

Implementation of the Voluntary Regulation Concept on Green Technology Policy in the Face of Climate Change in Indonesia

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Abstract

The world has entered a phase of environmental damage in the phenomenon of Climate Change. The industrial economy can no longer be run as it should (business as usual) but requires special attention to the environment through the green economy. Generally, the law is present in the context of climate change to provide justice not only to humans but to the environment, but there are problems because the green industry rules as stated in Law Number 3 of 2014 concerning Industry only require voluntary environmental preservation. The problem is studied with a legal historical, conceptual and legislative approach so that the research objectives to find out the development of green technology policies to the application of the concept of voluntary rules in Indonesia are achieved. The type of legal research used is normative legal research with deductive thinking method. Analysis of norms is carried out qualitatively to find the weaknesses of voluntary policies using the Compulsory Concept and the Concept of Sustainable Development as a solution using the Theory of Economic Democracy. Both concepts are considered by the author as a solution to reduce environmental damage because environmental safety is more important than profits from industrial activities. Data is obtained through literature study, especially using Law Number 3 Year 2014. The results show that voluntary rules do not have a deterrent effect on business actors for violations of environmental damage because the punishment given is only limited to compensation to the state, not imprisonment. Compensation makes the rules of the green industry counter to the environment so that the rules of green industry law are paradoxical to the purpose of the values of the green industry which provides justice to economic activity and the environment.

Keywords: volunteering, green technology, climate

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Introduction

Indonesia is an archipelago maritime country, there are coastal areas around which there is a lot of social life. The first climate change felt by the community is the abrasion of coastal areas which causes tidal floods or coastal floods. This tidal flood occurs because sea levels are rising due to global warming, which occurs due to the earth's increasingly hot temperatures (climate change). The north and south poles experience melting ice (glaciers) as well as snow-capped mountains such as Cartenz Peak in Jayawijaya Peak Papua and Everest Peak Himalaya melt so that sea levels rise. Rising sea levels cause coastal areas to experience abrasion and protrude further inland.

Social areas in coastal areas are affected, some villages have been submerged by tidal floods such as in the north coast of Java, also in Jakarta there are several villages that have been in the sea area, and can still be seen the existence of buildings that were once on land now located in the ocean. Changes in the pattern of dry and rainy seasons with extreme discharge also occur in Indonesia, which are affected by agricultural patterns that have also been dependent on dry and rainy weather patterns. The uncertainty of the dry and rainy seasons causes agriculture to not run properly, planting patterns and harvest seasons to fail. This can eventually lead to a lack of national food stocks.

The phenomenon of hail in some areas occurs, droughts and floods in several other areas in Indonesia are also often encountered. The phenomenon of volcanic eruptions and earthquakes accompanied by tsunamis is also felt in several places in Indonesia as a result of the phenomenon of climate change. Climate Change in the world also results in changing weather patterns and seasons and the rise of natural disasters that occur, so the United Nations takes steps in the Framework Convention on Climate Change (UNFCCC) and the Conference of the Parties (COP). The steps taken by the UN as a result of the increasingly warming temperature of the earth due to human activity (anthropogenic) which results in serious environmental damage and threatens human life. The UNFCCC was established in 1992 with the aim of stabilizing greenhouse gas concentrations due to the behavior of human activity in the Industrial sector. The UNFCCC became the foundation for global climate negotiations with the Kyoto Protocol agreement in 1997, the Paris Agreement in 2015, Dubai in 2023. Meetings in the COP aim to reduce the earth's temperature so that global warming can be resolved.

The “green technology” policy means that the production and management of industrial activities prioritize environmental sustainability. The policy in the regulation is contained in Law Number 3 of 2014 concerning Industry, this regulation adds categorization of industrial behavior into two types, namely industry and green industry. The green technology referred to here is the activity of the green industry. Green industry is an industrial activity that in the production process prioritizes efforts to efficiently and effectively use resources in a sustainable manner so as to harmonize industrial development with the preservation of environmental functions and can provide benefits to society.

Efficient and effective production behavior and management of industrial companies using new renewable energy such as solar power, wind power, hydropower, then using reduce, reuse and recycle waste treatment methods. Reduce is the behavior of reducing the use of products that have the potential to become waste, using energy more efficiently, buying products with minimal packaging. Reuse is a behavior pattern that reuses used products such as bottles or cans that can be reused into creative ideas such as pots, or storage areas. Recycle

is a behavior pattern that transforms used materials into new materials that can be reused by processing and refining waste to produce new products such as recycled paper, shoes from plastic waste, bags from plastic waste.

The regulatory policy adds new rules on industrial behavior because the phenomenon of climate change is predominantly generated from human activities in the industrial sector, so that new rules in the form of green industry are expected to be able to provide solutions to climate change problems, especially on the behavior of industry. Green industry rules are new rules that previously the rules on industry only cover industrial patterns in the sense of economic dimension behavior patterns alone, while adding new rules in the form of green industry is a reconceptualization of rules that add environmental sustainability functions to industrial activities. The economic field has a new definition that collaborates with environmental sustainability, as a result of which business as usual can no longer be applied freely.

Green technology policies are expected to reduce environmental damage due to climate change. However, the policy needs to refer to the concept of sustainable development as stipulated in the 1945 Constitution Chapter XIV National Economy and Social Welfare Article 33, specifically paragraph (1) and paragraph (4) on the Economy is structured as a joint venture based on the principle of kinship and the national economy is organized based on economic democracy with the principles of togetherness, equitable efficiency, sustainable, environmentally sound, independence, and by maintaining a balance of progress and national economic unity. The principle of green industry which contains technology or appropriate ways of industrial behavior on the preservation of environmental functions is the precautionary principle as a form of togetherness and sustainability. Togetherness here is interpreted as a whole ecosystem unity from human behavior will have an impact on natural entities.

Policies that do not refer to the precautionary principle will make green industry rules ineffective. Green industry policy in Indonesia is voluntary, meaning that this rule does not have strong coercive power to require industrial behaviors that have the potential to damage the environment to change the habitual patterns of production and industrial management into patterns of efficiency and effectiveness of pro-environmental industrial production and management. The policy of voluntary rules can be seen from the formulation of Law Number 3 of 2014 concerning Industry Chapter VIII concerning Industrial Empowerment, the second part of Green Industry Article 80 paragraph (1), namely the application of Green Industry standards as referred to in Article 79 paragraph (2) can gradually be applied on a mandatory basis. The urgency of climate change in the rule of law should contain firmness as the authority of the law, when the phrase gradually applied is not taken seriously, it creates an opportunity for a rubber article on the rules of the green industry as the vanguard of solutions to industrial behavior that has the potential to damage the environment.

As a result, the impact of environmental damage remains unchanged from before the implementation of technological policies in the green industry from the industrial policy of Law Number 5 of 1984 concerning Industry which regulates industrial aspects whose scope and objectives regulate economic aspects where natural resources are optimally utilized, and have not touched on aspects of environmental preservation because climate change at that time has not significantly affected the damage to the earth. Until after the implementation of green industry rules that refer to the efficiency and effectiveness of the technology used in the production process and industrial business management in the rules of Law Number 13 of

2014 concerning Industry which has accommodated green industry as an industrial activity aimed at advancing sustainable economic welfare, sustainable is an economic function that can realize environmental preservation.

2023 is set to be the hottest year by the World Meteorology Organization. This is seen from the indicator of the increase in global average sea level more than doubled from 1993-2002 to 2013-2022. Deforestation in 2017-2012 with an average value of 2.54 million Ha/year or equivalent to 6 times the area of a football field per minute, affects the loss of microclimate regulators, food sources for indigenous peoples or local communities, water and soil conservation, biodiversity, medicinal plant potential, food sources, oxygen providers, energy, and local cultural values (Forest Watch Indonesia, 2024). Research conducted by WALHI found that 159 million hectares of forest land have been plotted in extractive industry investment licenses. The land area is legally controlled by corporations by 82.91%, while the sea area is 29.75%. IPBES data in 2018 shows that Indonesia annually loses 689 thousand hectares of forest land, and is the largest in the Southeast Asia region. For rivers, the Ministry of Environment noted that 101 rivers are moderately to severely polluted and damaged and the loss of natural wealth, biodiversity and culture in Indonesia (Unnes, 2024).

The cement, steel, metal, textile, mining sectors such as coal, nickel, food industry, tourism, and other industries contribute to the carbon output of these industrial activities, which can have an impact on the phenomenon of climate change. Under the business as usual scheme, the total industrial sector GHG emissions of CO₂, CH₄, and N₂O from energy, waste and Industrial Process and Product Use (IPPU) emission sources are estimated to increase from 307.4 million tons of CO₂ equivalent (MtCO₂e) in 2016 to 442.4 million tons of CO₂ equivalent (MtCO₂e) in 2030, with 339.1 MtCO₂-e of direct and indirect energy emissions 86 MtCO₂-e of IPPU emissions and 6.1 MtCO₂=e of waste emissions (Ministry of Industry, 2018). Indonesia has ten industrial sectors that contribute foreign exchange to the country, namely, palm oil exports of US\$ 31.49 billion; Indonesian Migrant Workers US\$ 9.71 billion; Tourism Sector US\$ 7.03 billion; Textile Industry Exports US\$ 3.38 billion; Oil and Gas Exports US\$ 15.921 million; Mineral Fuel (Coal) Exports US\$ 43.572 million; Iron and Steel Exports US\$ 26.704 million; Electrical Machinery / Equipment Exports US\$ 14.342 million; Vehicle and Parts Exports US\$ 11.152 million; Metal Ore, Crust and Ash Exports US\$ 8.72 million. Bank Indonesia recorded the position of the Republic of Indonesia's foreign exchange reserves at the end of September 2024 at US\$ 149.9 billion (Choiriyah, 2024).

Based on the explanation of the problem, the author proposes a compulsory concept. The concept is focused on economic democracy to realize sustainable development as a core form of green industrial activity which in principle states that economic activity must be able to accommodate the dynamics of environmental changes that occur because economic democracy is a form of environmentally sound economy, in accordance with the ideals of Mohammad Hatta in the principle of individuality. Individuality is the persona of a person who is able to realize his self-esteem. The price of a human being cannot be valued because it was created by the Creator, as well as nature which was equally created by the Creator, so that people who are aware of their dignity are people who are able to be aware in every activity (especially activities in the industrial sector) to continue to respect and appreciate fellow creations of the other Creator. Therefore, we want to examine the solution to the problem of the weakness of voluntary rules in Law Number 13 of 2014 concerning Industry, using the Concept of Sustainable Development as a form of economic democracy.

Methodology of Research

This paper uses normative legal research. The focal point of the research is in the form of applicable laws and regulations. The data required is secondary data in the form of primary legal materials in the form of laws and regulations, namely the 1945 Constitution, Law Number 3 of 2014 concerning Industry, Law Number 32 of 2009 concerning the Environmental Protection and Management Act, Government Regulation Number 28 of 2021 concerning the Implementation of the Industrial Sector, Presidential Regulation Number 74 of 2022 and secondary legal materials in the form of legal doctrines and legal principles. Legal doctrine in the form of the principle of togetherness or individuality as proposed by Muhammad Hatta and legal principles such as the principle of prudential law or precautionary principle. The research was analyzed using legal history, conceptual and statutory approaches. The legal history approach is used to look for legal rules related to the business climate that regulate investment and investment in industrial rules after Indonesian Independence until the current industrial rules, in order to understand the values and principles of the rules and the development of the legal rules. Followed by a conceptual approach is carried out when the research does not depart from the existing legal rules. This is done because the rules of law governing the nature of mandatory rules so that the coercive power of the law in maintaining order. The legislative approach is used by the author to trace laws and regulations hierarchically, namely the 1945 Constitution, laws, government regulations to presidential regulations. The whole approach is analyzed using the Theory of Economic Democracy as Article 2 letter b of Law Number 3 of 2014 that economic democracy is a democracy with a spirit of togetherness, equitable efficiency, sustainability, environmental insight and independence and maintaining a balance of progress in national economic unity. In relation to the green industry, the principles used are efficiency, effectiveness and sustainability that emphasize the ability to harmonize and harmonize industry with environmental sustainability. The preservation of environmental functions in order to provide benefits to society. This is considering that green industry is essentially industrial development that pays attention to environmental sustainability.

Results and Discussion

Overview of Green Industrial Technology Policy in the Face of Climate Change

Only One Earth is an undeniable reality to this day. The activities of one human will not only affect other humans, but also affect the natural environment. The sustainability of the environment and future generations of humans needs to be considered along with the current human activities. As Mahatma Gandhi said, "Earth provides enough to satisfy every man's needs, but not every man's greed". Human greed needs to be limited so that it does not lead to the destruction of life on earth, starting from biodiversity, certain species, and future generations of humans.

Human life on earth has big challenges to be given a solution, these challenges are climate change, biodiversity loss and pollution (Triple Planet Challenges). The solution to these three things requires a re-conceptualization of the things we have done, including the concept of law. Law is a means of regulating human life so that order is always maintained. Order is the regularity of things that run as they should so as not to cause chaos, if order results in chaos then order through law is a form of "humanity has opened the gates of hell". Human activities that contribute to the behavior of eliminating other species on earth include pesticide products. Rachel Carson in the book *Silent Spring* in 1962 wrote about pesticides that are

harmful to good biodiversity rather than annoying pests. The biodiversity that provides the sounds of nature is lost or quiet because it dies along with the pests as a result of pesticide application to crops.

The regulation of industry in Indonesia has evolved. The regulation on industry number 5 of 1984, regulates industry by definition as an economic activity that processes raw materials, raw materials, semi-finished goods, and/or finished goods into goods with higher value for their use, including industrial design and engineering activities (Government of Indonesia, 1984). This regulation still regulates industrial activities limited to the purpose of profit from processing industrial products for the welfare and prosperity of society. There is no scope for a sustainable industry that includes environmental sustainability as a goal and community welfare. This regulation on industry has changed in line with the times and the ongoing natural phenomenon of climate change. The Indonesian government has amended Law Number 5 of 1984 concerning Industry into Law Number 3 of 2014 concerning Industry. This regulation divides activities in the industrial sector into two types, namely industry and green industry. The definition of industry is all forms of economic activity that process raw materials and / or utilize industrial resources so as to produce goods that have added value or higher benefits, including industrial services, while green industry is an industry that in the production process prioritizes efficiency and effectiveness in the use of resources in a sustainable manner so as to be able to harmonize industrial development with the preservation of environmental functions and can provide benefits to society (Government of Indonesia, 2014).

The principle of industrial regulation, especially green industry, is economic democracy. The 1945 Constitution of the Republic of Indonesia Chapter XIV on the National Economy and Social Welfare is the basic foundation of industrial regulations, Article 33 paragraph (4) contains the national economy organized based on economic democracy. Economic democracy accommodates the principles of togetherness, equitable efficiency, sustainability, environmental insight, independence, and by maintaining a balance of progress and national economic unity (Government of Indonesia, 1945). Business as usual is re-conceptualized into green industry. Green industry rules have a voluntary nature, with administrative sanctions. The non-mandatory nature is important to be studied legally on the strength of legal coercion to protect activities in the industrial sector on the phenomenon of climate change. Administrative sanctions are also important to be studied legally related to the objectives of green industry rules that are different from the objectives of industrial rules that prioritize the economy, while the green industry prioritizes industrial activities that contain environmental sustainability.

Indonesia is committed to curbing global temperature rise in accordance with the Paris Agreement, as outlined in the Nationally Determined Contribution (NDC) to reduce greenhouse gas emissions by 2030 by 31.89% with its own efforts and 43.20% with international assistance. The year 2023 is set to be the hottest year by the World Meteorology Organization. This is seen from the indicator of the increase in global average sea level more than doubled from 1993-2002 to 2013-2022. Deforestation in 2017-2012 with an average value of 2.54 million Ha/year or equivalent to 6 times the area of a football field per minute, affects the loss of microclimate regulators, food sources for indigenous peoples or local communities, water and soil conservation, biodiversity, medicinal plant potential, food sources, oxygen providers, energy, and local cultural values (Forest Watch Indonesia, 2024). Research conducted by WALHI found that 159 million hectares of forest land have been plotted in extractive industry investment licenses. The land area is legally controlled by

corporations by 82.91%, while the sea area is 29.75%. IPBES data in 2018 shows that Indonesia annually loses 689 thousand hectares of forest land, and is the largest in the Southeast Asia region. For rivers, the Ministry of Environment recorded 101 rivers as moderately to heavily polluted, as well as damage and loss of natural resources, biodiversity and culture in Indonesia (Unnes, 2024).

Currently, Indonesia still has many incidents such as abrasion in coastal areas that are getting worse, deforestation for new land clearing by corporations, opening of cement factories, uncontrolled mining that damages the natural environment. These things are a paradoxical relationship to increasing prosperity in the development of the nation from the economy, so that environmental sustainability is still not part of the concept of sustainable development. For this reason, the green industry regulations currently in force need to be reviewed in relation to the objectives of the green industry that realize sustainable development.

Discussion

Green industry is an industry that in the production process prioritizes efforts to increase the efficiency and effectiveness of the use of resources in a sustainable manner so as to harmonize industrial development with the preservation of environmental functions and can provide benefits to society. The purpose of the green industry is that companies that are green industry companies develop plans for utilizing natural resources by managing and utilizing them efficiently, environmentally friendly and sustainably. The terms of the provisions of the green industry are industrial businesses that include raw materials, supporting materials, and energy, production processes, products, business management and waste management that pay attention to the safety, health, and safety of animals and plants, preservation of environmental functions which are expected to withstand the rate of increase in earth temperature, so as to create order in industrial activities in the era of climate change. This policy is in Law Number 13 of 2014 concerning Industry specifically the rules governing green industry. International policies can be seen from international agreements in the UNFCCC and COP.

Before the existence of green industry regulations, policies in Indonesia, especially in industrial activities, prioritized profit or economic gain alone in order to realize the welfare of society. In the beginning, it was not wrong when industrial activities accommodated aspects of the economy because the economy was an activity to make a profit. Natural disasters such as tsunamis, earthquakes are increasingly frequent, erratic changes in weather patterns. Homes and lives are lost, and cropping patterns for primary needs in the form of basic food are threatened to not be fulfilled by humans in carrying out activities in the agricultural sector. Comes the implementation of green industry rules, which begin to map and classify industrial sectors that can contribute to causing environmental damage in their activities.

When talking about voluntary rules, there is a voluntary concept that is faced with the concept of compulsion or compulsory. The concept of voluntary rules is a rule that has a non-mandatory nature, meaning that rules that do not have to be followed and carried out (may carry out the rules of a rule, may also not carry out). Sanctions for voluntary rules are usually sanctions for administrative violations and the penalties are warnings and revocation of business licenses and fines. Enforcement is carried out by the Ministry of Industry, Ministry of Environment and the Attorney General's Office. The weakness of voluntary rules, in accordance with the characteristics of the law is the power of coercion that binds and shows its authority. In the context of orderly industrial behavior that has the potential to damage the

environment in the phenomenon of climate change, the nature of this voluntary rule does not show strong regulatory coercion, so the goal of orderly industrial behavior to reduce the rate of climate change is not achieved.

On the other hand, the concept of compulsory rules is the nature of rules that have strong coercion to be obeyed, followed and feared if they do not carry out these orders, due to their mandatory nature. Sanctions that are usually applied are fines to criminal sanctions for those who do not heed a mandatory rule, so that mandatory rules can put more pressure on violators who can have a deterrent effect. The weakness of this rule is that the activity of complying with regulations is not necessarily from the awareness of industry players, but rather the fear effect of industry players if they violate, so not necessarily legal awareness is formed.

The Relationship Between Environmental Damage and the Application of the Voluntary Rule Concept

Variations of environmental damage are deforestation or deforestation which is still massive, forest fires on a large scale as a result of clearing industrial land damaging biodiversity or the extinction of some biodiversity which is in fact important for supporting the sustainability of the ecosystem, displacement of indigenous or local communities as a result of business expansion which results in new poverty as a result of adjusting the lives of indigenous people to life in urban areas. Flooding that occurs in urban areas as a result of increasingly dense housing, water absorption in pavement soils that exceed the threshold of the soil's ability to absorb water. Tidal flooding due to melting ice caps that submerges coastal areas and further inland. Extreme drought that causes crop failure, extreme rainfall in rainwater discharge resulting in crop failure.

There are still many industrial companies that have not implemented environmentally friendly production and management, so there are still very many company practices that produce waste that exceeds the capacity and carrying capacity of the environment, such as excess greenhouse gases produced so that the contribution to climate change by industrial activities is still widely found. This is related to the voluntary nature of the rules, which means that companies can freely prioritize profit alone rather than having to adjust to the elements of environmental preservation in the production process and business management, as a crucial result in industrial activities, namely the reduced profits obtained by companies if they have to pay attention to and implement regulatory policies that combine profit and environmental sustainability in order to realize community welfare. Voluntary rules are good because they are expected to cause more awareness if they are complied with than mandatory ones, which are complied with because it is not always awareness in complying with them, but more due to the fear effect.

Conclusions and Recommendations

The author argues that green industry has not been prioritized if you look at the provisions in the regulation in the industrial sector which actually provide sanctions without creating a deterrent effect on polluters because the regulation is voluntary. Voluntary in industrial activities can be faced with Article 3 of Law Number 3 Year 2014 by remembering the principle of balance. The principle of balance in industrial activities is known as economic democracy, ensuring that industrial activities are balanced with other things, such as the environment. The operation of industrial activities is closely related to the environment, so the polluter pays principle can be applied in industrial activities. The author sees the polluter

pays principle as a way to ensure that industrial activities do not damage or pollute the environment. This is because, in contrast to Indonesian practice, this principle means that pollution payments are made before industrial activities begin.

Development must pay attention to current and future generations in a good environment, natural resources and sustainable development, containing aspects of morality and across generations, lest only the current generation enjoy, while the next generation (children and grandchildren) do not enjoy a healthy environment. Thus, what is important is the basis in the form of the environment, natural resources, and then sustainable development. Sustainable development is regulated in laws and ministerial regulations. Thus, sustainable development is basically cross-generational development. The government through the legislature should pay attention to the harmony between industrial development and the preservation of environmental functions. Thus, industry is no longer an activity that causes environmental pollution. Industrial activities are indeed emphasized to provide benefits to society but must be in accordance with UUPPLH because basically there is a close relationship between the environment and industrial activities which are realized in the green industry.

In forming regulations, it must pay attention to the cultural, social side so that the actions that must be taken by the legislature, executive, and judiciary are to amend Law Number 3 of 2014 which has the potential to have a negative impact on the environment. The industrial law was formed during the Industrial Revolution 4.0 so that it still prioritizes technology without caring about the impact it has. The author's opinion is based on the principle of precautionare must be emphasized so that there are no environmental problems that result in large losses because the cost of environmental recovery is very large because by ignoring the environment, it has violated Article 28H of the 1945 Constitution which guarantees access to a healthy environment.

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