

## **Board Diversity and Environmental Disclosures: A Study of Indonesian Listed Companies**

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**Abstract:** *This research examines whether the diversity of boards of commissioners and boards of directors affects environmental disclosures. We include all non-financial firms listed on the Indonesian Stock Exchange during 2018-2020 and use the generalized least square (GLS) model. Our findings show that the diversity of age and ethnicity of both the board of commissioners and the board of directors positively influences environmental disclosures. Further, while boards of directors' gender diversity positively affects environmental disclosure, there is no support for the impact of boards of commissioners on the disclosures. Lastly, there is no empirical support for the influence of directors' or commissioners' nationality on the companies' environmental disclosures. The findings highlight the importance of promoting board diversity on both boards of commissioners and directors.*

**Keywords:** *Environmental Disclosure, Board Diversity, Board of Directors Diversity, Board of Commissioners Diversity, Resource Dependence Theory, Sustainability*

**Abstrak—** *Penelitian ini menguji apakah keragaman dewan komisaris dan dewan direksi berpengaruh terhadap pengungkapan lingkungan. Penelitian ini berfokus pada perusahaan non-keuangan yang terdaftar di Bursa Efek Indonesia pada tahun 2018-2020 dan menggunakan model generalized least square (GLS) dalam pengujian. Hasil analisis menunjukkan bahwa keragaman usia dan etnis dewan komisaris dan dewan direksi berpengaruh positif terhadap luas pengungkapan lingkungan. Lebih lanjut, meskipun keragaman gender dewan direksi berpengaruh positif terhadap luas pengungkapan lingkungan, namun tidak ada bukti mengenai pengaruh keragaman gender dalam dewan komisaris terhadap pengungkapan. Terakhir, penelitian ini tidak menemukan bukti mengenai pengaruh keragaman kebangsaan dewan komisaris maupun dewan direksi terhadap pengungkapan lingkungan perusahaan. Hasil penelitian ini mengimplikasi dukungan terhadap pentingnya mempromosikan keragaman dewan, baik dalam jajaran direksi maupun dewan komisaris, untuk mendorong pengungkapan lingkungan oleh perusahaan.*

**Kata Kunci:** *Pengungkapan lingkungan, Keragaman dewan, Keragaman dewan direksi, Keragaman dewan komisaris, Resource dependence theory, Keberlanjutan, Indonesia*

## **1. Introduction**

Sustainability is the triple bottom line concept, which represents economic, social, and environmental aspects (Elkington, 1998) to synergize each other to achieve sustainable development goals (SDGs) (Rahmawati & Budiwati, 2018). In 2015, the United Nations announced 17 goals and 169 targets for sustainable development (SDGs) as part of the 2030 agenda to end poverty, build socio-economic inclusion, and protect the environment (Swai & Yang-Wallentin, 2019; Tahjadi et al., 2019). Companies that integrate SDGs can get opportunities in the form of innovation in reaching new consumer segments, collaborating with new partners, and developing new sustainable businesses (Rosati & Faria, 2019). The demands from these stakeholders result in the company's orientation to maximize profits, which will increase by considering the social and environmental aspects of the company's strategy and operations.

Each country working on achieving sustainable development goals needs to recognize the level of achievement in identifying these goals (Morita et al., 2020). In developing countries, the focus is on the economic and social pillars rather than the environmental pillars (Swain & Yang-Wallentin, 2019). Most Indonesian companies practice slash-and-burn palm oil, causing the risk of deforestation and climate change, so the United Nations imposed a limit on palm oil imports in early 2018 to support the environmental pillar (Abdullah et al., 2020). Then, in 2019, President Joko Widodo said that the country suffered a total loss of Rp 18.3 trillion due to the actions of eleven companies that burned and damaged forests (Sholihah & Suryaningrum, 2021). In addition, other business activities, such as PT, can affect the environmental pillars. Lapindo Brantas caused residents' houses to smudge in mud due to pipe leaks, PT. Freeport Indonesia caused the gold mining land to become barren and unusable, and PT. Main Rayon causes harmful gas pollution that triggers the surrounding community to protest (Suprapti et al., 2019).

Various environmental damage due to the company's business activities in Indonesia reflects the negligence of the company's responsibility to the environment. It

has attracted the attention of stakeholders who demand that companies be more transparent in disclosing environmental activities (Ardi & Yulianto, 2020). In response to this demand, companies can demonstrate that they fulfill their responsibilities to these stakeholders by disclosing environmental information (Rupley et al., 2012; Wulansari & Sholihin, 2017). Intense media coverage has increased the demand from both public and commercial stakeholders for greater corporate responsibility and better information disclosure (Abdullah et al., 2020). One way of doing this is to disclose their environmental practices via several channels, such as annual reports, sustainability reports, and company websites (Kılıç & Kuzey, 2017). However, Djajadikerta and Trireksani (2012) show that corporate social and environmental disclosure (CSED) made by Indonesian companies on their corporate websites was low and only as a responsibility to the welfare of other human beings. Abdullah et al. (2020) argued that Indonesian companies still provide vague environmental information and use boilerplate language.

The disclosure was mainly declarative, without any specific time frame (Djajadikerta & Trireksani, 2012). For example, a declarative statement similar to this was quite easily found on almost all websites, “In 2020, Astra initiated the “Semangat Kurangi Plastik” movement to reduce plastic waste and create an environment free of plastic waste pollution. Astra reduced plastic consumption in the company by 4.9% compared to 2019. Astra also remains consistent in implementing sustainable consumption and production to encourage resource efficiency and through Astra Green Energy (AGEn) as an energy conservation program, which successfully reduced greenhouse gas emission of 461 thousand tonnes CO<sub>2</sub> equivalent....”<sup>1</sup>

Companies' informative disclosures about their environmental activities are essential for companies and users. First, firms can gain corporate value by legitimizing their actions (Fuente, 2017). Second, the companies can carry out environmental disclosures by providing an image and trust to investors because they indirectly show

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<sup>1</sup> An example of the environmental disclosure of PT. United Tractors is provided in Appendix II.

the company's ability to maintain its business sustainability through environmental information (Iatridis, 2013). Further, the information is essential to achieve competitive advantages and societal capability (Chebbi, 2020). The users can utilize the information to evaluate the company's value for future opportunities, risks, and prospects and reduce the information asymmetry between the company and its stakeholders (Karl & Orwat, 1999). All these benefits motivate companies to disclose environmental activities and to synergize sustainability aspects. Thus, companies with good environmental performance are more likely to disclose their environmental activities as it can improve their reputation (Ariesanti, 2017).

To ensure companies disclose environmental activities, we should put the government in a strategic position as it is legitimate to execute the environmental policy. To this response strategy, the Indonesian government has focused on several management programs, such as the Program Penilaian Peringkat Kinerja Perusahaan (PROPER), Analisis Mengenai Dampak Lingkungan (AMDAL), and environmental management systems (Sholihah & Suryaningrum, 2021). The program does expect to encourage companies to make environmental disclosures (Rahmawati & Budiwati, 2018). In addition, the Government of Indonesia also requires companies to provide social and environmental responsibility based on Law No. 40 of 2007, Law No. 32 of 2009, and PP 47 of 2012. However, the number of companies that make environmental disclosures in Indonesia still needs to be improved (Ningtiyas & Riharjo, 2018). Previous research shows that Indonesia's average corporate environmental disclosure was 0.2844% in 2012-2014 (Deswanto & Siregar, 2018) and 16.48% in 2015-2019 (Sholihah & Suryaningrum, 2021).

The low level of environmental disclosure reflects that most Indonesian companies still consider environmental disclosure unimportant (Suprpti et al., 2019). In addition, the rules set by the Indonesian government do not include reporting guidelines regulations, so many companies still make voluntary disclosures (Ardi & Yulianto, 2020). As a form of responsibility and to instill trust in investors, there are several environmental disclosure standards/guidelines for companies to use for sustainability purposes developed by various international NGOs, including the Global Reporting

Initiative (GRI). GRI is guidance that embodies economic, environmental, and social issues in 2000 by the GRI standards relating to the sustainability of companies and organizations and implementation in sustainability, including compliance and environmental costs based on four units (G4) stages of the standard. Implementing the GRI standards that provide information about the SDGs will help companies gain the trust of stakeholders (Rosati & Faria, 2019), as it helps them to harmonize companies' goals with stakeholders' needs and better assists investors in decision-making (Evana, 2017).

Disclosure of environmental information for corporate sustainability is one way to reduce information asymmetry between companies and investors, reduce conflicts with shareholders, and as a way for companies to promote corporate governance (Husnaint et al., 2020). Companies that implement good governance will disclose social and environmental information in sustainability reports, and it can show their performance to stakeholders (Lucia & Panggabean, 2018). Based on UUPT No. 40 of 2007, Indonesia adheres to a two-tier governance system; namely, the supervisory role is a function of the board of commissioners (BoC), and the role of executor or executive is a function of the board of directors (BoD). This system provides benefits through increased supervision quality (Tjahjadi et al., 2021).

With a defined function, each board will be responsible for aligning the company's behavior with all stakeholder pressures that drive the company towards a sustainable development process (Cucari et al., 2018). The board of directors must develop a clear, strategy-focused plan to fulfill the company's social and environmental responsibilities for sustainability (International Finance Corporation, 2018). The board of commissioners can influence the decisions and policies of the management of the board of directors to increase accountability in environmental aspects (Ardi & Yulianto, 2020). It can minimize fraud committed by management in financial reports (Sholihah & Suryaningrum, 2021). In other words, the board's composition is essential as the primary decision-maker and is responsible for the company's environmental aspects (Bakar et al., 2019).

The most important aspect of the council to discuss environmental issues is the aspect of diversity (Adeniyi & Fadipe, 2018; Anazonwu et al., 2018; Cucari et al., 2018; Bakar et al., 2019; Khairredine et al., 2020). As part of the internal mechanism in corporate governance, board diversity has received more attention in extant studies (Tarigan et al., 2020). Companies with diverse boards will have different points of view. Diverse characteristics will be more informative when discussed because such diversity provides more innovative opinions and will differ from one another (Baker et al., 2020). Previous research has identified a diversity of board characteristics and found that gender, age, nationality, and ethnicity are essential attributes that come directly from the board's personality (Khan et al., 2019). Research by Rahindayati et al. (2015) and Hadya & Susanto (2018) proved that the gender of the board of commissioners positively affects the extent of CSR disclosure. In line with these findings, Bravo (2018), Chebbi et al. (2020), and Khairredine et al. (2020) proved the positive influence between the characteristics of the board of directors and the disclosure of environmental information. However, Cucari et al. (2018) report that companies with female directors have lower environmental disclosures. Meanwhile, Trireksani and Djajadikerta (2016) and Manita et al. (2018) did not find a relationship between the gender diversity of directors and environmental disclosure.

Studies related to the diversity of the age of the board of commissioners on environmental disclosure still need to be higher. In the Indonesian context, Darmadi (2011) and Lestari & Mutmainah (2020) show that the age of commissioners positively affects company performance. Previous research related to the influence of the age diversity of the board of directors on environmental disclosure showed mixed results. Bakar et al. (2019) and Giannarakis et al. (2019) report the negative association between the age of the board of directors and environmental disclosure reported. Studies showed that the effect of the age of the board of directors on sustainability reporting was not statistically significant. Elmagrhi et al. (2019) comprehensively proved that the age of the female board of directors affects all components of the company's environmental performance. The literature on the influence of nationality and ethnicity on

environmental disclosure is still minimal, both on the board of commissioners and directors (Bravo, 2018; Rahma & Aldi, 2020).

Previous studies are generally focused on developed countries (Bravo, 2018; Manita et al., 2018; Cucari et al., 2018; Elmagrhi et al., 2019; Giannarakis et al., 2019; Chebbi et al., 2020; Khairiddine et al., 2020) which cannot be generalized to developing countries, given the differences on the environmental disclosure practices in both settings. In addition, prior research has found the impact of companies' board diversity on their environmental disclosures. However, those studies have not addressed the comprehensive characteristics of board diversity. Moreover, the previous studies have not examined the effect of board diversity in the setting of dual board (or two-tier) systems and how the diversity in each board affects companies' environmental disclosures. This study aims to fill this gap.

Therefore, this study empirically examines the effect of diversity on each board of commissioners and the board directors on companies' environmental disclosure practices in Indonesia as a developing country. Specifically, this study addresses four research questions: 1) Does gender diversity of the board of commissioners or board of directors affect companies' environmental disclosure practices?; 2) Does the age diversity of the board of commissioners or board of directors affect companies' environmental disclosure practices?; 3) Does nationality diversity of the board of commissioners or board of directors affect companies' environmental disclosure practices?; and 4) Does ethnic diversity of the board of commissioners or board of directors affect companies' environmental disclosure practices?

We include all non-financial companies listed on the Indonesian Stock Exchange (IDX) during 2018-2020. We individually examined the annual report, sustainability report, and company website to measure independent and dependent variables. The dependent variable, i.e., environmental disclosure, is measured using GRI reporting guidelines. Independent variables, which are the diversity in gender, age, nationality, and ethnicity, are measured using The Blau Index. The analysis shows that age and ethnicity diversity on the board of commissioners or the board of directors positively influence companies' environmental disclosure. Further, while the results show that

environmental disclosure is affected by gender diversity on the board of commissioners, such diversity on the board of directors does not seem to impact the disclosures. Lastly, we find no support for the impact of directors' or commissioners' nationality on environmental disclosures.

This research provides theoretical and practical contributions. Theoretically, this research provides empirical evidence regarding the relationship between the influence of board characteristics on environmental disclosure by complementing previous research. Practically, this research can provide considerations to regulators, government, and policymakers on the regulations regarding board composition as a mechanism to improve companies' environmental disclosure practices. However, this research has several limitations. First, this study only focuses on the extent of corporate environmental disclosures.

Further research can examine the quality and performance of companies' environmental disclosures. Second, this research only focuses on the personal characteristics of the board of commissioners and board of directors. Thus, it may not be sufficient to provide a broad understanding regarding the impact of professional characteristics such as tenure, educational background, level of education, and prior knowledge on the disclosures. Third, this research only focuses on non-financial listed companies in Indonesia to represent a two-tier governance system. Further research can be extended to include other countries with two-tier governance systems to increase the generalizability of the results.

## **2. Theory and Hypothesis Development**

Resource dependence theory (RDT) argues that organizational behavior is influenced by and depends on external factors (Boyd, 1990; Hillman et al., 2009; Bear et al., 2010). Thus, companies must understand their relationship with their environment to reduce uncertainty and dependence on existing resources (Pfeffer & Salancik, 1978; Hillman et al., 2009). To reduce the dependence on these resources, Pfeffer and Salancik (1978) argue that companies can take action through the board of directors, which plays



a role in the utilization of resources or in obtaining resources <sup>2</sup> (Hillman et al., 2009). The board provides several benefits for organizations by providing (1) information in the form of directives, (2) access to information on environmental contingencies, (3) preferential access to resources, and (4) legitimacy (Hillman et al., 2009).

Further, RDT argues that the board has two main implications (Hillman et al., 2009). First, external pressures companies face, i.e., environmental and external demands, influence companies' board composition. Second, the diversity in the board composition consequently affects firm performance (Hillman et al., 2009). The diversity is reflected in the differences in the board composition. The diversity of composition in board membership is assumed to form the basis of cognitive resources and is related to the elaboration process among group members (Joshi & Roh, 2009). The greater the diversity of resources in the board's composition, the greater their potential to comprehend and solve problems so that the board can communicate the environmental needs to stakeholders more effectively (Bear et al., 2010).

### *2.1. Gender Diversity in the Board and Environmental Disclosure*

RDT argues that the synergistic interaction between men and women to increase problem-solving capacity on the board reflects valuable resources that provide a competitive advantage (Gallego-Álvarez et al., 2010). Previous studies have also recognized that gender diversity is a factor that can improve company performance because the presence of women on the board adds new skills, abilities, and perspectives (Chebbi et al., 2020). Women's boards can also ensure *and take responsibility for environmental risks that are better monitored and fully disclosed* to investors (Ben-Amar et al., 2017), so the presence of women on boards will be positively associated with broad corporate environmental disclosures (Rupley et al., 2012).

In general, the literature suggests that the presence of women's boards can improve disclosure practices through monitoring (Bravo, 2018; Khairredine et al., 2020). Women can also help understand and solve problems arising from the environment.

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<sup>2</sup> In this case, the board of directors refers to a single board system, which in the context of a dual board system includes the board of directors and the board of commissioners.

Although studies examining women commissioners' influence on environmental disclosure are still very limited, Nielsen et al. (2017) examined the relationship between gender diversity and collaborative problem-solving and found that gender diversity influences decision-making and broadens the problem-solving perspective. Maula and Rakhman (2018) find that female commissioners influence the high or low level of violations of financial reporting rules by companies. In the context of this research, the higher proportion of female commissioners leads to a lower level of financial statement violations. Furthermore, research by Rahindayati et al. (2015) and Hadya & Susanto (2018) also find that the presence of women on the board of commissioners positively affects the extent of CSR disclosure. Based on the argument and empirical evidence above, the first hypothesis is proposed as follows:

*H1: The gender diversity of the board of commissioners positively affects companies' environmental disclosure.*

Practically, the character of female directors is better at handling the stakeholders' interests because they have a more collective nature than men (Manita et al., 2018). By appointing more women to the board, companies are more likely to achieve legitimacy and social acceptance because women have higher sensitivity to environmental issues (Elmagrhi et al., 2019). Khairiddine et al. (2020) show that gender diversity on the board of directors increases pressure on corporate executives to increase disclosure of corporate governance, environment, and ethics reports. The research of Chebbi et al. (2020) also proves that the presence and percentage of female directors in France's companies positively affect decision-making for environmental disclosure. Based on the arguments and empirical evidence above, this study proposes a hypothesis:

*H2: The gender diversity of the board of directors positively affects companies' environmental disclosure.*

## *2.2. Age Diversity on the Board and Environmental Disclosure*

RDT suggests that age diversity is a problematic resource to multiply. Still, age becomes a significant resource for information and experience in understanding the needs and preferences of stakeholders (Li et al., 2011). Age diversity brings excellence in human resources. Senior board members have more experience, and their

competencies have been accumulated through age (Cucari et al., 2018). Senior board members also contribute to the complex social relationships built over years of work in a particular business environment (Li et al., 2011).

On the other hand, young board members provide unique values concerned with environmental issues based on the stakeholders' interests (Giannarakis et al., 2019). Younger board members are more capable of using new management techniques and are physically capable (Li et al., 2011). Thus, age diversity can represent generational differences that help balance risk decision-making regarding environmental disclosure issues (Katmon et al., 2019).

The literature regarding the influence of the age diversity of the board of commissioners on environmental disclosure is still very limited. Darmadi (2011) found that the proportion of young members of the board of commissioners in Indonesian companies is positively associated with market performance. Similarly, Lestari & Mutmainah (2020) showed that the board of commissioners' age diversity positively affects financial performance. Accordingly, we propose the following hypothesis:

*H3: The diversity of the board of commissioners' age positively influences the extent of companies' environmental disclosure.*

Age diversity represents generational differences that influence decision-making based on the board's different values, goals, habits, experiences, and cultural norms (Cucari et al., 2018). Previous studies have reported mixed results regarding the effect of the age of the board of directors on environmental disclosure. Giannarakis et al. (2019) revealed that the director with the youngest age negatively affects environmental disclosure. Cucari et al. (2018) show that the board of directors' age does not affect the environmental, social, and governance disclosure (ESG) in Italian companies. Elmagrhi et al. (2019) proved that the age of female directors affects strategy, implementation, and environmental disclosure. Although previous research still shows inconsistent results, there is evidence that the age of the board of directors positively affects environmental disclosure (Post et al., 2011; Elmagrhi et al., 2019), so the research hypothesis is stated as follows:

*H4: The diversity of the board of directors' age positively influences the extent of the companies' environmental disclosure.*

### *2.3. National Diversity on the Board and Environmental Disclosure*

RDT indicates that the presence of international resources is one of the company's resources that has “the most valuable, unique and challenging to fake value, which is expected to increase environmental disclosure (ED) in several ways, namely: (1) differences in knowledge from countries the origins owned can be channeled to technology in companies that are increasingly developing, advanced and innovative, (2) previous experience possessed in international markets related to ED issues such as the workplace environment and justice is a valuable input for improving ED and (3) as a minority member in board groups are usually more sensitive and defend minority rights and interests of stakeholders (Katmon et al., 2019).

Differences in experience, point of view, and knowledge based on each individual significantly affect their performance (Pichler et al., 2019). The increasingly strong influence of globalization has also caused the percentage of foreign nationals to be increasingly diverse in team membership in companies around the world (Rosenauer et al., 2016). A previous study focused on the relatively low impact of foreign nationality on environmental disclosure practices. Zaid et al. (2020) reported that the representation of foreign nationals from non-executive members did not affect the company's sustainability performance because most foreign boards of Pakistani companies are Jordanian nationals, which are geographically close to one another. In the Indonesian context, Rahindayati et al. (2015) show that foreign commissioners can provide confidence that companies are professionally managed by foreign investors by disclosing broader information on CSR activities. Purnomo & Rizki (2020) prove that the more significant the proportion of foreign commissioners on the board will disclose more CSR items in the financial statements. Based on the previous explanation, the research hypothesis is stated as follows:

*H5: The diversity of the board of commissioners' nationality positively influences the extent of companies' environmental disclosures.*

Foreign directors are considered a compelling incentive to encourage executive managers to participate in corporate sustainability actions (Zaid et al., 2020). The relationship between the board of directors nationality diversity and the corporate disclosures reported by previous research still needs to be satisfied. Zaid et al. (2020) show that foreign directors have no statistically significant effect on the company's sustainability disclosure. However, Purnomo & Rizki's (2020) research shows that foreign directors improve decision-making and develop CSR disclosure strategies. Khan et al. (2019) also prove that foreign directors have different nationalities, which reflect knowledge, skills, and experiences on CSR issues in the international market to be a good determinant in improving the quality of CSR disclosure. Based on the previous studies, the research proposes the following hypothesis:

*H6: The diversity of the board of directors' nationality positively influences the extent of companies' environmental disclosure.*

#### *2.6. Ethnic Diversity on the Board and Environmental Disclosure*

As reported by BPS<sup>3</sup>, Indonesia has the most ethnic wealth in the world, with 1,340 tribes (Indonesia.go.id, 2017). One of the ethnic groups that play an essential role in advancing the Indonesian economy is the Chinese, a minority group who started their success through Deng Xiaoping's openness to modernization in various fields such as science, technology, agriculture, and many others (Setyawan, 2005). They assumed the Chinese could succeed because of their high work ethic, frugal attitude, and discipline (Kusumastuti & Sastra, 2007). The value they get from this openness becomes a culture that allows them to survive and successfully run the business (Lestari & Mutmainah, 2020). It is in line with the research dependence theory, which explains that ethnic differences are the diversity of the board that reflects the culture in the form of values, norms, and behaviors that form a person's point of view (Richard, 2000). It shows that the presence of ethnic diversity as a minority group brings added value that is useful for

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<sup>3</sup> BPS is Badan Pusat Statistik (BPS-Statistics Indonesia), a non-ministry government agency directly responsible to the president, which provides statistical data to the government and public ([www.bps.go.id](http://www.bps.go.id)).

environmental disclosure, where understanding the preferences and desires of particular stakeholders better because of the different perspectives of the inherent ethnic background is the key for the firm (Katmon et al., 2019).

The ethnic background of the commissioners reflects in their loyalty to groups with the same background (Suhardjanto & Permatasari, 2010). However, studies examining the ethnic influence of the board of directors are still deficient. Rahma and Aldi (2020) comprehensively examine the importance of the influence of the commissioner's ethnic diversity on Indonesian companies. The results showed that the ethnic variable of the commissioner positively and significantly affects CSR disclosure. Based on the previous studies, the research hypothesis is stated as follows:

*H7: The ethnic diversity of the board of commissioners positively affects companies' environmental disclosure.*

Previous literature revealed that ethnic diversity in the board of directors membership could improve the relationship between the board and stakeholders because they can understand the various dependencies of the environment, especially providing legitimacy for the company (Bravo, 2018). Previous research about ethnic diversity's effect on the board of directors reported mixed results. Khan et al. (2019) showed that ethnicity did not affect the quality of CSR disclosure in Pakistani companies. Bravo (2018) proves that the ethnic diversity of directors has a positive and significant effect on the company's disclosure strategy because the diverse ethnicities of directors better understand the importance of meeting the needs of stakeholders. In the Indonesian context, Kusumastuti & Sastra (2007) show that ethnic Chinese on the board of directors affect the company's value. Based on the arguments above, this study proposes the following hypothesis:

*H8: The ethnic diversity of the board of directors positively affects companies' environmental disclosure.*

### **3. Research Method**

This study's sample is non-financial companies listed on the Indonesia Stock Exchange (IDX) during 2018-2020 (3 years). The data were obtained from each company's

website and the OSIRIS database provided by the Faculty of Economics and Business University of Gadjah Mada. The results of the research sample using the purposive sampling method are shown in Table 1.

Table 1.  
Research Sample

No	Criteria	N
1	Non-financial companies listed on the Indonesia Stock Exchange	485
2	Companies with incomplete financial statements during 2018-2020	(6)
3	Companies without sustainability reports	(266)
4	Companies with incomplete dataset	(33)
	Final sample	<b>180</b>

The panel data regression model is used in this study to examine the association between the diversity of the board of commissioners and the directors on companies' environmental disclosure. The equation model of this research is as follows.

$$\begin{aligned}
 ED_{it} = & \alpha + \beta_1 GEN_{KOM_{it}} + \beta_2 GEN_{DIR_{it}} \\
 & + \beta_3 AGE_{KOM_{it}} + \beta_4 AGE_{DIR_{it}} + \beta_5 NATION_{KOM_{it}} \\
 & + \beta_6 NATION_{DIR_{it}} + \beta_7 ETHNIC_{KOM_{it}} + \beta_8 ETHNIC_{DIR_{it}} \\
 & + \beta_9 KOMSIZE_{it} + \beta_{10} DIRSIZE_{it} + \beta_{11} KOMMEET_{it} \\
 & + \beta_{12} DIRMEET_{it} + \beta_{13} FIRMSIZE_{it} + \beta_{14} FIRMAGE_{it} \\
 & + \beta_{15} ROA_{it} + \beta_{16} LEVERAGE_{it} + \beta_{17} INDUSTRYDUMMY_{it} + \varepsilon
 \end{aligned}$$

### 3.1. Dependent Variable: Environmental Disclosure

The dependent variable of this research, i.e., environmental disclosure, is measured using a dichotomous disclosure checklist developed based on GRI G4 reporting guidelines. GRI G4 contains 32 environmental dimension indicator items with eight aspects (see Appendix). Thus, we assign "1" for each disclosed item and "0" for each non-disclosed item.

### 3.2. Independent Variable

The independent variable of this study is diversity – i.e., the variety of characteristics of the board of commissioners and the board of directors, which include

(1) gender, (2) age, (3) nationality, and (4) ethnicity. Blau index is used to measure the diversity dimension of the board. Based on the Blau index, complete homogeneity, which indicates the absence of diversity, is assigned a "0" score and vice versa, so the more significant the Blau index number suggests, the higher the diversity or distribution. The Blau index ranges from 0 to 1 (Bear et al., 2010; Rosenauer, 2016; Kılıç & Kuzey, 2017; Katmon et al., 2019):

$$Bi = 1 - \sum_{i=1}^n p_i^2$$

Bi represents the Blau index,  $p$  is the proportion (percentage) of board members in each category,  $i$  mean the number of types used, and  $n$  represents the total number of board members in each category.

The gender diversity index (GEN) categories are male and female categories. The age diversity index (AGE) category is the year of age of the board of commissioners and directors. The nationality diversity index (NATION) categories are Indonesian and foreign nationals. The ethnic diversity index (ETHNIC) categories are Tionghoa (Chinese) and indigenous (pribumi).

### 3.3. Control Variables

Previous research finds several control variables related to the diversity of board characteristics and environmental disclosure. First, previous research has found that corporate governance mechanisms are related to environmental disclosure by controlling for board size and board meetings – the total number of board members board size (BOARDSIZE). A larger board size indicates flexibility and has members from various fields of expertise based on their experience and problem-solving abilities that can improve the company's reputation (Adeniyi & Fadipe, 2018; Khairredine et al., 2020). Furthermore, the board meeting (BOARDMEET) is the number of meetings held annually. More frequent meetings will strengthen supervision and validate decisions taken under the guidelines (Khairredine et al., 2020).

Previous research has also found the effect of company characteristics on the extent of disclosure. Thus, this study controls for five company characteristics. First, firm size (FIRMSIZE), measured by the natural logarithm of total assets, is a good predictor of corporate social and environmental disclosure practices (Chebbi et al., 2020). The



companies indicate external parties' pressure to disclose environmental information (Kılıç & Kuzey, 2017). Second, the company's age (FIRMAGE) measures the years the company was established. It is expected to be significantly involved with environmental activities to maintain its reputation (Zaid et al., 2020). Third, the company's profitability (ROA) measures return on assets. Companies with high profits will disclose more information, increasing their tendency to participate in social and environmental activities (Giannarakis et al., 2020). Fourth, company leverage (LEVERAGE) measures total debt divided by total assets. Companies with high leverage ratios will limit their flexibility and focus more on their operational activities than environmental activities, reducing environmental information disclosure (Deswanto & Siregar, 2018). The Last Industry (INDUSTRYDUMMY) is used to control for industry differences.

#### **4. Result and Discussion**

The study includes 180 non-financial companies on the Indonesia Stock Exchange (IDX). Descriptive statistical analysis is conducted to exhibit data characteristics through the mean, maximum, and minimum values and the standard deviation of each variable. The result of this study's descriptive statistical analysis is shown in Table 2.

Companies in sustainability reports carry out disclosures obtained from the GRI index. In Table 2, the minimum index of environmental use is 0.0625, and the maximum index is 0.7188. The average company environment disclosure is 0.3028 or 30.28%. The average achievement of environmental disclosures by Indonesian companies is still lower than that of other developing countries, namely Jordan, at 41.5% (Rabi, 2019). On the other hand, in developing countries, environmental protection is still lower than in developed countries, such as the French 48.7% (Khairdine et al., 2019) and the USA 56.47% (Giannarakis et al., 2019).

The descriptive statistics in Table 2 show that the average Blau index of the board of directors' nationality is 0.5615, which has the highest diversity level, followed by the board of commissioners' national diversity (0.5552). The gender diversity of the boards of commissioners and boards of directors are 0.5500 and 0.5455, respectively. The age

diversity of the board of directors is 0.3170, and the board of commissioners' age is 0.2991. The ethnic diversity of the Board of Commissioners is 0.2723, and the Board of Directors ethnic is 0.2613, which has the lowest average Blau index. It shows that the board of directors membership has more diversity than the board of directors in terms of nationality, gender, age, and ethnicity.

Table 2.  
Descriptive Statistics of Variables (N=180)

<b>Variables</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>ED<sub>i,t</sub></b>	0,3028	0,1741	0,0625	0,7188
<b>GEN_KOM<sub>i,t</sub></b>	0,5500	0,3009	0	0,9688
<b>GEN_DIR<sub>i,t</sub></b>	0,5455	0,3079	0	0,9688
<b>AGE_KOM<sub>i,t</sub></b>	0,2991	0,1961	0	0,8438
<b>AGE_DIR<sub>i,t</sub></b>	0,3170	0,1845	0	0,75
<b>NATION_KOM<sub>i,t</sub></b>	0,5552	0,2986	0	0,9688
<b>NATION_DIR<sub>i,t</sub></b>	0,5615	0,2914	0	0,9688
<b>ETHNIC_KOM<sub>i,t</sub></b>	0,2723	0,2068	0	0,8438
<b>ETHNIC_DIR<sub>i,t</sub></b>	0,2613	0,2072	0	0,75
<b>KOMSIZE<sub>i,t</sub></b>	5,2722	1,6640	3	8
<b>DIRSIZE<sub>i,t</sub></b>	5,7944	1,8810	3	10
<b>KOMMEET<sub>i,t</sub></b>	7,5222	2,7714	5	13
<b>DIRMEET<sub>i,t</sub></b>	25,5666	16,7232	3	73
<b>FIRMSIZE<sub>i,t</sub></b>	3,5035	0,9642	2,4849	4,9345
<b>FIRMAGE<sub>i,t</sub></b>	41,4111	21,1928	6	91
<b>ROA<sub>i,t</sub></b>	3,3788	5,6908	-5,94	14,14
<b>LEV<sub>i,t</sub></b>	0,4681	0,1768	0,1643	0,8283
<b>INDUSTRY DUMMY<sub>i,t</sub></b>	0,6833	0,4664	0	1

Table 2 reports that the average Blau index of the gender diversity of the Board of Commissioners is 0.5500 and that the Board of Directors is 0.5455. It is higher than the Blau index of other developing countries, such as Turkey's 0.18 (Kılıç & Kuzey, 2017) and Pakistan's 0.13 (Zaid et al., 2019). The average Blau index of the age diversity of the board of Commissioners is 0.2991, and the Board of Directors is 0.3170. It is higher than Malaysia's 0.1589 (Katmon et al., 2019) but lower than Pakistan's 0, 4207 (Khan et al., 2019). The average Blau index of the nationality diversity of the Board of Commissioners is 0.5552, and that of the Board of Directors is 0.5615. It is higher than other developing countries, which is 0.14 reported by Kılıç & Kuzey (2017) for Turkey, 0.1993 written by Khan et al. (2019) for Pakistan, 0.0700 declared by Katmon et al. (2019) for Malaysia. The ethnic diversity of the board of commissioners and directors has an average Blau index of 0.2723 and 0.2613, respectively. It is lower than other developing countries, namely Pakistan, at 0.6861 (Khan et al., 2019), and Malaysia, at 0.3757 (Katmon et al., 2019).

Before performing regression analysis, this study tested the model assumptions to avoid biased results. The model assumption test consists of normality, multicollinearity, heteroscedasticity, and autocorrelation. The Shapiro-Wilk normality test shows the  $\text{prob} > \text{chi}^2$  value of 0.0000. It means the probability value is lower than the significance level of 0.05 (5%). The result indicates that none of the variables' residuals are generally distributed from the regression equation. In other words, the assumption of normality is not met. The study uses the central limit theorem (CLT) to meet the normality assumption. If the sample size is large enough, the premise of normality can be ignored unless the amount of data is less than 100 observations and the assumption of normality plays an important role (Gujarati et al., 2012). The test results show that the mean value of VIF (Variance Inflation Factor) is  $5.99 < 10$ . The independent variables of this study do not experience multicollinearity. The heteroscedasticity test with Breush-Pagan shows the value of  $\text{prob} >$  is 0.2328, meaning that the probability value is higher than the significance level of 0.05 (5%). These results indicate that the residuals of the regression equation in this study have the same variance (homoscedasticity).

Table 3.  
GLS Regression Results on Board Diversity and Environmental Disclosure

Variables	Predicted Sign.	Coefficient	Std. Error	z-Statistic	Prob.
Constant		0,2077	0,0821	2,41	0,008***
<b>GEN_KOM<sub>i,t</sub></b>	H <sub>1</sub> : +	-0,1601	0,0537	-2,98	0,0015***
<b>GEN_DIR<sub>i,t</sub></b>	H <sub>2</sub> : +	0,1443	0,0582	2,48	0,0065***
<b>AGE_KOM<sub>i,t</sub></b>	H <sub>3</sub> : +	0,1627	0,0475	3,42	0,0005***
<b>AGE_DIR<sub>i,t</sub></b>	H <sub>4</sub> : +	0,2902	0,0519	5,59	0,0000***
<b>NATION_KOM<sub>i,t</sub></b>	H <sub>5</sub> : +	-0,0771	0,0526	-1,47	0,0715
<b>NATION_DIR<sub>i,t</sub></b>	H <sub>6</sub> : +	-0,0042	0,0596	-0,07	0,472
<b>ETHNIC_KOM<sub>i,t</sub></b>	H <sub>7</sub> : +	0,1844	0,0607	3,03	0,001***
<b>ETHNIC_DIR<sub>i,t</sub></b>	H <sub>8</sub> : +	0,1929	0,0722	2,67	0,004***
Control Variables					
<b>KOMSIZE<sub>i,t</sub></b>		0,0029	0,0035	0,82	0,412
<b>DIRSIZE<sub>i,t</sub></b>		-0,0040	0,0031	-1,31	0,191
<b>KOMMEET<sub>i,t</sub></b>		-0,0052	0,0024	-2,14	0,033**
<b>DIRMEET<sub>i,t</sub></b>		-0,0000	0,0006	-0,09	0,932
<b>FIRMSIZE<sub>i,t</sub></b>		0,0018	0,0166	0,11	0,910
<b>FIRMAGE<sub>i,t</sub></b>		-0,0000	0,0002	-0,27	0,789
<b>ROA<sub>i,t</sub></b>		0,0009	0,0009	0,98	0,326
<b>LEV<sub>i,t</sub></b>		-0,0999	0,0347	-2,88	0,004***
<b>INDUSTRY DUMMY<sub>i,t</sub></b>		-0,0045	0,0106	-0,42	0,671
Wald- <b>Chi</b> <sup>2</sup>		1168,59			
Prob > <b>Chi</b> <sup>2</sup>		0,0000			
Obs: n		180			

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GEN\_KOM is the gender diversity of the board of commissioners. GEN\_DIR is the gender diversity of directors. AGE\_KOM is the age diversity of the board of commissioners. AGE\_DIR is the age diversity of directors. NATION\_KOM is the nationality diversity of the board of commissioners. NATION\_DIR is the nationality diversity of directors. ETHNIC\_KOM is the ethnic diversity of the board of commissioners. ETHNIC\_DIR is the ethnic diversity of directors. The Blau Index measured all independent variables. KOMSIZE is the size of the board of commissioners. DIRSIZE is the size of the board of directors. KOMMEET is the meeting of the board of commissioners. DIRMEET is the meeting of directors. FIRMSIZE is the natural logarithm of total assets. FIRMAGE is the age of the company since the company was founded. ROA (return on assets) measures the company's profitability. LEV (leverage) is measured by total assets. INDUSTRY DUMMY is a dummy variable to control the industry. \*\*\* Significant at level 1%; \*\* Significant at level 5%; \*Significant at level 10%

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The autocorrelation test with the Wooldridge test shows the  $\text{prob} > \chi^2$  value of 0.0000, showing that the probability value is lower than the significance level. Based on the classical assumption test that has been done, the research sample does not meet the autocorrelation test. This study has done a winsorize on the variables that experienced outliers, specifically environmental disclosure, age and ethnicity of the board of directors, the board size, the board meeting, company size, company age, ROA, and leverage. This study uses generalized least squares (GLS) analysis as suggested by Gujarati et al. (2012) to overcome the classical assumptions that are not met because GLS is a model that transforms variables to meet the BLUE criteria (best linear unbiased estimation) (Gujarati et al., 2012).

#### 4.1. Gender Diversity of Board of Commissioner and Environmental Disclosure

The results of the testing hypothesis (see Table 3) showed that the gender diversity of the board of commissioners has a statistically significant adverse effect on the company's environmental disclosure with a coefficient value of -0.1601 and a probability value of 0.00015 at a significance level of 1%. The probability value is smaller than the value of the degree of confidence with a negative coefficient direction, so the results show the first hypothesis is not supported; namely, the gender diversity of the board of commissioners has a positive effect on environmental disclosure. This negative relationship is also in line with the research of Cucari et al. (2017), which also showed that the relationship between gender diversity and CSR is complex because women have more characteristics, expertise, and skills to become an executive or non-executive company.

In Indonesia, the condition of public companies shows that most of them are controlled by families to control shareholders compared to their expertise or experience (Darmadi, 2011). Previous studies evidence this negative thing. Handajani et al. (2014) showed that the gender of the board of commissioners is influential due to the weak competence of female commissioners who cannot encourage and improve the company's CSR strategies and policies.

#### *4.2. Gender Diversity of Board of Directors and Environmental Disclosure*

Table 3 shows the probability value of the gender of the board of directors is 0.0065, which is less than the value of the degree of confidence, 5%, with a coefficient value of 0.1443. It can be concluded that the study's results support the second hypothesis, namely that the board of directors' gender diversity has a positive effect on environmental disclosure. The results of this study prove that the gender diversity of the board of directors is in line with resource dependence theory, in which the synergistic interaction between men and women can increase problem-solving capacity to become a competitive resource for the company. The results are in line with the previous study. Chebbi et al. (2020) report that the presence of women on the board of directors provides a variety of diverse and superior skills, experience, and resources for French companies to produce environmental reporting progress. French companies also benefit from regulations related to women on board membership (Chebbi et al., 2020). Then, Khaireddin et al. (2019) showed that the membership of directors with gender diversity puts pressure on French company executives to be involved in disclosing governance, environmental, and ethical reports.

#### *4.3. Age Diversity of Board of Commissioner and Environmental Disclosure*

Table 3 shows that the variable of the age diversity of the board of commissioners positively affects corporate environmental disclosure with a coefficient value of 0.1627 and a probability value of 0.0005 at a significance level of 1%. It can be concluded that the test results support the third hypothesis, namely that the age of the board of commissioners positively affects the extent of Indonesian companies' environmental disclosure. These results align with resource dependence theory in which age diversity is a resource that is difficult to duplicate and becomes one of the advantages for human

resources. Hence, age becomes a significant resource for information and experience in understanding stakeholders' needs. This result is also in line with the previous research. Handajani et al. (2014) proved that the diversity in members of the Board of Commissioners tends to make better policies and strategies so that the Board of Commissioners is more concerned with long-term sustainability and building relationships with the community and the environment.

#### *4.4. Age Diversity of Board of Directors and Environmental Disclosure*

The test of the age of the board of directors variable shows a probability value of 0.0000, which is smaller than the 5% significance level. The test results support hypothesis 4, which is that the diversity of the age of the board of directors has a positive effect on the extent of environmental disclosure of Indonesian companies. The results of this study prove that directors' age diversity aligns with the resource dependence theory and previous research. Post et al. (2011) showed that the relationship between the age diversity of directors and CSR environmental disclosure (ECSR) would increase when the average age of the board of directors is 56 years. Handajani et al. (2014) reported that the directors' age diversity positively affects corporate social and environmental disclosures, and the existing generational differences can affect decision-making, such as risk aversion and openness to adopting technology for disclosure of corporate environmental information. Katmon et al. (2019) argued that elders of directors in Malaysian companies might not welcome the younger generation's opinion so that age differences may create barriers to decision-making.

#### *4.5 Nationality Diversity of Board of Commissioner and Environmental Disclosure*

Testing hypothesis 5 in Table 3 shows that the nationality variable of the board of commissioners has a negative and statistically significant effect at a significance level of 10% on corporate environmental disclosures with a coefficient value of -0.0771 and a probability value of 0.0715. The test results do not support the fifth hypothesis, namely that the nationality diversity of the board of commissioners positively affects the extent of environmental disclosure. Although RDT argues that the more diverse the characteristics of board members, the more resources the company will bring (Bakar et al., 2019). This study proves the opposite and is supported by previous research, which

reported that foreign commissioners did not affect CSR disclosure because foreign commissioners needed an understanding of local (local) culture, laws, regulations, and ethics (Rahma & Aldi, 2020).

#### *4.6 Nationality Diversity of Board of Directors and Environmental Disclosure*

Testing of hypothesis 6 shows that nationality diversity of the board of directors negatively affects but is not statistically significant on environmental disclosure. The probability value is 0.475, with a coefficient of -0.0042. It can be concluded that the board of directors' nationality negatively affects the extent of environmental disclosure. The results of this test do not support previous findings, which reported that foreign directors with knowledge, experience, and skills in dealing with CSR issues are the determinants for improving decision-making and developing CSR environmental disclosure strategies (Khan et al., 2019; Purnomo & Rizki, 2020). This study's result aligns with Anazonwu et al. (2018), which shows that the nationality diversity of the board of directors has no significant effect on ESG disclosure. The negative association between the nationality diversity of the board of directors and environmental disclosure is in line with previous studies. Katmon et al. (2019) proved that the foreign impact negatively affected the company's CSR disclosure, caused by communication between different nations that made the discussion effectiveness low and useless due to language and cultural barriers in Malaysian companies.

#### *4.7 Ethnic Diversity of Board of Commissioner and Environmental Disclosure*

Testing hypothesis 7 in Table 3 shows that the ethnic diversity of the board of commissioners positively affects environmental disclosure. The probability value of 0.001 at a significance level of 1%. It can be concluded that the test results support hypothesis 7, which is that the ethnic diversity of the board of commissioners positively affects environmental disclosure. The results proved that the ethnic diversity of the board of commissioners is in line with resource dependence theory, in which ethnicity is a resource owned by the board as a reflection of cultural values and behaviors that shape a person's point of view. The results of this study are in line with the results of previous research. Rahma & Aldi (2020) reported that the ethnic diversity of the board of commissioners affects CSR disclosure because the company's disclosure practices



are influenced by the ethnic background of the commissioners, which is reflected in the differences in CSR disclosure between commissioners with indigenous ethnic backgrounds and other ethnicities.

#### *4.8 Ethnic Diversity of Board of Directors and Environmental Disclosure*

Testing hypothesis 8 also shows that the board of directors' ethnicity variable has a significant positive effect on corporate environmental disclosure with a coefficient value of 0.1929 and a probability value of 0.004 with a significance level of 1%. It can be concluded that the study's result supports hypothesis 8, namely that the ethnic diversity of the board of directors positively affects the extent of environmental disclosure. The study's results prove that the ethnic diversity of the board of directors supports RDT (resource dependence theory) and aligns with previous research. Zhang (2012) showed that the ethnicity of the board of directors was positively related to the strength rating of the social and environmental performance of the US companies, where increasing minority representation in the board of directors helped increase the legitimacy of companies in the eyes of institutional stakeholders. Bravo (2018) reports that directors with ethnically diverse members will be more careful in disclosure strategies to meet stakeholders' interests.

## **5. Conclusion, Implication, and Limitations**

### *5.1. Conclusion*

This study examines whether the characteristics of the board of commissioners and the board of directors affect the extent of environmental disclosure in non-financial companies listed on the Indonesia Stock Exchange (IDX) during 2018-2020. Five hypotheses are supported based on the proposed hypothesis. First, the study supports that the gender diversity of the board of directors affects the extent of environmental disclosure, while the membership of the board of commissioners does not. Second, this study supports that age diversity – both the board of commissioners and the board of directors, can affect the extent of environmental disclosure. Age diversity represents a balance between board members with old and young age, which can positively affect the extent of environmental disclosure. Third, this study does not find support for the

idea that national diversity in the membership of the Board of Commissioners and the Board of Directors affects the extent of environmental disclosure. A foreign nationality board member of the Board of Commissioners and the Board of Directors does not affect the disclosure of the company's environment. Fourth, this study finds that the ethnic diversity of either the board of commissioners or the board of directors affects the extent of corporate environmental disclosure, as the diversity brings the resources or ethnic characteristics they have to expand the disclosure of the environment by Indonesian corporations.

### *5.2. Implication and Suggestion*

This research has implications for companies and regulators. First, the company's low environmental disclosure level indicates that there is still a significant need to increase the company's awareness of environmental issues. Regulators must take necessary actions to improve policies related to environmental issues resulting from the company's business activities. Along with the G20 presidency in 2022, Indonesia needs to encourage companies to be more aware of the importance of corporate environmental disclosure and ensure regulators improve environmental law policies so that companies can continuously carry out more transparent environmental reporting every year. Our findings indicate that companies need to establish a sustainability organ in the highest governance body to take responsibility for synergizing sustainability aspects. A sustainability committee will help improve the quality of practices and sustainability disclosure (Sekarlangit & Wardhani, 2021).

Further, the research results have implications for companies in formulating policies to encourage gender, age, and ethnic diversity in the membership of the board of commissioners and the board of directors, as they can improve the company's environmental disclosure transparency. Overall, diversity was highly significant, suggesting that diverse boards perform better in ensuring more transparent environmental disclosure (Rao & Tilt, 2016). Therefore, our result indicates that listed firms in Indonesia focus on those variables in setting the board diversity framework.

### 5.3. Limitation and Proposition

This research has some limitations. First, this study only focuses on the extent of corporate environmental disclosures. Further research can examine the quality and performance of companies' environmental disclosures. Second, this research focuses on the personal characteristics of the board of commissioners and directors. Further research can examine the effect of professional characteristics, including tenure, educational background, level of education, and board knowledge. Third, this study only includes Indonesian-listed companies representing a two-tier governance system. Further research can be extended to include other countries with two-tier governance systems to increase the generalizability of the results.

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## Appendix

### I. Environmental Index of *Global Reporting Initiative* (GRI)

‘Category Environmental’		
Materials (301)	301-1	Materials used by weight or volume’
	301-2	Recycled input materials used’
	301-3	Reclaimed products and their packaging materials’
Energy (302)	302-1	Energy consumption within the organization’
	302-2	Energy consumption outside of the organization’
	302-3	Energy intensity’
	302-4	Reduction of energy consumption’
	302-5	Reduction in energy requirements of products and services’
Water and Effluents (303)	303-1	Interaction with water as a shared resource’
	303-2	Management of water discharge-related impacts’
	303-3	Water withdrawal’
	303-4	Water discharge’
	303-5	Water consumption’
Biodiversity (304)	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected area’
	304-2	Significant impact of activities, products, and services on biodiversity’
	304-3	Habitats protected or restored’
	304-4	Red list species and national conservation list special with habitats in the area affected by operation’
Emission (305)	305-1	Direct (Scope 1) GHG emission’
	305-2	Energy indirect (Scope 2) GHG emission’
	305-3	Other indirect (Scope 3) GHG emission’
	305-4	GHG emission intensity’
	305-5	Reduction of GHG emissions’
	305-6	Emission of ozone-depleting substances (ODS)’
	305-7	Nitrogen oxides (NOx), Sulfur oxides (SOx), and other significant air emission’
Waste (306)	306-1	Water discharge by quality and destination’
	306-2	Waste by type and disposal method’
	306-3	Significant spills’
	306-4	Transport of hazardous waste’
	306-5	Water bodies affected by water discharge and/or runoff’

Environmental compliance (307)	307-1	Non-compliance with environmental laws and regulation’
Supplier environment and assessment (308)	308-1	New suppliers were screened using environmental criteria’
	308-2	Negative environmental impacts in the supply chain and actions taken’

## II. An Example of the Environmental Disclosure

Provided below is the disclosure by PT. United Tractors:

The company's six lines of business carry their own environmental and social impact. Hence, the company prevents environmental pollution and meets environmental quality standards through waste and effluent management. [...] Cleaner production, or Sustainable Chemical Production and Consumption, is a strategy to balance the company's environmental protection efforts with business activities. These include preventing environmental pollution, maintaining and strengthening long-term economic growth, preventing or slowing down the process of environmental degradation, utilizing natural resources through the application of waste recycling, as well as strengthening product competitiveness on the international market. [...] The company evaluates the environmental performance of all its installations to ensure that all its operational activities comply with the environmental regulations and have a minimum environmental impact. The evaluation does through regular audits of operational installations and their performance. (United Tractors Sustainability Report, 2019, Page 141-155)