

## CHAPTER 1

### INTRODUCTION

#### 1.1. Background

##### 1.1.1. Climate Change Issues and Challenges in the World

Climate change is a critical and urgent global issue that poses numerous challenges to the world. The Intergovernmental Panel on Climate Change (IPCC) defines climate change as a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer (IPCC, 2018). The main driver of recent climate change is human activity, primarily the burning of fossil fuels, deforestation, and industrial processes, which release large amounts of greenhouse gases into the atmosphere (IPCC, 2021).

The greenhouse effect is a natural process that warms the Earth's surface. It occurs when the sun's energy reaches the Earth's atmosphere, and some of this energy is reflected back to space, and the rest is absorbed and re-radiated by greenhouse gases. Greenhouse gases include water vapor, carbon dioxide, methane, and nitrous oxide (United Nations Development Programme, 2023). These gases trap heat in the atmosphere, keeping the Earth's surface warmer than it would be without them. However, human activities have significantly increased the concentration of these gases in the atmosphere, enhancing the greenhouse effect and causing the Earth's temperature to rise (United Nations Development Programme, 2023).

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The impacts of climate change are widespread and varied, affecting every region of the world. Some of the most significant challenges associated with climate change include:

- i. **Rising temperatures:** Global temperatures have been rising steadily over the past century, with the last few decades experiencing the most rapid warming. Rising temperatures lead to more heatwaves, melting glaciers and ice caps, and warmer oceans, which contribute to sea-level rise.
- ii. **Sea-level rise:** Melting glaciers and ice caps, along with the thermal expansion of seawater as it warms, contribute to rising sea levels. Sea-level rise can lead to coastal erosion, increased flooding, and the loss of habitat for both humans and wildlife.
- iii. **More extreme weather events:** Climate change is increasing the frequency and intensity of extreme weather events, such as hurricanes, heatwaves, and heavy rainfall. These events can cause significant damage to infrastructure, ecosystems, and human health.
- iv. **Loss of biodiversity:** Changing temperatures and precipitation patterns, along with more extreme weather events and sea-level rise, can lead to habitat loss and the extinction of plant and animal species.
- v. **Political and social challenges:** Addressing climate change requires coordinated action at all levels of society, from individuals to governments to the international community. This involves overcoming political, economic, and social barriers to change.
- vi. **Technological challenges:** Developing and implementing new technologies for mitigation and adaptation, such as renewable energy, energy-efficient buildings, and resilient infrastructure, are significant challenges.
- vii. **Economic impacts:** Climate change can have significant economic impacts, affecting agriculture, fisheries, tourism, and infrastructure. The cost of adapting to these impacts can be particularly high for developing countries, which often have fewer resources available to cope with the challenges posed by climate change (United Nations Development Programme, 2023).

Addressing the challenges of climate change requires urgent and coordinated action at the global, national, and local levels. The Paris Agreement, adopted in 2015, is a landmark international treaty that aims to limit global warming to well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius (United Nations Framework Convention on Climate Change, 2015). Achieving these targets will require significant reductions in greenhouse gas emissions, as well as efforts to adapt to the impacts of climate change that are already occurring.

Overall, climate change poses significant challenges to the world, impacting natural systems, human health, and the economy. Addressing these challenges will require coordinated action at all levels of society, from individuals to governments to the international community.

### **1.1.2. Why does Renewable Energy Development Receive Attention from Indonesia and South Korea?**

Indonesia and South Korea, which are both key players in the Asia-Pacific region, have been showing a growing interest in the development of renewable energy. This attention is driven by a variety of factors, including environmental concerns, economic potential, and the need for energy security. Climate change has been one of the most important global issues, and both countries, as signatories to the Paris Agreement, have committed to reducing their greenhouse gas emissions. Renewable energy, being a clean and sustainable source of energy, presents an effective solution to this challenge. Moreover, the economic potential of renewable energy cannot be overlooked. The renewable energy sector is able to offer opportunities for development of new renewable energy resources, technological innovation, and economic growth.

Indonesia, which is an archipelagic country with abundant natural resources, has been heavily reliant on fossil fuels for its energy needs (Elisa Wahyuni, 2022).

However, the increasing volatility of oil prices, coupled with the environmental impacts of fossil fuel consumption, have pushed the Indonesian government to explore alternative sources of energy. The country has set ambitious targets for

renewable energy development, aiming to achieve 23% renewable energy in its energy mix by 2025 (Elisa Wahyuni, 2022). Indonesia has a vast potential for renewable energy development, particularly in geothermal, hydro, solar photovoltaic, and on-shore wind energy (Elisa Wahyuni, 2022).

Similarly, South Korea, a highly industrialized nation, has been facing challenges related to energy security and environmental pollution. South Korea has been heavily dependent on energy imports, making it vulnerable to fluctuations in global energy prices (Jong Ho Hong, Jitae Kim, Wonik Son, Heeyoung Shin, Nahyun Kim, Woong Ki Lee, Jintae Kim, 2019). Additionally, South Korea has been grappling with air pollution and has been under international pressure to reduce its carbon emissions. In response, the South Korean government has formulated policies to promote the development of renewable energy and has set a target to achieve 20% renewable energy in its energy mix by 2030 (The Government of the Republic of Korea, 2020). South Korea has been investing in various renewable energy sources, including solar, wind, hydro, and biomass.

Both Indonesia and South Korea recognize the importance of international cooperation in achieving their renewable energy goals. They have been actively participating in various regional and international forums to exchange knowledge, technology, and best practices related to renewable energy development. Additionally, both countries have been seeking foreign investment and collaboration to accelerate the development of renewable energy projects.

The development of renewable energy has some challenges. Both Indonesia and South Korea face technical, financial, and regulatory hurdles in the transition to renewable energy. Moreover, the high upfront costs of renewable energy projects, coupled with the need for supportive policies and regulations, are key challenges faced by both countries.

Despite these challenges, the attention towards renewable energy development in Indonesia and South Korea is expected to grow in the coming years. This is driven by the increasing recognition of the economic, environmental, and social benefits of renewable energy, as well as the global momentum towards clean and sustainable energy. Both countries have a vast potential for renewable energy development and have the opportunity to become leaders in the renewable energy sector in the Asia-Pacific region.

Overall, renewable energy development has received growing attention from Indonesia and South Korea due to a variety of reasons, including environmental concerns, economic potential, and the need for energy security. Both countries have set ambitious targets for renewable energy development and have been actively seeking international cooperation and investment to achieve these goals. While challenges remain, the future for renewable energy development in Indonesia and South Korea appears promising.

## 1.2. Research Questions

- 1) What are the interests for both Indonesia and South Korea to established a cooperation in developing the field of renewable energy?
- 2) What are the outcomes and influences from Indonesia-South Korea cooperation in developing renewable energy to the bilateral relations between the two countries?

## 1.3. Research Objectives

The primary objective of this study is to investigate the specific interests, motivations, and goals that drive Indonesia and South Korea to establish a cooperation in the field of renewable energy to identify the motivations and interests of Indonesia and South Korea. By examining the role of principles and policies based on liberalism theory in the field of the international relations, this study aims to analyze how they have influenced the dynamics and outcomes of the collaboration between the two countries in the renewable energy sector.

Furthermore, this study aims to analyze the specific outcomes of the Indonesia-South Korea cooperation in the field of renewable energy including renewable energy infrastructure, the exchange of knowledge and technology, and the impact on the energy sector in both countries.

To approach the answer of the objective, trade liberalization, and private sector involvement, have shaped the renewable energy initiatives and projects undertaken through the Indonesia-South Korea cooperation. Moreover, it includes

how both governments have cooperated to develop renewable energy field in the perspective of international relations.

#### **1.4. Research Significance**

This study holds significant importance as it explores the significance on Indonesia's renewable energy development based on liberalism in international relations theory. By examining the influence of liberalism principles and policies in the context of the cooperation between Indonesia and South Korea. Liberalism suggests that cooperation between states can lead to positive externalities for the bilateral relations between those states. Analyzing the impact of the cooperation on the diplomatic, economic, and social relations between Indonesia and South Korea can provide valuable insights into how such collaborations can strengthen bilateral ties. This includes understanding how the cooperation has influenced trade relations, diplomatic ties, and technical exchanges between the two countries. Thus, there are five significances regarding the study of the cooperation between Indonesia and South Korea in renewable energy development.:

- A. **Bilateral Relations Significance:** Analyzing the outcomes and influences of the cooperation on the bilateral relations between Indonesia and South Korea can provide valuable insights into how such cooperation can impact diplomatic relations between both countries. This is particularly important in the current global landscape, where international cooperation is key to addressing global challenges.

- B. **Political Significance:** The political significance of this research lies in its potential to influence policy-making. Understanding the successes and challenges faced by Indonesia and South Korea in their cooperation can provide policy-makers with valuable lessons on how to structure similar agreements and collaborations for maximum impact. Additionally, it can also shed light on the role of governmental and non-governmental organizations in facilitating international cooperation in renewable energy development.
- C. **Technological Significance:** This research is also significant from a technological perspective. Analyzing the technologies developed and exchanged as part of the cooperation between Indonesia and South Korea can provide insights into the most effective and efficient technologies for renewable energy development. This can be valuable for other countries looking to develop their own renewable energy infrastructure.
- D. **Economic Significance:** This research also holds economic significance. Developing renewable energy can be a driver for economic growth, creating jobs, and fostering innovation. Analyzing the economic benefits derived from the cooperation between Indonesia and South Korea can offer valuable insights into how similar collaborations can be leveraged to boost economic growth in other regions and countries.
- E. **Environmental Significance:** One of the most significant aspects of this research is its environmental implications. Renewable energy is key to combating climate change and its adverse effects. Indonesia and South Korea, being two major economies in Asia, have a significant impact on the region's carbon



footprint. Understanding the cooperation between the two countries in developing renewable energy can provide insights into how other nations can collaborate to accelerate the transition to cleaner energy sources.

In Chapter 1, I offered an informative introduction that gave an outline of the study background, issue statement, and goals. The next chapter now focuses on a thorough literature evaluation as it examines academic literature and research pertaining to renewable energy projects, global partnerships, and the distinct socio-economic and policy landscapes of Indonesia and South Korea. The next chapter's objective is to identify gaps, trends, and crucial discoveries by synthesizing and critically assessing the current literature. This analysis will then guide the succeeding chapters.

