

CHAPTER I

INTRODUCTION

A. Background

In achieving the goals of rapid development, every country faces a policy choice dilemma between rapid economic growth and environmental development. Economic growth is very much needed but on the other hand environmental development is also important for human survival. The development of a country that is oriented towards pursuing economic growth often ignores environmental aspects or pays less attention to the environment (environmental management). This goes almost in parallel with the declining quality of the environment. The concept that explains the balance between economic growth and environmental sustainability is called sustainable economics.

Energy is an integral part of promoting economic development. Neoclassical economists argue that an increase in energy consumption reflects an increase in the economy (Kraft and Kraft, 1978). Tertzakian and Hollihan (2009) have stated that the main and first principle in energy consumption is the better off you are, the more energy you use.

Although this has been translated into the identification of the determinants of environmental pollution, most studies limit their analysis to only linking total energy consumption and economic growth to environmental pollution, particularly CO₂ emissions. Energy consumption and growth alone may not explain CO₂ emissions. However, it is also common that in associating

energy consumption with CO₂ emissions, most of the previous research focused on the type of energy used and investigated the relationship between coal and electricity with CO₂ emissions. In addition, our study focuses on two neglected or under-researched aspects of previous studies examining the determinants of CO₂ emissions in ASEAN.

An area considered has good economic prospects is Asia Pacific, because this region is according to United Nation Economic and Social Commission for Asia and the Pacific (UNESCAP) is an area that has the second largest economic growth in the world (2009). From an economic and demographic perspective, the Association of South East Asian Nations (ASEAN) is the region with the fastest growth rate, and the energy consumption growth rate reaches 4% per year, compared to the world's only 1.8% (International Energy Agency (IEA), 2010).

The ASEAN countries have ten participating countries, namely Laos, Brunei, Cambodia, Vietnam, Philippines, Singapore, Malaysia, Thailand, Indonesia and Myanmar. The following table shows the economic growth of ASEAN countries for the 2015-2019 period:

**Table 1.1 CO₂ Emissions ASEAN Countries in 2015-2019
(Metric Tons per capita)**

	2015	2016	2017	2018	2019	Average
Indonesia	1.900	1.892	2.014	2.178	2.320	2.061
Thailand	3.829	3.780	3.766	3.714	3.970	3.812
Vietnam	2.257	2.391	2.348	2.699	3.130	2.565
Philippines	1.113	1.205	1.299	1.334	1.390	1.268
Singapore	8.220	8.232	8.451	8.399	9.090	8.479
Brunei	14.413	15.270	15.808	16.645	15.980	15.623
Malaysia	7.682	7.451	7.166	7,600	7.670	7.514
Myanmar	0.361	0.413	0.588	0.605	0.890	0.571
Cambodia	0.553	0.628	0.710	0.687	1.000	0.716
Laos	1.285	2.244	2.662	2,661	0.960	1.962

Source: World Bank, processed.

Based on the data above, the high CO₂ emissions in ASEAN countries above can be seen that Brunei has the highest average CO₂ Emission value of 15,623 Metric Tons per capita and Myanmar has the lowest CO₂ emission value of 0.571 Metric Tons per capita in ASEAN in 2015-2019. Brunei had the highest CO₂ emissions in 2018 of 16,645 Metric Tons per capita, while Myanmar had the lowest CO₂ emissions values in 2015 of 0.361 Metric Tons per capita.

Environmental problems today are not only a problem for developed countries or developing countries but have become a world problem. Today's environmental problems can be caused by toxic gas emissions from industrial activities, transportation that is not environmentally friendly as well as logging

and forest fires that cause environmental problems. decline in the quality of the environment it self.

One of the factors that contribute to the increase in economic growth is foreign direct investment. Foreign Direct Investment (FDI) is considered important for developing and developed countries. Impacts in various sectors include increasing exports and absorption of labor, production, increasing living standards, reducing poverty and inflation, etc. which will ultimately have an impact on increasing economic growth. FDI is one of the most effective methods of drawing current from an external source. The use of this technique is an important aspect of building capital in developing countries. For developing countries, the positive impact of foreign investment is becoming increasingly popular as a tool for economic growth and strengthening (Muhammad, 2007). FDI also helps countries increase resources, improve infrastructure, introduce new technologies, manage knowledge, access new markets, and create policies for development spending and budget deficits to achieve economies of scale. (Borenzstein et al, 1998)The relationship between FDI and economic growth has long been a topic of interest in the field of international development. In an era of fluctuating global capital flows, stable FDI has emerged as an effective channel for faster growth in developing countries (Makki & Somwaru, 2004). The relationship between FDI and economic growth has long been a topic of interest in the field of international development. In an era of fluctuating global capital

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From an economic point of view, Islam does not prohibit someone from investing because Islam teaches that existing assets are not only stored but must be multiplied so that they can benefit other people or humans. Based on Surah Al-Hasr Verse 7:

لَّهُ أَىٰ لِيهِ لِي لِقُرَىٰ لِلَّهِ لِلرَّسُولِ لِيذَىٰ لِقُرَبَىٰ لِمَسْكِينٍ لِسَبِيلِ لَا لِي لِأَغْنِيَاءِ ۗ

Meaning: *"Whatever Allah gave to His Messenger (treasures) of the people in the city, belongs to Allah, the Apostle, relatives, orphans, the needy, and people in need on the way, so they don't circulate. only in the hands of the rich among them."*

The legal basis for investing in Islam is the Qur'an and the Hadith of the Prophet. In addition, because investment is part of the economic activity of fiqh muamalah (muamalah maliyah). Basically, all forms of muamalah, including economic activities, are allowed unless there is evidence against it or prohibits it." (Pardianyah, 2017).

ASEAN's large energy consumption begins with the region's ability to meet world needs and become a net exporter. However, since 1995 ASEAN had become a net importer of energy, and in 2005, 30% of ASEAN's energy consumption came from imports. However, it is estimated that in 2035 energy consumption in this region will continue to increase by 5.8% annually (iea world energy outlook, 2010). This fact is actually one of the dilemmas in the ASEAN economic process, because when the level of energy consumption continues to increase every year, the availability of energy in this region continues to decline. If ASEAN has a very high level of dependence on energy, then this will have a bad impact on the economic prospects of this region in the future.

Most developing countries are starting to shift from countries that focus on agriculture to become industrialized countries that aim to increase economic growth.

Economic growth that continues to develop produces positive and negative impacts for a country. One of the positive impacts obtained from economic growth is a decrease in the level of poverty, while the negative impact is a decrease in environmental quality (Organization for Economic Cooperation and Development, 2019). Increasing economic growth and decreasing environmental quality have been a topic of discussion for a long time. Some views assume that the increase from rapid economic growth will have an impact on environmental damage and affect the economy. On the other hand, another view believes that

environmental damage will improve as a result of the increase in economic growth.

The concept of environmental kuznet curve was first used in a study conducted by Grossman and Krueger (1991) which explains that in the early stages of economic growth it causes environmental damage and continues to improve the environment at a certain growth rate as a result of the North American Free Trade Agreement (NAPHA).

Various research have been carried out to prove the ecc hypothesis using various indicators of environmental damage and have given rise to different results and debates regarding this hypothesis. The results of several empirical studies conducted show different results regarding the relationship between economic growth and environmental quality. Research conducted by Ahmed and Long (2012) states that the Eye cathing coral (ECC) hypothesis is not proven in Pakistan where it uses GDP as an independent variable and population, trade, and energy consumption as control variables. The EKC hypothesis was also not proven in the research conducted by Bengochea-Morancho and Martinez-Zarzoso on 22 OECD member countries with GDP as the independent variable in 2004. Likewise, the research conducted by Friedl and Getzner (2003) on the Austrian country also mentions that the EKC hypothesis is not proven with the GDP variable as an independent variable and imports and the service sector as control variables. Different results were obtained by several studies such as those conducted by Jalil

and Feridun (2011), Sapkota and Bastola (2017), Zhao and Zhang (2019) which explained that the EEC hypothesis was proven in China and 14 Latin American countries where GDP was used as an independent variable. and population, energy consumption, financial development, and FDI as control variables.

In increasing economic growth, the economic sectors have a very important role. Economic sectors are also considered to have a role in increasing CO₂ emissions. Rauf, Zhang, Li, and Amin (2018) conducted a study in China that the industrial sector, agricultural sector, and service sector are considered to have contributed to a fairly large increase in CO₂ emissions when compared to other sectors, considering that these three sectors are sectors that are quite contributing to economic growth. In addition, Ahmed (2014) conducted a study in Malaysia where the manufacturing sector is considered to have contributed to a large increase in CO₂ emissions because this sector has a significant role in increasing economic growth in Malaysia. On the other hand, Clara (2013) and Friedl (2003) explain that the service sector is the sector that contributes to the increase in CO₂ emissions every year in Sweden and Austria. This is due to structural changes in the sector from what was originally an industrial sector to the service sector.

Based on the above background, this research will analyze more deeply related to the economic sectors that have a big role in contributing to the increase in CO₂ emissions and other factors that affect the increase in CO₂ emissions in ASEAN. The lack of similar research and the need to carry out empirical evidence

related to the relationship between CO₂ emissions and activities of economic sectors with environmental damage, in this case the increase in CO₂ emissions against the EEC hypothesis in ASEAN, are interesting topics to study. Therefore, this research will focus on "**Determining CO₂ emissions by GDP, Population, Energy Consumption, Foreign Investment, and Exports in Southeast Asia (ASEAN) 2015-2019**". It is hoped that this study can help increase the economic growth of ASEAN countries wisely.

B. Research Question

Based on the background described above, the formula for this study problem is:

1. How is the influence of GDP on CO₂ emission variables in ASEAN countries?
2. How is the influence of population on CO₂ emission variables in ASEAN countries?
3. How is the effect of energy consumption on CO₂ emission variables in ASEAN countries?
4. How is the effect of foreign investment on CO₂ emission variables in ASEAN countries?
5. How is the effect of exports on the CO₂ emission variable in ASEAN countries?

C. Research purposes

1. To analyze the effect of GDP on CO₂ emission variables in ASEAN countries
2. To analyze the effect of population on CO₂ emission variables in ASEAN countries
3. To analyze the effect of energy consumption on CO₂ emission variables in ASEAN countries
4. To analyze the effect of foreign investment on CO₂ emission variables in ASEAN countries
5. To analyze the effect of exports on CO₂ emission variables in ASEAN countries

D. Benefits of research

This research is expected to provide benefits in the form of:

1. Provide an overview related to determine CO₂ emissions to GDP, population, energy consumption, foreign investment and exports in ASEAN countries in 2015-2019.
2. Become a contribution of thought and additional insight in economics, especially in the field of environmental economics