

# Evidence of Greenhouse Effect : Commitment to Disclosure Gas Emissions

Kiryanto, Winarsih  
 Faculty of Economics,  
 Universitas Islam Sultan Agung  
 Semarang, Indonesia  
[kiryanto@unissula.ac.id](mailto:kiryanto@unissula.ac.id)

**Abstract**—Fighting against global warming is a problem that is being fought in the world, because it can increase the surface temperature of the earth and affects the reduced ability to absorb carbon dioxide in the atmosphere. Currently the disclosure of greenhouse gas emissions has only been done voluntarily therefore not all companies give the information in their reports. Hence, to achieve the reduction of greenhouse gas emissions, industry players must be committed to this action and disclosure should no longer be done voluntarily, given the huge amount of carbon emissions produced by industries in Indonesia. The study aims to investigate the effect of commitment disclosure to overall greenhouse gas emission reduction. The populations in this study were companies located in Central Java where data is taken proportionally. The development of dimensions began with identification of disclosure measures of commitment from previous studies. The data used were obtained from the survey results of the company players and obtained 10 items of measure that was identified. At a later stage, the investigation of the relationship between disclosure of commitment to the reduction of greenhouse gas emissions was carried out using a structural equation model.

**Keywords**—*Dimension Development; Commitment Disclosure; greenhouse gas emission reduction*

## I. INTRODUCTION

Fighting against global warming is a problem that is being fought in the world, where one of the causes is greenhouse gas emissions. Indonesia is one of the largest contributors to greenhouse gas emissions in the world, and it is estimated that by 2020 carbon gas emissions will be 3 gigaton CO<sub>2</sub>. Various efforts have been made to reduce greenhouse gas emissions, among others by Presidential Regulation No.61 of 2011, on the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK). However, the implementation of greenhouse gas emission disclosure has only been done voluntarily therefore not all companies give the information in their reports. Therefore, to realize the reduction of greenhouse gas emissions, the commitment of industry players and disclosure should no longer be done voluntarily given the huge amount of carbon emissions produced by industries in Indonesia.

In fact, not all companies disclose the information in the report. Therefore, the industry is expected to reduce greenhouse gas emissions as the realization of corporate social responsibility / CSR (Pradini, 2013). One of the regulations made by IAI as stipulated in PSAK No. 1

(revised 2009) paragraph twelve, mentioned: "Entities may also present, separate from financial statements, environmental reports and value added statements, especially for industries where environmental factors play an important role and for industries that consider employees as a group of report users who play an important role. The additional report is outside the scope of the Financial Accounting Standards ". The disclosure of greenhouse gas emissions is an example of an environmental disclosure, part of the additional statements set forth in the PSAK.

## II. LITERATURE REVIEW

One way that can be done by companies to legitimize their activities is by making public disclosure (Uyar, Kilic, and Bayyurt, 2013). Disclosures in the CDP are divided into five broad categories: climate change, greenhouse gas emissions, energy consumption, greenhouse gas reductions, and carbon emissions.

### A. Theory of Legitimacy

The theory of legitimacy states that the more intensive the industry produces in carbon the greater the pressure it gets. This is reinforced by research by Mckinnon and Dalimunthe (1993), Collet and Harsky (2005) who found that in Australia, steel, oil and gas industries often receive serious attention as sensitive political issues. Companies included in this industry are required to provide larger voluntary disclosure reports (Chu, Chatterjee and Brown, 2012), especially disclosures by carbon-intensive firms will greatly assist the company in gaining legitimacy from the community and as a form of responsibility. Thus, the theory of legitimacy focuses on the interaction between the company and the community environment (Ghozali and Chariri, 2007). To gain legitimacy, companies must communicate environmental activities by disclosing the social environment (Berthelot, 2011). Environmental disclosure is considered useful to restore, enhance and maintain the legitimacy that has been (Hadjoh and Sukartha, 2013).

### B. Carbon Emissions

Carbon emissions are defined as release of gases containing carbon into the Earth's atmosphere layer. Release occurs due to the combustion process of carbon in both singular and compound form. Martinez (2005) states that

carbon emissions or greenhouse gases based on the source are divided into two, natural greenhouse gases and industrial greenhouse gases. Natural greenhouse gases are beneficial for living things because they can keep the earth's temperature warm at 6 ° C (Martinez, 2005) while industrial greenhouse gases are derived from industrial activities carried out by humans that make carbon dioxide levels more dense.

The industrial and energy sectors are human activities that produce a lot of carbon dioxide (Stolyarova, 2013). The industrial sector using energy sources from fossil fuels such as petroleum and coal has led to an increase in greenhouse gases in the Earth's atmosphere (Ministry of Environment, 2012). Any burning of fossil material will increase carbon emissions in the wild. This is exacerbated by illegal logging that can reduce the environmental capability to convert the carbon gas (United States Environmental Protection Agency, 2014).

### *C. Disclosure of Carbon Emissions*

One way that companies can take to legitimize their activities is by making public disclosure (Uyar, et al 2013). The area of disclosure can be done with reference to the questionnaire provided by the CDP (carbon disclosure project). The questionnaire focuses on how the company's condition is affected by global warming or the steps companies have taken to reduce greenhouse gas emissions (Jaggi and Freedman, 2011). Although disclosure of carbon emissions in Indonesia is a voluntary disclosure, companies should pay more attention to this matter since the last few decades of worsening environmental conditions and the widespread demands of the society to conserve a proper environmental conditions. Companies that disclose carbon emissions will benefit from getting legitimacy from stakeholders, avoiding threats, especially for companies that produce greenhouse gases such as increased operating costs, reduced demand, reputation risk risk), legal proceedings, fine and penalties (Berthelot and Robert, 2011).

## III. RESULTS AND DISCUSSION

Based on the database and the results of the verification on the number of companies registered in Central Java Province in 2017 as many as 97 companies consisted of large companies with employees of 100 people or more and the company is with the number of employees between 20 to 99 people. Based on industrial sector, there are 7 industry sectors which are grouped for analysis in this research, which are Agriculture, Mining, Basic Industry and Chemicals, Infrastructure, Utilities & Transportation, Consumer Good Industry, Miscellaneous Industry and Property, Real Estate and Building Construction. Furthermore, based on the company's emission category, most companies are medium-carbon emission category of 65.67%, followed by companies with low emission carbon category (18.88%) and high emission carbon (15.46%).

TABLE 1. NUMBER OF SAMPLE BY COMPANIES' EMISSION CATEGORY

No	Companies' Emission Category	Percentage
1	Low Carbon Emission	15.46
2	Medium Carbon Emission	65.67
3	High Carbon Emission	18.88
	Total	100

The presence of PP 47 of 2012 which is binding, then the practice of disclosure of corporate environmental responsibility should increase. Efforts to achieve emission reduction targets, through the Green House Emission Reduction Movement (GRK) are closely linked to the role of the private sector in carrying out its environmental responsibilities. Based on the above data shows that there is still a high emission of carbon as much as 15.46%, it means that efforts need to be done to reduce greenhouse gas emissions. This will be achieved if it is supported by all levels of society. Some of the key findings identified through interviews of key person and company employees are as follows:

1. An understanding of global warming occurs because of the ozone layer is damaged, while the greenhouse effect occurs because of the increased concentration of carbonmonoxide gas due to combustion of coal gas oil. The impact on the earth's environment is getting warmer, the greenhouse effect is getting warmer and the effect in climate becoming anomaly, unpredictable.
2. There is a change due to the emission gases in the environment that causes the abnormal climate
3. Effect of nitrogen gas on climate change, the creation of nitrogen generated from food waste, increased emissions of nitrogen gas can cause the greenhouse effect and become global warming

Based on these findings indicate that employees are aware of the existence of global warming caused by increased concentrations of carbonoxide gas resulting in greenhouse effect. Therefore, the effort to be done is to validate attributes of the disclosure of commitment dimensions to the reduction of greenhouse gas emissions. Based on the literature study, we obtained various attributes of disclosure dimension of commitment to the reduction of greenhouse gas emissions.

1. Global warming is a global issue at the moment and is very important to look for solution
2. Greenhouse effect is a picture of global warming conditions that occur at home
3. A proper amount of greenhouse gases can protect the earth and stay warm in space
4. Excessive amounts of greenhouse gases causes global warming
5. CO<sub>2</sub> gas will not contribute to greenhouse gases except N, CH<sub>4</sub> and CFC
6. Efficient management by food producers can reduce food waste so that the environment is clean
7. Choosing local products
8. Information on eco-friendly behavior
9. Conducting activities and activities that enhance environmental sustainability

10. The existence of severe sanctions based on government regulation

#### IV. CONCLUSION

From the research that has been done, it can be drawn the conclusion as follows:

1. There are many companies who produce high carbon emissions in Central Java of 15.46%. This indicates the need for government oversight through sanctions imposed on violating companies
2. Respondents are aware of the understanding of global warming due to the presence of damaged ozone layer, while the greenhouse effect occurs due to the increased concentration of carbon dioxide gas.
3. The impact on the earth's environment is getting hotter, the greenhouse effect is getting warmer, the greenhouse effect is getting warmer and the effect in climate becoming anomaly, unpredictable.
4. The attributes of disclosure of commitment dimensions to the reduction of greenhouse gas emissions consist of 10 items
5. Common problems encountered:
  - a) Lack of commitment of company leadership to attempt to reduce greenhouse gas emissions.
  - b) Planning to process waste is not good yet.
  - c) Plastic waste that does not decompose
  - d) There is leftover material, enough food left over

#### Limitations

Limitations of this study are as follows:

1. The object of research is a company that diverse industrial sectors, so it does not focus and requires a long time to solve it.
2. The number of research objects has not been representative so the study is very limited.

#### Suggestion

1. This study limits the existing companies in Central Java alone, so it needs to be considered in subsequent research to meet the full range of research results.
2. The results of this study after re-verification and established implementation methodology, may be used by companies to commit to reducing greenhouse gas emissions.

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