play in the global effort to combat climate change and protect the environment for present and future generations. To adopt and adapt the Boston Climate Action Plan for use in Makassar, it will be important to consider the specific legal and policy framework in place in Indonesia, as well as the unique challenges and circumstances faced by Makassar.

Some key considerations for adopting and adapting the Boston Climate Action Plan in Makassar, based on international environmental law, could include assessing the compatibility with domestic laws and regulations, consulting with stakeholders, conducting a cost-benefit analysis, and developing targeted incentives or subsidies. Additionally, the sister city initiative between Makassar and Boston could provide an opportunity for the two cities to work together and share knowledge and expertise on a wide range of issues,

including environmental protection and sustainable development, through the establishment of a sister city agreement.

### 3. Specific challenges and circumstances that Makassar face in implementing zero carbon policies

Figure 2.1

<b>Aspect</b>	<b>Boston</b>	<b>Makassar</b>
<i>Renewable Energy</i>	Promotion and support of renewable energy sources, backed by supportive legislation	Potential for promoting renewable energy sources, need for stronger legal framework
<i>Energy Efficiency</i>	Implementation of energy efficiency measures, supported by energy efficiency laws	Potential for implementing energy efficiency measures, need for stronger legal framework
<i>Transportation</i>	Expansion of electric vehicle infrastructure, supported by transportation laws	Potential for promoting low-carbon transportation options, need for stronger legal framework
<i>Waste Management</i>	Comprehensive waste management plans and practices, supported by waste management laws	Potential for adopting waste management strategies, need for stronger legal framework

*Environmental Regulations*

Stringent regulations and strong enforcement mechanisms, backed by environmental protection laws

Need for strengthening existing regulations, strengthening legal framework

*Climate Action Plans*

Comprehensive climate action plans and policies, supported by climate change laws

Need for development of comprehensive policies, strengthening legal framework

*International Collaboration*

Active participation in international environmental initiatives, supported by international cooperation laws

Potential for collaboration and knowledge sharing, need for stronger legal framework

*Public Awareness*

Strong public awareness and engagement on environmental issues, supported by public information and education laws

Potential for raising public awareness on environmental matters, need for stronger legal framework

*Resource Allocation*

Availability of resources to support environmental initiatives, supported by resource allocation laws

Need for allocating resources towards environmental efforts, strengthening legal framework

*Implementation Capacity*

Strong capacity for implementation of environmental policies, supported by implementation laws

Need for strengthening implementation capacity, strengthening legal framework

<i>Monitoring and Reporting</i>	Robust monitoring and reporting mechanisms for environmental progress, supported by monitoring and reporting laws	Need for developing monitoring and reporting systems, strengthening legal framework
<i>Economic Impact</i>	Consideration of economic implications of environmental policies, supported by economic laws	Balancing economic aspirations with environmental goals, strengthening legal framework

Figure 2.2

<i>Regulation</i>	<i>Makassar</i>	<i>Boston</i>
<i>Goal</i>	To reduce greenhouse gas emissions by 29% unconditionally by 2030, and by 41% with international assistance.	To achieve net-zero carbon emissions by 2050.
<i>Mitigation measures</i>	Improving energy efficiency, increasing the use of renewable energy, and promoting sustainable forest management.	Improving energy efficiency, increasing the use of renewable energy, and electrifying transportation.
<i>Adaptation measures</i>	Improving early warning systems, building sea walls, and developing drought-resistant crops.	Improving early warning systems, building sea walls, and developing heat wave adaptation plans.
<i>Capacity building</i>	Training programs and technical assistance.	Training programs and technical assistance.
<i>International cooperation</i>	Establishment of a network of cities committed to reducing their carbon emissions.	Signing of bilateral agreements with other cities committed to reducing their carbon emissions.
<i>Consistency with international environmental law</i>	The RAN-API is consistent with the Paris Agreement.	The Boston Climate Action Plan is consistent with the Paris Agreement.

Above are some insights on the similarities between Makassar and Boston regulations and actions regarding the efforts on implementing the respective environmental policies, Makassar and Boston have similar goals in reducing greenhouse gas emissions and mitigating the impacts of climate change. Both cities use a variety of mitigation and adaptation measures, as well as capacity building and international cooperation. However, there are some differences between the two cities' regulations. Makassar is focused on reducing its emissions by 29% by 2030, while Boston is aiming for net-zero emissions by 2050. Makassar's adaptation measures are more focused on the impacts of climate change, such as sea level rise and drought, while Boston's adaptation measures are also focused on the health impacts of climate change, such as heat waves.<sup>92</sup>

The regulations in Makassar and Boston are both ambitious and comprehensive. They provide a good foundation for both cities to reduce their carbon emissions and mitigate the impacts of climate change. Here are some specific examples of how the regulations in Makassar and Boston are similar: Both cities have goals of reducing greenhouse gas emissions by 29% by

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<sup>92</sup> Martin J Walsh, *Boston Climate Action Report 2019 (Update 4)*, (Boston 2020), p.15

2030. Both cities use a variety of mitigation and adaptation measures, such as improving energy efficiency, increasing the use of renewable energy, and building sea walls. Both cities use capacity building and international cooperation to help them achieve their goals. The difference is, Boston is aiming for net-zero emissions by 2050, while Makassar is only aiming for a 29% reduction by 2030. Boston's adaptation measures are more focused on the health impacts of climate change, like heat waves, while Makassar's adaptation measures are more focused on the impacts of climate change, such as sea level rise and drought.<sup>93</sup>

Boston is focused on reducing greenhouse gas emissions by investing in renewable energy, improving energy efficiency, and reducing transportation emissions. The city has set a goal of reducing greenhouse gas emissions by 80% below 1990 levels by 2050 in terms of the mitigation aspect. In terms of the adaptation itself, Boston is also focused on adapting to the impacts of climate change, such as sea level rise, more frequent and severe storms, and heat waves. The city has developed a climate adaptation plan that includes measures

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<sup>93</sup> UN Habitat, *Cities and Climate Change Initiative: Abridge Report Makassar Indonesia Climate Change Vulnerability Assessment*, (2014)

such as raising seawalls, improving drainage systems, and planting trees.<sup>94</sup>

Makassar on the other hand, is also focused on reducing greenhouse gas emissions, but its approach is different from Boston's. Makassar is focusing on reducing deforestation and improving agricultural practices. The city has set a goal of reducing deforestation by 50% by 2020 in the aspect of mitigation. Where in the term of adaptation Makassar is also focused on adapting to the impacts of climate change, but its approach is also different from Boston's. Makassar is focusing on improving water management and developing early warning systems for natural disasters. The city has developed a climate adaptation plan that includes measures such as building seawalls, improving drainage systems, and planting mangroves. The main difference between the two cities' approaches is that Boston is focused on reducing greenhouse gas emissions, while Makassar is focused on reducing deforestation and improving agricultural practices. This difference is due to the different climate challenges that the two cities face. Boston is more vulnerable to the impacts of sea level rise and more frequent and severe storms, while Makassar is more vulnerable to the impacts of deforestation and drought.

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<sup>94</sup> Martin J Walsh, *Boston Climate Action Report 2019 (Update 4)*, (Boston 2020)

Another difference between the two cities is that Boston is more focused on adaptation, while Makassar is more focused on mitigation. This difference is due to the different resources that the two cities have. Boston has more financial resources, so it can afford to invest in adaptation measures. Makassar has fewer financial resources, so it is focusing on mitigation measures that can help to reduce greenhouse gas emissions. Despite their different approaches, both Boston and Makassar are committed to addressing climate change.<sup>95</sup> Both cities have developed climate action plans that include both mitigation and adaptation measures. The two cities are working together to share best practices and learn from each other's experiences. With that being said, we have to discuss about some slight challenges and circumstances on implementing some policies in Indonesia and Makassar.

Omnibus Law was enacted in 2020 with a focus on labor regulations and investment incentives to boost economic growth.<sup>96</sup> Due to its controversies, the Omnibus Law could make it more difficult for Makassar to adapt Boston's zero carbon policy. This is because the law weakens environmental

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<sup>95</sup> *Op Cit* UN Habitat, (2014)

<sup>96</sup> Juvelin Rezara, Legal Aspects And Policies For Indonesian SMEs After The Omnibus Law-Challenges In The Regional Free Trade Indonesian Law Journal Volume 14 No. 2, (2021), (<https://ejournal.bphn.go.id/index.php/ILJ>) accessed on March 5<sup>th</sup>, 2023

protections, such as by making it easier for businesses to clear forests and by reducing the power of environmental regulators. However, Makassar can still take steps to reduce its carbon emissions, even if the Omnibus Law makes it more difficult. These steps include focusing on energy efficiency, investing in renewable energy, creating a carbon market, and educating the public. By taking these steps, Makassar can still make progress towards its goal of becoming a zero carbon city.<sup>97</sup> It is worth noting that the Boston zero-carbon emission policy is tailored to its specific geographic, economic, and social context and may not be suitable for Indonesia. Indonesia has its unique challenges, including natural resources, geography, and cultural diversity, that need to be considered when developing an effective zero-carbon policy. While the Omnibus Law may have consequences for Indonesia's efforts to tackle climate change. A comprehensive and context-specific strategy is essential to address Indonesia's unique challenges and opportunities in transitioning to a zero-carbon economy.<sup>98</sup>

The Omnibus Law has an impact on the environmental law in general manners. The main objective of the law is to

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<sup>97</sup> Hans Nicholas Jong, Indonesia's omnibus law a 'major problem' for environmental protection, (2020), (<https://news.mongabay.com/2020/11/indonesia-omnibus-law-global-investor-letter/>) accessed on January 5<sup>th</sup>, 2023

<sup>98</sup> Laura Castello Sant, The Indonesia Omnibus Law: Prioritising Economic Growth at the Expense of the Environment, (2020), (<https://earth.org/the-indonesia-omnibus-law/>) accessed on January 3<sup>rd</sup>, 2023

streamline regulations and reduce bureaucratic barriers to encourage investment and economic growth, which could be beneficial for the economy. However, it may also result in weaker environmental regulations and enforcement. Changes in the Environmental Impact Assessment (EIA) process, included in the Omnibus Law, may result in decreased requirements for companies to evaluate and address the environmental impacts of their projects. Additionally, the law brings changes to the authority and powers of the Ministry of Environment and Forestry, which may impact its capacity to enforce environmental regulations. It is believed that people especially activist argue that the Omnibus Law may lead to the depletion of Indonesia's natural resources and biodiversity, and affect the livelihoods of communities dependent on these resources. Conversely, proponents of the law believe that it can facilitate economic development without harming the environment.<sup>99</sup> An Environmental Impact Assessment (EIA) is a process that is employed to evaluate the potential environmental effects of a proposed project, plan, or program prior to authorization or implementation. The main goal of the EIA is to identify, predict, and evaluate the positive and negative

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<sup>99</sup> Hans Nicholas Jong, Indonesia's omnibus law a 'major problem' for environmental protection, (2020), (<https://news.mongabay.com/2020/11/indonesia-omnibus-law-global-investor-letter/>) accessed on January 5<sup>th</sup>, 2023

impacts of the project on the environment and human health, and provide information to decision-makers and stakeholders for informed decision-making.<sup>100</sup> The EIA process typically involves several stages, including identifying the project's boundaries and the environmental components to be studied, gathering relevant data, predicting potential impacts, developing alternatives to mitigate negative impacts, engaging public participation, and reporting the results to decision-makers and stakeholders.

There are likely to be a range of specific challenges and circumstances that Makassar will face in implementing zero carbon policies, including the transition to a low-carbon economy may involve significant upfront costs, such as the cost of transitioning to renewable energy or retrofitting buildings to improve energy efficiency. These costs may be difficult for Makassar to bear, particularly if the city lacks the necessary financial resources or if there are limited private sector investment opportunities. Political challenges: The implementation of zero carbon policies may face resistance or opposition from certain political or economic interests, particularly if these policies are perceived as disruptive or as

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<sup>100</sup> Convention On Biological Diversity, What is Impact Assessment?, (2010), (<https://www.cbd.int/impact/whatis.shtml>) Accessed on March 7<sup>th</sup>, 2023

having negative impacts on certain sectors or communities. This may require Makassar to engage in political negotiations and outreach to build support and consensus for the implementation of these policies. Technological challenges Makassar may face challenges in adopting and implementing new technologies that are necessary for the transition to a low-carbon economy, such as renewable energy technologies or electric vehicles.

These challenges may be due to a lack of technical expertise or infrastructure, or to other barriers to the adoption of these technologies. Legal and regulatory challenges, Makassar may face challenges in complying with relevant legal and regulatory frameworks, including domestic laws and regulations, as well as international agreements, such as the United Nations Framework Convention on Climate Change and the Paris Agreement. These challenges may require Makassar to navigate complex legal and regulatory processes, and to ensure that its policies are consistent with these obligations. To address these challenges, Makassar will need to take a holistic and multi-faceted approach that addresses both the demand for and supply of energy in the city. This will require the city to consider a range of policy options, such as the promotion of

renewable energy, the adoption of energy efficiency measures, and the implementation of carbon pricing mechanisms.<sup>101</sup>

Adding to the fact that Adapting Boston's zero carbon emissions policies to Indonesian national law would require careful analysis and consideration of the existing legal frameworks and policies in Indonesia, as well as potential modifications or additions needed to align with the goals of the Boston policies. An option is to find the common points between the Boston policies and the current Indonesian national-level environmental laws and policies, like the Environmental Protection and Management Law of 2009 whilst adhering to the existing legal structure or if any changes to the legal system are required to incorporate the Boston policies. In order for Indonesia to adopt and incorporate the Boston zero carbon policy into its national law, there are several steps that the government would need to take. The first step would be to examine the areas where the Boston policy overlaps with existing environmental laws and policies in Indonesia, such as the 2009 Environmental Protection and Management Law. This analysis would help to identify any necessary modifications to the current legal framework to accommodate the Boston policy.

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<sup>101</sup> Indonesia Long-Term Strategy for Low Carbon and Climate Resilience 2050, (2021)

The second step would involve assessing the feasibility of implementing the Boston policy within the current legal framework, taking into account its technical, economic, and social implications within the Indonesian context. The third step would require the government to engage in consultations with stakeholders, including businesses, communities, and civil society organizations, to ensure that the policy is acceptable, practical, and feasible for all parties involved. Finally, the government would need to create a plan of action to implement the Boston policy and revise the national law accordingly, while ensuring that it is feasible, realistic, and achievable within the national context.<sup>102</sup>

Implementing zero carbon emission policies similar to those in Boston in Indonesia would necessitate significant changes in the country's legal framework and policies. Several crucial actions would need to be taken to accomplish this, such as the adoption of a comprehensive climate change law that sets out a clear framework for reducing carbon emissions and shifting to renewable energy sources. Regulations would need to be developed and enforced to guarantee that emissions reductions targets are met, requiring close collaboration between government agencies and the private sector. A carbon pricing

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<sup>102</sup> *Ibid*

mechanism, like a carbon tax or cap-and-trade system, would need to be established to provide financial incentives for companies to decrease their carbon emissions, requiring new legislation and a system for monitoring and verifying emissions. To transition to a zero carbon economy, Indonesia would need to invest in renewable energy sources such as wind, solar, and hydro power, requiring government subsidies, tax incentives, and other types of financial support. In addition to investing in renewable energy, Indonesia would need to promote energy efficiency through regulations and incentives, such as building codes that mandate energy-efficient construction and incentives for companies that invest in energy-saving technologies. To ensure the success of zero carbon emission policies, it would be critical to build public awareness and support for the transition to a zero carbon economy through public education campaigns, community outreach, and other forms of engagement.<sup>103</sup>

Introducing Boston's zero carbon emission policies to Indonesia would have significant implications for the country's economy, environment, and society. As one of the world's biggest greenhouse gas emitters,<sup>104</sup> adopting a zero-carbon

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<sup>103</sup> Asian Development Bank, Renewable Energy Financing Schemes For Indonesia, (2019)

<sup>104</sup> According to the Climate Watch website, Indonesia was the world's fifth-largest emitter of greenhouse gases in 2018, accounting for approximately 4.5% of global

policy would necessitate substantial investments and modifications in Indonesia's energy sector and infrastructure. The policy's consequences would depend on the specific steps taken, but they could include a decrease in greenhouse gas emissions by removing all sources of carbon emissions such as transportation, coal-fired power plants, and industrial activities. To achieve zero-carbon emissions, Indonesia would need to heavily invest in renewable energy like wind, solar, and hydro power, which would create new jobs and stimulate growth in the renewable energy sector. Transforming to zero-carbon emissions would necessitate substantial changes in the transportation industry, such as the adoption of electric vehicles, improved public transportation, and the promotion of active transportation like walking and cycling.<sup>105</sup> Significant infrastructure development would be required to support the transition to a zero-carbon economy, such as the construction of new renewable energy facilities and enhancements in energy

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emissions. Indonesia's greenhouse gas emissions have been steadily increasing over the past few decades, largely due to deforestation and other land-use changes, as well as increasing energy demand from its rapidly growing population and economy. The largest sources of greenhouse gas emissions in Indonesia are land-use change and forestry (which accounted for about 45% of total emissions in 2016), followed by energy (which accounted for about 30% of emissions). In 2015, Indonesia committed to reducing its greenhouse gas emissions by 29% by 2030, or 41% with international support, compared to business-as-usual levels. However, according to a 2021 report by the World Resources Institute, Indonesia is not on track to meet its emissions reduction target, and its emissions are projected to continue increasing in the coming years unless significant policy changes are made. See The Second Biennial Report UNFCCC

<sup>105</sup> Julis Christian Adiatma, A transition towards low carbon transport in Indonesia: a technological perspective, (2020)

storage and distribution networks.<sup>106</sup> If the policy were to be modified and integrated into national law in Indonesia, it would require a legal framework that specifies the steps to be taken, the objectives to be achieved, and the mechanisms for monitoring and enforcement. The law would also need to account for the social and economic consequences of the change and guarantee that the benefits are equally dispersed throughout various regions and communities. Furthermore, the law would need to be accompanied by public education and awareness campaigns to promote support for the policy and ensure that people comprehend the advantages of transitioning to a zero-carbon economy. While the transition would require significant resources, it would offer substantial benefits in terms of reducing greenhouse gas emissions, improving air quality, and creating new economic prospects.<sup>107</sup>

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<sup>106</sup> Fatih Birol, *Net Zero by 2050 A Roadmap for the Global Energy Sector*, (2021)

<sup>107</sup> Antonio Herman Benjamin, *Climate Change, Coming Soon To A Court Near You: International Climate Change Legal Frameworks*, (2020)