Political Perspective in Geo-Map Analysis: What is the Role of World Governance Indicators in Reducing Greenhouse Emission in ASEAN Countries?

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ABSTRACT

This study aims to analyze whether world governance indicators can reduce greenhouse gas emissions in ASEAN countries. The data used is panel data of 11 ASEAN member countries in the period 2013 – 2020 with justifications before and after the Paris Agreement with panel regression methods and mapping using orange data mining geo maps. Empirical results show that political stability no violence, government effectiveness, corruption control, and the implementation of the Paris Agreement are able to reduce the amount of greenhouse gas emissions. It was concluded that the success of the Paris Agreement will occur when committed countries dare to carry out economic transformation. However, to achieve this, significant adjustments are needed, and all parties must have a uniform vision for achieving the net zero carbon target.

1.Introduction

Environmental degradation and climate change have become the most complex issues for policymakers in various countries around the world in recent years (Dhakal et al., 2023). As part of greenhouse gas emissions, carbon emissions should be one of the focal points in climate change research of many countries committed to developing appropriate energy policies (Safitri et al., 2023). This issue is supported by a report issued by the Intergovernmental Panel on Climate Change regarding an increase in global temperature by 1.5°C on average, which shows that the role of energy conservation and emission reduction is already severe and urgent in the future (Fahim et al., 2023). Several efforts and policies have been carried out by countries in the world, one of which is through the United Nations Framework Convention on Climate Change, namely the Paris Agreement (Kayakuş et al., 2023).

The Paris Agreement was implemented in Paris, France, on December 12, 2015, and entered into force on November 4, 2016 (United Nations, 2016). 196 countries around the world signed the agreement with the main goal of keeping the increase in global average temperature under control, which is below 2 degrees Celsius (Lidskog & Sundqvist, 2022.). A total of 196 groups consisting of various groups work together to achieve the goals of the Paris Agreement, one of which is through developed countries that help developing countries through capacity-building efforts (Siraj, 2019). This involvement is no exception to the member countries of the Association of Southeast Asian Nations (ASEAN) (Fahim et al., 2023). In 2020, countries in ASEAN ranked fifth as the region with the largest economy in the world. The high level of economic activity in the region contributes to the projected greenhouse gas emissions, which are estimated to reach 60 per cent by 2050 (Lieu & Ngoc, 2023). The average amount of greenhouse gases also supports this problem from the years before the Paris Agreement and after the Paris Agreement, namely 2013 – 2020, where 2020 is the last data on the number of greenhouse gases that can be accessed to date at the International Monetary Fund (IMF).

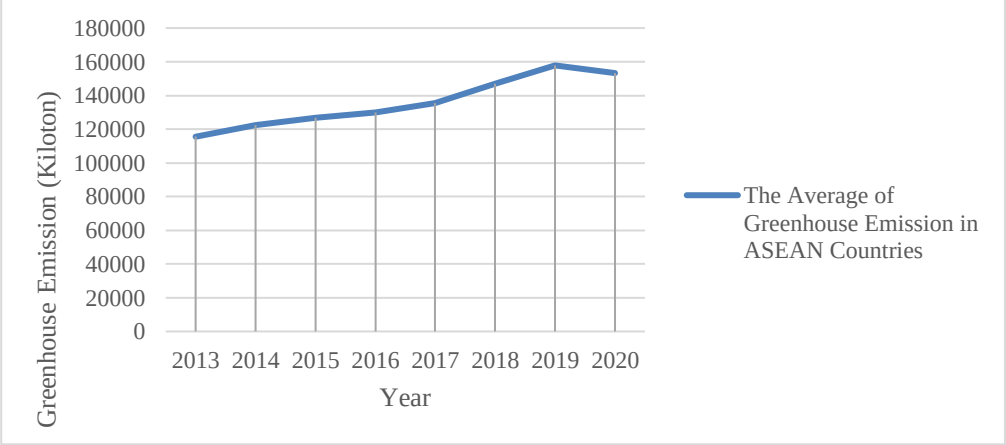

Figure 1. Average Amount of Greenhouse Gases in ASEAN Countries
Source: International Monetary Fund

Figure 1 shows that the average amount of greenhouse gas emissions increased from 2013 to 2020, and the increase reached its peak in 2019, which was 153459.5 kt of

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greenhouse gas emissions. However, the average decreased in 2020 due to the impact of the COVID-19 pandemic, which made the industry and the economy pause for a moment due to the implementation of social restrictions.

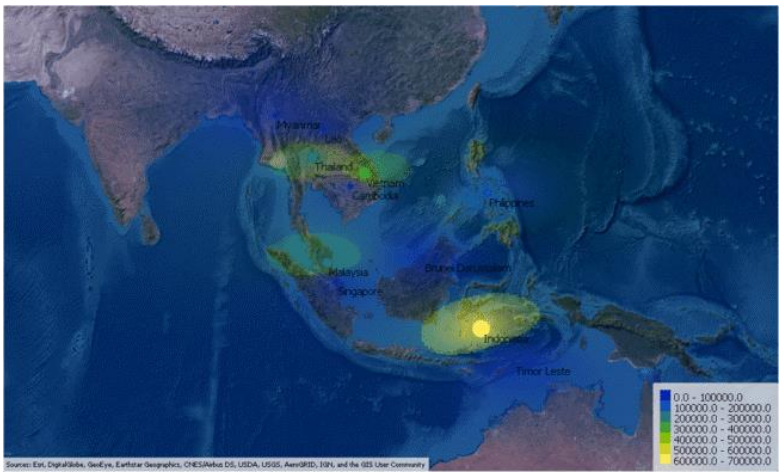

Figure 2. Map of the distribution of Greenhouse Gas Emissions in ASEAN Countries
Source: IMF processed using GeoMap Orange Data Mining, 2024

The highest amount of greenhouse gases occurred in Indonesia, which was 605290.6 kilotons of carbon dioxide gas equivalent, as can be seen in Figure 2, where Indonesia has a yellow dot on the map. In addition, the increase in greenhouse gases and efforts to reduce them are also influenced by several social, political, and state indicators. Research conducted by Oyewo et al. (2024) indicates that several indicators of world governance, namely control of corruption and voice accountability, significantly and negatively affect the level of greenhouse gas emissions. Meanwhile, political stability and government effectiveness have a positive impact on the rate of greenhouse gas emissions. The study further said that regulatory quality and the rule of law do not have a significant effect on greenhouse gas emissions. Another result of research conducted by Wen et al. (2022) indicates that the quality of a country's government actually increases greenhouse gas emissions.

The problem of environmental degradation is a significant challenge to the country's ability to manage policies (Gricar et al., 2023). Responding to global climate change and undertaking substantial reforms related to the energy structure and greenhouse gas emissions are part of efforts to achieve the United Nations' sustainable development goals (Indriawati, Gravitiani, Soesilo, & Cahyadin, 2023). Effective governance is increasingly gaining attention from researchers, with the aim of minimizing environmental damage. However, the existing literature on the role of the government in environmental degradation is still limited. Therefore, this study aims to explore the impact of governance quality, which includes Voice and Accountability, political stability no violence, government effectiveness, regulator quality, rule of law, and control of corruption in ASEAN countries on greenhouse gas emissions.

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2.Literature Review

This study uses a multi-theoretical approach that provides a strong basis for discussing the impact of governance mechanisms on environmental issues (Barus and Wijaya, 2022). The state governance mechanism, according to the World Bank (2024), consists of several indicators used in this study, namely Voice and Accountability, political stability no violence, government effectiveness, regulator quality, the rule of law, and control of corruption. These indicators are the impact of the state governance mechanism on carbon emission performance discussed as follows:

Voice and Accountability to greenhouse gas emissions.

Voice & Accountability (VA) is an important aspect of state governance in managing the environment (Word Bank, 2024.). Voice & Accountability reflects the extent of citizens' participation in the election of their government, as well as freedom of expression, assembly, and free media (Costantiello et al., 2023). Reducing carbon emissions has been a major topic in recent public debates (Kwame et al., 2023). In regions where press freedom is respected, people can voice their concerns, provide input on environmental governance, and provide advice on environmental projects (Santika et al., 2022). To avoid public criticism, especially in regions with strong public opinion and freedom of expression, countries in ASEAN must pay attention to attitudes and efforts in reducing greenhouse gas emissions (Matthews et al., 2023). This is done as a contribution to the implementation of the Paris Agreement, which aims to reduce greenhouse gas emissions. Research by Aulia and Agustina (2015) has proven that environmental performance is positively related to environmental media coverage. Other studies have also noted a positive correlation between voluntary environmental disclosure and negative media coverage related to environmental fines, suggesting that companies tend to use the media to correct negative views of environmental practices and improve public perception (Fatkhullah, 2023).

Political Stability No Violence Against Greenhouse Gas Emissions.

According to the World Governance Indicators (WGI), Political Stability No Violence (PSNV) is used as a measure of perception of the possibility of political instability or politically motivated violence, including terrorism (World Bank, 2023). Countries that have good political stability provide a calm environment so that the government and society can control pollution caused by negative externalities. In addition, political stability also has a positive relationship with lower levels of environmental damage, which suggests that political stability can reduce the country's tendency to engage in environmental destruction (Hacıimamoğlu & Sungur, 2024).

From the perspective of legitimacy theory, when society creates an environment conducive to the development of the country by maintaining political stability as part of the social contract, the state will feel obligated to give back to society by addressing urgent environmental issues, such as controlling carbon emissions (Simionescu, Radulescu, Balsalobre-lorente, & Cifuentes-faura, 2023). Therefore, countries in ASEAN may have an ethical obligation to address emissions that are directly or indirectly related to their activities (Journal & Purcel, 2019). Previous studies have shown that political

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stability affects the practice of the state and the private sector in addressing environmental issues (Khoirudin, 2023).

Government Effectiveness on Greenhouse Gas Emissions.

The WGI Index refers to Government Effectiveness (GE) as a perception of the quality of public services, the quality of civil servants, the level of independence from political pressure, the quality of policy formulation and its implementation, as well as the credibility of the government's commitment to the policy (World Bank, 2024). The quality of policy formulation and implementation can affect the extent to which a country's entities address environmental issues such as carbon emission management. From the perspective of legitimacy theory, people will want to comply with relevant government policies regarding environmental management to show that they are responsible corporate citizens who respect the social contract (Cheng et al., 2024). A high level of government commitment to enforcing public policies can encourage people to comply with existing environmental laws to avoid sanctions. In addition, the government's credibility in commitment to policies inspires public confidence that sanctions will be imposed on private-sector organizations that violate environmental laws (Imran et al., 2024).

Quality Regulator Against Greenhouse Gas Emissions.

In the context of WGI, quality regulators (RQ) reflect the perception of the government's ability to formulate and implement good policies and regulations to support the growth of a country (World Bank, 2024). In addition, Regulatory Quality also includes the sustainability of the institutional framework responsible for the implementation of environmental laws to achieve policy targets (Social, 2022). An increase in RQ through the implementation of environmental policies that encourage decarbonization is expected to deepen the country's involvement in reducing carbon emissions (Ng et al., 2022). To fulfil their part in the social contract, as suggested by the theory of legitimacy, the government creates a supportive environment for the community in carrying out regulations by implementing policies that support environmental protection (Pinatik et al., 2023). In response to these good actions, the government and the community can address urgent environmental issues, such as reducing carbon emissions. People tend to comply with environmental laws when quality regulations are strong to avoid sanctions. Studies have shown that government regulation is a strong factor that affects managerial and organizational practices (Jahja and Sulistyarso, 2020).

Rule of Law Against Greenhouse Gas Emissions

The law reflects the extent to which individuals or groups in society have confidence and obedience to applicable rules, especially in terms of contract enforcement, property rights, police, courts, and the potential for crime and violence (World Bank, 2024). The effectiveness of the legal system greatly determines the success and level of law enforcement (Sweet and Sandholtz, 2023). Countries with strong legal systems generally have private sector organizations that comply with environmental protection laws, including carbon emission management (Schuster, 2018). From the perspective of

legitimacy theory, multinational companies will tend to reduce carbon emissions to avoid violating their social contracts in complying with the regulations governing the company's activities. Multinational companies will seek to show that they are responsible corporate entities by complying with the laws of the country. From the point of view of the institutional theory of isomorphism, environmental regulation will naturally encourage multinational companies to operate in accordance with emission reduction laws. Research has shown that law enforcement is a strong coercive factor that affects organizational practices (Sweet, 2022)

Control of Corruption Against Greenhouse Gas Emissions.

Corruption is a dishonest or illegal act that involves an individual or several individuals who have power. This act is an abuse and exploitation of power to obtain personal gain (Mun et al., 2022). According to the World Bank (2024), Corruption Control reflects the extent to which public power is used for personal gain, including corruption on a small or large scale, as well as the 'confiscation' of the state by elites and individual interests. In accordance with the theory of legitimacy, creating a supportive environment for private sector organizations to thrive, such as controlling corruption in society, is essential for governments to fulfil their social contracts (Hou et al., 2024). Therefore, areas characterized by high levels of corruption/low corruption control will provide an enabling environment and motivation for organizations to circumvent environmental laws (Duan et al., 2024); thus, high emissions are ignored as there may be no consequences. When public institutions are involved in corruption, this can have an impact on carbon emissions because existing institutional structures may not provide punishment for violations of these environmental regulations (Zhang, 2023).

In addition to the aspects of the world governance indicator (WGI), the influence of greenhouse gas emissions is also influenced by world regulations listed in the Paris Agreement in 2016. The regulation as a whole is a sign used by countries, including ASEAN members, to implement the world's zero carbon target by 2030. However, other indications also mention that the target has not been fully implemented by ASEAN member countries, the majority of whom are still in the developing country stage and rely on industry as a milestone in their economy.

3. Research Method

Data and Variable

This study uses panel data from eleven countries in ASEAN, namely Singapore, Malaysia, Philippines, Indonesia, Thailand, Brunei Darussalam, Cambodia, Myanmar, Laos, Vietnam, and Timor Leste. The period used in the data is the period from 2013 to 2020, with the justification of the year before the establishment of the Paris Agreement until the updated year provided by the IMF. There are seven independent variables and one dependent variable in this study, as follows:

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Table 1. Variable Operational Definition

Variable	Information	Unit	Data Source
Greenhouse Gas Emissions	The combination of greenhouse gases is carbon dioxide (CO2), sulfur dioxide (SO2), nitrogen monoxide (NO), nitrogen dioxide (NO2), methane gas (CH4), and chlorofluorocarbons (CFCs).	Kiloton setara carbondioxida (kt)	International Monetary Fund (IMF)
Voice and Accountability (VA)	perceptions of the extent to which citizens can participate in choosing their governments, as well as freedom of expression, freedom of association and free media.	Estimated governance performance (ranges from about -2.5 (weak) to 2.5 (strong)	World Bank
Political Stability No Violence (PSNV)	perception of possible political instability and politically motivated violence, including terrorism.	Estimated governance performance (ranges from about -2.5 (weak) to 2.5 (strong)	World Bank
Government Effectiveness (GE)	perception of the quality of public services, the quality of civil services and their level of independence from political pressure, the quality of policy formulation and implementation, and the credibility of the government's commitment to the policy.	Estimated governance performance (ranges from about -2.5 (weak) to 2.5 (strong)	World Bank
Regulator Quality (RQ)	Government regulations formulate and implement sound policies and regulations that enable and promote the development of the private sector.	Estimated governance performance (ranges from about -2.5 (weak) to 2.5 (strong)	World Bank
Rule Of Law (ROL)	Perceptions of the extent to which agents have trust and comply with societal rules, and in particular, the quality of contract enforcement, property rights, police, and courts, as well as the likelihood of crime and violence.	Estimated governance performance (ranges from about -2.5 (weak) to 2.5 (strong)	World Bank
Control of Corruption (COC)	Perceptions of the extent to which public power is exercised for personal gain, including small and large	Estimated governance performance (ranges from	World Bank

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Variable	Information	Unit	Data Source
	forms of corruption, as well as the "grab" of the state by elites and self-interest	about -2.5 (weak) to 2.5 (strong)	
Paris Agreement	The rule regarding efforts to reduce greenhouse gas emissions	Dummy variable Where "0" is the year before it is enacted and "1" is the year after it is enacted	World Bank

Source: International Monetary Fund and World Bank, 2024

The data was processed using two methods, namely panel data regression and then analyzed using spatial analysis through the orange data mining geomap application, as shown in Figure 3. The panel regression equation used is as follows:

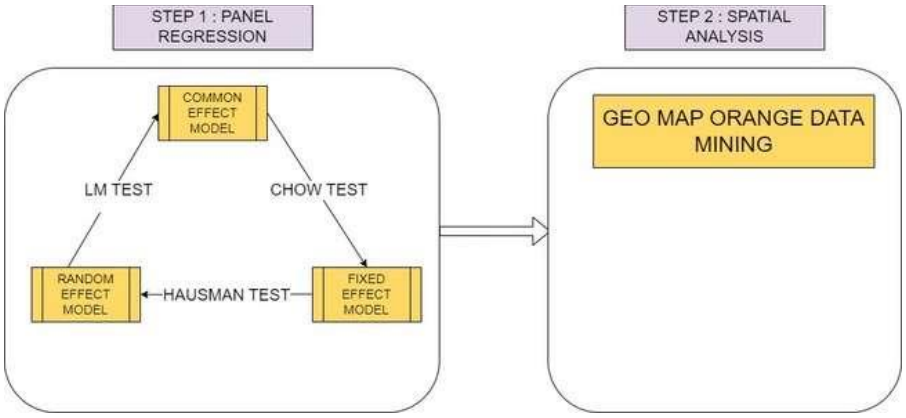

Figure 3. Step of Research

Source: Gujarati, 2003

Aspects of WGI that affect GHG

This study uses two steps in its analysis. The first step is the regression of panel data, which is used to determine the influence of world governance indicators on greenhouse gas emissions. In addition to the six indicators of world governance, other variables are used in the application of the Paris Agreement, which is assumed to use a dummy variable, where 0 is the year before the Paris Agreement is enacted. One is the year after the Paris Agreement is enacted. The regression of the panel data used has the following equation:

$$GHG_{it} = \alpha_i + \beta_1 \mathrm{VA}_{it} + \beta_2 \mathrm{PSNV}_{it} + \beta_3 GE_{it} + \beta_4 \mathrm{RQ}_{it} + \beta_5 \mathrm{ROL}_{it} + \beta_6 \mathrm{COC}_{it} + \beta_6 \mathrm{dummy}_{it} + e_{it} \quad \ldots\ldots (1)$$

Before the equation and regression results are displayed, the best model of the equation must be determined through three testing steps, namely: the Chow test, the Hausman test, and the Lagrange Multiplier test.

Uji Chow

The chow test is a test conducted to choose a good approach between the fixed effect model (FEM) and the common effect model (CEM). If the probability value < 0.005, then the model chosen is CEM, but if it is the other way around, then the best model chosen is FEM.

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Uji Hausman

After conducting a Chow test with the result of the selected model being FEM, then a Hausman test is carried out, namely by choosing whether the best model chosen is FEM or Random Effect Model (REM), the FEM model is chosen if the probability value < 0.005 while if the opposite happens, the selected model is the REM model.

Uji Lagrange Multiplier (LM)

The test was carried out to determine the selection of the model between REM and the Common Effect Model (CEM). The REM model is chosen if the probability value < 0.005, while if it is the other way around, the selected model is the CEM model.

Spatial Analysis

The influencing variables were then analyzed using spatial analysis in the form of mapping using the Geo-Map orange data mining application. The analysis is one part of the Geography Information System (GIS) that includes latitude and longitude points to determine the distribution of world governance variables that affect greenhouse gas emissions.

4. Results and Discussion

Results

There are six indicators of world governance plus one dummy variable, which is the implementation of the Paris Agreement, which has been tested for its impact on greenhouse gas emissions in eleven ASEAN member countries. The selection of the best equation model was carried out with three tests, namely the Chow test, the Lagrange multiplier test, and the Hausman test. The test of the model indicates that the probability result in the Hausman test is > 0.0005, and the LM test results show a probability of < 0.0005, so the Random Effect Model (REM) is the best model with the following equation:

$$GHG_{it} = 113927{,}0_i - 5106{,}07\text{VA}_{it} - 46015{,}97\ \text{PSNV}_{it} - 58263{,}85\ GE_{it} + 33755{,}6\ \text{RQ}_{it} + 37781{,}32\text{ROL}_{it} - 62702{,}78\text{COC}_{it} - 20660{,}19\text{dummy}_{it} + e_{it} \quad \ldots\ldots\ldots (2)$$

The equation was then further tested using a t-statistical test to determine which variables affected GHG. The test results are shown in the following table.

Table 2. Panel Data Regression Results

Variable	Coefficient	Probability
VA	−5106,07	0,8172
PSNV	−46015,97	0,0037
GE	−58263,85	0,0225
RQ	33755,6	0,1341
ROL	37781,32	0,1432
COC	−62702,78	0,0037
dummy	−20660,19	0,002

Source: Data processed (2024)

The probability value in Table 2 shows that the variables Political stability no violence, Government Effectiveness, Control of Corruption, and policy implementation for the reduction of greenhouse gases in the Paris Agreement are < 0.0005. This indicates that these four variables can reduce greenhouse gas emissions in eleven ASEAN member

countries. The coefficient value of Political Stability No Violence (PSNV) is -46015.97, which means that every increase in the estimated 1 PSNV value can reduce greenhouse gas emissions by 46015.97 kt. PSNV is one of the indicators of world governance that determines crucial factors in a country. The dimension of political stability in WGI can also be related to having a stable political environment that encourages change and protects against bad influences from political influences that can affect the environment (Gök, 2021). The research (Simionescu et al., 2023) also presented the results that political stability accompanied by violence and terrorism mitigation programs can support the role of the state to be able to focus on the goal of alleviating environmental issues, including reducing greenhouse gas emissions. The majority of the average estimated PSNV value in each country in ASEAN is at the overall average from 2013 – 2020. As seen in figure 3

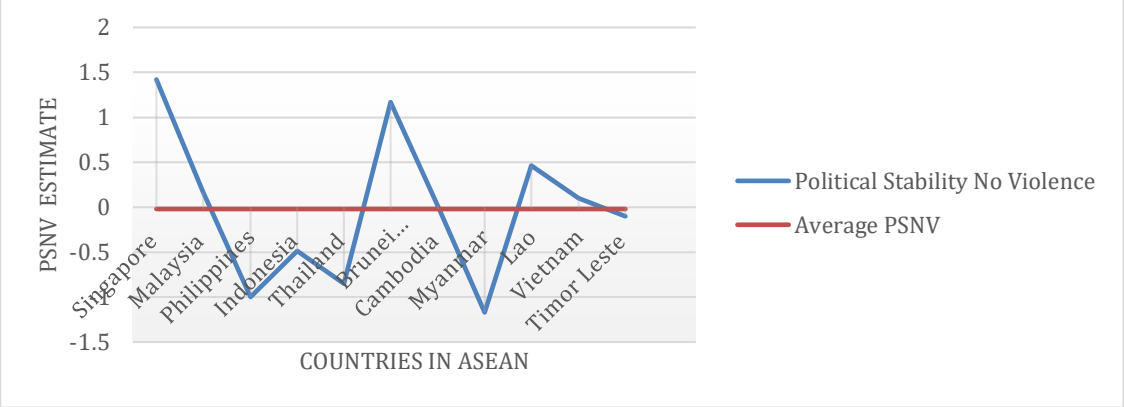
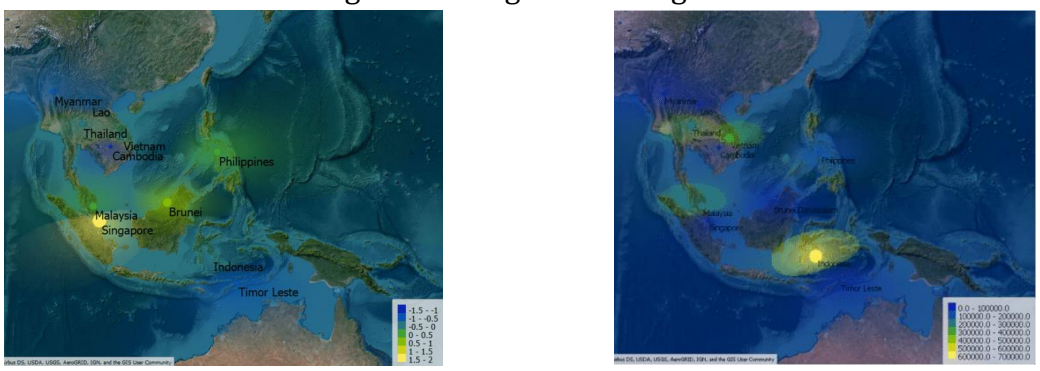


Figure 4. PSNV Estimates in ASEAN Countries

Source: World Bank, 2024

The estimated PSNV score in Figure 4 explains that there are seven countries with an above-average level of political stability. A total of four other countries are at the estimated level of PSNV below average, namely the Philippines, Indonesia, Thailand, and Myanmar. This adds to the justification that countries with below-average PSNV estimates are countries with high levels of greenhouse gas emissions in ASEAN.



a. Map of the Distribution of PSNV Estimated Values in ASEAN Countries

b. Total greenhouse gas emissions in ASEAN

Figure 5. Average Map of Estimated Political stability no violence and Total Greenhouse Gas Emissions in ASEAN in 2013 - 2020

Source: World Bank processed using Orange GeoMap Data Minning, 2024

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The distribution map of PSNV estimates and greenhouse gas emissions in ASEAN shows that Figure 5B shows that countries with bright yellow and green dots are countries with high levels of greenhouse gas emissions. The high emission level is also supported by the low PSNV estimate shown in Figure 5A. This is in accordance with the results of research conducted by (Jain, Jain, & Jain, 2023), which show that political stability is closely related to the reduction of environmental degradation, one of which is the decrease in greenhouse gas emission levels (Fuddin, 2024).

The next influential indicator of world governance is Government Effectiveness (GE). The coefficient in the GE variable shows a value of -58263.85, and every increase of 1 unit of GE estimation will decrease the GHG value by 58263.85 kt. The government's contribution to each country in ASEAN to reduce the value of greenhouse gas emissions can be seen in several countries in ASEAN, one of which is through the implementation of carbon taxes. These countries include Indonesia, Malaysia, the Philippines and Singapore (Ayu et al., 2024). A carbon tax is a form of tax imposed on the use of fuel based on its carbon content level. Fuels that contain hydrocarbons have carbon elements, which will then turn into carbon dioxide and other compounds when burned (Indriawati, Gravitiani, & Samara, 2024) One of the countries that has had a successful carbon tax is Indonesia. The implementation of the carbon tax by the Indonesian government can provide potential state revenue from the energy sector worth IDR23,280 trillion by 2025. The potential tax revenue generated from carbon taxes can be used to address the impact of climate change to support the achievement of Sustainable Development Goals (SDGs) (Gravitiani, Sasanti, Sartika, & Cahyadin, 2022). The implementation of the carbon tax is expected to change industrial behaviour into green economic activities with low carbon emissions so as to achieve the SDGs (Meila et al., 2024).

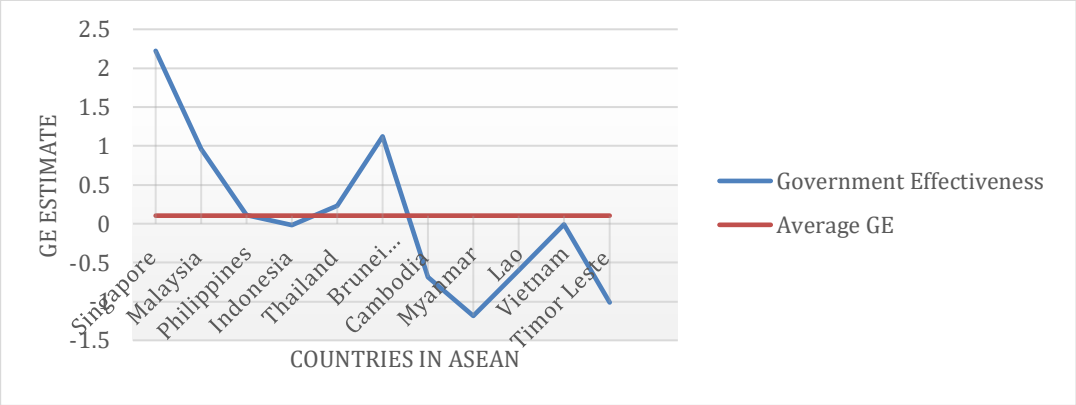

Figure 6. GE estimates in ASEAN countries

Source: World Bank, 2024

There are five countries with an average GE estimate that is higher than the total average GE estimate in ASEAN countries in the period 2013-2020. The five countries are Singapore, Malaysia, the Philippines, Thailand, and Brunei Darussalam. The overall average of GE's estimate in ASEAN is 0.1, which shows the effective role of the government in efforts to reduce greenhouse gas emissions in ASEAN countries. Based on

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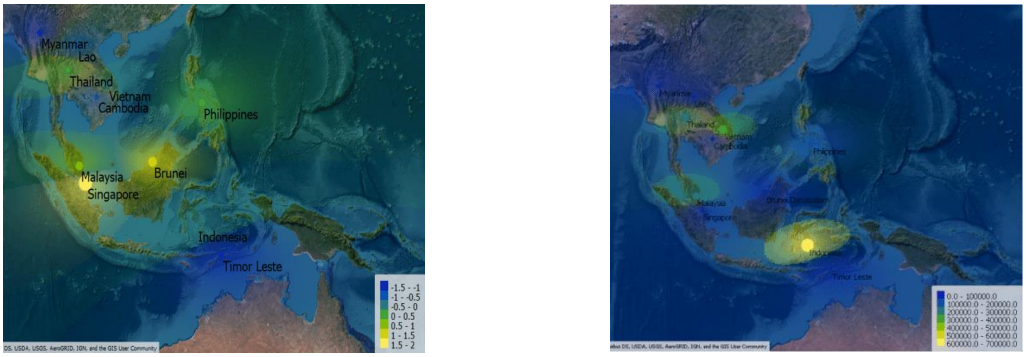
the World Bank indicator, the strong role of GE is shown by an estimated value close to 2.5.



a. Map of the Distribution of GE Estimated Values in ASEAN countries

b. Total greenhouse gas emissions in ASEAN

Figure 7. Average Map of Government Effectiveness Estimates and Greenhouse Gas Emissions in ASEAN in 2013 - 2020

Source: World Bank processed using Orange GeoMap Data Minning, 2024

The map in Figure 7A shows that countries with high GE estimates, indicated by the yellow and green dots, have lower levels of greenhouse gas emissions compared to countries with lower GE estimates. The third indicator that affects GHG reduction in ASEAN is Control of Corruption (COC). The value of the coefficient in the regression results shows the number -62702.78, which, with an increase in COC estimate of 1 unit, is able to reduce GHG by 62702.78 kt. These results are in line with research conducted by Mahendra et al. (2022), namely, that control of corruption has a significant negative effect on greenhouse gas emissions in ASEAN countries. Corruption control reflects the perception of the extent to which public power is used for personal gain, including small and large forms of corruption, as well as the "capture" of the state by elites and self-interest (Abdullah & Dwi, 2020).

Some theoretical research, such as those conducted by Tashim & Rudatin (2023), suggests that there is an inverse relationship between corruption and the environment. This can be seen from the impact of corruption on the strictness of environmental laws. The more rampant the corruption, the weaker the enforcement and compliance with environmental laws. As a result, weak environmental laws will reduce social welfare. Therefore, it is estimated that corrupt countries will have higher levels of pollution emissions. The same thing was expressed by Cahyono et al. (2015), who categorized the impact of corruption on the environment into two types. The first type is the effect of corruption on the content of environmental laws, where lax laws in terms of penalties or standards are more likely to be found in corrupt countries (Gravitiani & Juwita, 2020). The second type is the practical application of environmental law, where one may have a strict environmental law content; However, it was not enforced because of rampant corruption. In both cases, pollution emission levels and environmental degradation will increase.

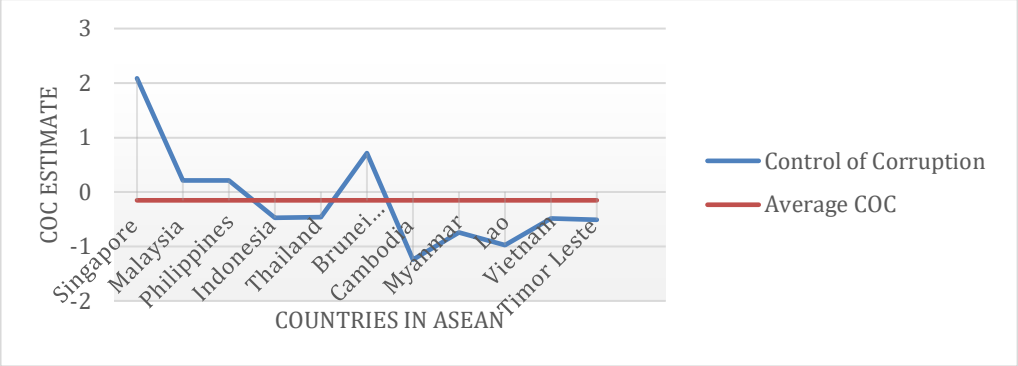
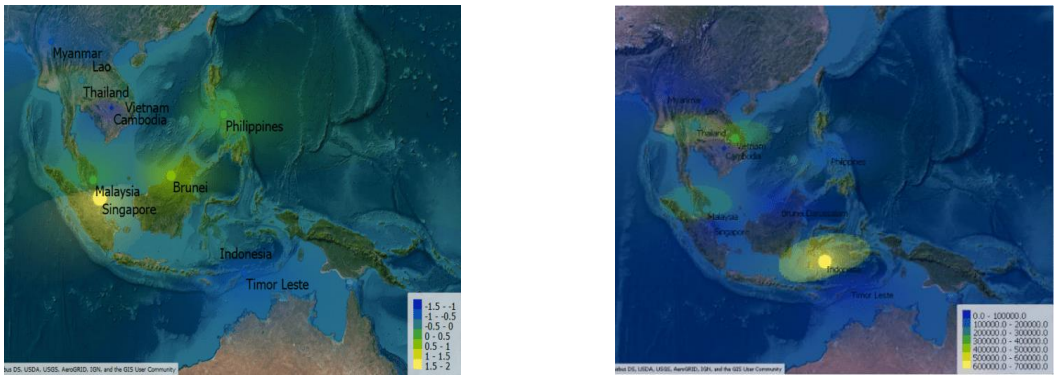


Figure 7. Estimated COC in ASEAN countries

Source: World Bank, 2024

The number of countries with an average COC that is higher than the average of countries in ASEAN is much smaller than other influential indicators. There are four countries with an average that is higher than the average total in ASEAN. The highest COC estimate in ASEAN is Singapore, with an average of 2.08 from 2013 to 2020, which is almost close to the highest estimate of 2.5. This is also supported by the distribution of estimates shown in figures 8A and 8B as follows.



a. Map of the Distribution of COC Estimated Values in ASEAN Countries

b. Total greenhouse gas emissions in ASEAN

Figure 8. Average Map of Government Effectiveness Estimates and Greenhouse Gas Emissions in ASEAN in 2013 - 2020

Source: World Bank processed using Orange GeoMap Data Minning, 2024

Figure 8A shows that Singapore, Malaysia, the Philippines, and Brunei Darussalam have lighter dots on the map. This is supported by Figure 8B, which shows that these countries have dim coloured points, which indicate that the level of greenhouse gas emissions in these countries is lower compared to countries with low COC estimates. This fact makes the basis that the role of controlling corruption is to reduce the level of greenhouse gas emissions in ASEAN countries.

In addition to world governance indicators, other factors are able to reduce greenhouse gas emissions in ASEAN countries, namely the implementation of the Paris Agreement. The dummy coefficient in Table 2 shows a value of -20660.19, and the implementation of the Paris Agreement since 2016 has been able to reduce greenhouse gas emissions by 20660.19 kt in ASEAN countries. This is proof that these countries have

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implemented the Paris Agreement with the main goal of achieving the SDGs goal, namely reducing greenhouse gas emissions (*ASEAN, 2021*.).

5. Conclusion

Climate change is an urgent issue that is being faced by the world community. One of the causes of climate change is an increase in greenhouse gas emissions. Countries around the world have begun to implement policies to reduce greenhouse gas emissions, one of which is by strengthening state governance. Eleven ASEAN member countries apply these indicators, and three of the six influential World Governance Indicators are: Political Stability No Violence/Terrorism, Governance Effectiveness, and Control of Corruption. In addition to these indicators, another factor that contributes to reducing the effect of greenhouse gases is the implementation of policies contained in the Paris Agreement in 2016. Governments in ASEAN countries need to increase additional efforts, such as increasing cooperation related to climate change. Besides that, each country also needs to increase its environmental responsibility, especially in countries with industrial sectors that support high greenhouse gas emissions.

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